THE WORKES of that famous Chirurgion Ambrose Parey Translated out of Latine and compared with the French by Tho. Johnson. Whenunts are added, three Tractates out of Adrianus Spigelius of the Veines, Arteries, & Nerves, with large Figures. Also a Table of the Books and Chapters. London. Printed by Richard Cotce, and Wills, Digard, and are to be sold by John Clarke, Peter and Marshall, appearing.
THE WORKS
Of that Famous CHIRURGEON
AMBROSE PAREY,
Translated out of Latin, and compared with the French,
BY
TH. JOHNSON:
Together with
THREE TRACTATES
Concerning the
Veins, Arteries, and Nerves:
Exemplified with large Anatomical Figures.
Translated out of ADRIANUS SPIGELIUS,
Geo: Rowland M: de Aylesbury Bucks.
Ne fallare vide, neque sunt parta saluti,
Vertat in exitium, non solers cura medentis.

LONDON,
Printed by Mary Clark, and are to be sold by John Clark at Mercers Chappel
at the Lower End of Cheapside. M DC LXXVIII.
THE
WORKS
OF
SAMUEL
PEPYS,
K.B.
AND
OTHER
TREATISES
ON
TRADE
AND
FINANCE.

M. BAILDON.

LONDON,
1768.
To the Right Honourable

EDWARD

Lord Herbert of Cherbury and Castle-Island,

and one of His Majesties most Honourable Council of War.

My Lord,

It is not the far-fetcht Pedegree of Noble An-
cestors nor those Honors your Lordship deservedly posstesst, that make me crave your Patronage to
this my Labour; but it is that Heroick mind,
enriched with the choice endowments of Nature
and Art, and that earnest affection wherewith your
Honour entertains all Sciences, Arts, and Artists, with that exqui-
site Judgement which sees into the inner man, which embolden and
incite me to sue for your Honours Assistance, in protecting the fame
of him, who by your many favours is made yours. I know the seem-
ing and self-pleasing Wisdom of our Times, consists much in cavil-
ing and unjustly carping at all things that seem light, and that there
are many who earnestly hunt after the Publick Fame of Learning
and Judgement, by this easily trod, and despicable Path, which
notwithstanding they tread with as much Confidence as Folly; for
that oft-times which they vainly and unjustly brand with Opprobry,
out-lives their Fate, and flourishes when it is forgot that ever any
such as they had being.

I know your Lordships disposition to be far dissenting from these
men, and that you rather endeavour to build up the Fame of your
Learning and Judgement upon a strong laid Foundation of your own,
than Herostratus-like, by pulling down any, howsoever fair built
Fabric of another. I heartily wish that your Honour could propa-
gate this Good, and that all Detractors might be turned into Actors,
and then I know it would much mitigate their rigour in cenfuring
others, when as they themselves were also exposed to the same
Hazard.
The Epistle Dedicatory.

I think it impertinent to acquaint your Honour with the Nature of the Work, my Pains in Translating, or the Benefit that may ensue thereon, for that I know your Honour ignorant of nothing in this kind; neither doubt I of your favourable accept ance of the good Will of him, that thinks himself much honoured by being

Yours,

THOMAS JOHNSON.
TO THE Reader.

I have here for the Publick Good taken pains to subject my self to Common Cenfure, the which I doubt not but to find as various as the Faces of the Cenfurers; but I expect no thanks, nor hunt after other praise, than that I have laboured for my Countries good, if that deserve any. I fear not Calumnation (though sure to hear of it) and therefore I will not Apologize, but inform 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 principal Surgeon to two or three Kings of France, he was a man very well versed in the Writings of the Ancient and Modern Physicians and Surgeons, as you may evidently find by sundry places alluded in his Works. For his Experience or Practice (the chief help to attain the highest perfection in this Art) it was wonderful great, as you may collect by his Voyages recorded in the last part of his Work; as also by that which James Guillemais Surgeon to the French King, a man both learned and judicious in his Profession, avers, speaking of his own Education and Progress in the Art of Surgery. I so laid (said he) the first Foundation of this Art in the Hospital of Paris, being as it were, an ample Theatre of Wounds and Diseases of all kinds, that for two whole Years, during which time I was there conversant, nothing was consulted of, nothing performed, the Physicians and Surgeons being present, whereof I was not an Auditor or Ador. There flourished at these Times, and yet doth, Ambroise Parey, Principal Surgeon to the most Christian King, the Author of this great Work, most renowned for the most gracious favour of Kings, Princes and Nobles towards him, for his Authority amongst his equals, for his Chirurgical Operations amongst all men. Therefore I earnestly endeavoured to be received into his Family, as unto another Maecenas, or Pedalirius: Once admitted, I so by all dutifulness and due respect acquired his Favour, that he, unless I were present and assisting, did nothing (such is his natural gentleness and courtesy to all such as are studious of the Art) at home or abroad, in the Field, in the Tents, or lastly in this famous City of Paris, about the Bodies of Dukes, Noblemen, or Citizens, in whose Cure, he by the ardent desire of them all, had till the prime place.

Now for this Work, hear what this same man in the same place affirmeth further: I not content with these means, which may seem sufficient, and too much, as desirous to satisfy my long thirst, determined to trie whether I could draw or borrow any thing from Strangers, which our men wanted, to the fuller knowledge of Surgery. To this purpose I travelled over Germany, and then for four years space I followed the Spanish Army in the Low-Countries, whereas I did not only carefully cure the wounded Soldiers, but also heedfully and curiously observed 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 no other course than that which is here delivered by Parey. Such as did not understand French, got some pieces of this Work for large rewards turned into Latin, or such Languages as they understood, which they kept charily, and made great store of, and they esteemed, and admired, and embraced this Work alone, above all other Works of Surgery, &c. Our Author also himself, not out of a vain-glorious ostentation, but a mind conscious of the truth of his assertion, affirmeth this much of this Work. I have (faith he) certainly touched the mark whereat I aimed, that Antiquity may seem to have nothing wherein it may exceed us, besides the Glory of Invention, nor Posterity any thing left, but a certain small hope to add some things, as it is easy to add to former Inventions. Thus much concerning our Author, and the excellency of his Work.

Now come I to the Translation, the which, as defining more a publick Good than private Praise, I have performed plainly and honestly, labouring to fit it to the capacity of the meanest Artificer; for these are they to whom I chiefly commend this Work, and from whom I expect acceptance. I being by the earnest persuasions of some
fome of this Profession, chiefly and almost wholly perjured and incited to take
this pains, who knowing the disability of understanding this Author in Latin or
French, in many of the weaker Members of the large body of their Profession, di-
spered over this Kingdom, and the rest of his Majesties Dominions, whose good
and increase mass knowledge may be wished, that so 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 Work, as laying open
the Mysteries of a worthy Art to the unworthy view of the Vulgar. To such I
could answer as Aristeas did to Alexander: but for the present I will give them
these reasons which I think may satisfy any but the purposely malicious. The first
is drawn from the goodnes of the thing, as intended for those that want such Guides
to direct them in their Art; for it is commonly granted, that Bonum quo communita
ev melius. Secondly, it hath been the custom of most Writers in all Ages and Coun-
tries thus to do: Hippocrates, Galen, and the other Greeks, writ in their Mother
Tongue the Mysteries of their Art. Thus did Celsum, Seranus, and others in Latin:
Meijus, Avicen, Sorapio, and others, in Arabick: as also, to go no farther, 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 a great hinderance to us in these days, that we must
be forced to learn to understand two or three Tongues before we can learn any
Science, whereas the Ancients learned and taught theirs in their Mother Tongue:
so that they spent a great deal less 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 coepit Artificis, No man becomes a Workman by Books: fo
that unless they have had some might in the Art, and be in some sort acquainted
both with the terms of Art, as also with the knowledge and use of the Instruments
thereto belonging, if by reading this, or any other Book of the like nature, they
become Surgeons, I must needs liken them (as Galen doth another fort of men ")
to Pilots by Book only: to whole care, I think none of us would commit his safety
at Sea; nor any any if wife, will commit themselves to these at Land or Sea either,
unless wholly deftitute of other.

The other things whereof I must give you notice, are these. The Figures in
the Anatomy are not the same used by my Author (who were according to those
of Vesalius,) but according to those of Bantanius, which were used in the Work of
Dr. Crook; and these indeed are the better and more compleat. Alfo pag. 53 of
thought it better to give the true Figure of the Helmet flowered Aconite, mentioned
out of Pliny, than to reserve the feigned Picture of Matthisbus which in our Au-
тор was increasied with the further fiction of a Helmet. I have in some few places
in the Margent, which you flhall find marked with a Star, put short annotations, for
the better Illegation 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 these limit [ ]
which I find here and there turned into a plain Parenthesis, especially toward the
latter end of the Book, but the matter is not great. Further I must acquaint you
that the Apology and Voyages, being the last part of this Work, 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 mind that
it is preferred to thee, by him that wifheth thee all happiness.

Thomas Johnson.
Epistle Dedicatory

TO

HENRY III.

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 bustied, and stand ready to perform 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 Rashness and Envy, desire different and divers things wherein we have no knowledge. He which doth otherwise, pervers and defiles with hated confusion the order and beauty, on which this Universe consists. Wherefore when I considered with myself that I was a Member of this great Mundane Body, and that not altogether unprofitable; I endeavoured 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 witnefs, and all good men know that I have now laboured fifty years with all care and pains in the Illustration and Amplification of Chirurgery; and that I have so certainly touched the mark whereat I aimed, that Antiquity may seem to have nothing wherein it may exceed me, beside the Glory of Invention; nor Positerity any thing left but a certain small hope to add some things, as it is easy to add to former Inventions. In performance whereof, I have been so prodigal of myself, my watchings, faculties, and means, that I spared neither time, labour, nor costs, whereby I might justify and accomplish my own Desires, this my great Work, and the Desires of the Students. Neither may we doubt but their Studies would at length wax cold, if they not only furnished with the Theorick and Precept in Schools, and that with much labour, should see no manual operation, or manifest way of performing the Art. For which cause I seeking the praise and profit of the French Nation, even with the hinderance of my particular Estate, have endeavoured to illustrate and increase Chirurgery, hitherto obscure either by the infelicity of the former Ages, or the envy of the Professors; and not only with Precept and Rules, but being a lover of Carved Works, I beautified it with 300 Forms, or Graven Figures, and apt Delineations, in which whoever shall attentively look, shall find five hundred Anatomical or Organical Figures belonging to the Art, (if they be reckoned particularly.) To every of these I have given their Names and shewed their Use; lest they should seem to have been put in vainly for Ostracism 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 been so arrogant, but intending to publish my Work, I first communicated it with Men the most excellent in the Art of Physick, who gave me greater encouragement to perfect.
The Authors Epiftle Dedicatory.

feet and publish it, that it might be in common use: professing they wished nothing more, than that it might be turned into Latin, by which means it should be known to foreign Nations; that there is no kind of Learning which is not delivered with great dexterity of Wit in this Kingdom over which you rule. And thus much I dare boldly affirm, that there is scarce any, be he never so stately or supercilious, but that he may here find some thing which may delight him, and by which he may better his knowledge. Therefore I doubted not to consecrate this Book unto your Majesty, both as a Pattern and Treasury of my Labours, as well in respect of my duty, who am Yours by Nature and Education, as I might manifest to all, your Highness' exceeding bounty towards me, in placing me (having heretofore enjoyed the Office of Principal Chirurgeon under three Kings, your Majesties Predecessors) in the same dignity, and that of your own accord. And moreover I did conjecture that it would fall out, as now it doth, that this my Work carried through the World by the Fame of your Majesties Name, should neither fear the face nor view of any, supported by the Favour and Majesty of a most invincible Monarch and most Excellent and Renowned Prince. Neither did King Charles IX. 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 passed all his time in private and publick employments, and conversed with all men of all sorts, was judged most worthy to obtain this favour, as to have the Front of this Work adorned and beautified with the Splendour of his prefixed Name. I, encouraged by this hope, desired that my request should pass as by a certain continuation and succession from a most Powerful, to a most Invincible King; and do wholly consecrate these my Labours taken for my Countries good unto your Sacred Majesty. God grant that your Majesty may have happy success of all your Enterprises abundantly added to Norest Years.

Paris February 8, Anno Dom. 1579.

Your Most Christian Majesty's

Faithful Servant,

Ambroise Parey.
The Original of Physick deriving from those beginnings, shall always be celebrated as celestial, and was increased principally after this manner. After Apollo, Asclepius his son instructed by his Father, reduced this Art being as yet rude and vulgar, into a little better and more excellent form, 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 Asclepius (as many report) their Faculties, is thought by Pliny and some others to have been the Inventor thereof, whether did they it without a reasonable cause. 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 Heroes, who excelled in an excellent and almost divine understanding, 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 Physician call.

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The Preface.

profited this Art as it hath and doth many other. For as men perceived that some things were profitable, some unprofitable for this or that diseafe, they set it down; and jo by ingenious observation and marking of singularities, they classified universal and certain Precepts, and so brought it into an Art. For so we find it recorded in ancient Historians, before the invention of Physick, that the Babylonians and Affyrians had a Cysts amongst them to lay their sick and disabled persons in the Porches and Entries of their Houses, or to carry them into the Streets or Market-places, that iuch as passed by and saw them, might give them counsel to take those things to cure their Diseaes, which they had formerly found profitable in themselves, or any other in the like affeeds, neither might any pass by a sick man in silence. Also Strabo writes that it was a custom in Greece to Abdera to cure Democritus to Eleusin, that there as they first, by their dreams they might be admonished by the god what means they should use to be cured, and when they were freed from their Diseaes, they wrote the manner of their Infirmities, and the means by which they were cured, in Tables and inscribed them to the Pillars of the Temple, not onely for the glory of the god, but also for the profits of such as should afterwards be affected with the like Maladies. All which Tables (as Pausanias reports,) Hippocrates transferred, and so from thence drew the Art of Physick, Beas also have added much to hi. Art. For one Man was not onely instruct by another, but learned as much from brute Beasts, for by the only instinct of Nature have found out divers Hews and Remedies, by which they freed and preserved themselves from Infirmities, which might presently be transferred to Mans life. Wherefore considering that iuch so many have concurred to bring this Art to perfection, who heretofore dare call in question the Excellency thereof? chiefly if he reflected the subject thereof, Mans Body, a thing more noble than all other Mundane things, and for which the reft 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 and Mud into which he is fallen: even fo we do iustain those that are thrown down from the top of Health to the gates of Death by violence of Diseaes, with happy Medicins, and as it were by fame iicial and divine gift deliver them out of the jaws of Death. Homer the Prince of Greek Poets affirms, That one Physician is far more worthy than many other Men. All Antiquity gave Physicians such honour, that they worshiped them with great veneration as gods, or the Johns of their gods. 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Hippocrates coming to Greece to carry the knowledge of his Madness, not only the men of the City, but also the women and children, and people of every Age, Sex and Rank, went forth to meet him, giving him with a common consent and loud voice, the title of Physician. Wherefore const- prating this Art as it hath and doth many other. For as men perceived that some things were profitable, some unprofitable for this or that diseafe, they set it down; and jo by ingenious observation and marking of singularities, they classified universal and certain Precepts, and so brought it into an Art. 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In the time of our Grand fathers, Petrus Aponennis called Conciliator, was so famous through all Italy for his knowledge in Physick, that he could scarce be intertacted to come to any man of fashion that was sick, unless he gave him 50 Crowns for every day he was absent from home: but when he went to cure Heronius the Bishop of Rome, he received 400 Crowns for every day he was absent. Our French Chronicles relate in what credit and estimation James Cotterius the Physician was with Lewis XI. King of France, for they report he gave him Monthly out of his Treasury 10,000 Crowns. Physick in times past hath been in such
The Preface.

such Eleemos with many famous and noble Personages, that divers Kings and Princes delighted with the Study thereof, and striv'd to attain glory thereby, called sundry Herbs after their own names. For so Gentian took its name of Genius King of Illnyria; Names given to Plants.

The true Remedies and Antidotes against Diseases, are put into the Pot and eaten every day by the poor People. Ferity all learned men confess, that the manner of curing which is performed by Diet, is much more facil and prosperous than that which is done by Medicins, as those things which fought with much labour and cost are taken with much loathing, and taken are scarce retained, but retained they oft work with much labour and pain: Which things long ago moved Thesse who without Chirurgery can hope to cure Broken or Luxated parts, who Wounds and Diseases, who the falling of the Matrix, the Stone in the Bladder, a Member infetted with a Gangrene or Sphæcele. Besides, this part also is the most antient, for Podalirius and Machaoon following their General Agamemnon to the Trojan Wars, yielded no 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 Physick is divided into three parts.
to heal Woundes by Instruments and Medicines. And if the difficulty of learning it argue the excellency of the Art, who can doubt but Chirurgery must be the most excellent, seeing that none ought to be accounted a Chirurgeon, or which can perform his duty without the knowledge of Diet and Pharmacy? But both the other can perform 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 certain common bond, and are very near of kindred, so that the one implores the aid of the other; neither can the Physician do 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 daily increasing, and on the contrary, Mans life decreasing, so that it did not seem able to suffice for to learn and exercise all the three, the Workmen divided themselves. Wherefore that which happens to any man either by lot, or counsel, that let him follow, maintain and only use, as mindful how short his life is, and how long the Art.
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A Table of the Books and Chaptersi
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The causses of Women monthly Flux or Corvis

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AN
AN INTRODUCTION or Compendious Way TO CHIRURGERY.

BOOK I.

CHAP. I.

What Chirurgery is.

CHIRURGERY 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 define it otherwise, as That it is that part of Physic which understandeth the cure of Diseases by the sole industry of the Hand: as by cutting, burning, sawing off, uniting fractures, relieving dislocations, and performing other works, of which we shall hereafter treat. Chirurgery also is that defined by the Author of the Medicinal Definitions.

The Quick motion of an Intellect joined with experience or, An artificial action by the hand used in Physic, for some convenient intent. Yet none must think to attain to any perfection in this Art, without the help of the other two parts of Physic: I say, of Diet and Pharmacy, and the diverse applications of proper Medicines, respecting the condition of the Causes, Diseases, Symptoms, and the like Circumstances, which comprehended under the names of things natural, not natural and beside nature, (as they commonly call them) we intend to describe in their proper place. But if any reply, that there be many which do 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) speaks against the Empirics. Wherefore seeing we have set down Chirurgery to be, A diligent Operation of the hands, strengthened by the assistance of Diet and Pharmacy, we will now show what, and of what nature the operations of it are.

CHAP. II.

Of Chirurgical Operations.

Five things are proper to the duty of a Chirurgeon: To take away that which is superfluous, to restore to their places such things as are displaced, to separate those things which are joined together, to join those that are separated, and to supply the defects of nature. Tho' there

be more easily and happily attained to the knowledge of these things by long use and much exercise, than by much reading of Books, or daily hearing of Teachers. For, though how peremptorious and elegant soever it be, cannot so lively express any thing, as that which is subjected to the faithful eyes and hands. We have examples of taking away that which abounds, in the Amputation or cutting off a finger; or any have fix on one hand, or any other monstrous member that may grow out; in the lopping off a portion part inwardly corrupted; in the extraction of a dead child, the feconde, nodule or lump like bodies out of a woman's womb; in taking down of all Tumors, as Wens, Warts, Polypus, Cancers and filthy excrescences of the like nature; in the pulling forth of a dead child, the secondine, mole or fuch like bodies out of a woman's womb; in taking down of all Tumors, as Wens, Warts, Polypus, Cancers and filthy excrescences of the like nature; in the pulling forth of bullets, of pieces of mail, of darts, arrows, shafts, spears, and of all kind of weapons in what part of the body forever 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 teeth, who pull out of the nose or elsewise hurtful teeth; or cuts a nail that runs into the feet; who cuts away part of the Throat; or hairs that grow on the eye-lids: who taketh off a Cataract; who cuts the navil or foreskin of a child newly born; or the skinny rachelles of women's privities.

Examples of placing those things which are out of their natural site, are manifest in re-placing of the guts and gall taken into the coals, or out of the tail by force; or by force taken out of the world, fundament or great gut, or the eye hanging out of its circle or proper place.

But we may take examples of disjoining those things which are continued, from the fingers growing together, either by force chance, as burning, or by the imbecility of the forming faculty, of the disjunction of the membrane called Skene, or any other troubling the neck of the world, by different things joined together.
tion of the ligament of the tongue, which hinders children from sucking and speaking, and of that which hinders the Glass from being uncovered of the foreskin. In the division of a various vein, or of a half-cut nerve or tendon, causing Convulsion, by the division of the membrane filling the auditory passage, the nose, mouth or fundament, or the fibrous skin sticking together of the hairs of the eye-lids. Refer to this place all the works done by Cautic, the Sow, Trojan, Lance, Cupping-glasses, Incision-knife, Leeches, either for evacuation, derivation or revulsion.

The Chirurgeon draws together things separated, which heal wounds by sticking them, by boiling, binding, giving rest to, and placing the part: which repairs fractures, retaining fractured parts: who by binding the veil, through the violent injection of blood: who cicatrizeth cloven limbs.

But he removes those things which are defective either from the infancy or afterwards by accident, as much as Art and Nature will suffer: who sets on an ear, an eye, nose, one or more teeth: who fills the hollows of the palm eaten by the Poison, with a thin plate of gold or silver, or such like: who supplies the defect of the tongue in part cut off, by force of addition: who games on a hand, an arm, or leg with its ligaments, weakens alike: who has a doublet bombasted, or made with iron plates to make the body lighter: who fills a thorax too big with cork, or fastens a flock of rock to a lame man's girdle to help his gate. We will treat more fully of all these in our following Work. But performing those things with the hands, we cannot but cause pain: (for who can without pain cut off an arm or leg, or divide and tear aunder the neck of the bladder, remove bones put out of their places, open ulcers, band up wounds, and apply cauteries, and do such like?) notwithstanding the matter often comes to that pass, that unless we use a judicious hand, we must either die or lead the remnant of our lives in perpetual misery. Who therefore can truly abhor a Chirurgeon for this, or accuse him of cruelty, or define they may be served as in ancient times the Romans served Ambagis, who at the first made him free of the City? but presently after, because he did somewhat too cruelly burn, cut, and perform the other works of a good Chirurgeon, they drew him from his house into Campus Martius, and there floned him to death, as we read it recorded by Sextus Empiricus, Plutarch's nephew by his daughter. Truly, it was an inhuman kind of ingratitude, so cruelly to murder a man intent to the work's of so excellent understanding. Wherefore we will prosecute according to that order, all the speculations of this Art of ours. First therefore, things Natural are so termed, because they constitute and contain the nature of man, which wholly depends of the mixture and temperament of the four first bodies, as it is expressed them not by the Element (by the definition which is commonly received among Physicians) is the lead and

From whence we must draw Indications. What things are called Natural. To what part of Physic things not natural pertain. To what things besides nature.

The seven principal heads of things Natural, are: Elements Temperaments Spirits. To these are annexed, as former, what nears.

A 111 Element (by the definition which is commonly received among Physicians) is the leaf and most simple portion of that which is compoeth: or, that my speech may be the more plain, The four first and simple bodies are called Elements Fire, Air, Water and Earth, which accommodate and subject themselves as matter to the prominacous generation of all things which the excellence unfeeling, whether you understand things perfectly or imperfectly mixed. Such Elements are only to be conceived in your mind, being it not granted to any external sense to handle them in their pure and absolute nature. Which was the cause that Hippocrates expressed them not by the names

CHAP. III.

Of things Natural.

That the Chirurgeon may rightly and according to Art perform the forefaid works, he must first be before his eyes certain Indications of working: Otherwise, he is like to become an Empiric, whom no Art, no certain reason, but only a blind temerity of fortune moves to holdfasts and actions. These Indications of actions are drawn from things (as they call them) natural, no-natural and beside-nature, and their adjuncts, as it is figurally offered of the Antients, being men of an excellent undertheing. Wherefore we will prosecute according to that order, all the speculations of this Art of ours. First therefore, things Natural are so termed, because they constitute and contain the nature of man, which wholly depends of the mixture and temperament of the four first bodies, as it is expressed by Hippocrates in his Book of Nat. humane: wherefore the consideration thereof belongs to that part of Physic, which is named Phylogia, on the examination of things not natural to Doctrine or Dict, because the use of each thing it endeavors to retain and keep health: but Therapeutics, or the part which cures the Diseasess, and all the affects beside nature, challenges the contemplation of those things which are not agreeable to nature. But the things which are called Natural, may be reduced to seven heads: beside which there comes into their fellowship, those which we term, Annexed.

CHAP. IV.

Of Elements.

What an Element is.
names of substances, but of proper qualities, saying, Hot, Cold, Moiſt, Dry, because some one of these qualities is inherent in every Element, as his proper and essential form, not only according to the excellency of latitude, but also of the active faculty, to which it is adjointed another simple quality, and by him in his principal, but the other not attaining not to the highest degree of his kind, as Hippocrates underſtood it. You may therefore be understood by Galen in his first Book of Elements. So, for Example, in the Air, we observe two qualities, Heat, and Moiſture, both principal, and not remitted by the commixture of any contrary quality, for otherwise they were not simple. Therefore thou must say, what binds that the principal effects of heat were not themselves as well in the Air, as in the Fire? Because, as we said before, although the Air have as great a heat according to his nature, extent, and degree, no other wise than Fire hath, yet it is not so great in its active quality. The reason is because that the caſtatory force in the Air is hindered, and dulle by society of his companion and adjointed quality, that is, Humidity which abateth the force of heat, as, on the contrary, dries quickly in it. The Elements therefore are endued with qualities.

Names of the substances

<table>
<thead>
<tr>
<th>Fire</th>
<th>Air</th>
<th>Water</th>
<th>Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hot</td>
<td>Moiſt and hot</td>
<td>Cold and moiſt</td>
<td>Cold and dry</td>
</tr>
</tbody>
</table>

Names of the qualities

The four 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 mass of the Engliſhman Dendalothen you can throw any portion, or Litharge by it itself; all things are so confus'd and united by the power of heat, mixing the feaſt laſt particulars with the fiſt, and the whole with the whole, in all parts. You may know and perceive this concetration of the four Elementary substances in one compound body, by the power of mixture, in their diſtribution by burning a pile or heap of green wood: For the three ex¬propriates the Fire, the fmoak, the Air; the moisture that sweats out at the core, the Water, and the ashes, the Earth: You may easily perceive by this example, and very obvious to the senses, what diſtribution is, which is fucceeded by the decay of the compound body; on the contrary, you may know that the coagulation, or uniting and fying in one of the four mixed bodies is fuch, that there is no part furer or without mixture. For if the heat which is predominant in the fire, should remain in the mixture in its perfect vigor, it would confume the reti by its pernicious neigh¬bourhood; the like may be faid of Coldneſs, Moiſture, and Drineſs, although of these qualities, two have the title of Active, that is, Heat and Coldneſs, because they are the more powerfull; the other two Passive, becaufe they may form more dull and flow, being compared to the former. The temperaments of all fublunary bodies arise from the conminution of these substances and elementary qualities, which hath been the principal cause that moved me to treat of the Elements. But I have the force and effects of the Elementary qualities to form higher contemplation, content to have noted this, that of their fiſt qualities, 2ο 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, theft, Heavineſs, Lightneſs, variously distributed by the four Elements, as the Heat, or Coldneſs, Moiſture or Drineſs 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 downward by their own weight. So we think the fleſh the lightèſt, because it holds the highest place of this lower world; the Air, which is next to it in fize, we account light; for the water which lies next to the Air, we judge heavy; and the earth the center of the ret we judge to be the heaviest of all them. 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 differenc'd by the understanding, to which I think good to adjoin another description of other Elements, as it were writing or flowing from the conminution of the firit: For besides thofe, there are faid to be Elements of generation, and Elements of man's body. Which are the Elements of our bodies, we the Ifol and familiar parts, arifting from thefe Elements of generation. Of this kind are bones, membranes, ligaments, veins, arteries, and many others manifold to the eyes, which we will defcribe at large in our Traité of Anatomy.

CHAP. V.
Of Temperaments.

Temperament is defined, a proportionable mixture of hot, cold, moiſt, and dry; or, it is, a concord of the firft disagreeing faculties. That harmony springs from the mixture of the four firft bodies of the world. This whether Temperament or Concord is given to Plants and brute Beings for the beginning of their life, and for concomitantly for their life and form. But as Plants are inferior in order and dignity, to be quoted in their life, their life is more pale and inconstant, for they have but one growing faculty, by which they may draw an Alimentary price from the earth, as from their Mothe'rs breasts, to preserve them and their life, by which they may grow to a certain bignes, and truly, by which they may bring forth their life for the perpetual continuance of their kind. But

Why the first qualities are so called. How the second qualities are so called. What the Elements of generation are. What the Elements of man's body are.

What the Elements of generation are. What the Elements of man's body are. What the Elements of generation are.

What the Elements of man's body are. What the Elements of generation are.
The manifold division of Temple¬ment.

A Temper¬ment. ad Pens. 

Man foul comes from a heave. 

The the* lif of heave, have to the three former, the gift of sensis annexed; by honest whereof, as by a certain inward knowledge they then them things that are hurtful, and follow those which pro¬fit them; and by the power of their will, they move themselves whither they please. But the foul of man far more perfect and noble than theis, ariseth not from that earthly mixture and temper of the Elements, but acknowledgeth and hath a far more divine off-springs; 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 doth three manner of ways corrupt the functions, either by weakening, depraving, or abolishing them. For si, Status, or affolution, diminisheth and followeth the quickness of motion; Convulsion depairve it; the Palsie abolisheth it, like as the other partials of the body, proceeds from the mixture of the four Elements; but nevertheles nature weighing the weight of it, and ordaining it to supply the rest of the body, would have more of the termene and dry Element inflafted into it, that it might be the forgerer and former to fulifie weight. But a Ligament, feeling, it was made for other uses, hath left of that earthly drink to the bone, but more than the fleith, altogether fitted to its nature. So it hath seemed good to nature to endue all the parts of the body, not only with an equal portion, but also proportionable to their nature. Hereupon by comparison accords eight kinds of intertemperate tempers: As

The kinds of untemperate tempers.

But their Tempers are either of the whole Body, or of some part thereof.

And that either

Of the rest of the parts compos’d of other which have no principality in the body.

Again, such Tempers are either healthful, which suffice perfectly to perform their actions; or unhealthful, which manifestly hurt them, the signs whereof may be read described by Galen. And you must observe that when we say the body, or any part of it, is hot, we understand more, but than is fit for one of that kind which is tempered to justice; as when we say a man hath a hot liver, we mean his liver is hotter, than a man jutly tempered shoulde have, for all other tempers, whether of the whole body, or of any parts thereof, are to be referred to this; and in the cure of diseases we must look 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 division of Temperaments, I have thought good in this place, brieftly to handle the Tempers of the parts of the Body, Ages, Seaso us of the year, Humors, and Medicins. Therefore the tempers of the parts of our body are of this nature, not only by the judgment of the touch of a mans hand, which is jutly tempered; who is often deceived by flowing heat, which spread from the heart into all the body, imparts a certain kind of heat, to all the parts; but also by the rule of their reason, compoud, and substance, as
Book I.

Compendiums way, to Chirurgery.

A Bone is the most dry and cold.
A Grifh left than it.
A Ligament left than a Grifh.

A Tendon is so much drier and colder than the Membrane, by how much it is.

The temperaments both of the whole body, and all its parts, undergo great mutations; for the bones are far harder in old men than in children, because our life is, as it were, a certain prodige to dineds, which it comes to the height, consequent causeth death. Wherefore in this place we must speak 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 its self and own accord, undergoeth manifeft changes. The whole courfe of life hath four fuch Ages. The firft is Childhood, which extends from the birth to the eighteenth year of age, and hath a hot and moift temper, because it is next to the hot and moift beginnings of life; and blood. Youth followeth this, which is prolonged from the eighteenth to the twenty fifth year, and is temperate and in the midft of all exceedes. Man erreth exceedeth Youth, which they deny to extend beyond the thirty fifth year of age: its proper temper is hot and dry; whereby it cometh to pafs that then the heat is felt more acid and biting, which in Childhood feemeth mild, because the prodges of the life to dineds, hath much waited the native humidity.

Then succeeds Old-age, ever divided into two parts; the firft whereof extends from the thirty fifth, to the forty ninth year; then of age is called Old-man, (but we commonly call them Infants and old ag'd men.) The latter is, as it were divided by Galen into three degrees: the firft whereof are those, who having their strength found and firm, undergo civil affairs and busineses: which things those which are in the second degree of Old-age cannot do, because of the debility of their now decayed strength; but those which are in the lat degree, are affilicated with rood extremum weakness and malady, and are as much deprived of their facred and understanding, as of the strength of their bodies: whereof is the Proverb, Old men, twice Children. Thofe Old men of the firft rank are pleasant and curteous; and thofe we fay, are beginning to grow Old, or in their green Old-age, they can perform nothing but the boord and bed, but old decrepit men of the laft order, think of nothing elfe, than their graves and monuments. Their firm and folid parts are of a cold and dry temper, by reason of the decay of the radical moistures, which the inbred heat caufeth in the conftitution of fo many years. Which thing may happen in a short space, by the ve- hement fame of the fame natural heat, turned by fweats into a fery heat. But if any to prove Old men moift, will object, That they cough oft, and fpt much, I will anfwer him, as an old Doctor once faid, That a pitcher filled with water, may pofte forth much moifture, yet no man will deny that fuch a veftel of its own terrene nature and matter is moft dry; fioold men may plainly be af- firmed to be moift, by reafon of their defect of heat, and abundance of excrements. But this description of ages is not to be taken fo uniformly as always to be moified by the spaces and diftances of years for there are many which by their own middle-age return again to childhoods, from the staff to the staff. And thus much of the Temperaments of ages.

Lastly, the famous Philofopher Pythagoras divided mans life into four ages, and by a certain proportion compared the whole courfe thereof to the feas of the year, as Childhood to the Spring, in which all things grow and fprout out, by reason of plenty and abundance of moifture. And Youth to the Summer, because of the vigor and strength which men enjoy at that age. And man in ftear, or conftant age, to Autumn; for that then after all the dangers of the fore-pafled life, the gifts of discretion and wit acquire a feeabloufefs or ripeness, like as the fruits of the earth enjoy at that feafton. And lastly, he compares Old-age to the Winter, which can eate and conforfe its deferts with no other means, than the use of fruits gathered and ftoared up before, which then are of a cold and troublefome condition. But for extreme Old-age, which extends to eighty or a hundred years, it is fo cold and dry, that thoofe which arrive at that defcrip pace to the four feas of the year, are troublesome, harmful, touchy, forward, crabby, and often complaining, untill at the length, deprive of all their fents, tongue, feet, and undcrstanding, they doyng return again to childhood, as from the staff to the staff. And thus much of the Temperaments of ages.
The temperaments of Humors. Lib. de natura Humorvm, edit. Sent. 46. fect. 1.

The temperature of the Blood. From whence we judge of the temperature of Medicines.

To know the nature of Humors, is a thing not only necessary for Physicians, but also for Chirurgians, because there is no disease with matter whicharisenot from some one, or the mixture of more Humors. Which thing Hippocrates understanding, writ, every Creature to be either sick or well according to the condition of the Humors in the body. And certainly all outward fevers proceed from the putrefaction of Humors. Neither do any acknowledge any other original or distinction of the differences of Abscesses or Tumors: neither do ulcerated, broken, or otherwile wounded members hope for the restitution of continuance, from other than from the sweet falling down of Humors to the wounded part. Which is the cause that often in the cure of their affects, the Physicians are necessarily bided in tempering the blood, that is, bringing to a medium the four Humors composing the mass of blood, if they at any time offend in quantity, or quality. For whether any thing abound or digress from the wanted temper in any excess of heat, cold, vifcidity, profligtry, thinness, or any such like quality, none of the accustomed sundrions will be well performed, or which we will not thinly inquire 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 Tumors, because the certain judgment of Medicines is drawn from their tafes. Hitherto of Temperaments: now we must speak of Humors, whose use in Physical Speculation is no less than that of Temperaments.

CHAP. VI.

Of Humors.

The knowledge of the Humors is necessary. Lib. de natura Humorvm.

The helps of Health.

When an Humor is.

The manifold division of Humors.
mentious: 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 and perfectly well, and which is underhould by the general name of blood, which is let our at the opening of a vein. For Blood otherwise taken, is an Humor of a certain kind, distinguished by heat and warmness from the other Humors comprehend—headed together with it, in the whole mass 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, when they have gotten a little rudiment of change in the way, carry it to the Liver, where by the Blood-making faculty, which is proper and natural to this part, it acquires the absolute and perfect form of Blood. But with that Blood, as one and the same time and action all the Humors are made, whether alimentary or excrementitious. Therefore the Blood, that it may perform its Office, that is, the Faculty of Nutrition, must necessarily be purged and cleansed from the too excrementitious Humors: of which the bladder of Gall draws one, which we call yellow Choler: and the Spleen the other, which we term Melancholy. These two Humors are natural but not alimentary or nourishing, but of another use in the body, as afterwards we shall more at large. The Blood freed from these two kinds of Excrement, is sent by the veins and arteries into all parts of the body for their nourishment. Which although then it seem to be of one simple nature, yet notwithstanding it is truly such, that four different and unlike substances may be observed in it, as Blood, properly so named, Phlegm, Choler, and Melancholy, not only distinct in colour, but in taste, effects, and qualities. For, as Galen notes in his Book de Natura humana, Melancholy is acid and sour, Choler bitter, Blood sweet, Phlegm insipid. 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 different springs from thence. For therefore such substances ought to be tempered and mixed amongst themselves in a certain proportion; which remaining, bodies remains; but violated, disputes follow. For all acknowledge, that an Ostens is cauted by Phlegmatic: a Sticchos, by Melancholic: an Espeol, by Choleric: and a Phlegmon, by pure and laudable Blood. Galen teaches by a familiar example of new wine presently taken from the Press, that these four substances are contained in that one magnificent mixture of the blood. In which every one observes four distinct Effects; for the flower of the wine working up, swells at the top, the dregs fall down to the bottom, but 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 superficies of blood, as it concretes and grows cold, thins with a golden colour, the dregs, Melancholy, which by reason of its heaviness evensinketh downward, as it were, the mud of the blood: the crude and watery portion, Phlegm: for as that crude humour, except it be rebellious in quantity, or stubborn by insolvency, there is hope it may be changed into Wine, by the natural heat of the Wine: to Phlegm, which is blood half concocted, may by the force of native heat be changed into good and laudable blood. The receptacle of these four Humors in the Blood.

<table>
<thead>
<tr>
<th>Nature</th>
<th>Consequence</th>
<th>Colour</th>
<th>Taste</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blood is</td>
<td>Of Nature airy, hot and moist</td>
<td>Of indifferent taste, neither too thin nor too thick</td>
<td>Of Colour, red or rosy or wine</td>
<td>Of Taste, warm, that it chiefly serves for the nourishment of the dry parts, and carries by the reflex impart to heat the whole body.</td>
</tr>
<tr>
<td>Phlegm is</td>
<td>Of Nature wet, cold and moist</td>
<td>Of Consequence, liquid</td>
<td>Of Colour, white</td>
<td>Of Taste, warm or rather mild, for it is commanded that water wherein is unhappily</td>
</tr>
<tr>
<td>Choler is</td>
<td>Of Nature fiery, hot and dry</td>
<td>Of Consequence, viscid</td>
<td>Of Colour, yellow or pale</td>
<td>Of Taste, bitter</td>
</tr>
<tr>
<td>Melancholy is</td>
<td>Of Nature earthly, cold, and dry</td>
<td>Of Consequence, viscid and mural</td>
<td>Of Colour, black</td>
<td>It prospers the expulsive faculty of the Guts, and by the reflex imparts heat to the whole body, and by its slippery nature helps the motion of the joints.</td>
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A comparison of Blood and new Wine.

Blood is blood half concocted. Why it should, no proper receptacle, to nourish the parts of the body.
Blood hath its nearest matter from the better portion of the Chylus: 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 meats of good digestion and quality, reasonably eaten after moderate exercise; but 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 leasen 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 or moist, for that part of life that continues from the 25th to the 35th year of our age. Thofe in whom this Humor hath the dominion, are beautified with a fresh and edifying colour, gentle, and well-natured, pleasant, merry, and facetious. The generation of Phlegm is not by the irritability of heat, as some of the Ancients thought; who were persuaded that Choler was caufed by a raging, Blood by a moderate, and Phlegm and Melancholy by a remifl effect. But that opinion is full of manifest errors: for if it be true, that the Chylus is laboured and made into blood in the fame part, and by the same heat, with the reft of the blood, of the more cold, liquid, crude, and watery portion of Chylus. The divne may not caufe but whet the appetite, and by its asftridion of the action thereof. But yellow Chylus, which generated in the Liver, together with the blood, is carryed by another moift like to the air. Neither can you name any kind of nourifiment, how cold foever it be, that is not to be attributed to the force of the efficient cause, that is, of Heat, which is the matter a- and Melancholy into the orifice of the ventricle, whereby the matter annexed is drawn into the bladder of the gall, remains there fo long, till being troublesome, either in quantity...
quantity or quality, it is excluded into the guts, whereby it may cast forth the excrements residing in them: the expulsive faculty being provoked by its acrimony, and by its bitterness kills the worms that are bred there. The same humor is accustomed to die the urine of a yellow colour. There is another ferous humor, which is not to nourish but profitable for many other things, which is not an excrement of the second, but of the first concodion. Therefore nature would that mixed with the Chyle, it should come to the Liver, and not be voided with the excrements, whereby it might stay the growth of the blood, and serve it for a vehicle; for otherwise the blood could scarce pass through the capillary veins of the Liver, and pulling the fomous and gibus parts thereof, come to the hollow vein. Part of this ferous humor, separated together with the blood which serves for the nourishment of the Reins, and straight carried into the bladder, is turned into that urine which we name urinaria. The same humor is accustomed to die the urine of a yellow colour.

Choler not natural, or the vitelline, which corruptions kind, either

Or in the capacity of the upper belly, as the vesicles, thence of five kinds

of the like duty of transportation, is excluded by fweats into which it degenerates. Besides the fore-

mentioned four other humors, which they term Alimentary and secondary, named, the Archeids have mentioned four other humors, which they term Alimentary and secondary, as being the next matter of nourishment, as thofe the blood contains, the remote. They have given no name to the first kind, but imagine it to be that humor, which hangs ready to fall like little drops in the utmost orifices of the veins. They call the second kind, *Dew* a being that humor, which, entered already into the substance of the part, doth moisten it. The third kind that it should come to the Liver, and not be voided with the excrements, whereby it might

Choler not natural is bird, either

The fourth kind, *Gleam*, is only the proper and substance-making humidity of the similar parts, not their aliment.

The Kinds of such Choler, are often call’d by vomit in diseases. the strength of the diseas- ing part, being troublesome to the parts through which they are evacuated, by their bitterness, acrimony, and burning.

The kind of such Choler, are often call’d by vomit in diseases. the strength of the diseasing part, being troublesome to the parts through which they are evacuated, by their bitterness, acrimony, and burning.
The sign of a Sanguine Per son.

Think it manifest, because the matter and generation of blood is principally from blood, that a man of a gentle, easy, and cold habit of body, and full of blood and sweet juices, is of a Sanguine complexion. And the same party hath a flourishing and rosy colour in his face, tempered with an equal mixture of white and red; of white, by reason of the skin lying upon the tissue of red, and the blood spread underneath the skin: for always such as the humor is, such is the colour in the face. In manners he is curious, gentle, forms to be spoken to, not altogether estranged from the love of woman, of a lovely countenance and smooth forehead, kind and pleasant, but taking all things in good part; for as the inclination of manners is, so also is the disposition of manners. But blood is thought the mildest of all humors; but the strong heat of the inward parts maketh him to eat and drink freely.

Their dreams are pleasant, they are troubled with difficulties arising from blood, as frequent Phlegmons and many sanguine pustules breaking through the skin, much bleeding, and melancholy fumes. Wherefore they can well endure blood-letting, and delight in the moderate use of cold and dry things; and hotly, are offended by heat and moist things. They have great and strong Pulse, and much urine in quantity, but mild of quality, and of an indifferent colour and substance.

The sign of a Choleric Person.

Choleric men are of a pale or yellowish colour, of a lean, slender and rough habit of body, with fair veins and large Arteries, and a strong and quick pulse; their skin being touched, feels hot, dry, hard, rough and harsh, with a prickling and acid sensation which breathes forth of their whole body. They eat with much cholery by flocks, vomit, and urine. They are of a quick and nimble wit, hard and sharp vindicators of received errors, liberal even to prodigality, and always in want of glory. Their lips are light and from which they are quickly wetted; their dreams are fiery, burning, quick, and full of fury; they are delighted with meats and drinks which are warmest and most cold and moist, and are subject to tertian and burning fevers, the Phrenis, Jaundice, Inflammations, and other choleric pustules, the Lask, Bloody flux, and bitterness of the mouth.

The sign of a Phlegmatic Person.

The manners and dispositions of Phlegmatic persons.

They are muffled with Phlegmatic dispositions, because of the blood spread underneath the skin, and of Arteries falling away upon the lungs, and the Apnex Arterias, or Wecas: for they are of a cold, dull, slow-moving and silent nature; they do dream of rains, snows, floods, swimming, and suchlike that they often imagine themselves overwhelmed with waters; they vomit up much water and Phlegmatick matter, and with difficulty evacuate it, and have a cold and moist tongue.

And they are troubled with a dog-like hunger, at any time should it happen that their initial Phlegm become acid; and they are slow of digestion, by reason of which they have great store of cold and Phlegmatick humors; which if they be carried down into the windings of the Colic-gut, they cause murmuring and noise, and sometimes the Colic.

From whence cold or numbing in the belly proceeds.

The face of Phlegmatic persons is cold, of a white and livid countenance, and oftentimes cold and Phlegmatic dispositions of melancholy persons. But when it happens, the Melancholy humor is heatened, either by addition, or concretion of Choler; then Titters, the black Morphia, the Cancer simple and ulcerated, the Leprous and fphropy cold; sending forth certain cold and phlegmatic excrescences, (being vulgarly called St. Maxies) and the Lepere the cold invades them. They have small veins and arteries, because coldness hath dominion over them; their whole body is as cold, as the quality of heat is to be distempered. But it at any time their veins become big, that largeness is not by reason of the laudable blood contained in them, but from much windiness, by occasion whereof it is somewhat difficult to let them blood; not only, because that when the veins are opened, the blood flows slowly forth, by reason of the cold that athieth of the humors; but much the rather, because that the vein doth not receive the impression of the Lance, but upward, this way and that way, by reason of the windiness contained in it, and they are troubled with tertian dreams, for they are affected in the night the Devils, Serpents, dark dens and caves, phantasms, and many other such things full of horror, by reason of the cold windies of the humors; but much the rather, that for the vein doth not receive the impression of the Lance, filling this way and that way, by reason of the windiness contained in it, and because that the heat diuresis of the upper skin, rectifies the edge of the inflammation. Their bodies form cold and hard to the touch, and they are troubled with tertian dreams, for they are affected in the night the Devils, Serpents, dark dens and caves, phantasms, and many other such things full of horror, by reason of the black vapor, diversly moving and disturbing the brain, which also we see happens to those who fear the water, by reason of the biting of a mad Dog. You shall find them feverous, fraudulent, paralytic, and covered over to beastly, flow speakers, fearful, faithful, complaisant, careful, ingeneous, lovers of sordidness, lovers of loathing, observation of opinions once conceived, low to anger, but angered not to the pacified. But when Melancholy hath exceeded natures and its own bounds, then by reason of putrefaction and inflammation all things appear full of extreme fury and madness, so that they often call themselves headlong; down from the fairest and red of whom, from a high place, or are otherwise guilty of their own death, with fear of which notwithstanding they are terrified.
But we must note, that changes of the native Temperament, do often happen in the course of a man's life, so that he which a while ago was Sanguine, may now be Choleric, Melancholic, or Phlegmatic: not truly, by the changing of the blood into such Humors, but by the mutation of Diet, and the court or vocation of life. For none of a Sanguine complexion, but will prove Choleric, if he eat hot and dry meats, (as all like things are christened and preserved by the use of their like and contraries are destroy'd by their contraries) and weary his body by violent exercises and continual labors, and if there be a suppression of Choleric excrements, which before did freely flow either by Nature or Art. But whofever feeds upon Meats generating gross blood, as Beef, Venison, Hare, old Cheefe, and all sweet Meats, he without all doubt falling from his nature will fall into a Melancholy temper, especially, if to that manner of Diet, he shall have a vocation full of cares, turmoils, miseries, strong and much study, careful thoughts and fears; and also if he sit much, wanting exercise, for so the inward heat, as it were defrauded of its nourishment, faints and grows dull, whereas, those and choleric humors abound in the body. To this also the cold and dry condition of the place in which we live, doth conduct, and the suppression of the Melancholy humor accustomed to be evacuated by the Humours, currents and fluxes.

But he acquired a Phlegmatic temper, whoforever used cold and moist nourishment, much feeding, who before the former meat is gone out of the belly, shall stuff his paunch with more, who presently after meat runs into violent exercises, who inhale cold and moist places, who lead their life at ease in all indolence, and idle, who suffer a suppression of the Phlegmatic humor shockingly evacuated by vomit, cough, or blowing the nose, or any other way, either by Nature or Art. Certainly we are very convinced that such things, that we may discern if any at the present be Phlegmatic, Melancholic, 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 shown, by a practical demonstration of examples, the use and certainty of the aforesaid Rules of Temperaments.

**CHAP. VII.**

On the Practice of the aforesaid Rules of Temperaments.

That we may draw the Theoric of the Temperaments into practice, it hath seemed good for our convenience which might make this our Introduction from obscure, if we would procure 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 form of life of men of these Regions situated so far distant one from another, the better to know every man's temper, and therefore in what climates, and particularly in what parts of the world, the forces of Temperatures in particular, the temperature of the Southern people, the Northern, the Southern people prevail in wit, the Northern in strength.

The Southern people are exceeded so much by the Northern in strength and ability of body, as they surpass them in wit and faculties of the mind. Hence is it you may read in History, that the Egyptians, Greeks, and Vandals, yoked Afes and Spain with infinite incursions, and most famous Empires were founded from the North to South; but few or none from the South to the North. Therefore the Northern people thinking all right and law to consist in Arms, did by Duell only determine all causes and controversies arising amongst the Inhabitants, as we may gather by the ancient Laws and Customs of the Lombards, English, Burgundians, Danes and Germans; and we may see in Saxe, the Grammarian, that such a Law was once made by Fronts King of Denmark. The which Custom at this day is everywhere in force amongst the Mohammedans. But the Southern people have always much abhorred that fashion, and have thought it more agreeable to Beasts than Men. Wherefore we never had of any such thing used by the Affrians, Egyptians, Persians or Turks. But moved by the goodness of their wit, they erected Kingdoms and Empires by the only help of Learning and hidden Sciences. For seeing by nature they are Melancholic, by reason of the dreading of their temper, they willingly add to themselves to fatiate and contentation, being ended with a fine company of wit. Wherefore the Egyptians, Asians, Africans, Jews, Punicans, Per¬sians, Affrians, and Indians, have invented many curious Sciences, revealed the mysteries and secrets of Nature, digested the Mathematics into order, observed the motions of the Heavens, and first brought in the worship and religious facrice of the gods: Even so far that the Egyptians, who live only by fish, and hunt Fish with Wages for their Bread, do boast that they have many things diligently and accurately observed in Astrology by their Astrologers, which every day made more accurate and copious, they as by a hereditary right, commit to posterity, as it is recorded by Los the African. But the Northern peoples the Germans, by reason of the abundance of humors and blood, by which the mind is as it were oppressed, apply themselves to works obvious to the senses, and which may be done by the hand. For, their minds opprest with the earthy parts of their bodies, are entirely drawn from whence the change of the native temper, how one may become Choleric, how Melancholic, how Phlegmatic.
The ends of fields as inhabited between them.

The Northern people know how to overcame, but not how to make the victory.

The abundance of Counsellors and Lawyers from France and Italy.

The manners of the Eastern people.

The Eastern are healthful.

The Northern people great eaters and drinkers.

Who are to be counted for, the Basarons, The Northern and Southern have each their cruisers.

The difficulty of the Southern people.

Mourners.

An Introduction, or

Book I.

The people who inhabit the middle regions between the are neither naturally fit for the more subtle Sciences, as the Southern people are, nor for Mechanic works, as the Northern's but meddle with civil affairs, commerce and Merchandizing. But are ended with such strength of body as may suffice to avoid and detale the crafts and arts of the Southern inhabitants, and with such wildness as may be sufficient to refrain 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 hold Italy for four years by their fatile counsels, crafty designs and devices yet could not escape; but at length their arts being claded, and they spoilt of all their fortunes, were brought in subjection in the Roman.

The Greeks, Huns and other Northern People have spoilt and over-run the Roman Empire by many inscriptions and invasions, but deftruction of counsell and providence, they could not keep those things which they had gotten by Arms and Valour. Therefore the Opinion of all Historians is agreeing in that, that good Laws, the form of governing a Common-wealth, all politic Ordinances, the Arts of disputing and speaking have had their beginnings from the Greek, Roman 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 whole world besides. Therefore that we may attribute their gifts to each Region, we affirm that the Southern People are born and fit for the studies of Learning, the Northern for Wars, and strife between both for Empire and Rule. The Italian is naturally wise, the Spanish grave and confant, the French quick and diligent; for you would lay he runs when he goes, being compared to the slow pace of the Spanish, which is the cause that the French people are lightened with French Servants for their quick agility in disputing factions. The Eastern people are specially endowed with a good, firm and well-temper'd wit, not keeping their counsels secrect and fid. For hate is of the nature of the Sun, and that part of the day which is next to the rising of the Sun is counted the right side and stronger i and very few all things side and stronger i and very few all things side and stronger.

But the Western people are more tender and effeminate, and more close in their carriage and mind, not easily making any one paraker of their secrets. For the West is as it were subject to the Moon, because at the change it always inclines to the West, whereby it happens that it is reputed as nocturnal, intemper'd and opposite to the East; and the West is hot temper'd and vehement. Therefore of the Winds none is more vehement than the East-Wind, which blows from the West with a molt fresh and healthful gale, yet iseldom blows, but only at Sun-set.

The Northern people are good eaters, but much better drinkers, witty when they are a little mellowed with Wine, and talkers of things both to be spoken and concealed, not very constant in their promises and agreements, but principal keepers and prefervers of flame-Exc'dies and charity, far different from the Inhabitants of the South, who are wonderful sparing, fober, secret and fubtle, and much addicted to all sorts of wicked Lust. Artifices in his Problems, that those Nations and the Southerns who are temper'd, both which are burnt with immediate heat, and which are opposed with effeinate cold, because a feet temper of the Heavens renders the manners and the mind. Wherefore both as well the Northern as Saxonians and Germans, and the Southern, as Africans, are cruel, but they have this of a certain natural stoutness and folder-like boldness, and rather of anger than a caters and medley.

The cruelty of Hannibal the Captain of the Carthaginians may suffice for an instance of the Southern cruelty. He left the Roman Captives wearied and hopeful, (being kept fasting for three days before for that purpose) who was then un

The Romans Captives wearied with burdens and the length of the way, with the foles of their feet cut off; But thofe he brought into his Tents, joying themelfes and liftening together he caufed to fight, neither was fatiated with blood before he brought all the victors to one man. Also we may fee the cruel nature of the Southern Americans, who dip their children in the blood of their slain enemies, then fuck their blood, and banquet with their broken and speared Limbs.

And as the Inhabitants of the South are free from divers Plethoric Difficultes, which are caused by abundance of blood (to which the Northern people are subject) as Fevers, Deliriums, Tyranniz, Maelod with laughter, which caufeth those which have it to leap and dance, (the people commonly term it S. Fittus axe elus) which admits of no remedy but Muse: for they are often meditated with the Frenc., invading with madness and fury by the heat whereof they are often fo frighted and careers befoe them, that they feek things to come: they are terrified with horrible dreams, and in their fits they feek in strange and forein tongues: but they are to fuch the fum and all kind of feaf and to the Leprofe as their homebred diffaise, that no fones are to frequently met within by such as travel through either of the Mauritiana's, as Hopfins provided for the Lodging of Leper. They who inhabit plaines and mountainside places, are more health, rough and able to endure labor, but fuch as dwell in Plains, especially if they be moorish or fenfible, are of a tender body, and fweet what with a little labour, the truth of which is confirmed by the Hollander and Friflanders. But if the Plain be fuch as is torched by the heat of the Sun, and blown upon by much contraryness of wind and brinening Sciences they are healthful, but not to be taxed, determined and impacient of frivolity, as may be perceived by the fol example of the Inhabitants of Norfolk, a Province of England. Thofe who dwell in poor and barren places are commonly more witty and diligent and
A Faculty is a certain 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 the body, as long as it enjoys its integrity; the Animal, Vital and Natural. The Animal is feared 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 Sensitive, the third Principal. The Sensitive consists in five external Senses; Sight, Hearing, Taste, Smell and Touch. The Moving principally remains in the Muscles and Nerves, as the instruments of voluntary motion. The Principal comprehends the Reasoning Faculty, the Memory and Fantasia. Galen would have the common or inward Sense to be comprehended within the compass of the Fantasia, although Aristotle distinguish between them.

The Vital shews itself in the heart, from whence heat and life is distributed by the Arteries to the whole body; this is principally hindered in the diseases of the Breast; as the Principal is, when any disease affects the Brain; the prime Action of the Vital Faculty is Pulitation, and that continued agitation of the Heart and Arteries, which is of threefold use to the body: for by the distillation of the Heart and Arteries, the Vital Spirit is clarified by the benefit of the Air which is drawn in by the contractions thereof, the vapor of it are purged and purified, and the native heat of the whole body is tempered by them both.

The last is the Natural Faculty which hath chosen its principal seat in the Liver, it spreads or carries the nourishment over the whole body; but it is distinguished into three other faculties; The Generative, which serves for the generation and forming of the Egg in the womb; the Growing or Increase faculty, which floweth from the time the Egg is formed, until the perfect growth of the infant. The nourishing faculty, which is servient to both the other, repairs and regenerates the continual efflux and waste of the tissuе substance; for Nutrition is nothing else but a replenishing or repairing whatever 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 Phyic, to know the four other faculties, which 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 application may be assimilated to the part. This is that faculty, which in such as are hungry, draws down the meat scarce chewed, and the drink scarce tasted, into the gnawing and empty stomach.

The Retentive faculty is that which retains the nourishment once assimilated, until it be fully laboured and perfectly concoded; and by that means it yields no small assistance to the Digestive Faculty. For the natural heat cannot perform the office of concodion, unless the meat be embraced by the part, and make some stay therein. For otherwise the meat, carried into the stomach, never acquires and preserves the form of Chylon, unless it is thus detained in the wrinkles thereof as in a rough pillow, until the time of Classification.

The Digestive faculty assimilates the nourishment, being attracted and detained into the substance of that part whose faculty it is, by the force of the inbred heat and proper disposition or temperament of the part. So the stomach plainly changes all things which are eaten and drunk into Chylon, and the Liver turns the Chylus into blood. But the Bones and Nerves convert the red and liquid blood, which is brought down from the capillary or small veins, into a white and solid substance. Such concodion 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 Concodion will never satisfy the desire of nature, and the parts, unless the nourishment, purged from its excrements, is put away the filth and drab, which must never enter into the substance of the part. Wherefore there do not only two sorts of excrements remain of the flesh and second Concodion, the one thick, the other thin, as we have said before; but also from the third Concodion, which is performed in every part. The one of which we exercise only by reason, being that which vanishes into Air by insensible transpiration. The other is known foretime by sweats, sometimes by a thick fatty substance staining the ruff, sometimes by the generation of hairs and nails, whole matter is from sulpiginous and earthly excrements of the third Concodion. Whereas the fourth faculty was necessary which might yield no small help to nourishment; it is called the Expulsive, appointed to expel those superfluous excrements which by no action of heat can obtain the form of the part. Such faculties serving for nourishment are in some parts twofold as some common, the benefit of which redounds to the whole body, as in the liver, stomach and veins. Others only attending the service of those parts in which they remain, and in some parts all three, as well common as proper, are shaling and resting in those parts we now mentioned one; for, with the four proper there are only two common, as the Gall, Spleen, Kidneys and Bladder. Others are content only with the proper, as the familiar and mufcibous parts, who, if they want any of these four faculties, their health is decayed either by want of nourishment, an ulcer, or otherwise. The Liver is then affected by the deficiency of just and durable nourishment. But if it happen those faculties do rightly perform their duty, the nourishment is changed into the proper part, and is only assimilated as these degrees. First, it must flow to the part, then be joined to it, then amalgamated, and finally, as we have said, assimilated. Now we must speak of the Actions which shew what the Faculties.
An Action or Function is an active motion proceeding from a faculty: for as the faculty depends on the Temperament, so the Action on the faculty, and the Act or Work depends upon the Action by a certain order of consequence. But although that the Words, Action and Act or work are often confounded; yet there is this difference between them, as that the Action signifies the motion used in the performance of any thing: but the Act or work, 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 or effect from the Action, as the Action or function from the Faculty, the integrity or perfection of the instruments concurring in both. For as, if the Faculty be either defective, or hurt, no Action will be well performed: so unless the instruments keep their native and due conformity (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 blamable and perfect actions, it is for a due conformity of the instrument concur 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 own accord, and against our will: As are, that continual 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 Action flow either from the Liver and Veins, or from the Heart and Arteries. Wherefore we may comprehend them under the names of Natural and Vital Actions. For we must attribute each to each faculty, lest we seem to constitute an idle faculty and so way profitable for use. The involuntary vital Actions, are the dilution and contraction of the Heart and Arteries, the which we comprehend under the proper name of the Pulse; by that they draw in, and by this they expel or drive forth. The involuntary vital actions be,

- Generation, Growth, and which proceed from the
- Generative, Growing, and Faculty.
- Nourishing

Nutrition is nothing else than a certain producing or acquiring of matter, and an introducing of a substantial form into that matter: this is performed by the assistance of two faculties: of the altering, which doth diversely prepare and dispose the food and nutritive blood to put on the form of a Bone, Nerve, Spine, Filth, and such like: of the Forming faculty, which adorns with figure, lance, and composition, the matter ordered by fo various a preparation.

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

Nutrition is a perfect assimilation of that nourishment which is digested, into the nature of the part which digests. It is performed by the assistance of four subsidiary or helping actions, Attiractive, Retentive, Digestive and Expulsive. The voluntary actions which we willingly perform, are so called, because we can at our pleasure hinder, stir up, flow or quicken them. They are three in general, the senative, moving and principal Action. The senative Soul comprehends all things in five senses, in Sight, Hearing, Smell, Taste, and Touch. Three things most necessarily concur to the performance of them, the Organ, the Medium or Mean and the Object. The principal Organ or Instrument is the Animal Spirit disturbed 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 Organ. The Mean is a Body, which carries the Object to the Instrument. The Object is a certain external quality, which hath power by a first Medium or Mean to fin 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.

Sight is an action of the seeing faculty, which is done by the Eye, fully compassed of its coats and humoris, and 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 Moon and Stars; or, as it were, the help of another, that it may be actually such; so for by the coming of the light colours, which were visible in power only, being brought to the Eye, they do seem and appear such as they actually are. But such Objects cannot arrive at the Eye, but through a clear and illuminate Medium, as the Air, Water, Glasses, and all sorts of Crystal.

Hearing hath for its Organ the Ear and Auditory passage, which goes to the fliny-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 finest or broken Air, and the Collision of two bodies meeting together. The Medium is the concurring Air, which carries the sound to the Ear.

Smelling (according to Galen's opinion) is performed in the mucilaginous procresse produced from the proper substance of the brain, and seated in the upper part of the nose; although others hath either flaying should be made in the very foremost ventricles of the brain. This Action is weak in man, in comparison of other Creatures: the Object thereof is every smell, or turned expiration breathings out of bodies. The Medium by which the Object is carried to the nostrils of Man, Beasts and Birds, is the Air; but to Fishes the Water itself. The Action of Taste, is performed by the Tongue, being
being tempered well and according to nature, and furnished with a Nerve spread over its upper part from the chief direction of the other, and from the doing which we will treat more at large in our Antidotary. The Object is *Talk of what nature and kinds we will treat more at large in our Antidotary. The Medium by which the Object is carried to the Organ, that it may affect it, is either external or internal: The external is that substance which doth act, as it were, moist and succour the tongue; the internal is the spongy flesh of the tongue itself, which affected with the quality of the Object, doth receive and perfect the move of which it is plant in it, so that the kind and quality thereof, by the force of the Spirit, may be carried into the common sense. All parts ended with a nerve, enjoy the sense of touching, which is chiefly done, when a touchable quality doth penetrate even to the true and nervous skin, which lies under the Cuticle, or ear-skin; we have formerly noted, that it is most exquisite in the skin which invests the ends of the fingers. This Object is every touchable quality, which is to be of the right rank of qualities, as Heat, Cold, Moisture, Dryness, or the second, as Roughness, Smoothness, Heaviness, Lightness, Hardness, Softness, Rarity, Density, Fribility, Unfrribility, Crepidness, Thinnness. The Medium by whose procurement the instrument is affected, is either the skin or the flesh interwoven with many Nerves.

The next Action, that is Motion which by a peculiar name we call Voluntary; this is performed of motion, and accomplished by a Muscle, being the proper instrument of voluntary Motion. Furthermore, every motion of a member possessing 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 its place; therefore Motion is said to be made upward, downward, to the right hand, to the left, forward and backward. Here 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 we can make it more quick or slow as we please, which are the conditions of a voluntary Motion.

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

The principal Action and prime among the Voluntary, is absolutely divided into three, Imagination, Reasoning and Memory. Imagination is a certain expending and apprehension, which discerns and distinguishes between the forms and shapes of things sensible, or which are known by the senses. Reasoning is a certain judicial estimation of conceived or apprehended forms or figures, by a mutual collating or comparing them together. Memory is the sure store of all things, and as it were the Treasury which the mind often unfolds and opens, the other faculties of the mind being idle and not employed. But because all the forementioned Actions, whether they be Natural, or Animal and Voluntary, are done and performed by the help and assistance of the Spirits; therefore now we must speak of the Spirits.

CHAP. X.

Of the Spirits.

The Spirit is a subtle and airy substance, raised from the pure blood, that it might be a vice where a Spirit falf 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 sweet approach, 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 Brain; for there is prepared and made, that from thence conveyed by the Nerves, it 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 power grows stiff, the hand grows, and all the other parts are dull, desirous of their accustomed vigour of motion; why it is called on, and quickens of sense. It is called Animal, not because it is the *Life, but the chief and *Animal prime instrument thereof: Wherefore it hath a more subtle and airy subsistence; and enjoys divers names, according to the various condition of the Sensories, or states of the senses, into which it enters: for that which causeth the sight, is termed the *Vitae: You may see this by night, rubbing your eyes, as sparkling like fire. That which is conveyed to the Auditory passage, is called the Auditive or Hearing: that which is carried to the instruments of Touching, is termed the *Tactive: and so of the rest.

This Animal spirit is made and laboured in the windings and foldings of the Veins and Arteries, low the brains of the body, of an exquisite subtle portion of the Vital brought thither by the Carotids Arteries, made or ffeed Arteries, and sometimes also of the pure air, or sweet vapour drawn by the Nose in breathing. Hence it is, that with figures we fop the passage of this spirit, from the parts we tend to blind and to free: An Image which acknowledges or flags it passage, as the little in Aesop's Fables, whereby it happens that the members ftrife under that place do languish and seem dead, sometimes destitute of motion, sometimes wanting both sense and motion.

The Vital spirit is next to it in dignity and excellency, which hath its chief Mansion in the life the Vital ventricle of the Heart, from whence, through the Channels of the Arteries, it flows into the whole Spirit body, to nourish the heat which resides fixed in the substance of each part, which would perish in
short times, unless it should be refreshed with heat flowing thither together with the Spirit. And because it is the most subtil next to the Animal, Nature (left it should vanish away) would have it contained in the nervous coat of an Artery, which is five times more thick than the coat of the Veins, as Galen, out of Hero of Alexandria, hath recorded.

It is furnished with matter from the fluid exhalation of the blood, and that air which we draw in breathing. Wherefore, as it doth easily and quickly perish by immediate dissipations of the subtil matter, and great evacuations, so it is easily corrupted by the putrefaction of Humors, or breathing in of pestiferous air and filthy vapours: which thing is the cause of the sudden death of those who are infected with the Plague. This Spirit is often hindered from entering into some parts, by reason of obstructions, fullness, or great inflammations; whereby it follows, that in a short space, by reason of the decay of the fixed and inbred heat, the parts do easily fall into a Gangrene, and become mortified.

The Natural Spirit (if such there be any) hath its station in the Liver and Veins. It is more gross and dull than the other, and isthe only in the dignity of the Action, and the excellency of the life. The use thereof is to help the cohesion both of the whole body, as also of each several part, and to carry blood and heat to them.

Besides those already mentioned, there are other Spirits fixed and implanted in the similar and prime parts of the body, which also are natural, and Natives of the same place in which they are seated and placed. And because they are also of an airy and fubtile nature, they are so jointed, or rather united to the Native heat, that they can no more be separated from it than flame from heat; wherefore they with that which doth flow to them, are the principal Instruments of the Actions which are performed in each several part. And these fixed Spirits have their nourishment and maintenance from the radical and inbred moisture, which is of an airy and oily substance, and is that which is seated and placed. And because they are also of an airy and fiery nature, they are so joined, or united to the Native heat, that they can no more be separated from it than flame from heat; wherefore they with that which doth flow to them, are the principal Instruments of the Actions which are performed in each several part. And these fixed Spirits have their nourishment and maintenance from the radical and inbred moisture, which is of an airy and oily substance, and is the foundation of these Spirits, and the inbred heat. Therefore without this moisture, no man can live a moment. But also the chief Instruments of life are these Spirits, together with the Native heat. Wherefore this radical moisture being dissipated and wasted (which is the fear, forehead and nourishment of the Spirits and heat,) how can they any longer fufist and sustain? Therefore the preservation of the natural heat, followeth the decay of this sweet and moisture-making moisture, and consequently death, which happeneth by the dissipating and resolving of natural heat.

But since 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 increafe, it hath also its proper Spirit, and also its own proper fixed and implanted heat, which here 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 implanted into a Nerve, Vein, or such other similar parts because the temper of these parts is different, as also the mixture of the Elements from which they sprang and sprang up. In this is the contemplation of Spirits of small account, for in these consist all the force and efficacy of our Nature. Thefe being by any chance dissipated or wasted, we languish; neither is 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 continual effluence of the threefold subtility. For if they be decayed, there is left no proper indication of curing the disease; so that we are often constrained, all other care laid aside, to betake our felves to the restoring and repairing the decayed powers. Which is done by means of good juyce, scarce to be concocted and distributed; good Wines, and fragrant Smells.

But sometimes these Spirits are not dissipated, but driven in and returned to their fountain; and so both oppresse and are oppreft; whereupon it happeneth we are often forced to dilate, and spread them abroad by binding and rubbing the parts. Hence we have spake of those things which are called Natural, because we naturally consist of them; it remains that we now say somewhat of their Adjuncts and Associates by familiarity of Condition.

Age.: Of which, by reason of the familiarize of the Argument, we were constrained to speak, when we handled the Temperatures. Sex.: Of which we have already spoken. Colour: The Conformation of the Instrumental parts. Time: when force we have also considered. Region: Of the Dier, and condition of Life.

Chap. XI.

Of the Adjuncts of things Natural.

Sex 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 fite of these parts, there is little difference between them, but the Female is colder than the Male. Wherefore their spermatical parts are more cold, soft, and moist; and all their natural actions less vigorous and more depraved.

The Nature of Eunuchs is to be referred to that of women, as who may seem to have degenerated into a womankind nature, by deficiency of heat, their smooth body, and soft and thiree voyce do very much affimulate women. Notwithstanding you must consider, that there be some manly Women, which
which their manly voice, and chin covered with a little hairiness, do argue and on the contrary,
both Male and Female.

Phlogis with a fable and duskle. Melancholy. So the colour of the
Excrements which are according to nature, is not of the least consideration. For thus, if an
Ercer be broken forth white matter, it argues the soundness of the part from whence it
flows; but if licence or bloody, green, blackish, or divers colours, it thaws the weakness of the
field part, which could not affililate by composition the colour of the excrementitious humor.
The like reason is of unnatural Tumors: For, as the colour, so the dominion of the Humor cating
or accompanying the Swelling commonly is.

The conformity and integrity of the Organical parts is considered by their figure, greatness, number,
ituation, and mutual connexion. We consider the figure, when we say, almost all the external
parts of the body are naturally round, not only for shew, but for necessity, that being smooth, and
how we conceived, they should be less obnoxious to external injuries. We speak of Greatness, when we
say, some are large and thick, some thin and lean. But we consider their Number, when we
observe some parts to abound, some to want, or nothing to be defective or wanting. We estimate
Size and Composition, when we 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 four Seasons of the Year, when we treated of Tempera-
ments. But the consideration of Regions (because it hath the same principle that the Air) shall be
referred to that disquisition or enquiry which we intend to make of the Air, among the things Not-
natural.

The manner of life, and order of Diet, are to be diligently observed by us, because they have Diet
great power either to alter, or preserve the Temperament. But because they are of almost infinite
varieties, therefore they seem form possible to fall into Air, which may prejudice all the differences
of Diet and Vocations of life. Wherefore if the Callings of Life be laborious, as that of Husband-
men, Mariners, and other such Trades, it strengthens and dries the parts of the body. Although
through those which labour about Waters, are most commonly troubled with cold and moist difeases,
although they almost kill themselves with labour.

Again, those which deal with Metals, as all sorts of Smiths, and those which cast and work bricks,
are more troubled with hot diseases, as Fevers. But if their Calling be such, as they fit much, and
work all the day long, sitting at home, as Shoemaker; it makes the body tender, the flesh ele-
minate, and causeth great quantity of excrements. A life as well idle and negligent in body, as
quiet in mind, in all natural and effect of Diet, doth the same. For hence the body is
made subject to the Stone, Gravel and Gout.

That Calling of life which is performed with moderate labour, clothing and diet, seems very
fit and convenient so preserve the natural temper of the body. The ingenuity Chirurgery may
frame more of himself that may more particularly conduce to the examination of these things
confist in four things.

CHAP. XII.

Of things Not-natural.

The things which we must now treat of, have by the later Physicists been termed Not-natural
because they are not of the number of those which enter into the constitution or called things
composite of man's body; as, the Elements, Humors, and all such things which we for-
mesty comprehended under the name of Natural. Although they be such as are nec
and defended the body already made and composed. Wherefore they were called by Galen Prehers,
because by the use of them the body is preferred in health. After they may be called Doubtful, and
Neuters; for that they are not used, they keep the body healthful, but incomparably, they
they cause diseases. Whereby it comes to pass, that they may be thought to contain to that part
of Physick which is of preferring health, not because form of these things should be absolutely
and of their own nature wholesome, and others unwholesome; but only by this, that they are, or
prove so by their convenient, or prepossession of the.

Therefore we consider the use of such like things from four conditions, Quantity, Quality, Occasion, and Manner of using: If thou livest observe they
in mind. And thus we see, that these things which of themselves are, as it were
doubtful, that bring certain and undoubted health. For these of their Circumstances do so far ex-
tend, that in them, as in the perfection of Art, the Rules which may be preferred to preserve
health, are contained. But Galen in another place, hath in four words comprehended these things
Not-natural as, thing Applied, Expelled, and to be Done. Thing Taker, are those
which are put into the body, either by the mouth, or any other ways; as the Air, Meat and Drinks.

Things applied, are those which must touch the body, as the Air now mentioned, affecting the
body with a divers touch of its qualities of heat, cold, moisture or dryness. Expelled, are what

things forever being unprofitable, are generated in the body, and require to be expelled. To be
Drowsy, are labour, rest, sleep, watching, and the like. We may more distinctly, and by expellation
of proper Names, revolve all these things to fix:

\[
\text{\textbf{Air, Meat and Drink, Labour and Rest, Sleep and Watching, Reflection and Execution, or things to be expell'd, or retained and kept.}}
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\textbf{Permutations of the Wind.}

\textbf{CHAP. XIII.}

\textbf{Of the Air.}

\textbf{AIR is so necessary to life, that we cannot live a moment without it: if to be that breathing,
and much more transpiration, be not to be separated from life. Wherefore it must con-
ducted to know, what Air is wholesome, what unwholesome, and which by contrariety
of qualities fights for the Patient against the Disease; or on the contrary, by a similitude of qualities
shall nourish the Diseafe, that if it may seem to banish the Patient by increasing or adding to
the Diseafe, we may correct it by Air. So in curing the wounds of the head, especially in Winter,
we labour by all the means we may to make the Air warm. For cold is hurtful to the Brain, Bones,
and the wounds of these parts; and heat is comfortable and friendly. But also the Air being drawn
into the body by breathing when it is hotter than ordinary, doth with a new warmth over-heat the
heart, lungs, and spirits, and weaken the strength by the dilution of the Spirits too much atten-
tuated; so being too cold, to little manner the strength of the faculties faints and grows dull, either
by ftripulation of the vapors, or by the infillation or thickening of the Spirits.

Therefore to conclude, That air is to be esteemed healthful, which is clear, subtle and pure, and free
and open on every side, and which is far remote from all Carter-like stinks of dead Carcasses, or the
french of any putrefying thing whatsoever. The which is far distant from standing Pools, and Fens, and
Caves, sending forth strong and ill vapors in neither too cloudy nor moist by the nearnefs of some River.

Such an Air, I say, if it have a vernal temper, is good against all diseases, That Air which is con-
trary to this, is altogether unhealthful; as that which is putrid, that, and pref, by the intricacies
of neighboring Mountains, infected with some uneven vapors. And because I cannot prosecute all
the conditions of Airs, for the expelling of all diseases, as which are almost infinite; it shall ful-
face here to have set down, what we must understand by this word Air.

Physicians commonly use to understand three things by the name of Air: The present state of the
Air, the Region in which we live, and the Season of the Year. We spoke of this latter, when we
created of Temperaments. Wherefore we will now treat of the two former. The present state of
the Air, one while for some small time, is like the Spring, that is temperate; otherwise like the
Summer, that is hot and dry; otherwise like the Winter, that is cold and moist; and sometimes
like the Autumn, which is unequal; and this last constitution of the Air is the cause of many diseases.
When upon the same day, it is one while hot, another cold, we must expect Autumnal diseases.
These temper and varieties of constitutions of the Air, are chiefly and principally firrid up by the
Winds; as which being diffus'd over all the Air, shew no small force by their sudden change.
Wherefore we will briefly touch their nature: That which blows from the East, is the East-wind,
and is of a hot and dry nature, and therefore healthful. But the West-wind is cold and moist,
and therefore sickly. The South-wind is hot and moist, the Author of putrefaction and putrid dis-
feces. The North-wind is cold and dry, therefore healthy: Wherefore it is thought, if it happen to
blow in the Dog-days, that it makes the whole year healthful, and purges and takes away the feeds
of putrefaction, if any chance to be in the Air. But this description of the four Winds, is then
only thought to be true, if we consider the Winds in their proper nature, which they borrow
from their Regions from which they first proceed. For, otherwise they affect the Air quite
contrary, according to the dispositions of the places over which they came; as, Snowy places, Sea,
Lakes, Rivers, Woods, or Sandy Plains, from whence they may borrow new qualities, with which
they may afterwards pollute the Air, and to consequently our bodies.

Hence it is we have noted the Western-wind unwholesome, and breathing diseases, by reason of
the proper condition of the Region from whence it came; and such that is cold and moist: The
Galeana wind is truly to their great harm, that it feldon blows with them, but it brings some
misfortune and great harm, either to their bodies, or fruits of the earth. And yet the Greek and
Latins are wont to commend it for healthfulnes, more than the rest. But also the rising and setting
of more eminent Stars, do often cause such cold winds, that the whole Air is cooled, or
infected with some other malevolent quality. For vapors and exhalations are often raised by the force
of the Stars, from whence Winds, Clouds, Storms, Whirlwinds, Lightnings, Thunders, Hail,
Snow, Rain, Earthquakes, Inundations, and violent raging of the Sea, have their original. The
exact contemplation of which things, although it be proper to Astronomers, Cosmographers and
Geographers, yet Hippocrates could not omit it, lest he that must speak something in his book de
Aire & Airis, where he touches, by the way, the description of the neighbouring Regions, and
such as he knew.

From this force of the Air, either hurtful, or helping in disfases, came that famous observation
of Guido Guinle, That wounds of the head are more difficult to cure at Paris, than at Avignon,
and
and the plain contrary of wounds of the legs for the air of Paris, compared to that of Aragon; is cold and moist, wherefore hurtful and offensive to the wounds of the head. On the contrary, the same air, because it excites the spirits, increases the blood, condenses the humour, and makes the wounds of the legs more easy to be healed, by reason that it hinders the course of humours, by whose diffusion the cure is hindered. But it is manifest that hot and dry places make a greater diffusion of the natural heat, from whence the weakness of the powers; by which sense reason the inhabitants of such places do not so well endure blood-letting, but more easily suffer purgation, though vehement, by reason of the constancy of the humours caused by drinks. To conclude, the air changes the Constitution of our bodies, either by its qualities, as it be hotter, colder, mural or drier, or by its matter, as if it be more vital than its, or corrupted by exhalations from the earth, or by a sudden and uneconomical alteration, which any man may prove, who makes a sudden change out of a quiet air into a stormy, and troubled with many winds. But because next to the Air, nothing is so necessary to nourish main body, as Meat and Drink, I will now begin to speak of them both.

CHAP. XIV.

Of Meat and Drink.
The force of Custom.

But if Custom (as they say) be another nature, the Physician must have a great care of it, both in food and drink. For this custom sometimes little and little, and insensibly, changes our natural temperance, and instead thereof gives us a borrowed temperance. Wherefore if any would prefer to be a Custom, which is sometimes ill, into a better, truly he will bring more harm than good; because all sudden changes (according to the opinion of Hippocrates) are dangerous. Wherefore if necessity require that we should withdraw any thing from our Custom, we must do it by little and little, that to nature may by degrees be accustomed to contraries without violence, or the disturbance of its usual government. For that meat and drink which is somewhat worse, but more pleasant and accustomed. Hence is it, that Countrymen do very well digest Beef and Bacon, which commonly they use; but will turn into intolerable vapors, Faring, Coppers, and other meats of good nourishment, sooner than change them into good and laudable Chylw. The cause of which thing is not only to be attributed unto the property of their strength, and as it were, burning heat, but much more to Custom, which by a certain kind of familiarity, causeth that means of hard digestion, are easily turned into laudable blood. For the force of Custom is so great, that accustomed meats are more acceptable, whereby it comes to pass, that while the stomach delights in them, it more freely embraces them, and happily digests them, without any trouble of loathing, vomiting, or heaves. All the contrary, meet and happen in the use of meats, which are unpleasant to the taste and iteration. For the vice and bribery these things, makes manifest how it is troubled by its acid and intolerable belchings, loathing, nauseous, heaves, pains of the head, and trouble of the whole body.

Therefore 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 is noted a little before out of Hippocrates. By which means he plainly taught, that it is the part of a good and prudent Physician to subscribe to, and please, the palate of his Patient.

The order of eating our meats.

We must begin our meals with moist or liquid meats.

The time of eating.

Neither ought we in our eating to have less care of the time, than we have of the order: for the time of eating of such as are healthful, ought to be certain and fixed, for at the accustomed hour, and when hunger presides, few find a man, and which is at his own discretion may be curtail, and accustomed labours ought to go before; for it is fit, according to the Precept of Hippocrates, that labour precede meat, whereby the excitations of the stomach are diminished, the drawer and the blunt parts contracted and strengthened, which are three commodities of extreme necessity to the convenient taking of meat. But in sick persons we can scarce attend and give heed to these circumstances of time, and accustomed hour of feeding; for, that indication of giving meat to the sick, is the butt of all, which is drawn from the motion of the difeafe, and the declining of the breath. For if you give meat in Favors, specially the fit then taking the Patient, you nourish not him, but the Difease. For the meat then eaten, is corrupted in the stomach, and yields matter for the difeafe: For meat (as we noted before out of Hippocrates) is strength to the sound, and a difeafe to the sick, unless it be eaten at convenient time, and diligent care to be had of the strength of the Patient, and greatness of the difiease.

But neither is it convenient that the meat should be simple, and of one kind, but of many sorts, and of divers dities dressed after different forms, lest nature by the continual and hateful feeding upon the same meat, may at length loath it, and to neither finely contain it, nor well digest it; or the stomach accustomed to one meat, taking any loathing thereat, may abhor all other; and at there is no desire of that we do not know, for the deserted appetite cannot be delighted and stirred up. For we must not crucify these superstitions, or too nice Physicians, who think the digestion is hindered by the much variety of meats.

The matter is far otherwise, for by the pleasure of what things we eat the stomach allured doth require, it embraces them more freely, and concocts them more perfectly. And our nature is defirous of variety.

Moreover, seeing our body is composed of a solid, moist, and airy substance, and it happens, that by so many labours, which we are compelled to undergo and sustine in this life, one of these may either destroy a Custom, which is sometimes ill, into a better, truly he will bring more harm than good; because all sudden changes (according to the opinion of Hippocrates) are dangerous. Wherefore if necessity require that we should withdraw any thing from our Custom, we must do it by little and little, that to nature may by degrees be accustomed to contraries without violence, or the disturbance of its usual government. For that meat and drink which is somewhat worse, but more pleasant and accustomed. Hence is it, that Countrymen do very well digest Beef and Bacon, which commonly they use; but will turn into intolerable vapors, Faring, Coppers, and other meats of good nourishment, sooner than change them into good and laudable Chylw. The cause of which thing is not only to be attributed unto the property of their strength, and as it were, burning heat, but much more to Custom, which by a certain kind of familiarity, causeth that means of hard digestion, are easily turned into laudable blood. For the force of Custom is so great, that accustomed meats are more acceptable, whereby it comes to pass, that while the stomach delights in them, it more freely embraces them, and happily digests them, without any trouble of loathing, vomiting, or heaves. All the contrary, meet and happen in the use of meats, which are unpleasant to the taste and iteration. For the vice and bribery these things, makes manifest how it is troubled by its acid and intolerable belchings, loathing, nauseous, heaves, pains of the head, and trouble of the whole body.

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Besides, it strengthens the respiration, and the other actions of the body, confirms the habit, and all the limbs of the body by the mutual attrition of the one with the other whereby it passes they are not so quickly wearied with labour. Hence we see, that Country-people are not to be tired with labour.

The use of Exercise is great, for it increaseth natural heat, whereby better digestion follows, and by that means nourishment, and the expulsion of the excrements, flow, and a quicker motion of the body, by the mutual attrition of the one with the other whereby it passes they are not so quickly wearied with labour. Hence we see, that Country-people are not to be tired with labour.

The quality of exercise, which we require, is in the midst of exercises, for that the exercise must be neither too slow and idle, neither too strong, nor too weak, neither too bloody nor excerpt, but which may move all the members alike. Such exercise is very fit for sound bodies. But if they be distempered, that sort of exercise is to be made choice of, which by the quality of its excess, may excite the dulness of the body, and reduce it to a certain mediocrity. Wherefore flesh meat are stuffed with cold, greasy, and viscid humors, shall hold that kind of exercise most fit for them, which is more laborious, vehement, stronger, and long continued. Yet let, that they do not enter into it before the first and second concoction, which they may know by the yellowness of their urine. But let flesh be as above with thin and clear, cholerick humors, cold gentle exercises, and such as are free from contention, not expecting the finishing of the second concoction, for the more acid heat of the cold parts delights in such half-concocted juices, which otherwise it would so burn up all the glutinous substance thereof being waited, that they could not be digested, or fitted to the parts. For the reason and strength of exercise, the body should be to often exercised, and there is a desire to eat. For exercise furnis and revives the heat which lies buried and hid in the body, for digestion cannot be well performed by a flagging heat, neither have we any benefit by the meat we eat, unless we use exercise before.

The left part of exercise begun and performed according to Reason, is named, The releasing of the parts, which is performed by an indiffertent rubbing and drying of members, that to the sweat breasting
But, as many and great Commodities arise from exercizing conveniently begun and performed, so great harm proceeds from Idleness, for gross and vicious heaped up in the body, commodities produced; obstructions, stones both in the reins and bladder, the Gout, Apoplexy, and a thousand other diseases.

**CHAP. XVI.**

Of Sleep and Watching.

This is our speech of Sleep and Watching, which we now intend, may be more plain, we will briefly declare, what commodity or discommodity they bring; what time and what hour is convenient for both; what the manner of lying must be, and the choice thereof; what the dreams in sleeping; and what pains or heaviness and cheerfulness after sleep may produce, from the rest by concussion turned into blood.

Sleep is nothing else but the rest of the whole body, and the cessation of the Animal faculty. Sleep is caused, when the substance of the brain is possessed, and a sort of what the dreams in sleeping, and what, pains or heaviness and cheerfulness after sleep may proceed from, the heat and spirits, almost exhaust by performance of sense labour, cannot any longer sustain the weight of the body, but cause rest by a necessary consequence; by which means, nature may produce other, from the rest by concussion turned into blood.

Sleep 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 back to them, together with the spirits. Neither doth sleep only give care to the weakened members, but also brings 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 darkness. 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 day, and as it were, friendly and familiar light of the Sun, they are allowed and drawn forth into the exteriorities, 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 we look for from sleep, the night vision suffices for the work of full and perfect concoction. Which is one reason, amongst many, that sleep in the day time may be harmful. For we are wakened from our sleep by the heat and spirits, called forth to the skin either by the light, or noise on the day time, before that the concoction which was begun be finished. But, that sleep cannot but be light which comes without necessity of sleeping. Wherefore the concoction being attempted, but not perfected, the stomach is filled with crudities, diluted with acid or four belchings, and the brain troubled with gross vapors and excrementitious humours. From whence proceed pain and heaviness of the head, and store of cold diseases. But although sleep on the night time be wholesome, yet it is fit that be restrained within the limits of an indifferent time. For that which exceeds, renders the evacuation of excrement both upwards and downwards: But in the mean time the heat, which is never idle, draws from them sense portions or vapors, into the veins, principal parts and habit of the body. We must measure this time, not by the space of hours, but by the insinulating the work of concoction, which is performed in some shorter than in other time. Yet that which is longest is perfected and done in seven or eight hours. The ventricles labouring and falling into its felt and its papery coats, and the urine returneth yellow, gives perfect judgment thereof. For on the contrary, the extension of the stomach, and belchings, pain of the head, and heaviness of the whole body, show that the concoction is imperfect.

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What the form and size of our body ought to be while we sleep.

The harm of lying on our backs. Upon our bellies.

The consideration of dreams.
Comp. May to chirurgery.

All we must obserue how the Patient doth after sleep, whether more lively and cheerful, or more heavy: for, by the opinion of Hippocrates,

Com labor a femine et, lebalem collge mecumum; Sin profa semine, nihil ille lesthile inmeddem.

Pain sleep effusing, an ill diseafe doth flow; But if sleep profit befit, no harm from thence will flow.

And as sleep, so waking, if it exceed measure, is hurtful; for it hurts the temperature of the brain, weakens the coales, waives the spirits, breeds crudities, heavines of the head, falling away of the thick, and leannes over all the body; and, to conclude, it makes Ulcers more dry, and, so continually rebellious, difficult to heal and malign. There are many other things may be spoken of sleep and waking, but these may suffice a Chirurgion.

Chap. XVII.

Of Repletion, and Inanition in Emptions.

Here are to be short, two sorts of Repletions, or of all excesses: one is of a simple quality, withou all defcyan, or fociety of any humor, as appears in deltempers without matter: the other is of quantity and mafs, the body being dilated with two much meat, or too great quantity of humors: from whence proceed an infinite number of dises. They call the Repletion of heats, Stryty or Fulnetts; and it is of two kinds: The one which is called Repletion or Fulness to the vessels; the other Repletion to the strength.

We judge of Stryty to the veins, by the dilatation and dwelling of the veins, and entrails, as the stomach. We call Stryty to the strength, when the body is loaded with more meats than it can well bear. But all 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, Plethama. For Galen defines Plethama to be an equal excess of all the humors. For if at any time he define a Plethama to be an excess of blood only: then verily by the name of blood, he understands an equal comprehension of the four humors, as it is taught in Physick Schools.

The Repletion which is caused by one humor, is termed by Galen in the place before-men Zioned, Casedphama (that is, an evil juice) whether the Repletion proceed of a Cholerick, Melancholick, Phlegmatick, or ferus Humor. Now Inanition or Evacuation, is no other thing than the expulsion or effusion of humors which are troublesome, either in quantity or quality. Of Evacuation, some are univerfal, which expel superfluous humors from the whole body; such are Purgings, Vomiting, Tranfpiration, Sweats, Phlegmoly, Some particular, which are performed only to evacuate some part, as the Brain, by the nofe, palat, eyes, ears; the Lungs, by the weazons; the Stomach, by vomit and stool; the guts, by stool; the Liver and the Spleen, by urine and ordure. These Evacuations are sometimes performed by nature, freeing it of that which is troublesome to it; otherwise by the Art of the Physician in imitation of nature.

And again, one of these is good and requisite, when only the humor which is hurtful either in quantity or quality, is evacuated: The other not requisite, or immoderate, when the profitable Humors, together with the unprofitable, are expelled.

But what Evacuations forever thebe, they are performed and done, either by the fcratching and rubbing of the skin, as when a Cholerick, Salt or Seros Humor, or some windinefs lying between the skin and the flesh, caufe itching. For by fcratching the skin, it gets paffage out, which is manifeft by the efflux of a feros humors burning, or caufing feabs and ulcers, if the humor be somewhat grofs, but infeftible and not fo manifeft, if it be windinefs, the skin by that rubbing being rarified, and the grofs fupernatural exceftion manifeft. Wherefore they do ill who hinder their Patients from fcratching, unlefs they fcratch fo cruelly and hard, that there may be danger (by reafon of the great heat and pain thereby caufed) of fome defcyan or falling down of humors into the part.

Or these Evacuations are performed by much matter evacuated from an opened Bile, or running Ulcer, a Fistula, or fuch like lores. Or by Sweats which are very good and healthful, especially to sharp difeafes, if they proceed from the whole body, and happen on the critical days. By Vomiting, which often violently draws these humors from the whole body, even from the utmost joynts, which purging Medicines could not evacuate as we may fee in the Paleic, and Sialtes, or Hip-gout. By fipping, in all who are appurtrated either in the fides or lungs. By Salivation, or a Phlegmatick flux by the mouth, as in thofe who are troubled with the French-pox. By fweating and blowing the nofe, for thefe, the brain opprefft with moifture, disburtheneth it felf, whether it be done without, or with the help of phlegmacies and crinices: wherefore children, and fuch as have wondafmous moist brains, purge themselves ofte way. By hicket and belching, for by thefe the windinefs contained in the ftomach, is often expelled. By urine, for by this not only Feces, but which is more admired, the French-pox hath often been terminated and cured.

For there have been none troubled with the Pox, in whom a waft of the vicious and venoum humor could not by Unctions of Quick-filver be procured, either from the mouth or belly; ye have been wonderfulliy freed by abundance of Urine, both from danger of death and their difeafes. By bleating, for nature hath often found a way for grievous difeafes, especially in young bodies, by bleating at the nofe, and by their courfes in women. By a flux, or laxe, purgations, sweats, infeftible
We must observe three things in every evacuation.

Why the Passions of the Mind are called Accidents.

The reason of Joy.

The effects of Joy.

Anger.

Sorrow.

Fear.

Shame.

Shamefacedness.

The Perturbations or Passions of the Mind.

He Perturbations are commonly called the Accidents of the Mind, because as bodily accidents from the body, so may the, 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 Chirurgion for they fix up great trouble in the bodies, and vitiate the reception of many and various things. Joy, hope, and love, may give an apparent testimony. For by these motions the heart and spirits are sometimes gently, sometimes violently diffused over all the body, for the enjoyment of the present, or hoped for good. For then the heart is dilated, as to embrace the thing beloved, and the face is diH with a rosy and lively colour. For it is likely, that the faculty it self is filled by the object, by whose power the heart it self is moved.

From whence they have their force.

The reason of Joy.

Joy recreates and quickens all the faculties, sets up heat, and motion, and the spirits, and heat doth flow together with the unprofitable matter, and so consequent a dissolution of all the powers.

The effects of Joy.

Joy recreates and quickens all the faculties, sets up heat, and motion, and the spirits, and heat doth flow together with the unprofitable matter, and so consequent a dissolution of all the powers.
there is a certain flux and reflux of the heat and blood, first recalling to the heart, then pretently rebounding from thence again. But that motion is so gentle, that the heart thereby suffers no oppression, nor defect of spirits; wherefore no accidents worthy to be spoken of, arise from hence: this affect is familiar to young Maidens and Boys, who if they blush for a fault committed answeres or through carelessness, it is thought an argument of a venereal and good disposition.

But an agony, which is a most violent of a strong, fear and vehement anger, involves the heart in the danger of both motions, therefore by this passion the vital faculty is brought into very great danger. To these six Passions of the Mind all other may be revolved, as Hazard and Difford, to Anger, Mirth and Boiling to Joy; Terrors, Frights, and Swoundings, to Fear; Envy, Despair, and Mourning, to Sorrow.

By these it is evident how much the Passions of the mind can prevail, to alter and overthrow the state of the body, and that by no other means, than that by the competition and dilatation of the heart, they diffuse and contract the spirits, blood, and heat; from whence happens the dilatation or oppression of the spirits.

The signs of these Symptoms quickly shew themselves in the face; the heart, by reason of the thinness of the skin in that part, as it were painting forth a certain blush. And certainly the face is a part fitted to discover all the affections of the inward parts, that by it you may manifestly know an Old man from a Young, a Woman from a Man, a temperate person from an untemperate, an Ethiopian from an Indian, a Frenchman from a Spaniard, a Sad man from a Merry, a Sound from a Sick, a Living from a Dead. Wherefore many affirm that the manners, and those things which we keep secret and hid in our hearts, may be understood by the Face and Countenance.

Now we have declared what commodity and discommodity may redound to the man from these fore-mentioned Passions, and have showed that anger is profitable to none, unless by chance to some dull by reason of idleness, or opprest with some cold, drummy and phlegmatic humour; and Fear convenient for none, unless peradventure for such as are brought into manifest and extreme danger of their life by some extraordinary sweat, immediate bleeding, or the like unbridled evacuation: Wherefore it behoves a wise Chirurgeon to have a care, lest he inconsiderately put any Patient committed to his charge into any of these Passions, unless there be some necessity thereof, by reason of any of the fore-mentioned occasions.

CHAP. 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 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 Symptom. The Cause of a Disease is an affect against Nature, which causeth the Disease. Which is divided into Internal and External. The External, Original, or Primitive, comes from some other place, and outwardly, into the body: such be meats of ill nourishment, and such weapons as bitingly wound the body.

The Internal have their essence and seat in the body, and are subdivided into Antecedent and Consequent. That is called an antecedent cause, which as yet doth not actually make a Disease, but goes near to cause one; to Haemorrhage copiously flowing, or ready to flow into any part, are the antecedent cause of Diseases. The Consequent is that which actually causeth the Disease, and is to 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 born together with us, as the over-great quantity and malign quality of both the foods, and the menestrous blood from diseased Parents, are causes of many Diseases, and specially of those which are called Hereditary.

Other happen to us after we are born, by our diet and manner of life, a stroke, fall, or such other like. Those which be bred with us, cannot be wholly avoided or amended, but some of the other may be avoided, as a stroke and fall; come not, as those which necessarily enter into our body, as Air, Meat, Drink, and the like.

But if any will reckon up amongst the internal, inherent, and inevitable Causes, the daily, hourly dilution of radical moisture, which the natural heat continually presys upon; I do not gainly it, no more then that division of Causes celebrated and received of Philosophers, divided into Material, Formal, Efficient, and Final; for such a curious contemplation belongs not to a Chirurgeon, whom I only intend plainly to instruct. Wherefore that we have written may suffice him.
What a Disease is, and how various. A Disease.

Disease is an afeSs against Nature; principally, and by it fell hurting and depriving the action of the part in which it resides. The Division of a Disease is threefold: Diftemper, Ill Conformation, and the Solution of Continuity.

Diftemper is a Disease of the similar parts differing, and changed from their proper and native temper. That digression from the native temper, happens two ways: either by a simple diftemper from the exceSs of one quality, and this is fourfold, Hot, Cold, MoiSt, and Dry; or by a compound diftemper, by the exceSs of two qualities, which also is fourfold, Hot and Cold, Hot and Dry, Cold and MoiSt, and Cold and Dry. Again, every DisTemper is the fault of one MoiSt, Hot and Dry's Cold and MoiSt, Cold and Dry. Again, every DifTemper is the fault of one of these veSsill harms joined with it, as a PhySigm. Again, a DifTemper is either equal, as in a Sphagnet, or unequal, as in a Phlegmon, beginning or increasSng.

Ill Conformation is a fault of the organical parts, whose connBuence is thereby depSrated. This hath four kinds; the first, when the nature of the part is faulty, either by nature or accident, or forSce cavity abolShed, as if a part which Nature would have hollow for forSce certain use, do grow or close up. Or, lastly, if they be rough, or smooth, otherwise than they should, as if that part which should be rough, he smooth, or the contrary. Another is in the magnitude of the part increasSed or dimiSned contrary to Nature. The third is in the number of the parts increasSed or dimiSned, as if a hand have but four, or eSs fix figures. The fourth is in the fire and mutual connBuence of the parts, as if the parts which should be naturally united and continBuSed, be placSed atSufSed. It is also in the great general kind of Disease, is the solution of continBuity, a Disease common both to the organical and organical parts, acquiring diVerSity of names, according to the variety of the parts in which it resides.

CHAP. XXII
Of a Symptom.

We do not in this place take the word Symptom in the moS general acceptaSion, for every change or accident which happens to man besides his own nature; but more referSed and speciaSly, onely for that change which the Disease brings, and which follows the Disease as a shadow doth the body. There be three kinds of a Symptom properly taken. The first is, when the action is hurt; I lay hurt, because it is either abolShed, weSken, or dePreSed, fo blindnes is a depravaSion or abolSion of the action of seeing; a duSes of light, is a diminuSion or weSkening thereof; and a fulSion, such as happens at the beginning of a Cataract, and when they think Flie, Hair, and such like bodies fly to and fro before their eyes, is a depSration of the light. The second is a simple affe of the body, and a full fault of the habit thereof being changed, happenSng by the mutation of some qualities; such is the changing the native colour into a red by a Phlegmon, and into a livid and black by a Gangrene. Such is the filthy ftench the Nose afflicted with a PapySus feeds forth, the bitter raS, in such as have the Jaundice, and the rough and rugged skin in them which are LepraS.

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 a humor profitable both in quantity and quality, is against nature, as bleeding in a body nor full of all humours, nor Potherickst and also the retention of things hurtful in fulSance, quantity, and quality, as the Courses in Women, the Urine, and the Stone in the Bladder.
Things not Natural may be doubted as uncertain; for one while they indicate the same things with things Natural; that is, they co-indicate with the strength, temper, and the rest; others with which they consort with things against Nature, that is, they co-indicate with the Disease. Wherefore Galen when he 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 Air, he would have us to understand the other things not Natural, because we may then embrace them more or less as we will our selves; but we must whether we will or no endure the present state of the Air. Therefore the Air indicates something to us, or rather co-indicates, for if it favour the Disease, as complying 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 forake the cure of the proper Disease; for so, a great weakness happening at the beginning of an Ague or Fever, we are often forced to give full patience to the Patient, to strengthen the Powers taken by the vehemency of the shockings, which thing notwithstanding lengthens both the general and particular fits of the Ague. Other pertain to the temper, other respect the habit, if the Patient be flender, if fat, if well filled, if of a rare, or dense constitution of body.

The induration, if the texture of a part be rare, it shows it is less apt or prone to obstruction; if dense of the variety aixf certainty of indications, some certain time, and reasons in those times command that hence we may understand certain Indications to be drawn from time, and to increase the credit in Winter, and scarce a Quotidian, and Ulcers in like manner, are more hard to heal in Winter. For the same state.

For some, it nourishes the Disease as an obstruction of the Liver; for otherwise, unless you mix astringent action of the parts, you will dissolve the strength of the part, that hereafter it cannot suffice for the cure. If the part be situated more deeper remote, it indicates the medicines must be more vigorous and lively, that they may find their force so far. The feethers, or quick force of the part, gives indication of inward Medicine, than perevent the figures or notes of a great Disease require. For the Physician which applies things equally (sharp to the horny tunicle of the eye being ulcerated, and to the leg, must needs be counted either cruel or ignorant. Each Sex and Age hath its indications, for some Diseases are curable in youth, which we must not hope to cure in old age; for hoarseness and great dilutions in very old men, admit no digestion, as Hypothesis faith.

Moreover, according to his decree, the Diseases of the Reins, and whatsoever pains molest the bladder, are difficulty healed in old men; and all reasons persuade that a Quaran admits no cure in Winter, and scarce a Christmas or Melch, after one months; the temerity of the part, as Moiture always indicates its preservation, although the Disease be moll, and give indication of drying, as an ulcer.

The principality of a part always infinuates an indication of all injuries, although the disease require dissolving, as an obstruction of the Liver; for otherwise, unless you mix ingredients things with dissolving, you will dissolve the strength of the part, that hereafter it cannot suffice for the cure. If the texture of a part be rare, it shows it is less apt or prone to obstruction. So there is no use of repercussives in destructions of those parts which in site are near the principal. Neither must thou cure a wound, or leve and Mefle, after one months. The temper of a part, as Moiture always indicates its preservation, although the Disease be moll, and give indication of drying, as an ulcer.

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The feeble Sire, for Age that hardly goes,
No's well digests the hurtful Rheum or pote.

Ad Canis ardens, facilia pungens non est.
In Dog-days heat it is not good.

By purging for to cleanse the blood,

Neither that thou so well prescribe a flender diet in Winter, as in the Spring, for the air hath its indications. For experience teaches us, that wounds of the head are far more difficultly and hardly cured, at Rome, Naples, and Rabel in Xantos. But the times of diseases yield the principal indications and some Medicines are only to be applied at the beginning and end of Diseases others at the increase and vigour of the Disease. We must not content these indications which are drawn from the vocation of life, and manner of Diet; for you must otherwise deal with the Husbandman (when he is your Patient) which leads his life sparingly and hardly, than with the Citizen, who lives daintily and idlely. To this manner of life and diet may be referred a certain secret and occult property, by which many are not only ready to vomit 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 Eel to the Table, at the midst of dinner and amongst his friends, that he fell into a swoon, all his powers failing him. Galen in his Book De Confutrition tells, that Averno the Perpatriae died suddenly, because compelled by the advice of the Physicians he obeyed, he drank a great draught of cold Water in the intolerable heat of a Fever. For no reason, faith Galen, than that because he knowing he had naturally a cold stomach from his childhood, perpetually abated from cold Water.

For as much as belongs to indications taken from things against nature; the length and depth, from our diet.

Indications drawn from things natural.

What the indications of the parts affected do indicate.

Indications drawn from things against nature.
We do not always follow the indication which is from the Disease.

What we must do when the temper of the part is different from the temper of the whole body.

Indications in implicit Diseases.

In what parts we cannot hope for the curing of the disease.

Experience without reason is like a blind man without a Guide.

Diaphragn or Midriff being wounded, or the Heart, or (to speak) Guts, Liver, Stomach, Brain, or Bladder: and that I may speak in a word, Erupcles are not much more skillful than the common people, although they do so much extol themselves above others by the name of experiences. For although experience be another instrument to find out a remedy, yet without reason or art, it will never teach what contraries are the remedies of contraries, and that broken bones must be united by means of ligatures, and not known to the vulgar. Which the indications drawn from those Fountains we must esteem above all others for those that are the principal and noble, which lead us, as by the chain of Indications, to the opinion of the vulgar, but let him know that they do not find out the rem suggested Indication is sufficient for the cure of all Diseases: and we do not always follow that which the indication of the Disease doth indicate to be done. But chiefly therefore follow, that this Indication is sufficient for the cure of all Diseases: for we find indications which are taken from the essence of the Disease, lest any should think we trust to that only. For to these things which pertain to the cure, prevention and mitigating of Diseases. But if any object, it must be trusted, which doth not urge as for example, if wounding happen in a Fever, the seventh burning shall not hinder us from giving Wine to the Patient.

Therefore these Indications are the principal and noble, which lead us, as by the hand, to do the things which pertain to the cure, prevention and mitigating of Diseases. But if any object, it must be trusted, which doth not urge as for example, if wounding happen in a Fever, the seventh burning shall not hinder us from giving Wine to the Patient.

(continued...
But on the contrary let us suppose thus: the whole body to be one degree more moist than the temper requires, and the aggregated part to be one degree drier: truly in this case the medicine that is applied to the Ulcer by reason of the part it self, shall not be increased in drieht, but wholly compos'd and tempered to the Indication of the Ulcer, because the force of the moisture exceeding in the like degree, doth counterpoise the superfuous degree of drieht. But it is more safe by an artificial contrivance to determine of all such things, than by any rules or precepts.

To these for many and various Indications, I think good to add two other: the one from smalli,tude, the other of a certain crafty device: and of the latter Physicians term it, a certain subtle stratagem. We draw Indication from Similitude, in Diacles which newly spring up and arise, as which cannot be cured by Indications drawn from their contraries, as long as their Essence is unknowv; and hid, wherefore they think it unnecessary to cure them by a way and Art like thofe. Diacles with which they seem to have an agreeing Similitude of Symptoms and Accidents: our Ancitors did the fame in curing the Frenul-Pox, at the first beginning thereof, as long as they afsumed the Cure to that of the Lepra, by reason of that affinity, which both the Diacles seem to have. But we follow crafty devices and fubtle counsels, when the Eftence of the Diacle we meet with, is wholly fecret and hid, either because it is altogether of a hidden and fecret nature, and which cannot be unfolded by manifest qualities, or eile refides in a hidden which is not sufficiently known to us, nor of a Physical contemplation, as the Mind. For then, we being difturbed of Indications taken from the nature of the thing, are compell'd to turn our cogitations to impotence and crafty counsels; and, they fay, this Art and Craft of chief use in Melancholy affections and affections, which are often more manifest and deformed than the Chimaera, for which mentioned in the Fables of the Ancitors: to which purpofe, I will not think much to recite two Examples. A certain man troubled with a Melancholick Diacle, I know not by what errour of Opinion, had ftrongly perfuaded him that he was without a head; the Physicians omitted nothing, by which they might hope to take this mad opinion out of his mind. But when they had in vain tried all Medicines, at length they devi'd this crafty, but profitable device: They binded and put upon his head a most heavy helmet, that fo by the pain and trouble of this hand nodding and drawn down, by that weight, he might be admitt'd of that true opinion, that he had horns upon his head; nor could he foonly be convinced of the truth, did verily be- monftrous opinion, until that binding up his eyes they mifpake that abfurd and monstrous creature, with the hony toughnefs of which they forcefully packed and scratched his forehead, with the painful drawing of the hood after his face, that thofe bloody horns were forcibly placed upon him. Ingenious Chirurgeons in imitation of these examples may in like cafe do the like. For that cafe requires a man of a quick apprehensio and advice, who may give manifest proof of his diligence and skill by medicinal stratagems, as who forthwith can pollicitously devise stratagems of divers forms.

But now coming to the end of this our tract of Indications, we must chiefly and principally ob- serves, that of Indications there are Indicative, which absolutely and of themselves concur this to be done; other co-indicative, which indicate the fame with the Indicative, and jointly fhew it to be done, but in some fort secondarily and not primitively. Some are repugnant, which of themselves and their own nature perfaide quite contrary to that the indicative perfaide, and maintain them. Let this serve for an example of them all:

A Physician, or plentitude of hiourous, of its own nature, requires and indicates blood-letting, the
Spring-time perfaides and co-indicates the same; but to this confeil is quite opposite and repugnath a weak faculty: and childhood is compurgant.

Wherefore these four must be diligently weighed and confidered when we deliberate what is to be done, and we must rather follow that which the indicative or repugnant fhew and declare, as what the Diacles and strength of the Patient require, than that which the coindicative or compurgant shall perfaide, because they have a fide and but secondary power of indicating, and not effential and primitive. But because the kinds of Indications are fo many and divers, therefore that the knowledge of them may be more perspicuous and left confufed, I have thought good to defcribe and distinguish them by this following Scheme.
### Table of Indications

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause of the Disease</th>
<th>The Disease, the Indication being drawn from the parts, the complication or confusion with other parts, so</th>
</tr>
</thead>
</table>
| Bitterness of pain, a diminution into a part, a variety, or big swollen veins, a decrease in temperature, if they be jointed with a disease | From that which is most urgent, from the cause, and from the parts, with which the disease cannot be taken away. | The greatest.

From that which is most urgent, from the cause, and from the parts, with which the disease cannot be taken away.

From that which is most urgent, from the cause.

From that which is most urgent, from the cause, and from the parts. And

In imbibition, or mixed disease, for we may draw indications from the parts, heads.

### From that which is most urgent

- The strength and faculties of the Patient,
- From the temperature, as if the Patient should be
- From the habit of the body, as the Patient should be
- From the native condition of the hurt, or which we can infer from which we can infer
- From the age, for each age yields his peculiar indications
- From the manner of Diet, for this, as the proper temper,
- From the region, for as there are diversities of situations and habits of places, so also there are motions of humours, and manners of diseases: hence it is that wounds on the head at Paris, and fore parts at Avignon.
- From the use and benefit of the times.

### For who preservare, oftentimes the proper cure of the disease must be neglected, for where these fail, it is impossible the Chirurgeon should perform what he advises and expects.

### Of preservation of which the Chirurgeon must have care, and if they proceed from equality, to reduce them to that which formerly they naturally were.

### From that which is most urgent

- For the sake of the Patient's health, and faculties of the Patient.
- From the strength and faculties of the Patient.
- From the temperature, as if the Patient should be
- From the habit of the body, as the Patient should be
- From the native condition of the hurt, or which we can infer from which we can infer
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### A Table of Indications

- For whom the Patient's health, and faculties of the Patient.
- From the strength and faculties of the Patient.
- From the temperature, as if the Patient should be
- From the habit of the body, as the Patient should be
- From the native condition of the hurt, or which we can infer
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- From the use and benefit of the times.
CHAP. XXII.

Of certain wonderful and extraordinary ways of curing Diffickes.

A

Some affirm according to the opinion of Ajcctepiders, that such as are franticke are much helped with a sweet and musical harmony. *Theophrastus* and *Aulus Gellius* say, that the pain of the Gout and Sciatica are taken away by Music. And the sacred Scripture telth, that David was wont by the sweet sound of the Harp to refresh and ease King Saul when he was insensibly tormented by his evil spirit. *Herodotus* in Greece tells, That Croesus of Lydia had a Son which of a long time could not speak, and when he came to mans estate was accounted demented: but when an enemy with his drawn 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 endeavouring to cry out, and with that striving and feceing of the Spirit, he broke the bonds and hindrances of his tongue, and spoke plainly and articulately, crying out to the Enemy that he should not kill King Croes. So both the Enemy with-held his sword, and the King had his life, and his Son had his speech always.

Alexander adds, That it happened once in his fight, that the Musicians, their wind and hands falling them, ceased playing, and then the Dancer presently fell down as if he had been dead: but by and by the Musicke began agayne, and continued his dancing till the perfect dissipation of the venom.

And that it hath happened before, that one not perfectly healed, certain relics of the Diffacke yet remaining, when a long time after he heard by chance a noife of Musicians, he presently fell a leaping and dancing, neither could he be made to leave before he was perfectly cured.

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An Introduction, or

Lib. I.

A certain Idea being opened, yet because it was not cut for this purpose, but happened only by chance, I judged it was not much differing from this argument.

Play writes that there was one named Phalarus, which cutting up blood at his mouth, and at the length, medicines nothing availing, being weary of his life, went unarm’d in the front of the Battel against the Enemy, and there receiving a wound in his Beft, fled a great quantity of blood, which pain’d an end to his spitting of blood; the wound being healed, and the vein which could not contain the blood being condecent.

At Paris, June 1572, in July, a certain Gentleman being of a modest and courteous carriage, fell into a tertian Fever, and by that means became Frenzied, moved with the violence of which, he call’d himself headlong out of a window two stories high, and fell first upon the shoulders of Valleria the Duke of Alenzons Physician, and then upon the pavement; with which fall he cruelly bruiz’d his ribs and hip, but was refer’d to his former judgment and reason. There were present with the Patient besides Valleria, witnesses of this accident, thefe Physicians, Alenz, Magin, Dorent, and Armerman.

The fame happened in the like Difcase, and by the like chance, to a certain Cajafy, lying at the house of Agris in the Paved Street.

*The cause of the left recit’d Cures.*

**A certain Tugging and deceitful way of Curing.**

Here I determine to treat of thefe Impoftors, who taking upon them the perfon of a Chirurgoon, do by any means, either right or wroght, put themselves upon the works of the Art, but they principally bring themfelves among the ignorant common sort, of letting bones which are out of joint and broken, affur’mg, as falsely as impudently, that they have knowledge of thofe things from their Ancestors, as by a certain hereditary right; which is a moft ridiculous fication:

for our minds when we are born, is as a smooth Table, upon which nothing painted. Otherwise what need we take such labour and pains to acquire and exercife Sciences? God hath endued all brute Beasts with an imberd knowledge of certain things necessary for their life, more than Man.

But on the contrary, he hath enrich’d them with a Wit furnished with incredible celerity and judgment, by whole diligent and laborious fatigation, he subjects all things to his knowledge. For it is no more likely that any man fhould have skill in Chirurgery, because his Father was a Chirurgeon, than that one who never endured sweat, pain, nor Sun in the Field, fhould know how to ride and govern a great Horse; and know how to carry away the credit in things, only because he was got by a Gentleman, and one famous in the Art of War.

There is another fort of Impoftors, far more pnecious and lefs fufferable, boldly and infolutely promising to restore to their proper unity and fect, bones which are broken and out of joint, by the only murmuring of some conceited charms, fo that they may but have the Patients name and his guide. In which thing I cannot sufficiently admire the fools of our Countrymen so easily crediting so great and pnecious an error; not obferving the inviolable Law of the ancient Physicians, and principally of Divine Hippocrates, by which it is determin’d, that three things are neceffary to the setting of Bones dilocated and out of joint; to draw the bones afinder, to hold the bone receiving firmly immovable with a strong and fteddy hand; to put the bone to be received into the cavity of the receiving. For which purpofe the diligence of the Ancients hath invent’d fo many Engines, Cliffs and Bands, left that the hand fhould not be fufficient for that laboured Work.
Book I.

Compendious way to Chirurgery.

I had him in cure together with the Physicians and Chirurgeons of the Emperor Charles V. and Emanuel Filibert the Duke of Savoy, who because he entirely loved the wounded Prince, caused an Assembly of Physicians and Chirurgeons to consult of the best means for his cure. They were all of one opinion, that the wound was deadly and incurable, because it passed through the middle 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 certain Spanish, a notable Knave, and one of those Impostors, who would pawn his life that he would make him founds wherefor this Honourable Person was in this desperate case, was commuted unto his care. First of all, he bid they should give him the Patient's shirt, which he tore into shreds and pieces, which presently framing into a dofs, he laid upon the wounds, whispering some conceived or coined words, with a low murmur. For all other things he wished the Patient to rest content, and to use what diet he pleased, for he would do that for him, which truly he did. For he ate nothing but a few Prunes, and drank nothing but small Beer, yet for all this the wounded Prince died within two days; the Spanish slept away, and so forged hanging. And whilst I opened the body in the sight of the Physicians and Chirurgeons to embalm him, the signs and accidents of the wound did evidently and plainly appear to be as we had pronounced before.

And there be also other railing Companions of this Tribe, who promise to cure all wounds with Lint, or Tents, either dry or macerated in Oil or Water, and bound to the wound, having murmured over some charm or other, who have had sometimes good successes, as I can witness. But the wounds upon which trial was made were simple ones, which only required union, or closing for to perfection the cure. So verily the bones of Beasts when they be broke, grow together by the only beneft of Nature. But when the affection shall be composed by diversity of Symptoms, as a wound with an ulcer, inflammation, contusion and fracture of a bone, you must hope for no other from Tents, or Lint, nor Charms, than death. Therefore the common fort, who commit themselves to these Impostors to be cured, do not only injure themselves, but also hurt the Commonwealth, and the common profit of the Citizens; for whole good and Justice fake a prudent Magistrate ought to deprive Impostors of all freedom in a free and Christian Commonwealth.

Witches, Conjurers, Diviners, Soothsayers, Magicians, and such like, boast of curing many Diseases; but they do or promise any thing in this kind, they do it all by sleights, subtilties, and forbidden Arts, as Charmes, Conjurations, Witcheries, Characters, Knots, Magical Ligatures, Rings, Images, Poylons, Laces tied across, and other damnable tricks, with which they poison, pervert, and defile the pure and sacred Art of Physick, and that with the danger of men's lives. Who certainly are to be banished by the Laws of our Country, especially seeing it is decreed in Moses Law, that none be found among you that useth witchcraft, or a regarder of Times, or a maker of the flying of Owls, or a Sorcerer, or a Channer, or that confulteth with Spirits, or a Soothsayer, or that asketh counsel at the dead; for all that do such things are abomination to the Lord, and because of their abominations the Lord thy God doth call them out before thee. But the miracles of our Lord Jesus Christ the Son of God, and of his Saints and Apoftles in curing Diseases beyond Nature and all Art, are of another kind, which we ought to believe so firmly and constantly, that it should be counted an impurity for a Christian to doubt of them. All holy Writings are full of these, as to give sight to the blind, hearing to the deaf, power to go to those sick of the Palsy, to drive forth Devils, to cure the Leper, to give fruitfulness to Women, to raise the Dead, and to perform by the Holy Ghost other Miracles which exceed the condition and Law of Nature; whom here we earnestly in¬ treat to free and protect us from unclean Devils, and the Spirits of Diabolical deceit, and to give us the mind that we may will and be able always to aspire to Heavens, and enjoy the hope, felicity, and anchor of all our Fortunes in God alone. Amen.

The End of the First Book.
Before I come to speak of the Anatomy of Mans Body, I have thought fit to say a little of the Nature of brute Beasts. There is between Beasts a great deal of difference by Nature, vizt. of there form are hardy and bold, others fearful; some wild and savage, some tame; some walking in herds, others wandering alone; some covered and defended with thists and scales; as the Crocodile, the Torrtois, and many kinds of Fift; others have tings and prickles.

The Horse hath his hard and strong hoofs, his Ceft (as being a generous Beast) better with a thick and hard Man. The defence of the magnanimous Lion are his Teeth, his crooked Paws and Tail, which are justly reproved by their Hons. The Bear by his Tusks standing out, as it were natural Hunting-foars. The Hare being a timorous Creature, is naked and unarmed; but in recompence there of Nature hath made her nimble and swift of foot. For what the more noble and courageous Beasts have in Arms, is filled up in the fearful by nimbleness and celerity. Infinite are the other endowments of brute Beasts, and such as can hardly be imagined or described. For, if we diligently search into their Nature, we shall observe the imitations and shadows of many Vertues, as of Magnanimity, Prudence, Fortitude, Clemency, and Duty; for they extremely love one another, follow those things that are good, and those that are hurtful, and gather and lay up in store those things that are necessary for Life and Food. Lastly, they give undoubted prelages of the Weather and Air. They have taught men many things, and are of a most exquisite and quick ferfe; of rare Art in Vocal Mufick, prudent and careful for their young, and faithful Lovers of their Native Soil. They are religious observants of the Rights of Friendship and Charity. They have their Weapons whereby they are prepared both to invade and to defend themselves being invaded. They feem themselves the Disciples of Man, practife and imitate his Speech, and mutually prattle and chant one to another. They have a kind of War-publick amongst themselves, and know how to preserve their present welfare, and to depel the contrary, being in this their own Counfelors, and not turned from Man. Yes, Man is beholden to them for the knowledge of many wonderful thins.

The Confederation of which bred so great a doubt among the ancient Philosophers, that it was a question amongst them, Whether Beasts had use of Reason, or not? Therefore also the wife Solomon feeds us for examples of prudence and diligence unto the Ant or Pinfaries, and Ekw in expression of the People of Efrai for their ingenuity and rebellion against God, feeds them to the Ox and Afs; for they do not only know, but reverence their Masters.

But from whence is the knowledge of those Medicins wherewith the Art of Physick is so richly adovated, but from brute Beasts? as Phed affirneth. The invisible virtue of the Herb Diplomae, in drawing Darts out of the Body, was taught us by the Hart, who wounded with the Huntman's Bill from the Fowls, she draws out the Weapons which remain sticking in her. Which is likewise pradized by the Goats of Candy, as Articulo writes. The wonderful effect which Celadine hath upon the eye, was learnt by the prudence of Swallows, who have been observed with it to have beenemented, and so strengthened the eyes of their young. Scorpions rub their eyecells with Fennel, and are thought by that meanes to quicken and restore the decaying sight of their eyes. The Torrtois doth defend and strengthen her self against the biting of Vipers, by eating of Savorye Beasts, by eating of Pinfaries, expel that Poifon that they have contracted by their use of Manthatke. And for correction of that droustness and floth which grows upon them by their long steep in their Dens, they eat the herb of Alov (l.) Cackoprin. But the Art they use in the intaking and catch- ing of Pinfaries is very pretty: they go softly to the holes or hells of the Pinfaries, and there lay themselves all their length upon the ground, as if they were dead, bringing out their Tongue wet with their foam, which they draw not again into their mouth before they feel them full of Pinfaries, which are emitted by the forefeet of the foam. And having taken these as a purging Medicine, they expel by the guts those ill harms wherewith they were offended. We fee that Dogs give themselves a Venin by eating a kind of Grafs, which is from thence called Dog-grafs. Swine, when they find themselves fick, will eat after Smal; or River-Lofters. Stockebyes, Blackbirds, and Partridges, purge themselves by Bay-leaves. Pigeons, Turdes, and all forts of Pifms depend on themselves of good humours by taking of Poultry of the Wall. The Bird Hid (being not much unlike the Stork) taught us the use of Clysters. For when he finds himself oppreced with a burden of harmful humours, he fills his bill with Salt Water, and so purges himself by part which by the means of the bile is belch discharged. The invention of the way of removing the Cataracts of the eye, we must yield unto the Geat, who by flinking by chance against the thorny bushes, pulls off the Cataracts which hinder the sight, and covers the ball of the eye, and so recovers his sight. The benefit of Phlebotomy we owe unto the Hippopatamus or River-horse, being a kind of Horse, and the inhabitant of the River Njus; who being a great devourer, when he finds himself parched with a great deal of blood, doth by rubbing his thigh against the sharp Sand that grows on the Bank side, open a Vene, whereby the supraneous blood is discharged, which he expells likewise when it is fit, by rowing himself in the thick mud. The Torrtois having chance to cast any of the feet of a Serpent, doth make Origi- gum and Marjoram her Antidote. The Ancients found help from brute Beasts, even against the dreadful and nois-faring force of Lightning; for they were of opinion that the Wings of an Eagle were never struck with Lightning, and therefore they put about their heads little wreathe of these Feathers.
Feathers. They were persuaded the same thing of the Seal, or Sea-Calf, and therefore were wont to encompass their bodies with his Skin, as a most certain safeguard against lightning. It were a thing too long and laborious to speak of all those other moniments of life and health (observed here in such Singulars and Playes) which we have heared of Lente Beasts. I will therefore end this Chapter, after that I have first saide this: That we are beholden to Beasts not only for the skill of curing Diseases, and of preservation of Health, but for our Food, our Rayment, and the Ornament and Beautifying of our Bodies.

**Of the Faculty of brute Beasts in Prefaging.**

He first knowledge and skill of Prognostication, and observation of Weather by the Air, was first delivered unto us from Beasts of the Land and Water, and from Fowl. For we, finding, that it is a sign of change of Weather when Lambs and Rams do but at one another with their Horns, and playing wantonly do kick, and keep up their heels. The same is thought to be prejudged when the Cockicks himself against the hair, and on the sudden tills the Air with his loving, and smelts to the ground, and when he feeds more greedily than he used to do. But if the Pintaries in great multitudes fetch their prey to hastily, that they run and tumble one upon another in their narrow paths, it is thought a sign of rain: As also the busy working of Moles, and the Gote rushing and frothing of her hood and neck, and above her ears with the bottom of her breast. Also when Fishes play and leap a little above the Water, it is taken for a sign of rain. But if the Dolphins do the same in the Sea, and in great companies, it is thought to prefigure a hidden storm and tempest. Whereby the Mariners fore-warned, use all care possible for the safety of themselves and their Ships, and, if they can, cast Anchor. And it is sufficiently known what the louder croaking of Frogs than ordinary portends.

But the faculty of Birds in this kind of presaging, is wonderful. If Cranes fly through the Air without noise, it is a sign of fair Weather; and of the contrary if they make a great noise and fly fragantly. As also if Sea-Fowl fly far from the Sea, and light on the Land. The cry or fretting of Owls portends a change of the present Weather, whether fair or foul. Planetized, when they see the loud cawing of the Crow betokens Winds and Showers, as also when he flaps his sides with his wings. Geese and Ducks, when they dive much, and order, and prune, and pick their Feathers with their Beaks, and cry to one another, fore-tell rain: and in like manner Swallows, when they fly about the Water that they wet themselves and their wings. And the Wren, when he is observed to sing more sweetly than usual, and to hop up and down. And the Cock when he chants, or rather crows preferably after the setting of the Sun: And Grats and Fleas, when they bite more than ordinary. If the Heron should alight in the Air, it betokens fair Weather, if on the contrary he fly close by the Water, rain. If Pigeons come late home to the Dove-house, it is thought of rain. If Birds fly in the Evening, they fore-see the Weather. And lately the Crocodile lays her Eggs in that place which must be the bounds of the overflowing of the River Nilus: and therefore he that first meets with these Eggs, tells the rest of the Country People, and they show how high the flood will rise, and what inundation it will make upon their Grounds: A thing most worthy of admiration, that in this Monstere there should be that strong faculty of prefiging.

**Of the Industry of Fishes.**

Any Sea-fishes, when they feel a tempest coming, do gravel or balst themselves, so to the end they may not be tossed up and down at the pleasure of the waves. Others, when the fury of the Sea is at the height, hide themselves in the holes of Rocks. But in that they form against the storm, they do it for this cause and reason, that the force of the storm and the flood 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 fly against the Wind, whereas if they should fly down the Wind their Feathers would be displaced and broken, and they would not be able to fly.

**Of the Industry of Birds.**

Of the Industry of Birds in the building of their Nests. He industry of Birds in the building of their Nefts is such, that it doth far exceed the Art and Skill of all Masons and Architects, from whence it is become a Proverb, That man know, and can do all things but make Birds Nefts. They are built within with Wool and Feathers, and such kind of soft things, which are as a kind of a Pallet for the young ones. Swallows build their Nefts in the round form, that they may be the more firm, and least subject to be hurt by any things that shall strike against them, and likewise more capacious. They charge their matter out of Dirt and Chaff, (introducing it with many Straw) as it were, their Plaster or Lime. That build in Trees do make choice of the soundest Boughs, if they meant to have them as a fire foundation for the building which they should erect thereon. The Cock and the Hen do turn the mortar over their Eyes, and likewise fetch their meat, interchanging each others labour: neither do they ever forsake their young, before they are able to get their own living. I had at my house a great number of Sparrow Nefts in garden Pots: and when the young ones began to wax pretty big, and to be covered with Feathers, I made the whole Nefts 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 fed them every one in order, skipping none, neither will they (to the wrong of the rest) give one two parts, although he pays, and be importunate for it; dividing most pretty to every one his own share, according to the exact rule of distribution. And oftentimes for experiment, I would make trial with a strange Sparrow of the same age, laid near, or put among the rest of the young ones, whether the old ones would feed the stranger, as if we were legitimate. But this as a stranger and a Buffard, and they would futter to starve, skipping it when it pappeled to the meat. And in that manner Lambs and young Kids do in the Fields, in the midst of a great Flock, in every case. O Dam, who being most certainly able to distinguish between the Legitimate and a Buffard, will not suffer her felt to be stuck, but by her own young;
Of the Inocracy of Spiders.

The Spider spins her Web with wonderful Artifice, hanging, and fastening it to every tack or stay that it is nigh, drawing of his thread, and running up and down, and ways and ways, and although the diligence of the Chamber-maid beats down and mars this pellucid and new-begotten work, yet her fear and her hold the Spider keeps still; neither doth she, nor will the deftit the work the hath begun, but in a very short time weaves a great deal more unto the ruines of her former work, than can be unwound again with much labour. So that from hence all Clothiers and workers with the Needle (you willy easily think) have learnt their Arts, if either you observe the exactness of the weaving, the threads of the thread, or the continuation and indificilable knitting together of the whole Web, for, being abrupt, and troubled with no ends of threads at all, it refembles a thin undrawn, associated with a kind of glue, whereby when the prey is entangled, the Spider rushes presently in, and as it were draws her nets and insialks and takes the captive after the manner of Huntsmen. If this were not daily seen with our eyes, it would be thought fabulous.

Of Bees.

Neither is the industrious, diligence, and experience of the Pismire left worthy of admiration than that of the Bees. Inform us that Solomon bids the sluggard to take an example of diligence from the Pismire. Truly, if experience did not witness it, it would form to know that so small a Creature should be able to store up such abundance of Corn, to dispose and manage her affairs in that good order that we fee the doth. Pisy faith, that they have among them the form of a well-governed and well-ordered Common-wealth. For how neatly a fitness is it to see them when they that is nigh, drawing of his thread, and running up and down, and ways and ways, and although the diligence of the Chamber-maid beats down and mars this pellucid and new-begotten work, yet her fear and her hold the Spider keeps still; neither doth she, nor will the deftit the work the hath begun, but in a very short time weaves a great deal more unto the ruines of her former work, than can be unwound again with much labour. So that from hence all Clothiers and workers with the Needle (you willy easily think) have learnt their Arts, if either you observe the exactness of the weaving, the threads of the thread, or the continuation and indificilable knitting together of the whole Web, for, being abrupt, and troubled with no ends of threads at all, it refembles a thin undrawn, associated with a kind of glue, whereby when the prey is entangled, the Spider rushes presently in, and as it were draws her nets and insialks and takes the captive after the manner of Huntsmen. If this were not daily seen with our eyes, it would be thought fabulous.
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forneth that they have their fair Fairs and Markets, whether they come in great companies, and where they use to establish Leagues of Amity and Friendship one with another. And when one marks them well, would he not think that they were in conference one with another, and that they did discourse among themselves of their business? Do we not see that the often trampling of their little feet doth wear a path even upon hard flint stones?

From whence we may note, what in all kind of things is the effect of the affiduity. They say also that they perform the rites of burial one unto another, after the manner of men. What words shall I use (faith Pantagruel) to express sufficiently the diligence and industry of the Pilgrims? There is not among all the great things in Nature, a sight of greater wonder than this: For in the Pilgrims are seen the marks of all Virtues. Their great meetings argue that they maintain a kind of Friendship.

Their alacrity in the undergong of their labours, seem to flow their fortitude and magnanimiti-

ty; and fully, they are eminent examples of Temperance, Providence, and Justice. Their mutual Charity appears in this, that if one of them that is not loaden meets another (in one of their narrow paths) that is, he will give him the way, that he may the better go on in his intended journey. They say, that the first entrance into their hole is not straight, but full of many diverticles and crooked paths, which in the end 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 carcasses of their dead. This doth Pantagruel speak concerning Pilgrims.

Of Silkworms.

With the Industry of these Creatures I shall not unfitly join that of the Silk-Worm, of whose pains and care, both in the making of their Ne
ta, and the spinning of their thread and bottoms, (whereby Kings are so magnificently adorned, philosophers have written very strange things. And who can chuse but wonder at those 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 only appear in this, that he 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.

Pantagruel writeth, That all kind of Creatures bear a singular love, and have a kind of care of those that are generated of them, and the industry of Partridges this way is much commended; for during the time that their young ones are weak and unable to fly, they teach them to lie upon their backs, and to hide themselves among the clods on the ground, that to being almost of the same color, they may not be discovered by the Falconer. But if notwithstanding they see any body coming, and that he is near them, they do with a hundred darts and throppings of themselves, so as if they were weary with flying, eticte him away from their young, to follow after them, and when they have their purpose, they then, as if they had recovered some fresh strength, fly quite away! Who can but wonder at this, both affection and fidelity?

In Florida, part of the West Indies, they have a Beast, which for the variety and deformity of it I cannot pass over in silence; the Natives call it Saccacath, the Cannibals Sw. It keeps for the most part about the Rivers, and the Sea-shore, and lives by prey. When he perceives that he is pursued by the Huntman, he gets his young ones upon his Back, and with his Tail, which is very long and broad, he covers them, and so flying, provides both for his own and their safety; neither can he be taken by any other way but by Pits, which those savage men use to dig in the places near which he is to run, into which at unawares he tumbles headlong.

This Picture of him here, I drew out of Tholet's Cosmography.
How Hares provide for themselves and their Young, for fear of Hunters.

The care of the Hedge-hog to provide for her Young.

The Piety of Storks.

Of the affection of Birds, and of Dogs towards their Masters.

The firey of Storks.

The fidelity of Dogs.

Doves free from adultery.

Turtles never couple twice.

Neither are those things less wonderful that are reported of Hares, for when they would go to their fear, they fever their young, and commit them to the trust of divers places, it may be two scores and unfer one another, left peradventure a Hunuitian, a Dog, or any Man should chance to come that way, and they might be in danger to be left at a distance. And when they have therefore traced up and down, thither and thither, and every way, that the Dogs may not trace them, nor the Hunuitian prickt them, they take a leap or two, and leap into their forms.

Nor inferior to this is the craft of the Hedge-hog: for when the Fox pursueth him, and is now at his beds, he roths himself up in his prickles like a Chief in the outward theft, so that every part being rounded and encompassed with those sharpe and dangerous prickles, he cannot be hurt; and so faves himself by this trick.

For his young he provides in this manner:

In the time of Vintage he goes to the Vines, and with his feet strikes off the Boughs and the Grapes, and then bowing his body makes them fall upon his prickles, and doth (as it were) take his burden upon his back, and then returns to his hole; you would think that the Grapes did move of themselves: the prey he divides between himself and his young.

Of the lamprey.

Of the Savage or Brute Beasts may be made tame.

The Savage or Brute Beasts may be made tame.

That he is far more wonderful 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 Eel. The same things also are reported of the Lamprey. For, we have it recorded, that Minerva Graffio had a Lamprey in his Fish-pool that was so tame and so well taught, that he could command her at his pleasure. Therefore as a domastical and tame Beast he gave her a name by which, when he called her, she would come. And when this Lamprey died, he mourned for her in black, as if she had been his daughter. Which when his Colleague Caius Dominus objected to him by way of reproach, he replying told him, That he had buried three Wives, and had mourned for none of them three.
Of the strength, piety, docility, clemency, charity, and gratitude of Elephants.

Among the Beasts of the Field, there is none more vast, more strong, or more to be feared than the Elephant. His strength is sufficiently shewn by those towed Castles of armed men which he carries, and fiercely rushes with into the Battle. The Roman Soldiers, being otherwise undaunted spirits, yet in that battle which they fought against Pyrrhus, being terrified with the vastness and immensity of these Bodies, which they had never before seen, presently turned their backs and fled; which notwithstanding, it is a wonderful thing what Stories Natural Philosophers tell of the Virtues of the Elephant.
Of living Creatures, and Book II.

The Religion of the Elephant.

Pliny writeth, that an Elephant cometh very near to the understanding, that Men have, and that he hath a rude kind of knowledge of Language, that his facility and obsequiousness is wonderful: that his memory in the performance of his wonted duties, is no less wonderful. And for Religion (Plutarch faith) that they pray unto the Gods, and sprinkle and purge themselves with salt waters; and that with great reverence they worship the Sun at his rising, lifting their trunks up in adoration, and then return to the Woods, the oldest going first, and the others following after according to their age. Plutarch reporteth, that it is happened once, that among the Elephants that were taught at Rome, against the Paralygrians, 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 Moon, to be practising and comning what he learned at his Master in the day time. For they were wont to be taught to make Letters, and also to present Garlands to the Spectators, and such like rules. But they can never be brought to go aboard a Ship, to be carried over the Sea into any foreign Land, unless their Master give them his word to assurance them that they shall return again to their own native soil. They never hurt any one that doth not first provoke them. They never gender but in private, out of fight, an argument of their modesty.

The providence of the Lion in his going.

The Eleucmonces seem to imitate the most valiant Soldier in his preparation and access to battle; for he bedawbs himself with mud, and doth (as it were) buckle and make his Armour, especially when he is to encounter with the Crocodile, who although he be a vall Beasts, is put to flight by this little Creature. And this truly hath been observed to be by the singular Providence of Nature, that the most vall Beasts are terrified by the least things, and such from whence there can arise no danger, so they say, the Elephant doth startle at the grunting of a Hog, and the Lion at the crowing of a Cock although it be reported of the Lion, that no fear can make him turn his face. These kind of fears, terrors, and frights, arising upon light and most ridiculous occasions, we find as well in the ancient as modern Histories of our Times, to have dispirited and put to flight mighty Legions of Scoundrels, and most potent Armies.

Of Cocks.

Cocks are Kingly Birds, and therefore Nature hath adorned them with a Comb, as with a Princely Diadem; and whatever they come, their magnanimity and courage makes them Kings. They fight with their Beaks and their Spurs, and with their martial 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 lofty Cities and Structures reaching to the very Skies, are by taking away their foundation levelled with the ground. Marcus Varro writeth, that in Spain there was a Town, and that no mean one, which standing on a sandy ground, was so undermined by a company of Conies, that all the Holes tumbling and falling down to the ground, the Inhabitants were fain to depart and seek new dwellings.

Of Wolves.

Men have learnt the Arts of waging War from the Wolves, for they come out by Troops, and lie in ambusc near the Towns which they have appointed, and then one of them runs before he goes, and will not venture to pass over. The knowledge of which thing he hath made kind of knowledge of Language that he well, and obsequiously is won-}

Of the Fox.

In subtilty and craft the Fox excels all other Beasts. When in the chase the Dogs are at his heels, he reins and loppeth his tail, and swings it in the face and eyes of the Dog that follow him, and doth blind them, in the mean time gets ground of them. To fetch the Huns down from their Perch, he hath this device: he flashes and swings his tail upwards and downwards, as if he meant to throw it at them; which they fearing tumble down, and he takes up one of them for his prey. His warriness when he passes over a River that is frozen, is wonderful; for he goes softly to the bank, and lays his ear to Histen if he can hear the noise of the Water running under the Ice; For, if he can, back he goes, and will not venture to pass over. The knowledge of which thing he could never leaer by his subtilty and craft, ariseth out of need, but that of necessity he must have. He is a species of reasoning joined with it, which by discourse, and by proving one thing by another, arrives at this conclusion: Whatevcr is liquid and maleth a noise, is in motion; whatsoever liquid
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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 ventured on; and therefore back again must I go, and not pass over this River.

Those men are taught by Beasts to polish and to whet their weapons, and to lie in ambush.

Soldiers are careful to keep their Weapons from rust, and therefore they carry them to the Armourers to be polished. But in this care, many Beasts are nothing inferior unto them; for Beasts whet their tusks against they fight. And the Elephant knowing that one of his teeth is doubled with digging at the roots of Trees to get meat, keepeth the other sharp, and toucheth nothing with it, preserving it for his combat with the RHINOCEROT his Enemy. But the craft of
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The craft of the Rhinoceros to fight with the Elephant.

The craft of the Rhinoceros is very remarkable, that being in continual enmity with the Elephant, at the time when he prepares for the battle, he whets his horn against a Rock, as it were with a Whetstone; never (if he can chance) will he be like 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 pelliz yellow colour, and full of many spots.

Of Swine.

When they fear no such matter, and involve their legs with the twines of their tail, in such fort, their gagging against them, that they are not able to go forward, and stop their noislets with their heads, so that they cannot fetch their breath; they pull out their eyes, and wherever they find the skin most tender there, they cut it asunder, and so fet free themselves and their captivated fellows.

Of the Pilot-fish.

Cranes order themselves in ranks.

Cranes when they are to take a long journey into some Country, crost the Sea, put their company in so good order, that no Captain can put his Squadrions in better. For before they stir out of any place, they have (as it were) their Trumpets to call them together, and encourage them to go. They come together, and then the up on high that they may see afar off, charging a Captain whom they are to follow. They have their Sergeants to take care of their ranks, and keep their nightly Watches by turns. Plutarch tells us, that the Crane, which is appointed to stand Sentinel for all the rest, holds a stone in her foot, to the end, that if she chance to give way to Nature and her prey.

The Sentinel, or Crane.

The care of Geese that their gagling do them no harm.

Neither are the Dragons less crafty; for thus do they overcome those vast and otherwise invincible Beasts the Elephants. They lie in ambush, and suddenly set upon the Elephants when they fear no such matter, and involve their legs with the twines of their tail, in such fort, that they are not able to go forward, and stop their nostrils with their heads, so that they cannot fetch their breath; they pull out their eyes, and wherever they find the skin most tender there, they bite and suck the blood until they make them fall down dead. Pliny 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 so high that they fetch Birds, and take their prey even from the midst of the Clouds.

Of Dragons.

The craft of the Pilot-fish in leading her prey.

The craft of the Pilot-fish is called the Fisherman, because he hunts and takes other Fishes, which he doth almost by the same cunning which the Cuttel uses, for he hath hanging at his throat a certain bag, like the Watch of a Turkey-Cock, This when he setteth he cafteth out, and by little and little draws it up again, until he catch for food the little Fishes falling upon it as a prey.

Of the Fish called the Fisherman.
Of the Excellency of Mat.

Wonders of the Cathe Fishes.

Wonders of the Cathe Fishes. For they carry a bladder at their back full of a black Juice or Ink, which they pour forth as soon as they feel themselves taken, that so they may blind the eyes of them that Filbermen, as Plutarch faith, and as Aristotle witnesseth, they with their long Fingers do not only hunt and take little Fishes, but oftentimes also Mulletts.

Of the Excellency of Mat.

Wonders of the Cathe Fishes. - They are naturally furnished with Arms that they have no need to get, make, or borrow in any other place. And for want of them, there is no such arm as the Arm of the Cathe Fish, with their forked Claws, not only in feeding, but also in defending themselves, and affailing others.

Of the Excellency of Mat.

Wonders of the Cathe Fishes. - For Dogs, Apes, and Horses, learn to creep through the Jugglers Hoops, and ride on their hinder Feet, as though they would dance. Plutarch tells, that a Juggler had a Dog which would execute many things upon the Stage, according to the occasion of the Play, and the argument of the Fable, as though it were true. But when he, by chance, did fail, not only did he excuse himself, but also suffered himself diversly to be pelted according to divers parts of the Theatre, the Fable to require. But when he, by chance, did fail, not only did he excuse himself, but also suffered himself diversly to be pelted. The wonder- ful docility of the Dog.

Of the Excellency of Mat.

Wonders of the Cathe Fishes. - A Dog is a ridiculous Creature, and which makes men much sport in imitating their actions. There hath been seen an Ape which would pipe and sing, and besides, dance and write, and endeavour to perform many other things proper to men. I remember I saw in the Duke of Bayern's House a great and curst Ape, who because he much troubled many, had his hands cut off, who suffered himself to be cured, when the wound was cicatrizd, he grew more mild and docile. Wherefore classified in a green Coat, and girt over his loins with a Girdle, he carried in his hands a pair of Knives, and a Child's Handkerchief. He was committed to the charge of the Mother-Cook to teach, because he had taken up his lodgings, in the Chimney-corner, as so to teach him many tricks and feats. If at any time he savored from his Doctor and precepts, in a trice the whip was upon his back and loins, and much was abated of his daily allowance: for, as Plutarch faith, The billy is the Mother of Arts, and Sharpener of Wit. By these means I prided him in a short time, that he much exceeded all the Ape in his time of the play in his Wits, and there were none counted more skilful in leaping and dancing to the Pipe, running up a Pole, and nimbly leaping through his Mailers Legs. To conclude, he performed all the actions of a strong Ape, and very reverently carried up Dishes with the Waiters and Servingmen, and made clean the Dishes and Platters by licking, and did much other drudgery, so that he was commonly called Master John Dog. At Dinner and Supper sitting in a Chair, he said Grace, and calling his eyes up towards Heaven, and roared them this way and that way, and boro his Britch with the thumbs of his hands with much lamentation, and imitated Prayer by the grunting or beating together of his Teeth. He would turn up his tail to any

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that offended him, for his Coat scarce covered half his buttock, lest he should have detiled it; he made much other parcel, always going upright by reason of the cutting away of his hands, unless at any time through weariness he were forced to fit on his Buttocks.

Of the Camel.

The Camel 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, wild, and troublesome by biting and striking such as they meet, no less than untaught Horses. There is no need to house them in the night, for they may be left in the plain fields in the open and free air, feeding upon the Grass and Trees, and cropping the tops of Thistles, neither in the morning do they go but to carry burdens. They are not put to carry burdens before they be four years old. The Arabians geld them young, that they may enjoy their labour the longer, neither being get.
of the Excellency of Man.

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gilt, do they rage for love or desire of Victory. At the putting in of the Spring they stand hungry and bait for eight days together; they are so fondful, that at the lack of the Turkish Slaves, or but touched on the neck with a Twigg, they profondly knelt on the ground to take up their burdens, not do they lift themselves up before they find that they have a sufficient load laid upon them. Those that have but one bunch upon their back are of Africa, but such as have two bunches are of Asia or Syria. Those kind of Camels that are the biggest, are used to carry packets, but the lesser are used to ride upon, as our Horses are. They love nothing so well as Beans, and yet they live content with four handfuls of Beans for a day. The greatest wealth of the Arabians consists in Camels, and so do they estimate their riches, not by the quantity of Silver or Gold, but by the number of Camels. The Tenth Emperour (Tiber being the reporter) made a Captain over the hordes of his Camels, giving him a great troop of African and Christian Slaves, that they might be the better looked unto. I have heard it reported (Saint Tiber, by certain Arabians, African, and Tenth Merchants who were present, at that time when Sultan Slem, the first of that name, befieged Cairo in Egypt, (which in former times was called Memphis) that there then was in that Emperor's Army sixty thousand Camels, besides a mighty company of Mules.

Of revenue Birds.

But let us take view of Falconers teaching ravenous Birds, how with swift wings carried aloft into the Air, they may seize upon other Birds, and cut them down dead to the ground, in performance whereof, they often too freely four up to the Clouds, so that they carry themselves out of the Falconers fight, with a desire to Sun themselves, neglecting in the meantime their designed prey.

The Heron when the fire her self kept under, and below the Falcon, carried up by his strong wings with a marvellous footsteps, with her Beak, which is long and sharp, had under her wings, and turned upwards, the receives the Falcon blinded with the heat of light, and design of prey, carelessly flying down and rushing upon him; so that he often strikes him through the gorge, so that oft-times they both fall down dead to the ground. But if the Falcon without harm escape the despatch by Art, and the happy turning of his body, and the Heron be not cut down, the Falconer calling her back with never so loud a voice, yet by setting up her Feathers the dares her to the pretended fight.

That Birds have taught us Musick Tunes.

That Birds have taught us another voice.

Birds know one another by their voice, so that they may form to talk and to laugh together, whilst fluttering with their ears, they pluck in their notes with a pleasant aspect 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 chant another, when men understand not the speech of other men, unlike of the same Nation. Wherefore the Syrian Tongue is no more profitable to one living in Egypt, than if he were dumb, nor the Egyptian understand it no more than if they were deaf. Wherefore an Egyptian is dumb and deaf to a Syriam. This that which travel well understand, how many dangers, how many troubles they undergo because they cannot expect their minds, and require things necessary for life. Wherefore to the assistance of this unprofitable Tongue, we are compelled to call the rest of the Members, and to abuse the gestures of the Head, Eyes, Hands, and Feet. Truly the kind of brute Beasts is not so miserable, seeing that all of the same kind wherever they be, may answer each other with a known voice. Truly, if any should hear a German, a French, a Spaniard, a Dutch, a Polonian, a Greek, speaking amongst themselves in their Native Tongues, not understanding any of them, he could scarce discern, and certainly judge, whether he heard the voice of Men or of Beasts.

That Birds may counterfeit Men voices.

Inets, Larks, Pies, Rocks, Davs, Crows, Stares, and other such like Birds, speak, sing, whistle, and imitate the voices of Men and other Creatures. In this Parrats excell all others, being wonderful skilful imitators of mens voices; and very merry, but specially when they have drank a little Wine.

Plutarch reports that there was a Barber at Rome who kept a Pic in his shop, which spoke exceeding well, and that of her own accord, none teaching her, when the first heard men talking together, she imitated the voice or cry of all Beasts she heard, as also the sound of Drums, and the sound of Pipes and Trumpets; to conclude, there was nothing which she did not endeavour to imitate. There have been Crows that have spoke and artificiously sung Songs and Psalms, and that of some length. To which purpose the History of Marcus is notable; for he tells that there was one amongst those who went forth for lack meet to with Augustus Cæsar, returning from the War against Antony, who carried a Crow which he had taught plainly to pronounce this Salutation, Salve Caesar Imperator Augustissimo, that is, God save thee, O most sacred Emperor Cæsar.

Cæsar
Cæsar takes with the novelty of this spectacle, bought this obnoxious Bird with a thousand pieces of Silver. Pliny and Varro, have reckoned up amongst prodigies, Oser and Affes that have spoken, I only infer other things recorded by the Ancients, Plato, Aristotle, Pliny, Plutarch, and other Philosopers of great credit, of the docility of Beasts, and their admirable facility of understanding.

Which things, if untrue, those learned men would never have recorded in Writings, lest to they might brand with vanity (than which nothing is more base) the text of their Writings to polish in all ensuing Ages.

Of the Sympathy and Antipathy of Living Creatures amongst themselves.

Havng briefly described the understanding of brute Beasts, it seems not inelegant to set down 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 dead, by a certain hidden property, through occasion whereof force, defend, others them, and others prosecute one another even to Death. In testimony whereof, the Lyon the King of Beasts excelling all other in courage and magnanimity, fears the Cock, for he is not only terified by his presence, but also by his crowing being absent. So an Elephant fears an Hog, but he is so afraid of Mice and Rats, that he will not touch the meat that is given him, if it hath been defiled with such Creatures. There is deadly hatred between the Elephant and Rhinocerot, yet when the Elephant is furious and angry, he becomes quiet and calm at the sight of a Ram. A Horse is so afraid of a Camel, that he cannot endure his fight. The Dog hates the Wolf, the Hart flies the Dog. The Snake flies from and fears a naked man, and follows him being cloathed.

There is deadly hatred between the Aspis and Ichneumon, for he when he hath rouled himself in the clay, draws himself in the Sun, and so being covered over (by doing thus divers times) as it were, with shells or armour, he enters into combat, stretching out his Tail, and presenting his Back, to give an opportunity to shook his adversary by leaping and fastening on her Jaws by which stratagem he also kills the Crocodile. The green Lizard is a capital enemy to the Serpent, but most friendly to Man, as Ernestus wittnesth by many Histories concerning that matter: in his Dialogue of Sympathy and Antipathy, there is a great deal of hatred between a Man and a Wolf, which is most manifest by this, that if the Wolves first see a Man, his Voice is taken away, and his intended cry hindered. If the Weasel intend to set upon the Aspis that most venemous Serpent, the arms her felt by eating Rue, as a most certain Antidote. The Ace fears the Toad, as Ernestus manifests by a pleasant History in the forementioned Dialogue, where also he prettyly shews the deadly hatred between the Serpent called Areus and the Toad. The Like hate is between the Serpent and the Cat. The像 hate is between the Owl and the Cat.

The Enmity of Weasels appears by this, that if you mix never so little of the brains of Weasels with such Creatures, they will not touch the Grafs, how good and freshsoever it be, nor rest quies in any place, but tumulous enough in the place where Sheep are, that thy head hung up in a Dove-house, drives away Poll-Cats and Weasels. The Panther and Hyena burn with such hatred, that if both their skin be laid one against the other, the Panthers will hiss, and the hair, the hairs of the Hyena remaining entire and not moved which thing, they say, happens to the Feathers of other Birds, if any one chance to tie them up in a bundle with the Eagles. Let these fufpect for some few examples of many, of the Antipathy amongst Beasts. But of the Sympathy and concord of Beasts amongst themselves, I think needless to write any thing, being it is sufficiently known to all, that one Jay associates another, and the great Bears agree amongst themselves: and Beasts of fame species do wonderfully concur one with another.

That Man excelleth all Beasts.

I now think it fit to say of that excellency of Man over Beasts, which I have so long intended. Neither would I that Epicures, and other, too much natural and material Philosophers, to take these things I have written of the endowments of Beasts, as though we should think thereon over difference between Man and Beasts. I find no such meaning, no such intention; but only that man should not become too lately, or too ingrate in less acknowledging God to be the Author of so many benefits with which he endows. For whatsoever we have largely spoken of Beasts, yet there is no comparison between Beasts and Man: for there is too great a difference between them. For Man's mind is adorned with Religion, Justice, Prudence, Magnanimity, Faith, Piety, Modesty, Clemency, Fortitude, and other Virtues as Lights which shine much more bright in Man than
Book II.

Of the Excellency of Man.

Man bears God's Image.

Ut 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 things, as it were, the Ministers of infinite variety of things, he clothes and defends his Body with all things needful, and enriches his Mind with the knowledge of Arts. Now if he had certain Weapons born with him, he should use them only; if he should be born skilful in any Art, he would meddle with none else. Therefore, because it was more expedient to use all sorts of Weapons with the Hand, and be skilled in all Arts; therefore he must be born wanting and ignorant of all. Armatur very wisely called the Hand the Instrument of Instruments; in imitation of which speech, one may rightly affirm, that Reason is the Art 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 Art, yet comprehend and exceed all Arts. Therefore, Man, finding he hath his Mind instructed by Art, that is, by Reason, it is yet 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 to Man hath his Hands in lead of all Weapons; as he may use in War and Peace, as the Instruments of all Arts; he wants not the Bulls Horns, the Boar's Tusks, the Horse's Hoofs, but, to conclude, any Arms of any other Beasts. For by the benefit of his Hands he can handle other Arms for more profitable and safe; as a Lance, Sword, Spear, Halberd; but Man also can use at some distance the Bow, Sling, and Hand-guns, when the Horn and the Hoof cannot be used but near at hand. But some may say, a Lion exceeds a Man in swiftness of Foot, what then? Is Man therefore inferior to him? not, for the means of his Hands, and the guidance of his Reason he bridling and riding upon a Horse, out-runs the Lion, and being Victor follows him to and again as he himself pleases, or vanquished flies away; and from the Horse back, as from a Tower, wounds the Lion with what Weapons he pleases. To conclude, Man is abundantly provided with means to defend himself from the violence of all other Beasts. For this purpose he doth not only harness himself as with bronze Walls, but also makes Ditches and Bulwarks, he makes by the ministry of his Hands all kinds of Weapons, weaves himself Garments, casts into the Water and draws forth Nets to catch Fish; and to conclude, he performs all things to his own contentment, and having that privilege granted him by God, he rules over all the Earth, all things which lie hid in the bowels of the Earth, which go, or creep upon the Earth, which swim in the Sea, and fly through the Air, or are any where shut up in the compass of the Skie, are in Man's dominion.

God's Deity and Providence hath principally showed it in the Creation of Man: neither his admiration Light hath so shone in the production of other Creatures, faying that God would have them to live and have their being only for Man's sake, that they might serve him. Therefore Man, if he judiciously considers all his endowments, a certain Pattern and Image of the Divine Majesty and (if I may so far) Artifice. For being made to God's Image, he is as it were his Coin, exceeding the capacity of all human understanding. Which seems a just reason to the ancient Philosophers that he should be called Microcosmus, or a little World, because the parts of all things contained in the Image of God and Earth, are contained in his Mind and Body, that in the mean time I may in silence pass over his Soul, more great and noble than the whole World. Why
This forms the reason, that Man by the influence of Nature do not foresee the future events and dispositions of the Heaven and Air because, seeing they have received certain sparks of prudence from God, by whose care and guidance they are led to the knowledge of things by no deceitful but certain judgment, being not obnoxious to the conditions and changes of Times and Seasons, 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 direct, they give themselves to mirth when the air is wet, stormy, and dark; and on the contrary in a clear and fair season, to a serious and grave meditation of things sublime and full of doubt. But Beasts, accommodating themselves to that disposition of the Air which is present and at hand, are lively or fad, not from any judgment, as Men, but according to the temper and composition of their bodies following the inclinations of the Air, and of the humours one while diffused, another while contracted. Neither ought we to be at a loss upon the voice of Beasts, but rather much commend him, that he can infinitely wrest and vary one thing, that is, his Voice; for Men can bark like Foxes and Dogs; grunt like Hogs, wheet and grind their teeth like Beers, roar like Lions, bellow like Bulls, neigh like Horses; knock their teeth like Apes; howl like Wolves, bleat like Goats and Sheep, morn like Bears, Fowgins, and Turles, keek and gaggle like Geese, hiss like Serpents, cry like Strids, cow like a Cow, and crow like a Cocks, creak like Hens, chatter as Swallows and Pies, sing like Nightingales, croak like Frogs, imitate the singing of Wafhs and humming of Bees, new like Cats. The singing of Beasts seemeth to merit the name of Musicall, compared to the Harmony of Men, fitted and tuned with infinite variety of Voices. For with this they please the Ears of Kings and Princes, provoke and temper their wrath, and carry mens minds beyond themselves, and transform them into what habits they please. But if thofe crude Beasts have any humanity, they owe it all to Man: For he names Lions, Elephants, Bears, Tigers, Leopards, Panthers, and fuch other like.

That Man may attain unto the knowledge of all Voices and Tongues.

The docility of Mans Wit is fo great, and facility of the body obeying that divine gift of Wit, that, he is not only able to learn the Tongues of divers Nations differing in fo 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 juggling Companions, followers of other men Tables will do; but also 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 through the Field, and being a Sparrow came flying and chirping much to divers other Sparrows sitting upon a Tree, is reported to have said to thefe which were with him, That Bird which came flying higher, told the other in her Language, that an Afe laden with Corn was fallen down at the City Gate, and had tied 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 grains of Corn tied on the ground.

But for Crows and Pies artificially taught to counterfeit mens Voices, 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, tediously singing still the same song, and whatsoever they pretend to do it without Sense, Understanding, or any Reason for what they say. But Man always contemplating somewhat more high, thinks of greater things than these present, and never reffles. But hearing with an infinite and extenfive desire of Knowledge, he doth now order covet to know those things which appeare to food and clothing; but by eating his eyes towards Heaven, and by the light of his mind, he learns and understands things Divine. Which is fo certain an Argument of the celeftial original of our Soul, that he which confiders those things, can no wayes doubt, but that we have our minds formed by the universal Divine Understanding. But now it is time for us to defiction of the Body, the habitation and fit Instrument of all the Functions of the Divine Mind.

Of the Crocodile.

A tame Crocodile.

Lwtard reports of the Crocodile (whose Figure is here delineated) that being trained, and taughl by Man, he doth not only hear Mens Voice, and answer to his call, but suffereth himself to be handled, and opening his throat, lets his teeth be fcratched and wiped with a Towel. How small a part of Phylick is that which Beasts are taught by Nature? Certainly nothing in componition of Man, who by the study and practice of a few years, can learn at his finger ends all the parts of Phylick, and practive them not only for his own, but also for the common good of all men. But why cannot Beasts attain unto the knowledge of Phylick so well as Men? I think, because to great Art as Phylick 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 speak according to the truth of the matter, we 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 celestial things? Now for that they behold and turn themselves to the Moon by night, and to the Sun in the morning, they do not that as worshipping, or for that they conceive any excellency or divinity in the Sun, but because Nature so requiring and leading them, they feel their bodies to rejoice in that light, and their entrails and humors to move and stir them to it. Therefore when we attributed Religion to Elephants, we said it rather popularly, than truly, and more that we might exhort men to the Worship of God, than that we thought Elephants had any knowledge of Divine Worship implanted in their minds.

The end of the Second Book.
Following the 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 man's 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 judgment very necessary to those that desire to excel, or attain to perfection of Physick; 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 Physician or Chirurgeon preferve health by the use of the like things, which confist 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 deviates from the nature thereof? Wherefore it is excellently said of Hippocrates, that the Physician, called to cure the sick, first must diligently 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 himself and his own nature in all his parts and functions, constitution, and composition; or that he 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, especially when he saith, He must well know the nature and structure, or composition of the bones, who taketh upon him to restore them broken or dislocated to themselves and their proper parts 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 nature disunite us, so require unlike medicines, according to Galens opinion: I prethee tell me, Who can perform this, which is ignorantly done by the ignorant? But Anatomy is commodious four manner of ways: The first is, because thus we are led to the knowledge of God the Creator, as by the effect to the cause; for, as we read in St. Paul, the invisible things of God are made manifest by the visible. The second is, that by the knowledg of Anatomy we may learn the nature of man's body, and the parts thereof, whereby we may more easily and certainly judge and determine of sickness and health. The third is, that by the knowledge of the body and its parts, and together therewith it affections and diseases, we may prognosticate what is to come, and foretell the events of diseases. Lastly, the fourth is, that, considering the nature of the, disordered part, we may fitly prescribe medicines, and apply them in their due place.

But Anatomy is commodious four manner of ways: The first is, because thus we are led to the knowledge of God the Creator, as by the effect to the cause: for, as we read in St. Paul, The invisible things of God are made manifest by the visible. The second is, that by means thereof we know the nature of man's body, and the parts thereof, whereby we may more easily and certainly judge and determine of sickness and health. The third is, that by the knowledge of the body and its parts, and together therewith its affections and diseases, we may prognosticate what is to come, and foretell the events of diseases. Lastly, the fourth is, that, considering the nature of the disordered part, we may fitly prescribe medicines, and apply them in their due place.

Now we must declare in what order Anatomy may be fitly delivered; but first we must observe, there is a threshold method: The first is called of Composition, being very commodious for the teaching of Arts, which Aristotle hath used in his Works of Logic, and Natural Philosophy, 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 Books of Anatomical Administrations, and of the use of the parts. The third of Definition, which sheweth the nature and essence of things, as appears by Galens in his Book de arte Farcia. And because this order doth also divide the divisions, therefore it is commonly accorded to be comprehended in the second of the parts. Therefore I will follow this in my Anatomical Treatise, dividing 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 faithful understanding them. For, I will shew those things that are delivered of them by Galen in his Book de Arte Farcia, and because this order doth also divide the divisions, therefore it is commonly accorded to be comprehended in the second of the parts. Therefore I will follow this in my Anatomical Treatise, dividing 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 faithful understanding them. For, I will shew those things that are delivered of them by Galen in his Book de Arte Farcia, and because this order doth also divide the divisions, therefore it is commonly accorded to be comprehended in the second of the parts.
we must declare what Anatomy is, that, as Galen faith out of Plato's Phaedo, it may be understood of what we dipurse. And because we attain that by definition (which is a short and plain speech, consisting of the Genus and Difference of the things defined, being the essential parts, by which the nature and essence of the thing is briefly and plainly explained) first we define Anatomy, then perform and explain the particular parts of the definition.

Wherefore Anatomy (if you have regard to the name) is a perfect and absolute division, or artificial resolution of man's body into its parts, as well general as particular, as well compound as simple. Neither may this definition be illogical; specially among Physicians and Chirurgians. For, feing they are Artificers luxuriously to the fenes, they may make the parts and common qualities of things for their essential differences and forms. As on the contrary, Philosophers may refuse all definitions as curious, which confit not of the next Genus, and the most proper, and essential differences. But feing that, through the imbecility of our understanding, such differences are unknown to us, in the places we are compelled, in defining things, to draw into one many common or proper accidents, to find that definition which we intend: which for that cause we may more truly call a description, because for the matter and essential form of the thing, it presents us only the matter adorned with certain accidents. This appears by the former definition, in which Body and (Kartion hand for the Genus, because they may be parted into divers others, as it were into species. That which is added over and before, hands in place of the difference, because they separate and make different the thing it felf from all other rash and unartificial distinctions. 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 circonfcription of each of them, which if they perish or be deftroyed by the division, it cannot be faid to be artificial. And thus much may suffice for the parts in the definition in general.

For as much as belongs to the explication of each word, we fay, of Man's body, because as much as lies in us, we take care of, preferve the health, and deprefl the difeafes thereof. By which it may appear that man's body is the fubje& of Physick, not as it is man, or confists of matter and form, but as it is parth of health and ficknefs.

We understand nothing else by part, according to Galen, than fome certain body, which is not wholly disjointed, nor wholly united with other bodies of their kinds; but it, that, according to his opinion, the whole be composed therewith, which in fome fort it is united, and in fome kind feparated from the fame, by their proper circonfcriptions. Furthermore by the parts in general, I understand the head, back, belly, and their adjacents. By the particular parts of thefe, I understand the fimple parts, as the familiar, which are nine in number, as a griffle, bone, ligament, membrane, tendon, nerve, vein, artery, mufcular flesh; fome add tine, fat, marrow, the nails, and hairs; others omit them as excrements: But we must note that fuch parts are called fimple, rather in the judgment of the fenes, than of reafon. For if any will more diligently confider their nature, they fhall find none abfolutely fimple, because they are nourifhed, have life and fenes, either manifest or occult, which happens not without a nerve, vein, and artery.

But if any fhal take, that no nerve is communicated to any bone, except the teeth, I will an- swer, that neverthelefs the bones have fene by the nervous thera, which are communicated to them by the Periostem, as by whole mediation the Periostem is connect to the bones, as we fee it happens to thofe membranes, which involve the bowels. And the bones, by this benefit of the animal fene, expel the notions and exceffional humors from themselves into the fpaces between them, and the Periostem, which, as induced with a more quick fene, admonifhes us, according to its office and duty, of that danger which is ready to fect upon the bones, unless it be preserved. Wherefore we will conclude according to the truth of the thing, that there is no part in our body fimple, but only fome are fo founded and thought, according to the fenes; although alfo otherwise fome may be truly named Simple, as according to the peculiar and proper fenes of each of their kinds. Thofe parts are called Compound, which are made or composed by the mediation, or immediately of thofe fimple, which they term otherwise organic, or instrumental, as an arm, leg, hand, foot, and others of this kind.

And here we must obferve, that the parts are called fimple and familiar, because they cannot be divided into any particles but of the fene kind; but the compound are called diftinctor from the quite contrary reafon. They are called instrumental and organic, because they can perform fuch actions of themselves, as ferve for the prefervation of themselves and the whole; or the eye of it felf, without the afiftance of any other part, feeth, and by this facility defends the whole body, as also it felf. Wherefore it is called an instrument or organ, but not any part of it, as the coat, which cannot of it felf perform that act. Whereby we must understand, that in each instrumental part we must diligently obferve four proper parts. One by which the action is properly per- formed, as the Crystalline humor in the eye. Another, without which the action cannot be performed, as the nerve and the other humors of the eye. The third, whereby the action is better and more conveniently done, as the muscles and musculces are. The fourth, by which the action is preferved, as the eye-lids and circle of the eye. The fame may be faid of the hand, which is the pro- per instrument of holding; for it performs this action, firft, by the mufcle, as the principal part; Secondly, by the bones and ligaments, as a part without which fuch action cannot be performed; Thirdly, by the bones and nails, because by the benefic of thofe parts, the action is more happily performed. Fourthly, by the veins, arteries and skin, for that by their benefic and ufe, the reft, and fo confe- quently the action it felf is preferved.

But we must confider, that the instrumental parts have a fourfold order. They are laid to be of the firt order, which are firft and immediately compos'd of the fimple, as only the authors with one action, of which kinds are the muscles and veffels. They are of a fectond, which confift of their fimpfe fume, and others besides, as the fingers. They are counted of the third rank, which
are composed of parts of the second order, and some besides, as the hand taken in general. The
fourth order is the most composed, as the whole body, the organ and instrument of the Soul. But
you must observe, that when we say, the muscles and vessels are simple parts, we refer you to the
fevere and light, and then to the understanding comparatively to the parts which are more compound;
but if you consider, their offence and constitution, he shall understand they are truly compound, as
we said before. Now it remains, that we understand, that in each part, whether simple or com-
pound, nine things are to be considered; as, substance, quantity, or magnitude, figure, composition,
number, connection, (by which name, we also understand the original and inference) tempera-
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tion, number, connection, (by which name, we also understand the original and inference) tempera-

The life and
function of the
parts serving
for generation.

Why the three
principal
parts are so
called.

The use and
futility of the
parts serving
for generation.

be considered
in each part.
After the like same manner, the organ or instrument of the soul, to wit, man's body, at first division is distinguished into three parts, which from their office they call Animal, Vital and Natural. Thence, according to the sub-division of the subterrestrial faculties, are divided parts of the soul; that anyone may know the organ of each faculty, by the several properties of the parts.

For, while other Anatomists divide man's body into four universal and chief parts, they distinguish from the three first, those which they call the Exteriors, neither do they teach, so much as the rest, the three prime parts of each Extremity should be reduced. From whence many difficulties happen in reading the writing of Anatomists, for shewing wherein, we will proficuously, as we have said, that distinction of man's body, which we have touched before.

Wherefore, as we said before, man's body is divided into three principal and general parts, Animal, Vital, and Natural. By the Animal parts, we understand, not only the parts pertaining to the head, which are bounded with the crown of the head, the collar-bones, and the first Percus of the breast, but also the extremities, because they are organs and instrumentes of the motive-faculties. Hippocrates seems to have confirmed the same, where he writes, Thofe who have a thick and great head, have also great bones, nerves, and limbs. And in another place he faith, thofe who have great heads, and, when they floop, floor a long neck, fuch have all their parts large, but chiefly the Animal. Not for that Hippocrates would therefore have the heald 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 private care, or government of Nature, being most just and exact in the brick of man's body, as, if the head well framed the head, it should not be unlike that the idly or carelessly neglected the other parts which are left from. I thought good to dilate this passage, let any might observe that authority of Hippocrates, and gather from thence, that not only the bones, membranes, ligaments, griffes, and all the other animal parts, but also the veins and arteries depend on the head as the original. But if any oblige this our distinction of the parts of the body, he will understand, we have a far other meaning.

By the Vital parts, we understand only the heart, arteries, lungs, wind-pipe, and other particles annexed to thefe. But by the Natural, we would have all those parts understood which are contained in the whole compass of the Peritoneum or Rim of the body, and the procceds of the Extremities, the second coat of the Tiviccles. For as much as belongs to all the other parts, which we call Containing, they must be reckoned in the number of the Animal, which notwithstanding, we must thus divide into principal, motive, and motive, and again, each of these in the manner following: For first, the principal is divided into the Imaginative, which is the first and upper part of the brain, with its two ventricles, and other annexed particles, into the reasoning, which is a part of the brain, lying under the former, and as it were the top thereof with its third ventricle into the Motion, which is the diencephalon or after-brain, with a ventricle bollowcd in its multitude. Second, the Sensitive is parted into the visible, which is in the eyes; the auditive in the ears; the finding, in the nose; the tasting, in the tongue and palate, the tactile, or touching which is in the body, but most exquisite in the skin which revies the palms of the hands. Thirdly, the motive is divided into the Progressive, which intimates the legs, and the Comprehensive, which intimates the hands. Lastly, into simple-motive, which are three parts, called bellies, for the greatest part terminating and containing; for the Vital, the instrument of the faculty of the heart, and dilution of the arteries, are the direct or freighter parts, but of the Conceptive the transverse; but the three kinds of these, together, of the Politician. Or, if you please, you may divide them into parts serving for Respiration, as are the lungs and weazon, and parts serving for vital motion, as are the heart and arteries, furnished with these fibres, which we formerly mentioned. The division of the natural parts remains, which is into the nothing, auditive, and generative, which again, are distributed into all the universal and particular reteince, conceive, distributive, affirmative, and expulsive. The affirmative is the gullet and upper office of the ventricle, the relative, as the Pylorus, or lower passage of the stomach, the concordable, as the body of the ventricle, or its inner coat; the distributive, as the three small guts; the expulsive, as the three great guts; we may say the fame of the Liver, for that draws by the mesenoch and gate veins, retains by the narrow orticles of the veins differented through the fibulence thereof, it concedes by its proper bellies, distributes by the hollow vein, expels by the spleen, bladder of the gall and kidneys. We also fee the parts in the Tiviccles divided into as many functions; for they draw by the preparing venets, retain by the various crooked passages, in the fame venets, convey the feed by the power of their proper fibulence and locality; they distribute by the ejaculatory, as the glands called Prostate, and the horns of the womb, supplying the place of prostates; Lastly, they expel or call forth by the prostates, horns, and adjoining parts. For as much as belongs to the particular attraction, retention, concordance, distribution, comminuation of each part, that depends of the particular organs, and, as they term it, occult property of each animal and simple part. Neither do these particular actions differ from the universal, but that the general are performed by the affiduous of the three parts of fibres but the special, by the several occip property of their bellies, arising from their temperature, which we may call a specifick property. Now in the composition of man's body, Nature principally aims at three things. The first, to create parts necessary for life, as are the heart, brain, and liver. The second, to bring in the parts for the better and more commodious living, as the eyes, nofe, ears, arms and hands. The third is, for the propagation and renewing the species or kind, as the privy parts, tiviccles and womb. And this is my opinion, of the true distinction of man's body, furnished with so many parts, for the performance of which office, which you, if you please, may approve and know a great place, 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 Animal parts, but only those which are from the crown of the head.
of the head to the first vertebra of the neck, or to the first of the back; if, according to the opinion of Galen, Lib. de Offic., where he makes mention of Exanerhodi and Arthrodis, we reckon the neck 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 Quarter ribs, and the midriff. By the lower belly, the rest of the trunk of the body, from the ends of the ribs to the heart-bones; by the limbs, we refer to the three-bones; and from the base of the head to the feet, according to the opinion of Galen, Lib. de Ojjibus, we reckon the neck among the parts of the head. By the bread, whatsoever is contained from the collar bones to the ends of the true and bastard, or Quarter ribs, and the midriff. By the lower belly, the rest of the trunk of the body, from the ends of the ribs to the heart-bones; by the limbs, we understand the arms and legs. We will follow this division in this our Anatomical Discourse, because we cannot follow the former in dissecting the parts of man's body, by reason the Animal parts are mutually mixed with the Vital and Natural; and first of the lower belly.

The Figure showing the five-parts of the body.

A The hairy Scalp, call'd ἐρυθρός, b the forehead, call'd Frunt, ἕρων, c the temples call'd tempora, κυράκων. From b to d, the compass of the face. e the greater or inward corner of the eyes, call'd Cantus internus. f the lesser or external angle of the eye, call'd Cantus externus.

* The lower eye-brow, which is immovable, Palpebra.

g The cheek-ball call'd μάλα, h the cheek-puff, call'd buca, κλεούς. i The greater or inward corner of the eye, call'd Canthus internus.

j The eye, or organ of the sight, ὀφθαλμός. k The mouth made of the two lips, ὡμός. l The chin call'd κολλυμ, κολλυσ. m The neck, κολλυμ, κολλυσ,  

n The head, κολλυμ, κολλυσ,  

o The heart, κολλυμ, κολλυσ,  

p The hollow of the neck call'd juguli, κρανίου. q The Patel bones, ἱλαρος, διδόινος. r The chest, πεταλία, στεγα. s The right breast, τοιούτου, πεταλία, διδόινος. t The left breast: to this Region we apply cor¬
dial Epithemations moist and dry.

u The nipples of the breast, papillae, καρπίνων. v The trench of the heart which the Ancients called anāpho's: The Latines fruchetus cor.dinis. This part is anointed for the mouth of the heart.

From u to E the lower belly, γυνωθ. X The Epigastrum or upper part of the lower belly. Y The Hypochondria or Freeordia. Z The outward Liver-remedies are applied to this place.

a The region of the navil, called umbilicalis,  

b The navil, ἁμπυλία,  

c The root of the belly, ἁμπυλία,  

BB The sides, ἱματα, ἱλαρος, and in our Author, Lumbi, ἱματα, ἱλαρος region. C Hypogastrium, the water-course Aquabiliculum, the lower part of the lower belly,  

DD The flanks called Ηίες, and κυπανθ. E The groin called πυθος or πελεγες, κυπανθ. F F The Leek called ingen, where those tumours which are called bubones. G The Yand with the foreskin, ἅγής κατὰ προπαγός. H The bones or tectiles with the coat of sinew. I The fleshed, ὑμερομαντά, κεφαλόδοκος. J The arms, ἱματα, ἱλαρος. L The bow of the arm, called ὑμερόν, ἱλαρος. M The outside of the lower part of the arm, called ὑμερόν, ἱλαρος. N The wrist called ἱμερόν, ἵμερος. P The palm called Ταλας, or νας κατὰ προπαγός. Q The back of the hand, δευτέριον,  

QQ The fore and middle part of the thigh, where we apply cupping-glasses to bring down womens courses,  

RR The knee, γόνα, κοινος. SS The legs, ῥέμα, ἱματα. TT The call of the leg, ἀρκος, ἄρκος, ΔΔ The inner ankles, κεφαλόδοκος.  

VV The top of the head, ἀρκος, κεφαλόδοκος,  

XX The back of the hand,  

YY The inner ankles, κεφαλόδοκος. ZZ The outward ankles. ζ The toes of the foot.

Why the belly is not bony.

Nature would not have this lower belly bony, because the ventricle might be more easily dilated by meat and drink, children might grow the better, and the body be more flexible. It is convenient we begin our Anatomical Administration from this, because this is more distant from this; because it is more distant from the vitals than the rest, both by reason of its cold and moist temperature, as also by reason of the feculent excrement therein contained. Yet before we go any farther, it the Anatomical Administrations
must be performed in publick, the body being turit handomely placed, and all the Instruments necessary for Dissection made ready, the belly must be divided 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 compass of the direct muscles, and by a general name is called Epigastrium, or the upper part of the lower belly. That again is divided into three parts, that is into that which is above the naval, and which carries the name of the whole; into that which is about the naval, and is called the umbilical or middle part; and lastly, into that which is below the naval, called the Hypogastrium, or the lower part of the lower belly.

The Figure of the back-parts of a man.

A The fore-part of the head, front, cipsum.
B The top or crown of the head, vertex, scaphus.
C The hinder part of the head, occiput, scaphus.
D From D to D the face, cheeks, maxilae.
E The eye-brows, supercilia, supercilii.
F The upper eye-lid, palpebra, palpebra.
G The tip of the nose, nasus.
H The back-part of the neck called cervix, cervix.
I The back-part of the shoulder top called axilla, axilla.
J The shoulder-blades, scapula.
K The sides, lateras.
L The arm-hole, ala.
M The back of the arm called dorum, dorsum.
N The place of the hips, coccyx.
P The place of the belly, omhoids, omhoids.
Q The place of the rump or Coccyx.
R The buttocks, nates.
S The back part of the thigh, femur.
T The foot, pes.
U The outer ankle, calcaneus.
V The inside of the lower part of the arm called ulna.
W The outside of the same, cucum, musculus.
X The thumb, pollex, pollex.
Y The middle-finger, medio, media.
Z The little-finger, annularis, annularis.

In every of which three parts there be two lateral or side-parts to be considered, as in the Epigastrium, the right and left Hypochondriums, which are bounded above and below, in the compass of the diaphragm, and the short-ribs. In the umbilical the two Lumbar's (some call then Livers) which, on both sides from the lowest parts of the head, are drawn to the flanks or hanch-bones, in the Hypogastrium, the two Ili, or flanks bounded with the hanch and share-bones. Neither am I ignorant, the Ili, or flanks, which the Greeks call Angles, include all the empty parts, from the ends of the ribs, even to the hanch-bones, whereupon they also call them Muscles, as if you should say, empty-spaces, because they are not encompassed with any bone. Yet I thought good, that this doctrine of dividing the belly should be more distinct, to call the parts which are on each side the naval, Lumbar's, and thence on the lower part of the lower belly, Ili, flanks. But we must observe, that the Ancients have been so diligent in deciphering the containing parts, that as exactly as might be, they designated the bowels contained in the belly, which being divers, lie in sundry places, for the greater portion of the liver lies under the right Hypochondrium, under the left almost all the venricle and spleen. Under the Epigastrium the lower orifice of the ventricle, and the
The containing parts of the Epidermis, or thin outward skin: the true skin; the fleshy or fatty Pannicle, the eighth muscle of the Epidermis, with their common coat, the rim of the belly, the five vertebra's of the back, all the holy-bone, the hand-bone, thur-bone, the white-line and midrift. Of these parts, some are common to the whole body, as the three halfs; the other, proper to the parts contained in the Epidermis taken in general. Which that you may fee 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 fuch time, as occasion shall offer it, to know the umbilical velfels lying in that place, which are one vein, two arteries, and the Drednaus (if it be borne.) Which being done, you must draw a ftrait line from the cheft, over the breath-blade, even to the thare-bone, which may divide the common-containing parts, even to the white line.

Then pretend it will be convenient to draw two other lines a-croft or overthwart, of the like depth on each hand, from the circumference of the navel, even to the fide, that so on each part we may draw the skin more commodiously from the parts lying under it, or the fight of which otherwife it would hinder. These things being done, the skin must be divided from the parts lying under it from the defigned circumference left about the navel. We must teach how the skin is twofold, true and fake, and render a relation of the name, which we will every where do, as far as the thing will ferve, and it fhall lie in our power. And in doing or examining these things, it will be convenient diligently to enquire into the nine things mentioned in the Preface. We will begin with the skin, because that part is ftritly obvious to our fenses. The skin wood-fold. From what parts the skin cannot be fo parted.

The matter of the Cuticle. The quantity. The figure. The compofition of the Cuticle. The number. The temperature. The age.

It is in number one, like as the true skin which it outwardly covers, that it might be a medium between the object and fixed faculty of Touching, diffused over all the true skin, which every where lies under it. For the temperature, by the common confent of Physicians, it is in the midst of all excels for, that faying it is the medium between the object and faculty, if it should be hotter, colder, colder, or drier, it would deceive the faculty by exhibiting all objects, not as they are of themselves, but as it should be no otherwife than as to feel as look through red or green spectacles, all things appear red or green. Wherefore for this reafon it was convenient the Cuticle should be void of all fense. It hath no action in the body, but it hath use for it preserves and beautifies the true skin, for it seems to be given by the singular indulgence of nature, to be a manifeflment and ornament to the true skin. This Providence of Nature, the industry of fome Artisans, (or rather Curitizans) doth imitate, who, for to feem more beautiful, do smooth and polifh it.
By this you may understand, that not all the parts of the body have action, yet have they their use, because, according to Aristotle's opinion, Nature hath made nothing in vain. Also you must note, that this thin skin or Cuticle being lost, may everywhere be regenerated, unless in the place which is covered with a hair. For here the true skin being deficient, both the matter and former faculty of the Cuticle is wanting.

Of the true Skin.

The true skin, called by the Greek Dermo, is of a Spermatick substance: Wherefore being once lost, it cannot be recovered as formerly it was. For in place thereof comes a fear, 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, privities, 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 Figure.

It is composed of nerves, veins, arteries, and of a proper flesh and substance of its kind, which we have said to be spermatical, which anath from the procefs of the seedwax, which lead the spermatick vessels to the navel, in which place each of them into parts appointed by Nature, feed forth with vessels as are forced abroad and diffused from the generation of the skin. Which also, the similitude of them both, that is, the skin and membrane Claron, do argue. For as the Claron is double, without sense, encompassing the whole infant, lightly fastened to the first coat, which is called Amnios, so the skin is double, and of it felt insensible (for otherwise the nerves were added in vain from the parts lying under it) inquiring the whole body, lightly cleaving to the flabby Pannicle. But if any object, That the Cuticle is no part of the true skin, seeing it is wholly different from it, and easily to be separated from it, and wholly void of sense; I will answer, These Arguments do not prevail. For, that the true skin is more crass, thick, solid, vital and fleshly, is not of it felt, being rather by the assistance and admixture of the parts, which derived from three principal it receives into its proper substance, which happens not in the Cuticle. Neither, if it should happen, would it be better for it, but verily exceeding ill for us, because to our life it should yeild and open to receive a thousand external injuries, which encompass us on every side, as the violent and contrary access of the four first qualities.

There is only one skin, as that which should cover but one body; the which it everywhere doth, except in those I formerly mentioned. It hath connection with the parts lying under it by nerves, veins and arteries, with those subjacent parts put forth into the skin investing them, that there may be a certain communication of all the parts of the body amongst themselves. It is cold and dry in its proper temper, in respect of its proper flesh and substance, for it is a spermatical part. Yet, if any consider the brains, nerves, arteries, and fleshly threads which are mixed in its body, it will seem temperate, and placed (as it were) in the midst of contrary qualities, as which hath grown up from the like portion of hot, cold, moist and dry bodies. The skin of the body is so keep safe and found the continuity of the whole body, and all the parts thereof, from the violent assault of all external dangers; for which cause it is every where indurated with sense, in some parts more exact, in others more dull, according to the dignity and necessity of the parts which it ingirts, that they might all be admonished of their safety and preservation. Lastly, it is penetrated with many pores, as breathing-places, as we may fee by the flowing out of sweat, that to the exterior in their diameters might draw the encompassing air into the body, for the tempering and nourishing of the fixed internal heat, and in the syphilitic expel the fuliginous excrements, which in Winter, suppress'd by the cold air encompassing us, makes the skin black and rough. We have an argument and example of breathing through these, by drawing the air in by transpiration, in women troubled with the Mother, who without respiration live only for some pretty space by transpiration.

Of the flabby Pannicle.

For the true skin, follows the Membrane, which Anatomists call the flabby Pannicle, whose nature that we may more easily profess 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 flabby 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 said a coat, which is, when it covers and defends some part. This is called the Pannicle, because in some parts it degenerates into flesh, and becomes mucous, as in a man from the collar-bones, to the hair of the head, in which part it is therefore called the broad muscle. Sometimes it is called a coat, sometimes the flabby and furry Pannicle.

Why the skin is blacker and rougher in Winter.
things, by their fluttering and communicating their backs. These things considered, we say, the fat its proper body, is a nervous or membranous substance, as that which hath its original from the coat Amnios (which is next to the Infant) dilated near to the navel, and stretched forth for the generation of this Panicle, in which thing I think good to note, that as the membranes Chorion and Amnios naturally interwoven with fluids, nerves, lacrima, and intesti the child as long as it is contained in the womb; to the skin and the fleshy Panicle, knit together by fibch bands, enliveth the whole body.

Therefore the fleshy Panicle is equal in magnitude and like in figure to the true skin, but that it lies under it, and it is contained in it, in some places mixed with the fat, in others incarnated by the fleshy Panicle with it, and in some other is only a fimple Membrane.

The composition of it is such, as the fight of it preffents to our eye, that is, of veins, arteries, nerves, and the proper fleshy, fome whites mixed and interlaced with fat, and sometimes with mufcu-

The temperature thereof is diverse, according to the variety of the parts interwoven with it. The use of it, to lead, direct and strengthen its paffage, the veins which are diffimulated into the true skin, and the whole superficies of the body. But in Reals it hath another commodity, that it is, it gives a fhaking or trembling motion to their skin and back, for that caufe which we formerly touched.

CHAP. VI.
Of the Fat.

The fat is rather an excrement than a part of the body, as we treated of the fimilar parts) is of an oily fubftance, bred of the airy and vaporous portion of the blood, which Sweating through the pores of the coats, or mouths of the vessels, becomes concrete about the membranes, and nerves, and cold bodies, and turns into fat by the cold.

The efficient cause is, that portion of the blood which we formerly mentioned, intermixt with certain membranes, nervous fkins, veins and arteries. The greatest part of it lies between the fleshy Panicle, and the common coat of the Mufcles. * Otherwife it is diffufed over all the body, in some places more, in some fels, yet it is always about the nervous bodies, to which it delights to cleave. Most Anato-

The fat is wafted by long walking, violent exercife, or immoderate heat, and besides, to give heat, or keep the parts warm. Although it do this latter rather by accident, than of its own nature, as heated into the fubftance thereof, and then into the fleshy Panicle, and the common coat of the Mufcles. * Otherwise it is diffufed over all the body, in some places more, in some fels, yet it is always about the nervous bodies, to which it delights to cleave. Most Anatomi-
Of the common Coat of the Muscles.

Muscles is the instrument of voluntary motion; and simple voluntary motion is performed in six manner of ways, upwards, downwards, forwards, backwards, to the right hand, and to the left; but the compound one way, which is circular, is performed by the continual succession of the motion of the muscles inclining the part. Such a motion Fal- coners use: for they stretch forth their hand, and have their Hawk. We have some parts, which have motion without a muscle; but that motion is not voluntary: such parts are, the heart, stomach, guts, both the bladder, (that is, that of the gall, and that of the urine) and divers other which have the motions of attracting, expelling, and retention, by the means of the three sorts of fibres: for they draw by the right, expel by the transverse, and retain by the oblique. The differences of muscles, which are many and diverse, are taken from their substance, original, generation into the part which they move, form or figure, holes or openings, magnitude, colour, site, and how many differences thiere he thereof.

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What a Muscle is, and how many differences there be thereof.
Differences of muscles, wherefore their original ought to be refer'd to the sides of the breast-blades, as shall be show'd in due place. From their insertion arife these differences; some are inferred into a bone, as those which move the head, arms, and legs; others into a gristle, as those of the Throat, eye-lids, nose, and the oblique ascendent muscles gristle of the Epigastrium; some into a bone and gristle both, as the other muscles of the Epigastrium and the midribs; some into the skin, as the muscles of the lips, others into the coats, as the muscles of the eyes; others into ligaments, as the muscles of the yard. But these differences following may be drawn both from their insertion and original. For some muscles arising from many parts, are inferred into some one part, as divers of those which move the arm and the shoulder, which arising from many points, are inferred into the bone of the shoulder-blade. Others arife from one part, and insert themselves into more, as, those which arife 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 tendons of the fingers and toes; Others, arising from many bones, are inferred into as many, as some of those which serve for respiration, to wit, those which we call the hinder Saw-muscles, and the Semispinalis, which leads a tendon into all the ribs. Others have their original from many bones, and end in gristles of the feet bones, as those which lie under the Sternum. Moreover, also these differences of muscles may be drawn from the original and insertion, that some proceed from bones, and are inferred into the next bone, to help their motion thereof, as the three muscles of the hips. Others arife from an upper bone, and are not inferred into the next, but into some other, as the long muscles. Some are named from the part they move, as the temporal muscles, because they move the temple: Others, from their office, as the grinding muscles; because they move the skin as a Mill, to grind together the meal. From their form or figure, because some are like Mice, other like Lizards which have their legs cut off; for that they irritate in their belly, body, or tendons, the belly or tail of such creatures; and from whence the name of Muscle and Larvein are divided. Such are those which bend the wrist, and which are fastened to the bone of the leg, and which extend the foot; others are triangular, as that which bends the arm, called Biceps or Deltoid, and that which draws the arm to the breast, called the pectoral muscle. Others quadrangular, as the Rhomboides, or Longe-muscle of the shoulder-blade, and the two hindarm-muscles serving for respiration, and two of the wrists which turn down the hand; others consist of more than four angles, as the oblique deeding, and that muscle which joyns it to it from the shoulder-blades; others are round and broad, as the medi·ribs, others circular, as the Splenius-muscle of the fundament and bladder; others are of a pyramidal figure, as the fourth muscle of the eye, which compasses the optic nerve in beasts, but not in men; others have a fascicular form, as that which slants up the eye, settled at the lower corner thereof; others resemble a Monk's crown, or hood, as the Trapezius of the shoulder-blade. Besides, others at their first original are narrow, but broad at their insertion: as the Saw-muscles of the shoulder, and the transverse of the Epigastrium, others are quite contrary, as the three muscles of the hips; others keep an equal breadth or bigness in all places, as the intercostal muscles and tendons of the wrist; others are long and slender, as the long muscle of the thighs; others are long and broad, as the oblique deeding muscles of the Epigastrium; others are directly contrary, as the Intercostal, which are very narrow. From their perforations for some are perforated, as the midribs, which hath three holes, as also the oblique and transverse of the Epigastrium, so that they may give passage forth to the preparing spermatic vessels, and to the ejaculatory vessels, the coat Epishleros associating and strengthening them, others are not perforated. From their magnitude, some have three sorts of fibers, others at their first original are narrow, but broad at their insertion: as the two muscles of the hips; 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 colours for some are white and red, as the temporal muscles, which have Tendons coming from the midst of their belly, others are livid, as the three greater muscles of the calf of the leg, which colour they have by the admixture of the white, or tendinous matter with the red blood; for, this coat by its thickness darkens the colour of the flesh, so that it cannot throw its redness and flesh colour, makes it seem of that livid colour. From their situation, for some are superficial, as those which appear under the skin and fat; others deep in, and hid, as the smooth and four twin muscles, some are stretched out, and as it were thrown over in a straight and plain passage, as the muscles of the thigh which move the leg, except the Ham-muscles; others oblique, as those of the Epigastrium; others further transverse, as the transverse of the Epigastrium; where you must observe, that although all the fibers of the muscles are direct, yet we call them oblique and transverse, by comparing them to the right muscles, as which by the concurrence of the fibers make a limit or acute angle. From the joints of their fibers for some have one kind of fiber, yet the greatest part enjoy two sorts of fibers running up and down, that they either are crooked like the letter X, as happens in the pectoral and grinding muscles, or else do not concur, as in the Trapezius. Others have three sorts of fibers, as the broad muscle of the face. From their coherence or connexion, or their texture of nervous fibers: for some have fibers somewhat more dilated and remote immediately at their original, than in other places, as you may see in the muscles of the buttocks: Others in their midst and belly, which by reason thereof in such muscles is more big or tumid, their head and tail being slender, as happens in most of the muscles of the arm and leg, in which the dense mass of flesh interwoven with fibers, disproves the fibers in fo great a distance, as in other times the fibers are more dilated in the tail, as in the greater Saw-muscle arising from the bottom of the shoulder-blade; in others, they are equally dilated through the whole muscles, as is in the muscles of the wrist, and between the webs of the fingers. From their head, for in some it is fleshy, interwoven with few fibers, as in the muscles of the buttocks; in others it is wholly nervous, as in the most broad muscle common to the arm and shoulder-blade, and in the three muscles of the thigh proceeding from the subcutinity of the huckle-
Book III. of Man's Body.

Hudcle bone, in some it is nervous and bethy, as in the internal and external muscle of the arm; besides, some have a head, others two as the bender of the elbow, and the external of the leg; others three, as the three-headed muscle of the thigh. But we must note, that the word nerve or finewt is here taken in a large signification, for a ligament, nerve and tendon, as Sana faith (Leb. de Opera) and moreover we must observe, that the head of a muscle is one while above, another while below, otherwise in the midst, as you may know by the infection of the nerve, because it enters the muscle by its head.

From their belly also, there be some differences of muscles taken, and some have their belly immediately at their beginning, as the muscles of the buttock; others at their infection, as the biceps, others just at their head, as the which put forth the call of the leg; in others it is somewhat further off, as in theth which draw back the arm, and which bend the leg; in others, the belly extends even from the head unto the tail, as in the internal muscles, and those of the wrist; in others, it is produced even to their infection, as in those of the palms of the hands and fingers of the feet; some have a double belly distinguished by a nervous substance as those which open the mouth, and those which arise from the root of the lower part of the foot.

Moreover the differences of muscles are drawn also from the tendon; for some have none, at both their shaft which are manister, as the muscles of the lips, and the sphincter-muscles, the intercostal, and some of the wrists; others have them in part, and want them in part, as the muscles of the midriff wants a tendon at the ends of the finger ribs, but hath two at the sixth Fer indul of the loins in which it is terminated; others have a tendon indeed. But some of these move with the bone, some none, as the muscles of the eyes; and besides, 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 benders of the fingers; others are a tendon round, but more broad than thick, such is the tendon arising from the twin muscles, and Solen of the leg; others have short tendons, as the muscles which turn down the hand, otherwise long, as those of the palms of the hands, and fingers of the feet; besides, others produce tendons from the end of their belly, which tendons are manister; others from the midriff, as the temporal muscles.

Besides, also others diffuse many tendons from their belly, as in the hands the tendons of the fingers and the extensors of the fingers. Otherwise put forth but one, which sometimes is divided into many, as those which bend the third articulation of the foot; otherwiles many muscles by their meeting together make one tendon, as the three muscles of the call of the leg, and those which bend the calf and leg. All tendons have their original, when the nerves and ligaments dispersed through the belly 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 bending and extension thereof. From their contraction of their actions, for some parts have contrary muscles, benders and extenders, other actions.

Hence ifepe the belly, and belly, which move the arm obliquely upward and downward, as the upper and lower fibers are contracted; and also one-tenth, if all the fibers be contracted together, which also happens to the Depressor and Triceps. I have thought it good to handle particularly these differences of muscles, because that by understanding them, the prognostic will be more certain, and also the application of remedies to each part, and if any occasion be, either to make injection, or future, we may be more certain, whether the part affected be more or less nervous.

CHAP. IX.

Of the parts of a Muscle.

 Havent declared the nature and differences of a muscle, we must note that some of the parts thereof are compound and universal, others simple or particular. The compound are the head, belly, and tail. The simple are ligaments, a nerve, thrt, 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, otherwise fibro. By the belly, that portion which is absolutely fibrous. By the tail we understand a tendon consisting partly of a nerve, partly of a ligament pronouncedly coming forth from the belly of the muscle. For as much as belongs to the simple, which are in number, three are called proper, and three common. The proper are a ligament from a bone, a nerve proceeding from the brain, or spinal marrow, and thm compact by the contraction of blood. The common are a vein from the liver or trunk arising from thence; an artery proceeding from the heart, a root produced by the nervous and 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 it force and motion, the ligament gives strength, the thm partial with the nerves 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 cherisheth the heat implanted in them; and, to conclude, defendeth it from all external injuries. For, like a fax, it opposeth it self against the heat of the sun; and is a parment against the cold; and is as a cushion, both to the knees and butts; and as a buckler of defence against wounding-weapons. The vein nourisheth the muscle, the artery giveth it life, the coat preserves the harmony of all the parts thereof, lest they should be any ways disguned or corrupted by purulent abscesses breathing into the empty or void spaces of the muscles; as we see it happeneth in a Gout-Nurse, where the corruption hath invaded this membran, by the breathing out of the more acid matter or nitre.

G

CHAP.
The nature of a ligament.

Having gone thus far, it remains, that we more particularly inquire into each part of a Mucle, that (if it be possible) nothing may be wanting to this Discourse. Therefore a ligament properly so called, is a simple part of many bodies, next of a bone and gristle, the most terrestrial, dry, hard, cold, white; such as all the musles have their beginning. What a nerve Blent and nourished by a gross and hot, fubtil, and spirituous, for the spirit, seeing it is naturally more thin and light, and in the body in which it is implanted, feels the wind of the heart and arteries, that Anatomia is apparent in the vein and artery that meet together at the joynt and bending of the arm, which I have sometimes showed in the Physick Schools, at such times as I there dissected Anatomies.

The threfold use of a ligament. What a nerve is.

An artery is also the receptacle of blood, but that spirituous and yellowish, confluting in the manner of a fpermatick Subftance: But it hath two coats with three forts of fibers, the utmost thicke, pipe or channel of the blood, or bloody matters it hath a fpermatick Subftance, consists of one coat compos’d of three forts of fibers.

By what power the fibular parts principally draw or attract. What, and of how many sorts the flesh is.

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What a vein is. What an artery is.

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Why an artery is more thick and dense than a vein.

The nature of a vein.

A vein is the fpermatick fubftance, confting of perfect creatures, and fuch as have blood; for the flhed of all tender and young things having blood, as Calves, and alfo of all forts of fticks, is whitifti, by reafon of the too much humi-fiety of the blood. The fekond kind is more pallid, ev*n in perfed creatures having blood, and the third is moft thin, confting of right fibers, and fome oblique. But the inner is five times more thick and denfe than the utmoft, inverwoven with tranfverfe fubfances, and that they fay is proper to the tongue alone. For there be divers parts of the body which have nerves, yet are ditinition of all voluntary motion, having the f Fahrly of arrefing the contractions of the nerves which fall the hinder part of the head to the Vertebrae, or elfe from the Prerimans.

What we mean by the nervous and ligamentous fibers.

What we mean by the nervous and ligamentous fibers.

The mutual Anatomy of the veins and arteries. Where it is manifest.

From whence a musle hath its beginning or head.
Now seeing that we have taught what a muscle is, and what the differences thereof are, and what simple and compound parts it hath, and what the use, action and manner of action in each part is, it remains to come to the particular explication of each muscle, beginning with those of the lower belly, as those which we first meet with in division.

These are eight in number, four oblique, two on each side, two right or direct, one on the right, another on the left side, and in like manner two transverse. All these are alike in force, magnitude and action, so mutually composed, that the oblique descendant of one side, is composed with the other oblique descendant on the other side, and to of the rest.

We may add to this number the two little supplying or affisting muscles, which are of a Pyramidal form, and arise from the thiree-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 pass, that descendant and ascendant, so mutually composed, that the oblique descendant of one side, is conjoincd with the oblique ascendant of the other.

Hippocrates, Galen, Columbo, Sylvius, Vesalius and Connerian think they arise from the share-bone, because they cannot be inferred into that bone, because it is immovable. You may perceive in these muscles certain nervous and transverse intertensions, oftentimes three in number for the strength of these muscles, of which Galen makes no mention, although they may be seen in Apes, and also in the inner side of the muscles you may see four veins, and as many arteries, of which some creep upwards, others run downwards. The upper, called the Mamilarum, descend from the Axillary by the side and lower parts of the Sternum, the lesser parts thereof being distributed by the way to the Musculi sterni, and about the fourth and fifth rib to the dugs, from whence they take their name.
The meeting together of the Epigastrick and mamillary veins and arteries.

That which remains breaking out by the sides of the breast-blade, inferts itself into those muscles, creeping along, even almost to the navel, in which place they are manifestly united (that is, the veins with the veins, and arteries with the arteries) with the Epigastrick, which ascends from the upper part of the iliac; on each side under the said muscles, until they meet with these four mamillary vessels. That you may find the concourse of the veins and arteries about the navel, you must follow both the upper and the lower somewhat deep into the flesh, resting the blood on both sides from above downwards, and from below upward, until you shall find the excoculation of these vessels, 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 smallness of such vessels which want blood. But that by the benefit of such concourse of the vessels, the matters may be communicated and transported both from the womb to the dugs, and again from the dugs to the womb, appears in Nurses who want their courses, when the milk comes into their dugs; and on the contrary lose their milk when their courses flow plentifully. Otherwise to what purpose should there be such concourse between the vessels of the paps and womb? for there are veins and arteries distributed to the sides of the womb from the root of the Epigastricks; for indeed the Epigastricks which in their ascent meet with the mamillary, go not to the womb, though they be next to them, and arise from the same trunk with the Hypogastrick veins of the womb. The action of these muscles is, to move or draw near together the parts of the Hypogastrium to the Throcardia, or Hypochondries. Their use, in Columbus opinion, is, to draw the breast downwards, so to dilate it.

At the end of these, nature hath produced two other small muscles from the upper part of the share-bone, of a triangular figure, for the safety of the thick and common tendon of the right muscles; whereasupon they are called Succenturiati, or Assistors.

The first figure of the lower Belly.

A B C D The upper, lower, and lateral parts of the Peritonaeum.

E E The White-line from the gristle of the breast-bone, called the breast-blade, to the commissure or meeting of the share-bone.

F The gristle of the breast-bone, Cartilago anti-terminis ar the breast-blade.

G The navel, which all the muscles being taken away, must be kept for the demonstration of the Umbilical vessels.

H H The productions of the Peritonaeum, which contain the seminal vessels on either side.

** The hole which gives way to the seminal vessels of men.

I I A vein and an artery from the Epigastrick, which being carried upward under the right muscles, do here hang down, and are distributed into the lower part of the Abdomen.

K K A vein and an artery, from the internal mammary, proceeding from under the bone of the breast, are carried downward through the right muscles, and are distributed into the upper part of the Abdomen.

L L The place wherein the right muscle arises, which being here cut off, do hang down, that their vessels may the better be seen.

3 4. The Axilhominis, or insertion of the foresaid vessels, making the course of the Abdomen and the navel, and of the womb with the breast, as a stream. N N Branches of veins running into the sides of the Peritonaeum. N The place of the Hamble-bone bared, to which the oblique and transverse muscle do grow.

The Pyramidal or assisting muscles. The transverse muscles of the Pelvisfacium.
They have a quadrangular figure situated upon the greatest part of the Peritoneum, to which they
thickness, that it cannot be separated. They take the figure from the repetition of the
the lumborum, and the transversal productions of the Ventre's of the
the muscles, doth drive from above downwards, from which *tonfpiring contention follows
from the White-line, as all the rest do.

Their action. The common

Their figure
the commencement

and the other

The White-line is
The Peritoneum is
The solidity and quantity.

The composition.

The use and action.
The common use and action of the right muscles of the

The Peritoneum is
What the White-line is
The Peritoneum or Rim of the Belly,

The number.
Lib. de sm.

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The number.
Lib. 6. 20th.

This membrane is one in number, and besides every where one and equal, although Galen would
would have it perforated in that place where the spermatick vessels defend to the testicles: But, in truth,
when that a hole, but rather a production, as we said before.

The late Anatomists have observed, the coat Peritoneum is doubled below the navel, and that
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A hole, and whereof is, to invent and cover all the parts of the lower belly, the
specially the belly, it should be figured by great compressures and violent attempts into the
the empty spaces of the muscles, as it sometimes happens in the wounds of the Peritonaeum, unequal the
the lips of the Ulcer be very well united, for then appears a tumor about the wound by the guts and
toliths and separating them from those coats. It is of temperature cold and dry, as

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After the containing parts, follow the contained, the first of which is the Epiploon, or Skin, to which we give the name of Peritoneum, because it is neither the one nor the other; in divers men, according to their temperament. The latitude of it is described by the quantity of the guts. It is in figure like a pile, because it’s double. It is composed of veins, arteries, fat, and a membrane, which forming down from the gibbous part of the ventricle, and the flat part of the gut Duodenum and Spleen over the guts, is turned back from the lower belly to the top of the Colon. It is one as we said covering the guts. It hath its chief connexion with the first Ventshe’s of the Lions, from which place in Beasts it forms to take a Coat, as in men from the hollow part of the Spleen, and gibbous of the ventricle, and destitute part of the Duodenum: from whence doubled, it is terminated in the fore and higher part of the Colick-gut. Which moved Galen to write, that the upper part of the membrane of the Kall was annexed to the ventricle, but the lower, to the lower part of the Colick-gut. From the Vessels of which parts it borrows 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 fats but in fat bodies it is cold and moist by reason of the fat. The life of it is two-fold: The first is to heat and moisten the guts, and help their digestion, although it do it by accident, as that which through the density of the fat, hinders the cold air from piercing in, and also forbids the dissipation of the internal heat. Another life is, that, in want of nourishment in times of great famine, sometimes it cheers, and (as it were) by it saves the innate heat, both of the ventricle and neighbouring parts, as it is written by Galen. Moreover, we must observe, that in a rupture or relaxation of the Peritoneum, the Kall falls down into the Scrotum, from whence comes that ruptre we call Epiploon int—Comewhat more set, it thrusts itself between the bladder and the neck of the womb, and by its compression lunders, that the seed comes not in haste to the womb, 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 remain cold and raw, by reason of the fore-mentioned causes.

The second Figure of the lower Belly.

A A, B B. The inner part of the Peritoneum, cut into slain parts, and so turned backward.
B The upper B. shows the implantation of Umbilical vein into the liver.
C The cord separated from the Peritoneum. From D to the upper B the Umbilical vein.
E E The forpart of the stomach blown up, better covered by the liver or kail.
F F A part of the Gibbous side of the liver.
G Vessels distributed through the Peritoneum,
\* The breast-blade.
H The bottom of the bladder of urine.
I The connexion of the Peritoneum to the bottom of the bladder.
K K K K The kail covering the guts.
L M N Vessels and sinews embarassing the bottom of the stomach.
O The meeting of the vessels of both sides; so that M N and O form the seem which Aristotle mentions, 38 H Bild. 11. parts, whereafter we call Epiploon. But in women that are somewhat more fat, it thrusts it self between the bladder and the neck of the womb, and by its composition hinders, that the seed comes not with full force into the womb, 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 remain cold and raw, by reason of the fore-mentioned causes.
Now we must speak of the stomach, the receptacle of the food necessary for the whole creature to feed upon, by reason of the nerves dispersed into its upper orifice, and so into its whole subsistence. This receptacle is that of the stomach is twofold, one common, another proper. The common is to attenuate, mix and condense, the meats taken in at the mouth, for the nutrition of the body, the seat of appetite, by reason of the nerves encompassing this orifice, with their mutual embracings; whereby it happens that the ventricle in men of good habit, is temperate, because it is almost comprised of the equal conjunction of sanguine and spermatic parts: or according to Galen’s opinion, it is cold of itself, and by the parts composing it; and hot by the vicissitude of the bowels. But in some it is hotter, in others colder, according to the diverse temper and complexion of divers bodies. That stomach is to be thought well tempered, that powerfully draws down the meat and drink, and embraces and retains them to draw, until by condensation and elixation, they shall be turned into a juice like cream (which the Greeks call Chylos) and laffy, which doth strongly find in it, and expel the excrements of this first concoction.

The stomach is known to be hotter by this, that it better concocts and digests coarse and hard meats, as Beef, hard Eggs, and the like, than soft meats easy of digestion, which it corrupts and turns into belchings. For so a young Chicken, is sooner burnt than well roasting at a great fire. And laftly, which doth strongly send from it, and comforts itself against the impurity of the adjacent parts, whereof it is called the work-house of concoction. Its first action is to attract, retain, and affililate to itself that which is convenient; but to expel whatsoever shall be contrary, either in quantity or quality, or in the whole subsistence. It hath two orifices, one above, which they commonly call the stomach and heart, the other lower, which is called the Pylorus, or lower mouth of the stomach. The upper bends to the left side near the backbone; it is far more large and capacious than the lower, that so it may more commodiously receive meats half-chewed, hard and grofs. Which Gluttons call down with great greediness; it hath an exquisite flavour and feeling, because it is the seat of the appetite, by reason of the nerves encompassing this orifice, with their mutual embracings; whereby it happens that the ventricle in that part is endowed with a quick flame, that perceiving the want and emptiness of meat, it may stir up the creature to feed. For albeit nature hath bellowed four faculties on other parts, yet they are not capable of their works, but are only mouthish by the continual feeding of the veins, as Plants by joyce drawn from the earth.

This orifice is fixed at the fifth Vertebræ of the chief, upon which they say it almost rests. Yet I had rather say, that it lies upon the twelfth Vertebræ of the chief, and the full of the loins; for in this place the gullet penetrates the midrib, and makes this upper orifice. The lower orifice bends rather to the right side of the body, under the cavity of the liver. It is far fatter than the upper, let any thing should pass before it be well attenuated and condensed; and doth that by the help of assistance of, as it were, a certain ring, like to the plunger of a muske of the fundamental, which some have thought a glans made by the transposition of the inner and fibrous membrane.
The falling down of the stomarch.

The first figure shews the fore-side of the stomarch and gullet.
A. The figure of the orifice of the gullet cut from the throat.
B. The first and direct course of the gullet from A to B.
C. How the gullet above the first rach-bone of the chest, from B to C inclines to the right hand.
D. His inclination to the left hand, from C to D.
E E. The two glandulars called the Almonds, set close to the gullet in the end of the throat, called also Parotidums, Antitides, Tonsille, and Salivaries glandulas.
F F. Another glandulous body in the middle of the gullet, about the fifth rach-bone, from which place the gullet gives place to the great arteries, somewhere declining to the right side; Vesalius, lib. 5. c. 3. and Columbus, caud. I. 6. writes, that these glandulars are filled with a certain moisture, with which the gullet is moistened so that the meats may slide down more easily into the stomarch, as through a slippery passage. No otherwise than the Glandulae prostat, filled with a kind of greasy and oily moisture, smooth the passage of the orisons, that so it may flow through it, with a more free and left troubled course. G, the connexion of the gullet with the stomarch, where the upper orifice of the stomarch is fashioned. H, the lower orifice of the stomarch called Pylorus. I K, the upper part of the stomarch at I, the lower at K L L, the fore-side of the stomarch.

The second Figure sheweth the back-parts of the Ventrule and Gullet.

The third and fourth Figures.
In comparison of the other. There is a triple cause of this emptiness, the first is to hinder the easy and fit distribution of the perfectly concocted Chylus such like vessels. Others give another reason of this figure, which is, That there should be nothing in the bladder of the gall into it, which ever and anon by its acrimony cleanses away the filth, and contained in it the third is the flowing down of the Cholerick humor from the belly •, for, that production in the lower belly strongly sticks to the Scrotum altogether erroneous) often falls down into the gut, by reason of the paucity of the vessels that there is more matter contained in it than in the reft, by reason of the paucity 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 Colon, or the blind, because it hath but one passage to find out and receive in the matter. This gut hath a long and fruit production, according to the opinion of fame (though altogether erroneous) often falls down into the Scrotum in the rupture, or retention of the gall for, that production in the lower belly strongly sticks to the Peritoneum, or rim, which hindered such falling down. But Colon seems by such a blind-gut to have meant this long and narrow production, and certainly, so thinks the common fort of Anatomiis; but here Vulgarly fully represented Galen. Whereas Sylvius that he might free Galen of this fault, would have us by his book to understand the beginning of the colick-gut. The fifth is called Colon (or colick-gut) because it is greater and more capacious than the rest. The sixth and left, the right-gut, by reason of the rightness or thinness of the passage. This, in Beasts, especially, hath a certain turn in it to make the passage slippery, and left the guts should be exulcerated in the passage, by the sharpness of hard and acid excrements.

The fite of thefe guts is thus : The Duodenum upon the back-bone bends to the right hand, the Jejunum possesses a great part of the upper umbilical region, and diffuses it left into both sides with windings, like to the gut Ileum, even to the hands. The gut Colon is fittate at the lower part of the umbilical region, going with many turnings and winding, even to the hollowness of the holy bone, above the bladder and fide parts of the Hypogastrium, they call the Bladder.

The line of the colick-gut is thus : The Duodenum upon the back-bone bends to the right hand, the Jejunum possesses a great part of the upper umbilical region, and diffuses it left into both sides with windings, like to the gut Ileum, even to the hands. The gut Colon is fittate at the lower part of the umbilical region, going with many turnings and winding, even to the hollowness of the holy bone, above the bladder and fide parts of the Hypogastrium, they call the Bladder.

The blind bends to the right hand, a little below the kidney, above the Peritoneum, the Colon or colick-gut is crooked or bent, in the form of a Sphenoid-bone, filling all the space from the blind-gut, below the right kidney, even to the hollowness of the liver, and then it goes by the glibous part of the thumb above the colick-gut, even to the hollowness of the Spinal, from whence bleeding under the shell kidney, with fame turnings, it is terminated upon the Peritoneum of the loin.

By all which turnings and windings of the colick-gut, it is eafe to differ the pain of the Stove of the kidneys, which remain in one certain place, from the colick wandering through their crooked passages we mentioned. The right-gut tends with an oblique line 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 there is but one way from the gullet even to the fundament; but they are joined to the principal parts by their nerves, veins and arteries.

But a more proper connexion is that, where the Duodenum upon the upper part of it, is joined with the Pylorus; but on the lower part to the Jejunum, and the parts lying under it, by the coat of the Peritoneum. The Jejunum, or colick-gut, is joined to the Duodenum and Colon. The Colon, with the empty-blind-guts. The Colon with the Ileum and Colon, and with the right side of the back-bone, whereby they are finally, The Colon with the blind and right-guts, and in his middle parts, with the kidneys and glibous part of the thumb whereby it comes to pass, that being divided with wind in the colick, it over-turns and preffes the stomach, and so caufes vomiting.

Lastly, the right-gut is annexed with the colick-gut and fundament. At the end whereof there is an indiffinate, of figure round and circular, called the Sphincter, or the door or gate, the excrements are refrained at our will, till man born for all honest actions, without all shame, in every time and place, should be forced every where to eafe his belly. For such as have lost the benefit of this muscle of the Palsie, have their excrements go from them against their wills. There is a body fittate at the end of the right-gut, and of a middle fubfance between the skin and belly, as it were arizing from the mixture of them both, like the extremities of the lips, of the same ufe with the Sphincter, but that it is not altogether fo powerful. But there are also certain veins fittate about it called the Hemorrhoidal, of which we will speak in their place.

Besides, there are two other muscles that defend to the end of this gut, being broad and membrinous on each side, one arizing from the side and inner parts of the liver and hip-bones, which inferted above the Sphincter pull up the fundament falling down, whereas they are called Levator Levatoris Ap. Aor., or the lifters up of the fundament. Wherefore when as either they are too weak, or relaxed, or the liver and bile contained with the weight of blemnich, fill, cholerick and sanguine humor, the gut is scarce refit ed into its place, that there is need of the help of the fingers for that pur po.

The guts follow the tempo of the stomach. Their action is the distributing the Chylus by the mouth, being subjected to the two final guts and receiving the excrements of the Chylus, and retention of them, till a fit time of expulsion, which belongs to the head quarter. Besides, these small guts being the work of concoction, begin in the stomach, although
Their fibers.

But we must note, that for the compoſure of the guts, they have only tranverse fibers, for expulsions fake, unlefe that at the beginning of the Colon, and the end of the right gut, you may fee certain right fibers added to the tranverse to strengthen them, lest these guts should chance to be broken and turn by the passage of hard excrements, and the laborious endeavour of expulsion, (specially in brute Beasts.)

The fifth figure, of the lo wer Belly.

A The breas-blade, Carvillo Enfillo-
mis.
B B The rim, with the midriff and broken ribs bent outward.
C C The gibrous part of the liver.
D D A ligament tying the liver to the midriff.
E E Part of the umbilical vein.
F F The flomach fill'd full of meat.
G G A part of the fibers.
H H The blind-gut of the late Writers, for the Ancients took the sup of the Colon for it.
I I The beginning of the great or thick gut.
J J And so to K, forward the passages of the colick-gut from the right kidney to the liver.
K K The same colick-gut both under the whole bottom of the flomach, which is the rea-
sion that these which are troubled with the co-
lick, cafeis much.
L L The passage of the Colon from the fifteen to the part-bone by the left kidney, a way which maketh the pain of the flomach and the co-
lick on the left side, very hard to distinguishing.
M M The Colon ending in the right gut.
N N The beginning of the right gut, waste the bladders.
P Q The broken or fallen side of the Colon in the bladder.
P P, and his chambers or cells at QRS T, the latter guts officially lying under the nadel.
Q Q The two umbilical arteries.

How the guts become fit to retain. But if any ask, how they have retention, being they want oblique fibers; he may know, that the feces are retained in the right-gut, by the force of the Sphincter-muscle, but oft-times in the

reason of their conformation into many windings and turnings. The length of the guts, is seven times more than the length of the whole body; to this length they have windings, left the nour-
ishment should quickly slide away, and left men should be with-drawn by gluttony from action
and contemplation. For we fee it comes to pass in most Beasts, which have one gut, stretched ftrait out from the fomach to the fundament; as in the Lynx, and fuch other Beasts of infeatable

gluttony, always, like Plants, regarding their food.

CHAP. XV

Of the Mesentery.

A Fiber the guts follows the Mesentery, being partly of a fatty, and partly of a spermatick sub-
fance. The greatnefs of it is apparent enough, although in fome it be bigger, and in fome

smaller, according to the greatnefs of the body. It is of a round figure, and not very thick.

It is compofed of a double coat arifing from the beginning and root of the Peritoneum. In the

middle thereof, it admits nerves from the Coftal of the fixth Conjugation; veins from the Ve-næ

Portae; or gate-veins; arteries from the defcendent artery, over and besides a great quantity of fat

and many glandulous bodies, to prop up the division of the veffels spread over it, as alfo to moiften

their fubftance. It is in number one, fituate in the middle of the guts, from whence it took its

name. Yet fome divide it into two parts, to wit, into the Mescrevis, that is, the portion inter-

woven with the small guts, and into the Mes-colon which is joyned with the large. It hath con-

neception by its veffels, with the principal parts, by its whole fubftance with the guts, and in fome

parts with the kidneys, from whole region it seems to take its coats.

It is of a cold and moist temper, if you have refpect to his fatty fubftance; but if to the reft of

the parts, cold and dry.
**CHAP. XVI.**

The Glandules in general, and of the Pancreas, or Spleen-bread.

A 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 Tonsille (or Almonds, like in substance to blanched Almonds,) the Thymus, Pancreas, Tephalis, Prostate. But the dense and hard are the Varicules, and other like. The Glandules differ amongst themselves in quantity and figure, for some are greater than other some, and some are round, and others plain, as the Testicles and Pancreas.

Others are compounded of veins, nerves, arteries, and their proper flesh, as the Almonds of the ears, the milky glandules in the breasts and the testicles. Others want nerves, at least which may be seen, as the Tonsille, the Thymus, or those under the arm-holes, 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 ventricle of the brain, in the upper part of the chest, in the mesentery, and other like places.

Although others be fixed in such places, as nature thinks needful to generate and call forth of the composition, but all with these, whole division they keep and preserve. They are of a certain temper, wherefore Physicians say, the blood recedes, i.e. to become raw again in the vessels, when it takes upon it the form of milk. But of these none have action, as the Almonds, which pour out spittle useful for the whole mouth, the ducts milk, the testicles feed, others use only, as those which are made to preserve, under-prop 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 flesh-like body, as that which hath every where the shape and semblance of flesh. It is situated at the flat end of the liver, under the Duodenum, with which it hath great connection, and under the gate-vein, to serve as a Buolwark 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 pluck'd asunder, nor hurt by any violent motion, as a fall or the like.

**CHAP. XVII.**

Of the Liver.

Having gone thus far, order of dissection now requires, that we should treat of the distribution of the gate-vein's but, because it cannot well be understood unless all the nature of the liver from whence it arises, be well known, therefore putting it off to a more fit place, we will now speak of the liver. Wherefore the liver (according to Galen's opinion, i.e. de Fabricam) is the seat of all the parts of the body, which is finished in conformation. It is the heap and author of the blood, and the original of the veins; the substance of it is like the concrete mud of the blood, the quantity of it is divers, not only in bodies of different, but also of the same species; as in men amongst themselves, of whom one will be glutinous and feaful, and another bold, and temperate or fober; for he shall have a greater liver than this, because it must conceive and contain a greater quantity of Chylo - yet the liver is great in all men, because they have need of a great quantity of blood for the repairing of so many spirits, and the substance moistrue, which are resolved and dissipated in every moment by action and contemplation. But there may be a twofold reason given, why fuch as are fearful have a larger liver. The first is, because in thefe the vital faculty (in which the heat of courage and anger rides) which is in the heart, is weak; and therefore the defect of it must be supplied by the strength of the natural faculty. For this nature is accustomed to compensate that which is wanting in one part, by the increase and accession of another. The other reason is, because cold men have great appetites, for by Galen's opinion in arte passa, coldness increaseth the appetites, by whisth comes to pass that they have a greater quantity of Gly- hos, by which plenty the liver is nourisht, and grows larger. Some Beasts, as Dogs and Swine, the liver divided into five or more Lobes, but a man hath but one Lobe, or two or three at the most; and there is no much distinguished, as which cherish the upper and hollow region of the vessels, with embracing to help forward the work of digestion. Therefore the liver is not so content with one Lobe, although it is always sent with a small division, that the umbilical vein piercing into the roots and substance of it, may have a free passage; but also oftentimes there is, as it were, a certain small Lobe of the liver, laid under that umbilical vein, as a cordon.
The figure of the liver is gibbous; rising up and smooth towards the midst, towards the stomach is the fissura or hollow side of it somewhat unequal, and rough by reason of the distance of the Lobes, the original of the hollow-vein, and the side of the bladder of the gall.

The composition of the liver is of veins, nerves, arteries, the coat and proper substance thereof which we call the gros and concrete blood, or Peritonemum. Veins and arteries come to it from the navil; but nerves immediately from thence which are diffused over the stomach according to Hippocrates; yet they penetrate not very deep into its substance; for it seems not to stand in need of such exact food, but they are distributed upon the coat and surface thereof, because this part made for distribution over the whole body, keeps to it nul acrid or malign humor, for the perception of which it should need a nerve, although the coat investing it, sends many nervous fibres into its substance, as is apparent by the taking away of the coat from a boiled liver; we must think the fame of the other entrais. The coat of the liver is from the Peritonemum, waxing small from the umbilical vein, but nerves immediately from these which are diffused over the stomach according to Galen.

The number and size of the veins and arteries membranes of the Peritonemum; by the hollow veins and artery, with the heart, by the nerve with the brain, and by the same ligatures 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 veins and hot blood but such as have it cold, have small veins, and a discoloured hue. The action of the liver is the conversion of Chylus into the blood, the work of the second connection. For although the Chylus entering into the mesentrick veins, receive some resemblance of blood, yet it acquires not the form and perfection of blood, before it be elaborate, and fully converted in the liver. It is bound and tied with three strong ligaments, and the reason the other parts of the body, and of the passages and channels made for the performance of its actions with the liver, in the manner with the Duodenum, and not seldom with the stomach also, by another passage, and to conclude, to all the parts by its veins, nerves, arteries, and common coat. It is of a cold temper, as every nervous part is. The action of it, is to separate from the liver the cholerick humor, and that excrementitious, but yet natural, by the help of the right fibers, for the purifying of the blood, and by the oblique fibers, to be the minister of such action to the gall.

Now we come to the bladder of the gall, which is of a nervous substance, and of the bigness of a small pear; it is of figure round, with the bottom more large, but the sides and mouth more narrow and strait. It is composed of a double coat, the proper, consisting of three sorts of fibers, the other from the Peritonemum; it hath a vein from the Porta or gate-vein, and an artery from that which is diffused into the liver, and a nerve from the fifth connection. It is hot, and that had on the right side under the greater lobe of the liver, it is knit with the touching of its own body, and of the passages and channels made for the performance of its actions with the liver; and in the manner with the Duodenum, and not seldom with the stomach also, by another passage, and to conclude, to all the parts by its veins, nerves, arteries, and common coat. It is of a cold temper, as every nervous part is. The action of it, is to separate from the liver the choleric humor, and that excrementitious, 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 in, until it begin to become troublesome in quantity, or quality, or its whole substance, and then by the transverse fibers, to put it down into the Duodenum to provoke the expulsive faculty of the guts. I know, Fabricius denies the texture of so many fibers, to be the minister of such action to the gall. But Vesalius seems sufficiently to have answered him. The bladder of the gall hath divers channels: for coming, with a narrow strait, 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 find another branch into the bottom of the stomach, as is observed by Galen; which men have a miserable and wretched life, being subject to choleric vomitions, especially when their stomach is empty, with great pains of their stomach and head, as is also observed by Galen, cap. 74, Artis Med. The other, coming out of the body of the liver, divides itself into two or three passages, again 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 to the blood unites it be most elaborate and pure, may not rise into the hollow-vein, all which things Diffusion doth manifestly teach.
Book III. of Mans Body.

Chap. XIX.

Of the Spleen or Milr.

But because we cannot well shew the distribution of the Gate-vein, unless the Spleen be first taken away and removed from its seat: therefore before we go any further, I have thought good to treat of the Spleen. Therefore the Spleen is of a soft, rare, and spongious substance (whereby it might more safely receive and drink up the dregs of the blood from the Liver) and of a color more black than the Liver. For it resembles the colour of its muddy blood, from which it is generated. It is of an indifferet greatness, but bigger in some than in others, according to the divers temper and complexion of men. It hath, as it were, a triangular Figure, gibbous on that part, it fides to the Ribs and Midriff, but hollow on that part next the Stomach. This composed of a Coat, the proper Flefh, Artery, and Nerve. The membrane comes from the Peritoneum, the proper leaf from the fecor or dregs of blood, or rather of the natural melancholy humour, with which it is nourifhed. The fourth branch of the Vena Porta or Gate-vein, lends it a Vein: the fifth branch of the great Descendent Artery, preferably after the fift entrance without the Midriff, lends it an Artery. But it receives a Nerve from the left Coftal, from the fith conjugation on the inner part, by the roots of the ribs: and we may manifeftly fee this Nerve, not only differing it felf through the Coft of the Liver, but also penetrating with its Veifs the proper Flefh thereof, after the felf fame manner, as we fee it in the Heart and Lungs. It is of a round and hollow Figure, like to a Pipe or Quill. It is compofed of its proper Coat, or Gate-Vein, and the distribution thereof. For by their continual motion and native heat, which they carry in full force with the proper Flefh of the Spleen, and alfo another Vein, which fometimes from the Spleen-branch, fometimes from the Gate-vein, plainly under its orifice, defends to the Funament, there to make the Hemorrhoidal Veifs.

Chap. XX.

Of the Vena Porta or Gate-Vein, and the distribution thereof.

The Gate-vein, as alfo all the other Veins is of a spermatick substance, of a manifeft largeness, of a round and hollow Figure, like to a Pipe or Quill. It is compofed of its proper Coat, or Gate-Vein, and one common from the Peritoneum. It is of one only, and that infinite in the fomous or hollow part of the Liver, from whence it breaks forth (or rather out of the Umbilical Vein) into the middle of all the Guts with which hath connexion, as also with the Stomach, Spleen, Sphincter of the Funament, and Peritoneum, by the Coat which it receives from thence. It is of a cold and dry temper, which being excellent and obftinate, may be attenuated by the force of many Arteries difpersed through its substance. For by their continual motion and native heat, which they carry in full force with them from the Heart, that grofs blood raws off its grofsnes, which the Spleen tends away by passages fit for that purpose, retaining the fubtle portion for its nourifhment. The passages by which it purges it felf from the grofsnes of the melancholy blood, are a Vein acfeeding from it into the Stomach to stir up the appetite by its fournefs, and ftrengthen the fubftance thereof by its aftridion, and alfo another Vein, which fometimes from the Spleen-branch, fometimes from the Gate-vein, plainly under its orifice, defends to the Fundament, there to make the Hemorrhoidal Veifs.
I have sometimes observed this coming forth of the Trunks, a little above the orifice of the splenic branch. But this same splenic branch on its lower part, produces the branch of the Hemorrhoidal Veins, which according to the Fundament above the left side of the Loins, diffuses a good portion thereof into the last part of the Colick Gut, and the right Gut, at the end whereof it is often seen to be divided into five Hemorrhoidal Veins, sometimes more, sometimes less.

**Silvanus** writes that the Hemorrhoidal branch descends from the Mesentery: and truly we have sometimes observed it to have been so. Yet it is more fitutable to Reason, that it should descend from the Splenic, 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 excrementsitious melancholy humor. But this same splenic branch out of the middle amidst of its upper part, produces the third branch going to the gibbous part of the Stomach and the Kall; they term the greater, middle, and left Gastro-splenic. But on the lower part towards the Spleen, it produces the simple Epiploic or Kall-vein, which it diffuses through the left side of the Kall. Moreover from its upper part, which reaches the Liver, it foundeth a short branch called Par bres, or Penfum, to the upper orifice of the Venandre for filling up the aperture.

We have oftentimes and almost always observed, that this Vein-veffel, which Galen calls Van Freyve, comes from the very body of the Spleen, and is terminated in the midift of the Stomach on the left side, but never pierces the Coats thereof. Wherefore it is somewhat difficult to find, how the melancholy piece can that way be poured, or sent, into the capacity of the Stomach. Now the splenic branch, when it hath produced out of it those five fore-mentioned branches, is waited and dispersed into the substance and body of the spleen.

Then follows another compound branch of the Fena Porta, called the Mesenterick, which is divided into three parts: the left and right whereof goes to the hind-gut, and to the right and middle part of the Colick gut, divided into an infinite multitude of other branches. The second and middle is waited on the Bow, as the third and greater in the Jejunum or Empty-gut. It is called Mesenterick, because it is diffused all over the Mefentery, as the Splenic is in the Spleen. And thus much we have to say of the division of the Gastro-vein, the which if at any time you shall find to be otherwise than I have set down, you must not wonder at it, for you shall fear not find it the same in two bodies, by reason of the infinite variety of particular Bodies, which (as the Philosophers say) have each their own, or peculiar gifts: Our judgment is the same of other divisions of the Veins. Yet we have set down that which we most frequently observed.

## CHAP. XXI.

**Of the Original of the Artery, and the division of the Branch descending to the Natural Parts.**

The Original of the Artery.

The division of the great Artery, is into these:

1. Arteria Intercostalis.
2. Phrenica.
3. Caelica.
4. Esmaltica.
5. Spermatica.
6. Hemorrhoidalis prope majestatis inferior."
The seventeenth proceeding from the trunk with so many branches as there be Vertebræ in the loins, goes to the loins, and the parts belonging to them, that is the spinal marrow of that part, Lumbares, and other parts encompassing these Vertebræ, whereupon it is called the Lumbars, or Loin-Artery.

The Seventh Figure of the lower Body.

AA The Midriфф turned back, with the ribs of the Peritonæum.
BB The Curve or hollow part of the Liver, for the Liver is lifted up that the hollow part of it may be better seen.
CC The left ligament of the Liver.
DD The Umbilical Vein.
EE The hollowness of the Liver, which grows way to the Stomach.
FF The left arches of the Stomach.
GG Certain knobs or knops, and impressions in the hollow part of the Liver.
HH The bladder of Gall.
II The Gate-vein cut off, and Branches which go to the bladder of Gall.
JJ A nerve from the Liver coming from the meso-

The eighteenth makes the Black Artery, until each time as it departs from the Peritonæum where the Crucial Arteries take their original. This Black Artery sends many diversions 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 Black Veins, for brevities sake we will let pass further mention of them till we come to treat of the Black Veins.

C H A P. XXII.

Of the distribution of the Nerves to the Natural parts.

It remains that before the bowels be taken away, we shew the Nerves sent to the entrails 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 sixth Conjugation, which defend as well to the stomack all along the Gullet, and the sides thereof, as those at the roots of the ribs on both sides within. But when they are past through the Midriфф, those which are distributed amongst the Natural parts follow the windings of the Veins and Arteries, but specially of the Arteries. Whereas if you have a mind to follow this distribution of the Nerves, you must chiefly look for it in those places, in which the Artery is divided amongst the Guts above the Loins.

These Nerves are but small, because the parts serving for nutrition, needed none but little Nerves. Their Magni-

The Original of the Nerves which are car-

nated to the Natural parts.
And besides, if they were defective of this sense, they might be gnawed, ulcerated, and putrid by the raging acrimony of the excrements falling into, and staying in them; but now (by means hereof) as soon as they find themselves pricked or plucked, presently by the expulsive faculty they endeavour to expel that which is troublesome, and so free themselves of present and future dangers.

**CHAP. XXIII.**

*The manner of taking out the Guts.*

When the Guts are to be taken out, you must begin with the right Gut. And you must divide it, being first, strictly tied in two different places, at a full distance about four fingers from the end, with a sharp knife between two ligatures. Then you must draw its proper Counters and Fibres; and that common one which it hath 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 so all his branches being in like manner tied, there may be no fear of effusion of blood; you must do the like with the Coeliac Artery at the left Kidney, and in the lower Mesenterick, which descends to the right Gut with Humorrhoidal Veins. This being done pull away the Guts even to the Duodenum, which being in like manner tied in two places, which ought to be below the insertion of the Femoral Trunk, or passage of the Gall, that you may shew the oblique insertion thereof into that Gut; for the obligaty of its insertion is worth observation, as that which is the cause that the Gall cannot flow back into its bladder by the compression of the Gut from below upwards. Then all these windings of the Guts may be taken away from the body.

**CHAP. XXIV.**

*The Original and Distribution of the defendant Hollow Vein.*

Because the exit of the natural parts, do almost all depend upon the defendant Hollow Vein, therefore before we go 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 latter of which goes to the Vital and Animal parts, and the extremities of those parts, as we shall show in their place. The greater, descending from the back part of the Liver above the Verterbrae of the Loins 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 adiposa, or fatty Veins, so called, because they bring 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 is higher; but the left comes from the very trunk of the Hollow Vein, because the emulgent on that side is lower; and you shall scarce see it otherwise.

The second, being the Kidney or Emulgent Veins, go to the Reins, 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 again into many other through the substance of the Kidneys, as you may learn better by Ocular Inspection than by Book. They are thick and broad, that the serous humour may without impediment have freer passage. Their original is different; for the right emulgent, oftentimes comes forth of the Hollow Vein somewhat higher than the left, that feeling, their office and duty is to purge the mass of blood from the choleric and serous humour, that if any part thereof hide by the one, it may not escape, but falls as it were into the other. Which certainly would not have happened if they had been placed the one just opposite to the other. For the serous or wheyish humour would have found an equal passage, and pocketed, by reason of the contrary of the action, and tracts or drawing thereof. But we must remember, that in differing of Bodies, I have oftentimes found in such as have been troubled with the Stone, seven emulgent Veins, and so many Arteries, four from the left side coming from divers places, of which the left came from the Iliaco three from the right hand likewise in divers places.

The third division is called the Sperrmatick or Seed Vein, it goes to the Testicles; the original thereof is thus, that the right arises on the fore-part of the trunk of the Hollow Vein; but the left most commonly from the emulgent. Besides, you shall sometimes find that these have companions with them, to the right emulgent; but to the left, another from the Hollow Vein, to some bar on one side, in others on both. But also I have sometimes observed the left emulgent to proceed from the Sperrmatick or Seed Vein.

The fourth, because it goes to the Loins, is called Lumbaris; which in his original and insertion is wholly like the Artery of the Loins. But there are four Lumbar or Loins Veins on each side, that is, one in each of the four places of the five Vertebræ of the Loins.

The fifth division makes the Illiacæ, until, passing through the Peritoneum, they take the names of General Veins: These are first divided into the Mcullous, so called, because they go to the oblique ascendant and transverso Muscles, and to the Peritoneum. Sometimes they have their original from the end of the Trunks. And the same Illiacæ are divided into the Sane, or Holy, which go to the spinal marrow of the Holy bone through the holes, by which the Nerves generated of this marrow, have their passage.
Book III

of Mans Body.

Thirdly, The Iliac are divided into the Hypogastric, so called because they are distributed to all the parts of the Hypogastrium, or lower part of the lower belly, as to the right Gut, the muscles thereof of, the mucous skin (in which place they often make the external hemorrhoidal, ordained for the purging of such blood as offends in quantity, as those other, that is, the inward hemorrhoidal) which defend from the right Gut from the Gate-vein by the spicicick branch, serves for cleaning that which offends in quality, to the Bladder, and to the neck thereof, even to the end of the Yard, to the Womb, and even to the neck of the Womb and utmost part of the Privities, from whence it is likely the Courses break forth in Women with Child and Virginia. But this vein also sends a portion without the Hypogastric by that perforation which is common to the Share and Ham-bone, which strengthened by the meeting of the other internal Cural Vein, defends even to the Ham, but in the mean time, by the way, it is communicated to the muscles of the Thigh, called Obitantes, and other parts within.

Fourthly, The Iliac produce the Epigastric, 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 Iliac produce the Pudenda, or Veins of the Privities, because they go in Women to their Privities, and in men to the Cores, where they enter that Sclerous Coat filled with Veins, and Eadinda, going to the skin of the Yard they take their beginning under the Hypogastric.

C H A P. XXV.

Of the Kidneys or Reins.

Now follow the Kidneys, which that they may be more easily seen, (after that you have diligently observed their situation) you shall despise of their fat, if they have any about them, as also of the membrane they have from the Peritoneum. First, You shall show all their conditions, beginning at their substance.

The Ninth and Tenth Figure of the Vessels of Seed and Urine.

The first Figure sheweth the fore-side, the second the hinder-side.

The backward part of the left kidney.

The outer side.

The inner side.

The two cavities where the emulgent vessels are inserted.

The trunk of the hollow vein.

The trunk of the great Artery.

The emulgent vein and artery.

The right fatty vein.

The left fatty vein.

The Celiacal artery.

The Ureters.

The small bladder of the Cores opened.

The Glandules called Glandulae Prostateae.

The Sphincter muscle of the Bladder.

The two bodies which make the substance of the Tard.

The vesis which go unto the Tard and neck of the Bladder.

The passage which is common to the Urine and Seed, cut open.

The place where the arteries of the feed arise.

The place where the leading vessell called ves deferens, doth arise.

The place where the leading vessel called ves deferens, doth arise.

The place where the leading vessel called ves deferens, doth arise.

The place where the leading vessel called ves deferens, doth arise.

The place where the leading vessel called ves deferens, doth arise.

The place which the arteries of the feed arise.

Small branches distributed from the seminal vessels to the Peritoneum.

The hairy varius body, called Varicolum Vas pyramidale.

The Paraitone or Epididymis.

The Testicle yet covered with its coat.

The substance of the Kidneys is fleshy, dense, and solid, let they should be hurt by the shapings of the Urine. Their magnitude is large enough, as you may see. Their figure is somewhat long flame, and
and round, almost resembling a femicirde, and they are lightly flatted above and below. They are partly hollow and partly gibbous; the hollow lies next to the hollow Vein, and on a side they receive the emulgent Veins and Arteries, and send forth the Ureters; their gibbous part lies towards the loins. They are composed of a coat coming from the Peritoneum, their own peculiar fether, with the effusion of blood about the proper Veins, (as happens also in other entrais) generates a small Nerve, which springing from the Coital of the fixth Conjugation, is diffused to each Kidney on his side into the coat of the Kidney if fell, although others think it always accompanies the Vein and Artery.

But Fallopii, that most diligent Author of Anatomy hath observed that this Nerve is not only oftentimes divaricated into the coat of the Kidneys, 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 supply those excelleies of Nature for which the Kidneys are made. They lie upon the loins at the fides of the great Veins, on which they depend by their proper Veins and Arteries, and they stick to them as it were, by a certain second coat, left that they might be shaken by any violent motions. Wherefore we may say that the Kidneys have two coats, one proper adhering to their substance, the other as it were, coming from the Peritoneum on that part they stick to it.

The right Kidney is almost always the higher, for those reaons I gave, speaking of the original of the emulgent Veins. Colombo seems to think the contrary; but such like controversies may be quickly decided by the Eye. They have connection with the principal Veins by the Veins, Nerves, and Arteries, by the Coats with the Loins and other parts of the lower Belly. They are of a hot and moist temper, as all fleshy parts are. Their action is to cleanse the Mafa of the Blood from the greater part of the feinous and choleric humour. I faid the greater part, because it is needfull that some portion thereof should go with the alimentary blood to the fold parts, to feed in fede of a vehicle, left otherwise it should be too thick.

Besides, you muft note, that in each Kidney there is a cavity bounded by a certain membrane, encompassed by the divifion of the emulgent Veins and Arteries through which the Urine is strained partly by the expellive faculty of the Kidneys, partly by the attractive of the Ureters which run through the fubftance of the Kidneys on the hollow fide, no otherwise than the Peritoneum through the body of the Liver.

CHAP. XXVI.

Of the Spermatick Veiftels.

Nor we fend have spoken of the Ureters, because, as we faid before, they are paflages derived from the Kidneys to carry the Urine to the Bladder. But, because they cannot be distinguished and thowed, unless by the corrupting and vitiating the firc of the fpermatick Veiftels, therefore I have thought it better to pass to the Explication of all the fpermatick parts.

And firt of all you muft gently separate them, (that fo the Declaration of them may be more eafe and manifest,) and that from the coat which comes from the Peritoneum, and the fide which invels them even to the Share-bone, having diligently considered their fide, before you separate them. Then you fhall teach that the fubftance of thefe Veiftels is like to that of the Veins and Arteries. Their fquare is small in thicknefs, but of an indifferent length, by reafon of the diftance of their original from the Tefiicles. They are longer in Men than in Women, becaufe thefe have their Tefiicles hanging without their Belly, but Women have them lying hid within their Belly. Their figure and compofure is wholly like the figure and compofition of the Veins and Arteries, except in this one thing, that from that place where they go forth of the great capacity of the Peritoneum, they are turned into many intricate windings, like crooked swollen Veins, even to the Tefiicle, that the fpermatick matter in that one Track, which yet is no other than blood, may be prepared to concord, or rather be turned into Seed in thefe Veiftels, by the inadiation of the Tefiicle, That the fpermatick matter in that one Track, which yet is no other than blood, may be prepared to concord, or rather be turned into Seed in thefe Veiftels, by the inadiation of the Tefiicle. Their fide is oblique above the Loins and Flanks, whileft they rundown between the ends of the great Veins. Their figure and compofure is wholly like the figure and compofition of the Veins and Arteries, and their proper fether. Their Veins and Arteries proceed from the fpermatick Veiftels, their Nerves, from the fixth Conjugation, arrefting as we told you when we fpoke of the diftribution of the hollow Vein. They are inferted into the Tefiicles through that coat which we call Peritoneum, therefore I have thought it better to pafs to the Explication of all the fpermatick parts.

CHAP. XXVII.

Of the Tefiicles, or Stones.
The skin of the Cods, proceeding from the true skin, and the flabby Coat, which consists of the flabby Panicle in that place receiving a great number of Veils, through which occasion it is so called. The proper Coats are flith the Epithelium arising from the preos of the Peritoneum, going into the Sertorius together with the spermatic Veils, which it involves and covers; this appears red both by reason of the Veils, as also of the Crowner-muscles of the Testicles, then the Epithelium or Dartous which takes its original of the membrane of the spermatic preparing Veils. The fhit of the Testicles, as it were, a certain effusion of matter about the Veils, as we before said, and which is so called. But you must observe, that the Epithelium accompanies the whole Stone, except its head, in which place it is like to the Epithelium, which is continued through the whole substance of the Testicle. This Epithelium or Dartous was therefore put about the Stones, because the Testicles of themselves are loose, opulent, cavious and fapt, so that they cannot safely be joined to the spermatic Veils, which are hard and strong. Wherefore Nature, that it might join extremity by a fit Medium, or mean, formed this Coat Epithelium. This is scarce apparent in Women by reason of its small-ness. The two forementioned common Coats, adhere or stick together by the Veils not only amongst themselves, but also with the Epithelium. You must besides observe, the Crowner-muscles are of the said substance with other muscles, small and thin, of an oblong and broad figure, arising from the membrane of the Peritoneum, which, (as we before said) affumes flith from the flanks. Their composition is like other muscles. They are two, on each side one. They are situate from the ends of the Fleshes even to the Stones. They have connection with the preos 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 Stone, whence they are called hanging muscles. The Testicles are most commonly two in number, on each side one; sometimes there be three, sometimes one alone: as it happens also in the Kidneys, for some have but one Kidney. They lie hid in the Sertorius at the very roots of the Stones, connected to the principal parts of their Veils, with the neck of the Bladder and Yarne; but by their Coats they adhere to the parts from whence they have them. They are of a cold and moist temper, because they are glandulous: although they be hot by accident, by reason of the multitude of the Veils flowing through them. Those whole Testicles are more hot, are prompt to Venery, and have their Privities and adjacent parts very hairy; and besides, their Testicles are very large and compact. Those on the contrary that have them cold, and are cold by nature, are more tender and weak than Women. The action of the Testicle is to generate Seed, to Action corroborate all the parts of the Body, and by a certain manly irradiation to breed or increase a true masculine courage. This you may know by Eunuchs, or such as are gaited, who are of a womanish nature, and are oftentimes more tender and weak than Women. As Hippocrates teaches by example of the Spermatics, Lib. De Aren, Libri & Aquis.

**CHAP. XXVIII.**

Of the various Biles or Paraffates, and of the glandulour Veils, and the glandulour Paraffates.

The Varicous Paraffates are nervous and white bodies, like as the nerves, wound and close. Their sub-unknown amongst themselves; they are stretched even from the top to the bottom of the Testicles, from whence presently by their departure they produce the Varicous Veils, of Testicles, leading Veils. They are nervous, and white bodies, like as the nerves wound and close. Their quantity is visible. Their figure round, tending somewhat to sharpness. They are composed of Veins, Nerves, and Arteries, which they enjoy from the Veils of the Testicles, from the Epithelium, or the Coat, from the Peritoneum, and their proper substance. Their temper is cold and dry. They are two in number, one to each Testicle. But the testicular bodies are called Paraffata, Lichites, because they superficially affit, and are knit to the Testicles according to their length, or long ways. One of the Paraffates proceed the Varicous Veils, others leading Veils, being of the same substance as their Propagators, that is, solid, white, and as it were nervous. Their quantity is indifferent, their figure round, and their Veils, so that the Seed may have a free passage through them, yet they form not to be formed by any manifest passage, unless by chance in such as have had a long Conception. They have like temper as the Paraffates, between which and the Paraffates they are linked, immediately knit with them both, as both in the Coat, and the Testicles with the parts from whence they take them.

But we must note, that such like Veils coming out of the Paraffates ascend from the bottom of the Stones even to the top, in which place meeting with the preparing Veils, they rise into the Coats by the same passage, and bind themselves together by nervous fibers, even to the inner capacity...
capacity of the belly, from whence turning back, they forsake the preparing, that so they may run to the bottom of the Stern-bone, into the mid of two glandulous bodies, which they call prostate finite at the neck of the bladder, that there meeting together, they may grow into one passage.

The Tenth Figure, wherein those things figured in the former Figure, are more exactly set forth.

A part of the Modifice, and of the Peritonzeum with the nent bone.

The convex or gibbous part of the liver marked with bb, the hollow or concave part with cc.

The right and left ligaments of the Liver.

The trunk of the gate.-vini.

The trunk of the hollow vein.

The right and left veins, both left and right.

The aperture of the great Artery above the hollow vein, and the division thereof.

The Coeliacal Artery.

The emulgent Vessels.

The fat particles or coats torn from both the Kidneys.

The Vessels that go unto the Bladder.

The right frermatic Vein which arises near to u.

The double original of the left frermatic Vein.

From the Emulgent.

From the hollow vein.

The original of the frermatical Arterie.

Certain branches from the frermatick Arteries which run unto the Peritoneum.

The passage of the frermatical Vessels through the perforations of the Peritoneum, and the division thereof.

The Stone or Vehicle covered with his internal coat.

The defcent of the leading Vessel called Vas deferens.

The bladder.

The Glandules or Prostate, into which the leading Vessels are inserted.

The Coat of the Vehicle.

The coats of the frermatic Veins.

The coat of the Vehicle.

The muscular coats over his internal coat.

Their Quantity and figure.
Vessels, the parts annexed to them. But always observe, that every part which enjoys nourishment, life, and sense, either full or left, hath connection with the principal parts of the body, by the intercommunication of the Vessels which they receive from thence.

The use of the Prostates 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 humour in their glandulous body, that continually diffusing into the passage of the Renome, may preserve it from the acrimony and sharpness thereof. But we have observed also on each side other Glandules, which Randerlein calls Appendices Glandulose, glandulous appendages to arise from these Prostates, in which also there is seed referred.

CHAP. XXIX.

Of the Ureters.

Now it seems fit to speak of the Ureters, Bladder, and parts belonging to the Bladder. Therefore the Ureters are of a spermatick, 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 Fibres which comes from the eminest Veins and Arteries; the other common, from the Peritoneum, besides, they have Veins, Nerves, and Arteries, from the neighboring parts.

They are two in number, on each side one; they are situate between the Kidneys (out of whose hollow part they proceed) and the Bladder. But the manner how the Ureters insert or enter themselves into the Bladder, and the Form of the Bladder, exceeds admiration; for the Ureters are not directly but obliquely implanted near the orifice of the Bladder, and penetrate into the inner space thereof, for within they are, as it were, divided the membrane, or membranous Coat of the body of the Bladder, and insinuate themselves into that, as though it were double. But this is opened at the entrance of the Urine, but that at other times, the covers, as it were, falling upon it, so that the humour which is fallen into the capacity of the Bladder, cannot be forced or driven back; no so much as the Air blown into it can come this way out, as we see in Swine's Bladders blown up and filled with Air.

For we see it is the Air contained in those which filleth them, though neither can it be pressed forth but with extraordinary force.

For as this Skin or Coat turned in by the force of the humour gives way, so it being pressed out by the body contained within, thrusts its whole body into the passage as a stopple; like to this, is the infection of the Ureters into the Guts.

The Ureters have connexion with the above-mentioned parts, with the muscles of the Loins, upon the connection of the Sphinder, muscularis, of the Bladder, and to the passage in the Guts. They are of a cold and dry temper.

Their use is, to serve as passages or channels, for conveying the Urine into the Bladder.

CHAP. XXX.

Of the Bladder.

The Bladder is of the same substance that the Ureters, that is, nervous, that so it may be the most easily dilated.

It is of a large proportion, in some bigger, in some less, according to the difference of Age and habit of body. It is of a round Figure, and as it were, Pyramidal.

It is composed of two Coats, one proper, which is very thick and strong, composed of the three sorts of Fibres, that is, in the inner side of the direct, without of the transverse, and in the midst of the oblique. The other common Coat coming from the Peritoneum, hath Veins and Arteries on each side one, from the Hypogastric Vessels above the Holy bone; also it hath Nerves on each side from the sixth conjugation mixt with the Nerves of the Holy bone. For these Nerves descend from the Brain even to the end of the Holy bone. It is but one, and that situate in men in the lower hollow upon the right Gut, and below the Sharebone; but in Women between the Womb and that bone, to which it attaches with its membraneous ligaments, as that doth to the Yard by its neck, and to 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 Fibres 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 it self, or reaction, to the muscles of the Epigastrium and Midribs; because this motion, being voluntary, cannot be performed usefully by a muscle which the Bladder wants; partly by the dilatation and relaxation of the Sphinder muscle composed of transverse Fibres, like the Sphinæ of the Fundament, after the same manner as that up the orifice of the Bladder, that the Urine should not out against that side. But the Bladder, as it fills, is dilated but as it is emptied, it is contracted like a purse. You may easily observe this muscle in a Swine Bladder: it is stretched from the orifice of the Bladder, and beginning of the urinary passage even to the Privities in Women; but in Man it is terminated in the Peritoneum as soon as it hath left the right Gut. Besides, this muscle is thus far stretched...
of the Anatomy

Chapter XXXII.

Of the Tard.

For the neck of the Bladder: it differs nothing in substance, composure, number, and temper from the Bladder, but only in quantity, which is neither so large, nor round in Figure, but somewhat long together with the Yard, representing the shape of the letter S. It is placed in men at the end of the right Gut and Peritoneum, rising upwards even to the roots of the Yard, and with it bending it fell downwards in Women it is short, broad, and straight, ending at the orifice of the neck of the Womb between the nervous bodies of the Nymph. In men it hath connection with the Bladder, the ejaculatory Vessels, the right Gut and Yard, but in Women only with the neck of the Womb and Privities. The use of it is in Men to call forth Seed and Urine, in Women only Urine. But we 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 observe the situation of those parts. Besides you must note, that by the Peritoneum, we understand nothing else, in Men and Women, than that space which is from the Fundament to the Privities, in which the seam is called Taurus.

The neck of the Bladder.

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Chapter XXXII.

Of the Tard.

Now follows the declaration of the privy parts of Men and Women; and first we will treat of Men. The Yard is of a ligamentous substance, because it hath its original from bones, it is of an indifferent magnitude in all dimensions, yet in some bigger, in some liæ in the Figure of it is round, but yet somewhat flared above and beneath. It is composed of a double Coat, Nerves, Veins, Arteries, two Ligaments, the passage of the Urine, and four Muscles. It hath its Coats both from the true Skin, as also from the flabby Pannicle, but the
of the Holy-bone in so the Yard, as the feminary VelTels run on the upper part. The ligaments of the Yard proceed on both sides from the sides and lower commissure of the Share-bones; whereas the Yard is immediately at its root furnished with a double ligament, but these two presently run into one spongy one. The passage of the Urine situate in the lower part of the Yard, comes from the neck of the Bladder between the two ligaments. For the four Muscles, the two side-ones composing or making a great part of the Yard, proceed from the inward extremity of the Hip-bone, and presently they are dilated from the original, and then grows left again. The two other lower side from the Muscles of the Fundament, and accompany the Urinary passage the length of the Peritoneum, until they enter the Yard, but these two Muscles clave so close together, that they may form one, having a triangular Form.

The action of these four Muscles in the act of generation is, they open, and dilate this common passage of Urine and Seed, that the Seed may be forcibly or violently cad into the Field of Nature, that the Seed may be forcibly or violently cast into the Field of Nature. The action of it is to call the Seed from the inward extremity of the Hip-bone, and presently they are dilated from the original, and then grows left again. They have another from the Peritoneum, which is the

Of the spermatick Vessels and Testicles in Women.

Now we should treat of the Privy parts in Women, but because they depend upon the neck and proper body of the Womb, we will first speak of the Womb, having first declared what difference there is between the spermatick Vessels and Testicles of Men and Women. Wherefore we must know that the spermatick Vessels in Women do nothing differ from those in Men in Substance, Figure, Composition, Number, Consequence, Temper, Original, and Life; but only in Magnitude and Distribution; for Women have them more large and short.

It was fit they should be more large, because they should not only convey the matter fit for generation of Young and nourishment of the Testicles, but also sufficient for the nourishment of the Womb and Child; but shorter, because they end at the Testicles and Womb within the belly in Women. Where you must note, that the preparing spermatick Vessels, a little before they come to the Testicles, are divided into two unequal branches, of which the lesser, being after the same manner, as we said in Men, goes into the head of the Testicles, through which it sends a hinder branch into the Coats of the Testicles for life and nourishment, and not only into the Coats, but into leading Vessels. But the bigger branch descends on each side by the upper part of the Womb between the proper Coat and the common, from the Peritoneum, where it is divided into divers branches. By this difference of the spermatick Vessels, you may easily understand why Women cast forth left Seed than Men.

For their Testicles, they differ little from Men but in quantity; for they are lecher, and in Figure more hollow and flat, by reason of their deser heat which could not elevate or lift them up to their just magnitude. Their composition is more simple; for they want the Semen or Seed, the dry Coag, and also, according to the opinion of former, the Enzyvades, but in place thereof they have another from the Peritoneum which covers the proper Coag, that is, the Epididymus or Ductus. Silvius writes, that Women Testicles want the Enzyvades; yet it is certain, that besides their peculiar Coag Ductus, they have another from the Peritoneum, which is the Enzyvades, or, as Fallopio calls it the Epifceude, that is as much as the Panniculus or threath. But I think that this hath sprung from the misunderstanding that place in Galen, where he writes that Womens Testicles want the Epifceude. For we must not understand that to be fpeken of the Coag, but of the Various Parastates (as I formerly said.) They differ nothing in number, but in size; for in Men they hang without the belly at the Share-bone above the Peritoneum, Women have them lying hid in their belly, near the bottom at the sides of the Womb, but yet so as they touch not the body of the Womb.

But these Testicles are tied to the Womb, both by a Coag from the Peritoneum, as also by the leading Vessels depending to the Hens of the Womb; but to the rest of the body, by the Vessels and the Nerves arising from the Holy-bone and Cotial Nerves. They are of a colder Temper than Mens. The cutaneous, or leading Vessels in Women differ thus from Mens; they are large at the beginning, and of a Velv'y confess, or subsidence, so that you can scarce discern them from the Coag Peritoneum, then presently they become nerves, and wax so slender, that they may seem broken or torn, though it is not for, but when they come nearer to the Hens of the Womb, they are again dilated in their own conditions, they agree with Mens, but that they are altogether more slender and short. They have a round figure, but more intricate windings than Mens; I believe that their windings might supply the defect of the Various Parastates.

Why they have more intricate windings.
are seated between the Testicles and Womb, for they proceed out of the head of the Testicle, then presently, armed with a Coat from the Peritonæum, they are implanted into the Womb by its horns.

The First Figure.

A The bottom of the Womb laid open, without any membrane.
BB The Neck of the Womb turned up.

CD A part of the bottom of the Womb like the Nut of the Yod, swelling into the upper part of the Neck of the Womb, in the middle whereof the orifice appears.
EE A membrane joining the Womb to the Peritonæum, and holding together the Vessels thereof.
F The left Testicle.
G The spermatical Vein and Artery.
H A part of the spermatical Vessels reaching near the bottom of the Womb.
J One part of the Vessels coming to the Testicles.
* A Vessel leading the Seed unto the Womb.
K The Coat of the Testicle with the implication of the Vessels.
L The cavity of the Bladder opened.
M The insertion of the Vessels into the Bladder.
N The Vessels cut from the Kidneys.
O The insertion of the Neck of the Bladder into the Lap or Privy.

The Second Figure.

aa A spermatical Vessel and Artery. bb Branches distributed to the Peritonæum from the spermatical Vessel. c The bottom of the Womb. d The neck of the Womb. e Certain Vessels running through the inside of the Womb, and the neck thereof. ff Vessels reaching to the bottom of the Womb produced from the spermatical Vessel. gg The leading Vessel of the Seed called the Trumpet. hh A branch of the spermatical Vessel composing the Trumpet. ii The Testicles. kk The lower ligaments of the Womb, which some call the Cremaefers or hanging Muscles of the Womb. m A portion of the neck of the Bladder.

The Third Figure.

aa The spermatical Vessels. bb A branch from these spermatical Vessels to the bottom of the Womb. c The body or bottom of the Womb. d The neck of the same. e The neck of the Bladder ending into the neck of the Womb. ff The Testicles. gg The leading Vessels, commonly (though not so well) called the Excurrent Vessels. hh The division of these Vessels; one of them determining into the horns of the Womb, & cast off. ii The other branch ending in the neck, by which Women with child avoid their seed. kk The Horns of the Womb.

The Fourth Figure.

AB The bottom of the Womb, at whose sides are the Horns. CD A line like a fomite or stem, a little distinguishing the bottom. EE The substance of the bottom of the Womb, or the thickness of his inner Coat. F A puncturation or swelling in the Womb in the middle of the horns. G The orifice of the bottom of the Womb. HH The Coat or Second Cover of the bottom of the Womb, coming from the Peritonæum. III A portion of the Membranes which tie the Womb. KK The beginning of the neck of the Womb. L The neck of the Bladder infected into the neck of the Womb. m The Clitores in the top of the Privy. n The inequality of the Privy where the Hymen is placed. o The hole or passage of the Privy in the clitoris. p The skinny carnacle of the Privy.
He Womb is a part proper only to Women, given by nature in stead of the Scrotum, as the neck thereof, and the annexed parts in stead of the Yard, so that if any more exactly consider the parts of generation in Women and Men, he shall find that they differ not much in number, but only in situation and use. For that which man hath apparent without, Women have hid within, both by the singular providence of Nature, as also by the defect of heat in Women, which could not drive and thrust forth those parts, as in men. The Womb is of a nervous and membraneous substance, that it may be more easily dilated and contracted, as need shall require.

The magnitude thereof is divers, according to the diversity of Age, the use of Vagery, the flowing of their Courses, and the time of Conception. The Womb is but small in one of unripe Age, having not called Veneries, nor which is Menstruous therefore the quantity cannot be rightly defined.

The figure of the Womb 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 coming forth. It consists of simple and compound parts. The simple are the Veins, Arteries, Nerves, and Coats. The Veins and Arteries are four in number, two from the preparing Transverse Vessels, the two other ascends thither from the Hypogastic, after this manner.

First, Those Vessels before they ascend on each side to the Womb, divide themselves into two branches, from which others go to the lower part of the Womb, otherwise to the neck thereof, by which the menstruous blood, if it abound from the Conception, may be purged.

Nerves come on both sides to the Womb, both from the sixth Conjugation, defending by the Nerves length of the back-bone, as also from the holy bone, which presently united and joined together, arefend and are distributed through the Womb, like the Veins and Arteries.

The unmut or common Coat of the Womb proceeds from the Peritoneum, on that part it touches The Coats, the holy bone; but the proper is tissue from the first contraction, which is composed of the three force Fibres, of the right on the indefinite of the attachment of both sides, the transversely without to expel, if occasion be, the oblique in the midst, for the due retention thereof.

The Womb admits no division, unless into the right and left side, by an obtuse line or seam, such as we see in the foemum, but scarce to manifest neither must we after the manner of the Ancients, No Cells 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 Dogs. 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 forms most fit for the fat, the feed, to carry and bring forth the Young. It is placed between the Bladder and right Gut, and is bound to these parts much more straitly by the Neck than by the Body thereof; but also besides, it is tied with two most strong ligaments on the sides and upper parts of the Sharebone, on which it seems to hang, but by its common Coat from the Peritoneum, chiefly thick in that place, it is tied to the Hollow bone, and the bones of the Hanch and Loins.

By reason of this straight connexion, a Woman with child feeling the painful drawings back, and as it were, convulsions of those ligaments, knows her self with child. If of a cold and moist temper, rather through accident than of itself. The action thereof is to contain both the seeds, and to cherish, preserve, and nourish the same, so contained, until the time appointed by Nature; and also besides, to receive and evacuate the menstruous blood. The compound parts of the Womb are the proper Body and Neck thereof. That Body is extended in Women with child, even to the Navel, in some highest, in force lower.

In the inner side the Cotyledones come into our consideration, which are nothing else than the veins and mouths of the Veins ending in that place. They appear in Women, unless prefently after child-bearing, or their membranal puration; but they are apparent in Sheep, Goats, and Kine, at all times like Wheat-corns, unless when they are with young; for then they are of the bigness of half nuts; but then also they swell up in Women, and are like a rude piece of flesh of a fanger and a half thick, which begirt all the natural parts of the Infant that up in the Womb's out of which respect this fhapeless flesh, according to the opinion of some, is reckoned amongst the number of Coats investing the Infant, and called Chorion, because as in Beasts the Chorion is interwoven with Veins and Arteries, whereas the umbilical Vessels proceed, so in Women this fteny lump is woven with Veins and Arteries, whence such Vessel have their original. Which thing, however and agreeable to reason it is, let other men judge.

There is one thing wherein I would admonish thee, that as the growth of the Cotyledones in Beasts are not called by the name of Chorion, but are entirely fide to be the dependents thereof; so in Women such Coats doth in no way answer to the name of Chorion, but rather of the dependences thereof.

This Body ends in a certain straitness which is not withal, in following it towards the Privates in Women which have born no children, or have remained barren some certain time, for in such as are lately delivered you can for nothing but a cavity and no straitness at all. This straitness we call the proper orifice of the Womb, which is most clearly shut after conception, especially until the Membrane, or Coats encompassing the Child be finished and strong enough to contain the feed, that it be not forth nor, but contrary by entrance of the air, so is it opened to find forth the Seed, and in some the Courtes and pernicous humour which are heaped up in the Womb in the time of their being with Child.
Of the Anatomy

Of the Neck of the Womb.

From this orifice the neck of the Womb, taking its original, is extended even to the Privies. It is
of a mucilaginous substance, composed of soft fibers, because it might be extended and contracted,
wrinkled, and stretched forth, and unfolded, and writhed, and bunched at the coming forth of the child,
and after be restored to its former bounders and regularity. In procfs of age it grows harder, both
by the increase of veryer, and also by reason of age, by which the whole body in all parts thereof becomes dry
and hard. But in growing and in young Women it is more tractable and flexible for the necessity
of Nature.

Its Magnitude.

The magnitude is sufficiently large in all dimensions, though diverse, by reason of the infinite va-
riety of bodies. The figure of it 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 from
the Hypogastrick Vessels by the branches extending to the Womb. This neck on the inside is
wrinkled with many crests, like the upper part of a Dog's mouth, so in copulation, to cause greater
pleasure by that inequality, and also to shorten the act.

Number and Site.

It is only one, and that suture between the neck of the bladder and the right Gut, to which it
isothicketh, as to the Womb by the proper orifice thereof, and to the Privies by its own orifice;
but by the Vessels to all the parts from whence they are sent.

Temper.

It is of a cold and dry temper, and the way to admit the feed into the Womb, to exclude the

Nothing but that they called

that they called

that they called

that they called

that they called

that they called

that they called

that they called

that they called

that they called
BOOK III.

Of Mans Body.

But it is more probable that this happens by the violent attrition of certain Vessels lying in the inward superficies of the neck of the Womb, not being able to endure without breaking to great extent as that nervous neck undergoes at the first coition. For a Maid which is marriageable, and hath her genital parts proportionable in quantity and bigness to a Mans, shall find no such effusion of blood, as we shall now more at large in our Book of Generation.

This neck ends at the Privities, where its proper office is, which privy parts we must treat of as being the productions and appendix of this neck. This Fundamentum Privity is of a middle sub stance, between the flesh and a nucev; the magnitude is sufficiently large, the figure round, hollow, long. It is compassed of Veins, Arteries, Nerves, defending to the neck of the Womb, and a double Coat proceeding from the true Skin and fleshy Pannicle; both these Coats are fimly united by the fleshy coming between them; whereupon it is said that this part consists of a mucous Coat. It is one in number, fized above the Perineum. It hath connexion with the Fundament, the neck of the Womb and Bladder, by both their peculiar orifices. It hath a middle temper, between hot and cold, moist and dry. It hath the fame use as a mans Foetum is of foreskin, that is, that together with the Nyme he may hinder the entrance of the air, by which the Womb may be in danger to take cold. The lips of the Privitys called by the Greek Nympha, by the Latinus Mon, contain all that region which is invested with hairs; and because we have fallen into mention of the Nympha, you must know that they are, as it were, productions of the mucous skin, which defcend on all sides from the upper part of the Share bone downwards, even to the orifice of the neck of the bladder, oft-times growing to fo great a bigness, that they will found out like a Man Yard, Wherefore in fome they must be cut off in their young years, yet with a great deal of cautious, let if be cut too rashly, to great an effusion of blood may follow, that it might cause either death to the Woman, or barrenness of the Womb, by reason of the refrigeration by the too great effuion of blood. The later Anatomists, as Columbus and Zulphius, besides thefe parts, have made mention of another Particle, which stands forth in the upper part of the Privitys, and all of the urinary fapage, which joins together thefe Wings we formerly mentioned, Columbus calls it Testiges, Zulphius Chloritis, whence proceeds that infamous word Clitorizin, (which signifies improperly to handle that part.) But because it is an offcenfe part, let thefe which defire to know more of it, read the Authors which I cited.

CHAP. XXXV.

Of the Coats containing the Infant in the Womb, and of the Navel.

The Membranes or Coats containing the Infant in the Womb of the Mother, are of a flemish, tick and nervous fubftance, 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 near the time of deliverance, they are round in figure like the Womb. Their compofition is of Veins, Arteries, and their proper fubftance. The Veins and Arteries are diftributed to them (whether obliquely or manifely, more or fewer) from the Womb by the Cotyledones, which have the fame office, as long as the Child is contained in the Womb, as the Nipples or Paps of the Nursers after it is born. For thus the Womb brings the Cotyledones, or Veins degenerating into them through the Coats like certain Paps to the Infant (but up in them. Thefe Coats are three in number, according to Galen, one called the Chloris, Secondary, or After birth; the other Allantodes, the third Aminis. I find this number of Coats in Bealis but not in Women, unless peradventure any will reckon up in the number of the Coats the Cotyledones, tielled up and grown into a fleshy mat, which many ftilful in Anatomy do write; which opinion notwithstanding we cannot receive as true. I could never in any place find the Allantodes in Women with child, neither in the Infant born in the forth, feventh, eighth, or in the full time, being the ninth Moneth, although I sought it with all possible diligence, the Midwives being little art, which might have violated none of the Coats.

But thus I went about this business: I divided the dead body of the Mother crosswise upon the region of the Womb, and taking away all impediments which might either hinder, or obfuscate our diligence, with as much dexterity as was possible, we did not easily draw away that Receptacle or Den of the Infant from the low and surface of the Womb, to which it ftruck by the Cotyledones, but we also took away the firft Membrane which we called Chloris, from that which lies next under it, called Aminis, without any rending and tearing for thus we poured forth no effuion, whereby it might be said, that any Coats made for the containing of that human was rent or torn. And then we diligently looked, having many Wrinfles and Spectacles present, if in any place there did appear any dillinction of thefe two Membranes, the Allantodes and Aminis, for the separating the containing humours, and for other ufed which they mention.

But when we could perceive no fuch thing, we took the Aminis filled with moisture on the upper side, and having opened it, two fervants holding the aperture, that no moisture might flow out of it into the circumference of the Chloris, or Womb, then prettily with Spunges we drew out by little and little all the fublimity contained in it, the Infant yet contained in it, which was fit to come forth, that to the Coat Aminis being freed of this moisture, we might fee whether there were any other humours contained in another Coat besides. But having done this with singular diligence and fidelity, we could fee no other humour, nor to other separation of the Membranes besides.
So that from that time I have confidently held this opinion, that the Infant in the Womb is only wrapped in two Coats, the Chorion and Amnion. But yet not satisfied by this experience, that as I might yet be more certain concerning this External coat, the Allantoides, having pulled through the two former Coats, I came to the Infant, and I put a spigot into its Bladders, and blew it up as forcibly as I could, to try if thereby that I might force the Air into that Coat which we questioned, as some have written. But neither thus could I drive any Air from hence through the Navel into the controverted Coat, but rather I found it fly out of the Bladder by the Privy. Wherefore I am certainly persuaded that there is no Allantoides. Moreover I could never find, not see, in the Navel, that pannage called the Urachus, which they affirm to be the beginning and original of the Coat Allantoides. But if it be granted that there is no such Coat as the Allantoides, what discommodity will arise hereof? Specially seeing the Sweat and Urine of the Infant may easily, and without any discommodity 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 there be any, it is tempered by the admixture of the gentle vapour of Sweat. Besides, if you consider or have regard to the side of such an humour (which is to hold up the Child, left by its weight it break the ties, by which it is bound to the Womb) we shall find no humour more fit for this purpose than this humour, as by its thickness is more suit fit to bear up a weight, than the thin and too liquid Sweat. For to we see the Sea or Salt-water carries greater weights without danger of drowning than fresh Rivers do. Wherefore I conclude that there is no need that the Urine should be kept and contained in our Coat, and the Sweat in another. The Ancients who have writ otherwise, have written from observations made in Beasts. Wherefore we make but one Coat, the Chorion and Amnion, the one of which, seeing it contains the other, they both do encompass the Child, that they velt it on every side.

The Navel in some sort feems to be of this opinion. For he only makes two Coats, the Chorion and Amnion; but he thinks the Infant makes the Water into a certain part of the Coat, as you may perceive by reading of his Observations. Both their Coats are tied between themselves by the intercommingled fhrindl noxious Fibers, and small Vesselsthat penetrate from the outer coats to the inner Amnion. Wherefore unless you wantily handle these Coats, you may easily tear the Amnion in separating it. They are of the same temper with other Membranes. Their use is different: for the Chorion is made both for the prefervation of the Vessels which it receives from the Womb for the generation of the umbilical Veins and Arteries, as also to keep whole and fave the parts which it invests.

But the Amnion is to receive and contain the excrementitious and fursous humours, which the Child that up in the Womb is accustomed to evacuate. But this Coat is very thin and fift, but very strong and foonth, left by its touch it might hurt the Infant, whereupon it is called the Umbilical Coat.

CHAP. XXXV.

Of the Navel.

The Navel is the center of the body. The Figure and Composition of it.

The Navel is the whit body, somewhat femebling the white Cord, or Girdle of the Francifcan Friars, but that it hath not the knots hanging to far out, but only swelling in certain places, resembling a knot, only lifted up on one fide; it arifes and takes its original from a fhrindl mas, which we expreffed by the name of swellings or knots, and goes into the midft of the lower Belly of the Infant, yea verily into the midft of the whole Body, whose root it is therefore faid to be. For even as a Tree by the root sucks nourishment from the Earth, fo the Infant in the Womb draws its nourishment by the Navel, the greatnefs of it in breadth and thicknefs, equals the bignefs of the little finger. But it is a foot and a half long, fo 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 three or four Veins and Arteries from the great multitude of capillary Veins and Arteries, which are foon divided over the Chorion. Wherefore the Vein entwinding in the Navel, penetrates from thence into the hollow part of the Liver, where divided into two, according to Galen’s opinion, it makes the Gate and Hollow Veins. But the Arteries carried by themfelves the length of the Navel, call themselves into the Blunts, which they make, as is alo, all other, that from thence the Vital fpirit may be conveyed by them over all the Infant. It hath its two Coats from the Chorion.

The Navel follows these Coats: It is a white body, somewhat resembling the white Cord, or Girdle of the Francifcan Friars, but that it hath not the knots hanging to far out, but only swelling in certain places, resembling a knot, only lifted up on one fide; it arifes and takes its original from a fhrindl mas, which we expreffed by the name of swellings or knots, and goes into the midft of the lower Belly of the Infant, yea verily into the midft of the whole Body, whose root it is therefore faid to be. For even as a Tree by the root sucks nourishment from the Earth, fo the Infant in the Womb draws its nourishment by the Navel, the greatnefs of it in breadth and thicknefs, equals the bignefs of the little finger. But it is a foot and a half long, fo 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 three or four Veins and Arteries from the great multitude of capillary Veins and Arteries, which are foon divided over the Chorion. Wherefore the Vein entwinding in the Navel, penetrates from thence into the hollow part of the Liver, where divided into two, according to Galen’s opinion, it makes the Gate and Hollow Veins. But the Arteries carried by themfelves the length of the Navel, call themselves into the Blunts, which they make, as is alo, all other, that from thence the Vital fpirit may be conveyed by them over all the Infant. It hath its two Coats from the Chorion.

But being they are mutually woven and conjointed without any medium, and are of a sufficient strength and thicknefs over all the Navel, they may seem to the Infants external Skin and fhrindl Pannicule. I know very many reduce two umbral Veins, as also Arteries, and the Wretch, by or through which the Urine flows into the Coat Allantoides. But becaufe this is to be found in Women, but only Beasts, I willingly omit it, becaufe I do not intend to mention any parts, but that as belong to humane bodies. Yet, if there be any which can teach me, that these parts, which I think proper to brute Beasts, are to be found in Women, I will willingly confess that to his credit, from whom I have reap’d fich benefits.

The other things that may be required concerning the Navel, as of its number, fize, connexion, temper, and ut, may easy appear by that we have spoken before. For we have apparently fet down the whole, when we said the Navel was made for that purpofe, to receive the Allantoides, having that the Infant may be contained by it, as the Tree by the root, by reason of the continuation of the Veins thereof, with the preparing parenchymatic Veins made by God for that purpofe: To whom be honour and glory for ever and ever. Amen.

The End of the Third Book.
BOOK IV.
TREATING OF THE VITAL PARTS CONTAINED IN THE CHEST.

The PREFACE.
Ave finished the first Book of our Anatomy, in explanation of the Natural Parts contained in the lower Belly. Now Order requires that we treat of the Breit that so the parts in some sort already explained (I mean the Vessels and Arteries) may be dispatched after the same order and measure, without interposition of any other matter.

And besides also, that we may the more exactly and cheerfully shew the rest of the parts which remain, or the Head and Limbs, knowing already the original of those Effects which are digested through them. To this purpose we will define what the Chest is, and then we will divide it into its parts. Thirdly, in those we will consider which parts contain, and which are contained; that so we may more happily finish our intended Delineation.

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

The Thorax, or Chest, is the middle Belly, terminated or bounded above with the Ccllar bones, below with the Midriiff, before with the Sternon or Breast, behind with the twelve Vertebrae of the Back, on both sides, with the true and Bastard Ribs, and with the intercostal and intercartilagineous Muscles. Nature hath given it this structure and composition, left that being a defence for the Vital parts against external injuries, it should hinder respiration, which is no less needful for the preservation of the native heat diffused by the vital spirits, and shut up in the Heart, as in the Fountain thereof, against internal injuries, than the other fore-mentioned parts against the external. For if the Chest should have been all bony, verily it had been the stronger, but it would have hindered our respiration or breathing, which is performed by the dilating and contracting thereof. Wherefore left one of these should hinder the other, Nature hath framed it, partly bony and grily, and partly fleftiy. Some reader another reason hereof, which is, That Nature hath framed the Chest, that it might here also observe the order used by it in the Fabric of things, which is, that it might contain the parts much differing in gristy, in their compofure, as the lower Belly, altogether fleftiy, and the Head all bony, by a medium parraker both of the bony and fleftiy substances; which course we see it hath oberved in the connexion of the Fire and Water, by the interpolation of the Air, of the Earth and Air, by the Water placed between them.

The Chest is divided into three parts, the upper, lower, and middle. The collar-bones contain the upper, the Midriiff the lower, and the Sternon the middle. The Sternum in Galen's opinion is composed of seven bones; I believe by reason of the great stature of the people that lived then. Now in our times you shall oft find it composed of three, four, or five bones, although we will not deny, but that we have often observed it (especially in young bodies) to consist of seven or eight bones. Wherefore tho' those who have fewer 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 Fallopius 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 grille called commonly Furcula, and Malum Granatum, or the Sword-like grille. In some it hath a double, in others a fingle point. In old people it degenerates into a Bone. Now because we make mention of this Grille, we will shew both what a Grille is, and how many differences thereof there be, that henceforward as often as we shall have occasion to speak of a Grille, you may understand what it is.


What a Grifle is.

A Grifle is a familiar part of our bodies, next to a bone most territorial, cold, dry, hard, weighty, and without feels, differing from a bone in its hardness only, which is more in a bone. Wherefore a Grifle being hot, cannot be regenerated, like as a bone, without the interposition of a cartilage.

The differences of these are almost the same with bones, that is, from their condition, substance, greatness, number, site, figures, connection, action, and use. Omitting the other, for brevity sake, I will only handle these differences which arise from life, use, and connection. Therefore Grifles either adhere to the bones, or else, and by themselves make some part, as the Grifles of the Eye-balls called Tear, of the Epiglottis, and Trachea. And others which adhere to bones, either adhere by the interposition of no medium, as those which come between the Bones of the Sternum, the Collar-bones, the Share and Haunch-bones, and others; or by a ligament coming between, as those which are at the ends of the Battard Ribs to the Sternum by the means of a Ligament, that by those Ligaments being softer than a Grifle, the motions of the Chest may be more quickly and safely performed. The Grifles 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 Grifles of the Sternum, and at the ends of the Battard Ribs, are of this fort.

By this we may gather, that the Grifles have a double use, one to polish and levigate the parts to which that flippity smoothness was necessary for performance of their duty, and for this use the Grifles 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 affiares, by somwhat yielding to their impression, no otherwise than soft things opposed against Cannon-steel. We will prosecute the other differences of Grifles in their place, as occasion shall be offered and required.

CHAP. II.

Of the containing and contained parts of the Chest.

The containing parts of the Chest are both the Skin, the Pithy Pannicile, the Fat, the Breifs, the common Coat of the Muscles, the Muscles of that place, the forementioned Bones, the Coat invetting the Ribs, and the Diaphragma or Maulinf. The parts contained are the Mediastinum the Pericardium or Purse of the heart, the Heart, the Lungs and their Vessels. Of the containing parts, some are common to all the Body, or the most part thereof, as both the Skins, the Pithy Pannicile and Fat. Of which being we have spoken in our first Book, there is no need now further to insist upon: Others are proper to the Chest, as its Muscles (of which we will speak in their place) the Breifs, the forementioned Bones, the Membrane investing the ribs, and the Diaphragma or Maulinf.

We will treat of all these in order, after we have first showed you the way how you may separate the Skin from the rest of the Chest. Putting your Knife down even to the perfect division of the Skin, you must draw a straight line from the upper part of the lower belly, even to the Chins; then draw another straight line, over heat of the Collar-bones even to the Shouldier-blades; and in the places between the Collar-bones (if you desire to thin profusely) you may at once separate both the Skins, the Pithy Pannicile, the Fat, and common Coat of the Muscles because their parts were through and spoken of in the division of the lower belly.

Yet you must remove the Breifs in dividing of the Bodies of Women, wherefore from the upper part of the Breifs, as artificially as you can, separate the Skin from the parts lying under, that is, from the intercostal, by which it comes to passe, that they have most exquisite feel, Others want a nerve, as those which serve only for division of the vessels, and which have no action, but only use.

They be two in number, on each side one, seated at the sides of the Sternum upon the fourth, fifth, and sixth true ribs.

CHAP. III.

Of the Breifs or Organs.

The Breifs, as we said, when we spoke of the Nature of Glandules, are of a glandulous substance, white, rare, or porous, in Maids and Women that do not give suck, they are more fold, and not so large.

Wherefore the bigness of the Dogs is different, although of a sufficient magnitude in all. Their Figures is round, somewhat long, and in some fort Pyramidal, their composture is of the Skin, the Pithy Pannicile; Glandules, Fat, Nerves, Veins, and Arteries, depending to them from the Cutaneous under the Sternum, between the fourth and fifth, and sometimes the sixth of the true Ribs.

And there they are divided into infinite Rivulet by the interposition of the Glandules and Fat, by which it matters may be brought to be chang'd into the Milk by the faculty of the Dogs.

We will speak no more of the Nature of the Glandules or Kennels, as having treat'd of them before; only we will add this, that some of the Glandules have Nerves, as those of the Breifs, which they receive from the parts lying under them, that is, from the intercostal, by which it comes to pass, that they have most exquisite feel. Others want a nerve, as those which serve only for division of the vessels, and which have no action, but only use.

They be two in number, on each side one, seated at the sides of the Sternum upon the fourth, fifth, and sixth true ribs.

Wherefore they have connection with the mentioned parts with their body, but by their vessels with other parts, but especially with the womb by the relations of the mamillar veins and arterias,
Book IV.

Of the Clavicles or Collar-bones, and Ribs.

If we should handle these parts after the common order, we must now treat of the Muscles of the Chest which move the Arm, and serve for respiration, and which first offer themselves to our sight. But for that they cannot be fitly viewed, unless we hurt the Muscles of the Shoulder-blade and Neck, therefore I think it better to defer the explanation of these Muscles, until such time as I have viewed the rest of the contained and containing parts, not only of the Chest, but also of the Head, that having finished that, we may come to a full demonstration of all the rest of the Muscles, beginning with those of the Head, which we first meet with, and so proceeding the rest even to the Muscles of the Feet, as they shall seem to offer themselves more fitly to dissection, that so, as much as lies in us, we may thus confine.

Wherefore to return to our proposed task; after the aforesaid Muscles, come the Collar-bones, Sternum, and Ribs. But these parts may be the more easily understood, we must first know what a Bone is, and whence the difference thereof are drawn.

Therefore a Bone is a part of our Body most terrestrial, cold, dry, hard, wanting all manifest sense, if the Teeth be excepted. I said [manifest sense] that you may understand that the parts have a double sense of Touching, the one manifest, such as refides in the Fleth, Skin, Membranes, Nerves, Teeth, and certain other parts; the other obscure, yet which may suffice to discern the helping and hurting talist qualities, such sense the Bowels and Bones have, for very small Fibres of the Nerves are differentiated to these parts by mediation of their Coat, or Membrane. I say, so small that they can scarce be discerned by the Eye, 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, branches, and Arteries, fulfilling the functions of the Bones as cold, hard, and solid, itwarres the left.

Wherefore they need not so much blood for their nourishment, as the hot and soft parts; and besides, the latter Bones have neither Veins or Arteries, but draw it 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, Epiphyses, Griffes, Apices, Heads, Solidity, Cavity, Eminencies, Marrow, Consistence, Bigness, Number, Figure, Site. We will prodace all these as they shall offer themselves in the demonstration of the Bones; to which doctrine we will give a beginning at the Clavicles or Collar-bones.

The Clavicles are two very hard and solid Bones, without any great or notable cavity, situated on each side between the side and upper part of the Sternum and top of the Shoulder-blade, for the strength and stability of these parts, whereas they take the name of Clastimata Clavicles, (from the Greek word, which signifies a Key, or any other Bar, in fastening of a Door.) They carry the shape of a Surgeon's Leavantine. But you must note that the Clavicles seem to be fastened to the Sternum by the mediation of a gristy bone. Moreover the space and cavity contained within the Collar-bones, is called by the Latinis jugulum, by the French the Upper Funicle, because the Jugular Veins pass that way; it is thick and of no great height, being the nothing else but a production of the Occiput. For the Sternum, which we said is framed of divers Bones, as sometimes 3, sometimes 4,5,6,7, and sometimes 8,9, you must note they are very spongy and full of pores, and of a far softer consistence than the Collar-bones, wherefore more fishly to compose bones, they are mutually joined by interposition of Muscles. They use to be as a shield to defend the Vital parts. The Ribs are 24 in number, on each side 12, even of these are called true or perfect Ribs, because they are contained in the Chest.
cause they make a circle, at the one end joined to the Sternum, on the other to the Peritoneum, the other are called Basilarm, or short Ribs, because they fall short in their way, and come not to the Sternum; but they are fixed on the fore-side of the Sternum by Grifles and Ligaments, but on the back part to the transverse Periostes of the Back-bone, and to the sides of the flaid Periostes. But the short Ribs are only knit to the Periostes, wherefore that part of the Periostes is called the roots of the Ribs.

The exterior, or fore-part of the Basilarm or short Ribs, is gritty, that they should not be broken, and that they might be the easier lifted up in the directions of the Stomach filled with meat. They are of a consistence sufficiently hard, yet more towards their root than at the Sternum, where they come nearer together, and are more hardly broken; they are smooth both within and without, but in the midst they have some sign of being double, or hollow, to receive the Venae and Arteriae, which nourish their bony substance; they are fashioned like a Bow, their end is the same with the Sternum, and besides, to carry and strengthen the Mufcles serving for respiration.

CHAP. V.

The Anatomical administration of the Sternum.

The Coats investing the Ribs, which the common Anatomists call Pleura, is the last of the containing parts of the Chest, because it lies hid in the inner part thereof, it cannot be thrown up by pulling aside of the Sternum, wherefore we must now shew the manner of opening the Sternum, that hereby they may not violate the original or invention of any of the Mufcles. Wherefore first you must understand, that he which shall in their proper place their original and invention of the peccoral Mufcles, of the Mofhoides, of the two Mufcles of the Bone Hyoid, of the Mufcles fabecous, and intercartilagineous, ought first of all to separate all the peccoral Mufcles from the Sternum, and the Grifles from the true Ribs; then to cut the Ligaments, next the Bones themselves, and all the Ribs to the Clavicles.

And then browning the Mediastinum stretched under the Sternum at the length thereof, let him separate the Sternum with his Knive, and bend it up to the Clavicles, and there cut it, referring together with it the four Mufcles, that is, the two Mofhoides, and the two moving the Bone Hyoid, because they either wholly, or for the most part, arise from the Sternum.

Lastly, the Clavicles being somewhat thrust upwards, the Grifles must on each side be turned outward toward the Arm; that to the containing parts of the Chest may not be open to view, and be easily flewed, but also the Mufcles may be contained in place, until they come to be flewed in their order.

And because the Collar-bones must be lifted up very high, that the recurrent nerves may be more easily seen, and the distribution of the Venae and Arteriae, the two small Subclavian Mufcles, one on each side must be thrown by the way, which have their original from the inner and fore-part of the Clavicles and an oblique descent to the Sternum, forwards, the manner of the first Rib.

For the Clavicles cannot be thus separated, but that the Mufcles must be violated and spoiled. Also you may divide the Sternum in the midst, that you may shew the inward peccoral Mufcles whole, having separated the Mufcles which arise from the upper part. All which things being performed as they ought, we must come to the Coat investing the Ribs, and then to the Mediastinum, as arising from it.

CHAP. VI.

Of the Pleura, or Coat investing the Ribs.

The Tunica Subcostalis, or Coat investing the Ribs, being the last of the containing parts of the Chest, is a large and a broad membrane answerable in proportion of use and action to the Peritonæum of the lower Belly. For as the Peritonæum 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 Peritonæum (or, as others will have it, from the Periostes) investing the Periostes of the Chest at the roots of the Ribs. Wherefore it sticks very fast to the Ribs, scarce to be separated, as also to all the parts bounding the Chest, and contained in it.

Vesalius reprehends Galen, because he said, that this was double on both sides; yet Columbo defends Galen, and verily it is seen to be double in the inner part of the Chest, under the Ribs and the Mufcles of the Ribs, that in that place there may be room for the Venae, Arteriae, and Nerves.

Some have made it twofold, and divided it into the internal and external, as those which have made two coats of Pleцийes, the true and bastard: placing the external above the Ribs and intercostal Mufcles but the internal under the Ribs, Mufcles, Diaphragma, and Sternum.

But we to shun ambiguity, intend only to prosecute those things which are manifest to the eyes, wherefore we say, that the Ribs are fixed on the infrade with a double Peritoneum. One which immediately and firmly sticks to them on every side called the Periostes, which is common to them and other Bones. The other which lies upon that Periostes, and on the inside covers all the Ribs, whereas it is called the Subcostalis tunica. The substance, temple, and composition, are the same, as in other membranes.
The magnitude in length, as also the figure, is the same with the compass of the inner part of the
Chefthicknes of it, is very little. The Coat is commonly called the Plena, from the name of the
part which it covers or lines, (for the Greeks call the Ribs Hlepse,) and in like manner that which
happens between the Pleurides and this Plena, is called either a false or bastard Pleuritic.

CHAP. VII.

Of the Mediastinum.

Now we must speak of the parts contained in the Cheft, seeing we have already handled the
containing, beginning with the Mediastinum, as being a part which in distinction first presents it to our sight. The Mediastinum is of the same substance, thicknes, composition, number, temper, as the Plena. For the substance of the Mediastinum is membraneous, and
though it be stretched all the length of the Cheft, yet it is not of a small thicknes, receiving Veins, Nerves and Arteries from all the parts to which it is knit, like as the Plena doth, but especially from the Mammary Vejels, descending under the Sternum.

It is in number one, but it is made of two Membranes produced from the Subcostal: for this acceding on each side by the hollownes of the Cheft to the Sternum, and then at right Angles, is reflected to the bodies of the Vertebrae, whence the Plena hath it original.

In that reflection there is no much distance between each Membrane as may be sufficient to receive two fingers. For otherwise, seeing that they cannot penetrate through the Heart, it was in each side of the Plena should turn 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 humour besides Nature, which you may draw out, or evacuate, by opening the Sternum.

Yet I would gladly learn of Columbus by what signs we may know that such an humour is contained there. For the Figure, the Mediastinum with the Plena on each side, represents the Figure of the Figure, a Leather Bottle, whose flat side is the Mediastinum, whose other side the Plena; the bottom that part of the Plena which is next the Midriff; the mouth the upper part of the Plena at the heart Ribs. We described the fire and connexion of the Mediastinum, when we described its original.

The life thereof is to separate the Vital parts (as it were) into two Cells, the right and left, that it may move to this or that side.

CHAP. VIII.

Of the Diaphragma or Midriff.

Although the Midriff may seem to be accounted rather a part containing than contained, yet for commodities sake, we have deferred the demonstration thereof till now. Therefore, it in number one, but it is made of two Membranes produced from the Subcostal: for this presenteth it itself to our sight. The Mediastinum is of the same substance, composition, and temper, as the Muscles of the Epigastrium; it is made of two Coats, the lower whereof is from the Vertebrae, and the upper from the Pleura. Which getting to them both, but not there, but in their circumference, by the benefit of the blood brought thither by the Veins and Arteries distributed through it, turn into a Muscle; whose middle is nervous and membraneous, but the extremities by which it is inferred, one while flexible, as in that part next to the Batard-Ribs, another while tenacious, as where it touches the fifth and second Venebrae of the Loins, for it ends in them by two Tendons manifest enough. It is one in number, interposed with an oblique line between the Natural and Vital parts. It hath connexion with the lower part of the Sternum and Short-Ribs, and the two fifth Venebrae of the Loins, but by its Coats and Venebras with the party from which it received them.

The extent thereof is equal to the compass of the lower part of the Cheft. The length of it is from the Brefth-blade, even to the fifth and second Venebrae of the Loins. The thicknes of it is divers, for it is far thicker in its bely extremity than in its nervous original.

The action thereof is to help the expulsion of the Excrements by the mutual assistance of the Epigastrium Muscles; but the chief act 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 come to it directly and primarily from the third, fourth, and fifth Venebrae of the neck. This Muscle differs from other Muscles, especially in figure. It is perforated in three places, to give way or passage to the ascendant Hollow-vein, to the Arter Anse, and the Bile-ducts.
The Lungs arc of a soft substance and fibrous, rare and like a Sponge, of a various colour panted, their quantity is sufficiently large, for most commonly they are divided into four lobes, disjointed with a manifold 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 Chefs, 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 Midriff to the Heart.

In little Men who have a shorter Chefs, because the Heart is so near as to touch the Diaphragma, this lobe is not seen, yet it is always found in Dogs.

The Lungs represent the figure or shape of an Oxen foot or hoof, for like it they are thicker in their bals, but thinner in their circumference, as you may see in blowing them up by the weazon, with your mouth or a pair of bellows. They are compounded of a Coat coming from the Pleura which on each side receives sufficient number of Nerves from the fourth conjugation, and also of the Parts anterior coming from the right Ventricle of the Heart, and the Anteriorums from the left, as shall be fixed in the Anatomy of the Heart. Besides the Afera arteria or Weazon coming from the Throat; and lastly, its own fibs, which is nothing else than the concretion of choleric Blood poured out like foam from about the divisions of the foresaid Veils, 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 size, because the Lobe of the Lungs fricted forth into the right and left side do almost involve all the Heart, that so you may defend it against the hardnes of the bones which are about it, they are tied to the Heart chiefly at its bals, but to the roots of the ribs, and their Venes and Arteries are tied to the ribs.

Therefore the Chefs performs two contrary motions, for while it is dilated it draws in the encom- plicing air, and when it is straitned, it expels the fuluginous vapour of the Heart, which any one can 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 cold, whether you have regard to their compoife of choleric Blood, or their use, which is to prepare and alter the air, that it hurt not the Heart by its coldnefs. The Lungs is the instrument of Voice and Breathing, by the Weazon or Wind-pipe. For the Lubes are the instruments of Voice, and the Ligaments of Respiration. But the Larins or Throttle, is the chief instrument of the Voice, for the Weazon first prepares the Voice, for the Throttle, in which it being in some measure formed, is perfused in the Palate of the Mouth, as in the upper part of a Lathe, or such like Instrument, by the help of the Gargareon or Vufa, as a certain quill to play with.

But as long as he holds his breath he cannot speak, for then the Muscles of the Larins, ribs, the Diaphragma, and the Epigastrik Muscles are pufled down, whence proceeds a suppression of the Vocal matter, which must be first forth in making or uttering a Voice.

Nature would have the Lungs light for many reasons; the first is, That seeing they are of them- selves immovable, they might be more obsequious and ready to follow the motion of the Chefs; for when it is straitned, the Lungs are straitned 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 caufe is, That by this their rarity they might more easily admit the entering air at fuch times as they have such or fudden necessity, as in running a Race.

And lastly, That in Pleurifies and other purulent abscesses of the Chefs, the Pus may be drunk in by the rare substance of the Lungs; and by that means the sooner forth and exprest.

The use of Respiration is to cool and temper the raging heat of the Heart. For it is cooled in drawing in the breadth by the cool air, and in finding out thereof by avoiding, the hot fuliginous vapours.

Therefore the Chefs performs two contrary motions, for while it is dilated it draws in the com- pelling the air, and when it is depressed, it expels the fuliginous vapour of the Heart, which any one may easily perceive by the example of a pair of Smiths Bellows.

### CHAP. X.

Of the Pericardium, or Purse of the Heart.

_The Pericardium is (as it were) the bouse of the Heart, which arising at the bals thereof (either the Ligaments of the Venes or the Veils of the Heart yielding it matter) is of a nervous, thick and dense substance without any Fibres. It retains the Figure of the Heart, and leaves an empty space for the Heart to perform its proper motion. Wherefore the bigness of the Pericardium exceed 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 the Veins, Arteries, and Nerves; the Veils partly coming from the Mamillar, partly from the Diaphragma, chiefly where it touches it, the Nerves come on each side from the fourth conjugation._

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Book IV.

contained in the Chest.

It is only one, placed about the Heart, and annexed to it at the bands thereof by its Membrane to the original of the Lungs, and the Pericardium 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 site thereof is to cover the Heart, and receive it in its native humidity, by certain natural moisture contained in it, unless you had rather say, that the moisture we see contained in the Pericardium, is generated in an 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 binds 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 heavy and stout men, whose hearts are hot, but blood thin and watery, by reason of some infirmity of the Stomach or Liver; and this humour may be generated of vapours which on every side exhale into the Pericardium from the blood boiling in the Ventricles of the Heart, where kept in by the density thereof, they turn into yellowish moisture; as we feel happens in an Albernack.

Nature would have the Pericardium of a dense and hard consistence, that by the force thereof the Heart might be kept in better state; for if the Pericardium had been porous, it would have made it like Iron by the continual attrition; on the contrary, if it had been soft and fanguinous, it would have made it spongy and soft like the Lungs.

The Heart is the chief Mansion of the Soul, the Organ of the Vital Faculty, the beginning of Life, the Fountain of the Vital Spirits, and to consequently the continual nourisher of the Vital Heat, the first living and last dying; which because it must have a natural motion of it self, was made of a dense, solid, and more compact substance than any other part of the Body.

The thin thereof is woven with three sorts of fibers, for it hath the right in the inner part depending from the bands into the point, that they might dilate it and draw the blood from the Hollow Vein into the receptacles thereof, and the breath or air from the Lungs by the Arteria venosa, it hath the transverse without, which pass through the right at right angles, to contract the Heart, and to drive the Vital Spirits into the great Artery Arteria, and the cholerick blood to the Lungs by the Vena arteriosa for their nourishment. It hath the oblique in the midst to contain the air and blood drawn thither by the fore-mentioned Vessels, until they be sufficiently elaborate by the Heart.

All these Fibers do their parts by contracting themselves towards the original, as the right from the point of the Heart towards the Bands, whereby it comes to pass, that by this contraction of the Fibers the Heart dilated becomes shorter, but broader, no otherwise than it is made more long and narrow by the contraction of the transverse, but, by the drawing of the oblique, it is increased in that part which looks towards the Vena brachii, which chiefly appears in the point thereof.

It is of an inelastic bulk, but yet in some parts, according to the diverse temper of cold or hot, as we noted in the Liver.

The heart thereof is pyramidal, that is, it is broader in the baffle, and narrower at its round point. It is composed of the most dense flesh of all the body, by the effusion of blood at the divisions and foldings of the Vessels, and there concrete, as it happens also to the other entrails.

For the blood being there a little more dried than that which is concrete for the making of the Liver, turns into a filthy substance more dense than the common flesh, even as in hollow Ulcers, which looks towards the Heart, where kept in by the density thereof, they turn into yellowish moisture, and the bands of these parts should be diffolved and diffipated 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 suffers not to grow about this entrail, where other wise it doth not concrete, unless by cold, or a certain heat, which thing is clearly worth admiration.

The Heart is one alone, situated most commonly upon the fourth Vertebræ of the Chest, which is number and size.

The proper Vein, which is included in the Heart any other Nerves than those which come to it with the Heart.

The Nerves.

Yet I have plainly enough observed others in certain Beasts which have very great hearts, as Swine, which appear foated under the fat which covers the Vessels and Bones of the heart, left the humoral substance of these parts should be dissipated by the burning heat of the Heart, whereby particularly you may perceive that the heart of the Heart is different from the Elementary heat, as that which suffers not to grow about this entrail, where other wise it doth not concrete, unless by cold, or a certain heat, which thing is clearly worth admiration.

The Heart is one alone, situated most commonly upon the fourth Vertebræ of the Chest, which is number and size.

Yet some think 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 Ventricle, which being it is filled with many Spirits, and the beginning of the Arteries, it beats far more vehemently than the right. It required that fear by the decree of Nature, because that region is the most soft and armed, and besides it is here on every side cover’d as it were with the hands of the Lungs.

It hath connection with the fore-mentioned Vertebræ, but by the parts conjoining it, with those parts from whence it hath them with the Lungs by the Vena arteriosa and the Arteria venosa and lastly, with all the parts of the body by the Arteries which it feeds to them all.

It is of a hot and moist temper, as every filthy part is. The action thereof is, first to prepare the blood in its right Ventricle, for the first nourishment of the Lungs; for from hence it is that Gasteles with the right Ventricile was made for the necessity of the Lungs. Secondly to generate the Vital Spirit in its left Ventricle for the sake of the whole body. But this Spirit is nothing else than a certain

The figure thereof is pyramidal, that is, it is broader in the base, and narrower at its round point. It is composed of the most dense flesh of all the body, by the effusion of blood at the divisions and foldings of the Vessels, and there concrete, as it happens also to the other entrails. For the blood being there a little more dried than that which is concrete for the making of the Liver, turns into a filthy substance more dense than the common flesh, even as in hollow Ulcers, when they come to cicatrize.

Number and connection.

From whence the master of the bloody humour contained in the Pericardium.

The Conjecture.

Hence.

The three forms of Fibers of the Heart.

What the Heart is, and of what it is composed.

The proper Vein.

The figure thereof is pyramidal, that is, it is broader in the base, and narrower at its round point. It is composed of the most dense flesh of all the body, by the effusion of blood at the divisions and foldings of the Vessels, and there concrete, as it happens also to the other entrails. For the blood being there a little more dried than that which is concrete for the making of the Liver, turns into a filthy substance more dense than the common flesh, even as in hollow Ulcers, when they come to cicatrize.

What the Vital Spirit is.
certain middle substance between Air and Blood, fit to preserve and carry the native heat, whereof it is named the Vital, as being the Author and preserver of life. In the inner parts of the heart there present themselves to our consideration, the Ventricles, and the parts contained in the Ventricles and between them, such are the Articula, or Valves, the Vessels and their Mouths, their distribution into the Lungs, the Wall or Partition, and the two productions or Ears of the Heart, which because they are doubtful, whether they may be reckoned amongst the external or internal parts of the Heart, I will here handle in the first place.

Therefore these Articula or Ears, are of a soft and nervous substance, compact of three sorts of Fibers, that by its softness they might the more easily follow the motions of the Heart, and to break the violence of the matter entering the Heart with great force when it is dilated. For otherwise by their violent and abundant entrance they might hurt the Heart, and (as it were) overwhelm and suffocate it; but they have that capacity which we see given by Nature, that so they might (as it were) keep in faine the Blood and Air, and then by little and little draw it forth for the use of the necessity of the Heart. But if any enquire if such matters may be drawn into the Heart by the only force of the Diaphragm, with these Valve, or avoiding of emptiness, I will answer. That that drawing in, or attraction, is caused by the heat of the Heart, which continually draws these matters to it, no otherwise than a Fire draws the adjacent Air, and the flame of a Candle the Tallow which is about the wick for nourishments sake. Whilst the Heart is dilated it draws the air, whilst it is drawn together, or contracted, it expels it. This motion of the Heart is absolutely natural, as the motion of the Lungs is animal. Some add a third cause of the attraction of the Heart, to wit, the solidifice of the whole Blood. But in my judgment, this rather takes place in that attraction which is of blood by the Vena corona for the proper nourishment of the Heart, than in that which is performed for attraction of matters for the benefit of the whole Body.

The Valve of the Heart.

The Ventricles are in number two, on each side one, distinguished with a fliehy partition strong enough, having many holes in the superficies, yet no where piercing through. The right of these Ventricles is the bigger, and encompassed with the fitter and more fluid for the right Ventricle was made for a place to receive the blood brought by the hollow Vein, and for distributing of it, partly by the Vena artefosa into the lungs for their nourishment, partly into the left Ventricle by watering through the wall or partition, to yield matter for the generation of the Vital spirit. Therefore because it is needful there should be so great a quantity of this Blood, it was likewise fit thereby 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 to needful that the flesh to contain it should be so compact; but on the contrary, the articular Blood and vital spirit have need of a more dense receptacle, for fear of waiting, and left they should vanish into air, that to the heart being united, might become the stronger, and more powerfully set upon the elaboration of the blood and spirits.

The partition between the Ventricles of the Heart.

Why the right Ventricle is more capacious and less compact.

The action of the right Ventricle.

The action of the left Ventricle.

The use of the four orifices of the Heart.

The Valves.

How they differ.

The Core of the Heart is made for preparation of the blood appointed for the nourishment of the Lungs, and the generation of the vital spirits, as the Lungs are made for the distillation or qualifying of the Air. Which works were necessary if the Physical Axiom be true, That the life is nourished by life, as the rare and fpongious Lungs with Liver that it be true. Here be four Orifices of the Heart, two in the right, and as many in the left Ventricle, the greater of the two former gives passage to the Vein, or the blood carried by the hollow Vein to the heart, the lesser opens a passage to the Vena artefosa, or the cholesterick blood carried into the heart for the nourishment of the Lungs.

Here Nature for the proper notifgment of the Heart, than in that which is performed for attraction of matters for the benefit of the whole Body, and great Artery which could not sustain so rapid and violent a motion as that of the Heart, by reason of their tenderness of substance.

The Orifices and Valves of the Heart.
others hinder that which is gone out, that it come not back again. Secondly, they differ in size: for those which bring in, have membranes without, looking out; 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 substance: for the former for the most part are fleshy, or woven with fleshy fibers into certain fleshy knots ending towards the point of the heart: The later are wholly membranous. Fifthly, Number; those which hinder the coming back again, are made in the shape of the Roman Letter C. Fourthly, in number: for the former for the most part are fleshy, or certainly a third part thereof; that the air might continually be drawn into the heart by this orifice in Inspiration, and sent forth by Expiration in the contraction of the heart. Whereby we may gather this, that there is but one third part of that air we draw into the heart in breathing, sent forth again in the form of vapor in Expiration, because Nature would have but one third part of the orifice to lie open for its paffage out. Therefore the Expiration or breathing out, and the Syphile of the heart and arteries, is shorter than the Inspiration, fo that we may truly fay, that the Inspiration, or drawing the breath in, is equally as long as the Expiration is together with the reft, which is in the midit between the two motions.

CHAP. XII.

Of the distribution of the Vena arteriosa, and the Arteria venosa.

HAVING hitherto shewn the original of the vessels of the heart, we now speak of their distribution. The Vena arteriosa, or the arterious vein; and the Arteria venosa, or the veins, are divided into two large branches: one of which goes to the right, and the other to the left hand, the one lying cross-ways over the other, the vein always riding over the artery, as you may understand better by the sight of your eyes, than by reading of Books. Those branches at their entrance into the Lungs are divided into two other large branches, and each of them go to his peculiar Lobe. Of the Arteria venosa, and these again run almost into infinite other branches, dispersed in the places over the Lungs.

These vessels have acquired their names by reason of that Transmutation of consistence, whereby the compofure of a vein degenerates into an artery, and that of an artery into a vein, for the comodity 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 re-present a vein: For if the Vena arteriosa should have retained its proper consistence, the arterious blood which is carried by it from the Heart to nourish the Lungs, might by reason of its fubtilty perhaps be diffipated into the Lungs, and there not only would be lost, but would be of no use to the heart. But the artery hath the consistence of a vein, that by that veinous softnefs the blood may be drawn from it, and carried forth as the blood is carried out of the right and left ventricle of the heart. Galen thinks that there be certain holes in the partition made for that purpose: and verily there are fuch, 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 air by the Arteria venosa to the left ventricle of the heart: this he writes truly very probably. Butallus, in his Tractatus de Catarrhis, hath found out a third way, to win, a vein, which he calls Arteriosum arteria, that is, the mate of the arteries, which ceaps a little above the coronal to the right ear of the heart, and then goes into the left ear thereof. But yet I am very much afraid, that this vein observed by Butallus, whereby the Vena arteriosa is joined to the Arteria, and by which all the vital blood is carried for the forming and nourishing of the Lungs 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 Falopius raised up the memory of it again.
The distribution of the ascendant hollow-vein.

The greater branch rising out of the gibbous part of the liver, and refublimating (according to Galen) the body of a Tree, is divided into two notable branches, but not of a like breadth. 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 enter not into the great trunk with the rest. You may often see this descendant branch even to the back-bone, upon which it lies in its descent, covered with the substance of the liver, so that it may seem that branch proceeds not from this 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 arizing into the midriff, it beforos two small veins upon it, on each side one, which from that part are called Phrenicis. But from thence when it arrives at the right ear of the heart, it makes the Coronarum, the Coronar or Crown-veins, which compass the base of the heart in manner of a crown. Secondly, entering somewhat more deeply into its right ear, in its greater part it produces the Vena aortica. Fourthly, lifted up above the heart, on the right side it produces the vein Azygos or fine pari (that is, without a fellow) which descending to the fourth rib, (reckoning from above downwards) nourisheth the intercostal muscles, and also the membranes of the eight lower ribs, on both sides, sending a branch into each of the muscles at the lower part of the rib, which may be sufficient for their nourishment. But this is also oftentimes, especially in little men, this vein Azygos nourisheth all the spaces between all the ribs by the like branches, which it lends in the same manner to the four 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 nourisheth the spaces between the lower ribs, in its remainder descends under the Diaphragma, and is stopped on the left side to the Eminent veins, by which it is manifest how an Abscess may be critically evacuated by the urine, in a Pleurifie. But this same vein Azygos is more descented on the right side, and meets with the Vena humbrae, but especially with one of which it goes down to the thigh, whereby Fallipinae gaiter, that is, it is very convenient in the beginnings of Pleurieties, to open the Vena poplitea, the vein of the Iam. Fifthly, above the Azygos (when it is wanting there) it lends forth the branch called Intercoflalis to the other spaces between the upper ribs, although this is sometimes seen to come from the Azygos, which Sylvius calls the Subclavia. Sixthly, it brings forth the Mammaries, so called, because in their greater part they run to the ducts between the fourth and fifth ribs, for the tubes formerly mentioned, men and women have on each side one of the, coming from the Subclavia. They are sometimes found to proceed to a certain common oriice from the hollow vein, before it is divided into the subclavia branches, but it is rather in beasts than in men; those veins descending by the sides of the Sternum, yield nourishment to the two inner muscles of the chest, to the seven intercostal muscles of the true ribs, to the Sternum itself, and to its ligaments and gristles, as also to the Medialimus and the upper part of the right muscles, and the adjacent parts. Seventhly, it produces the Carotis, which on both sides goeth through the holes of the productions of the Pericardis of the neck, ascend to the head, sending many small branches into the pinal marrow through the holes by which the nerves pass and also into the membranes, ligaments, gristles, bones, and neighboring muscles. Eighthly, the Musculofa, or mucilaginous, which also ariseth out of the Subclavia, is divided into two other branches: The one whereof goeth upon the breaft to the paps nourishing the fore-most muscles, wherefor in a bastard-plurius, cupping-glasses may be ruly applied in this place. The other branch descends to the upper muscles of the chest, but especially to that which is called Latissima. The Thenth is the Astibalis. The Eleventh the Homalis, of which we treat in their place. The Twelfth and laft is the Jugularis properly so called, which is twofold, the internal and external. The internal being the lefter, doth presently on both sides from this very beginning ascend by the sides of the Affra Arteria, or vaeanae, even to the mouth and skull, yielding nourishment to the parts by which it passes, as to the next membranes and nerves, whereas it comes to the biffa of the Cranium, it is divided into two branches, the greater whereof going back along the biffa of the Cranium to the hind part thereof, finding a branch to the long muscle situate upon the Apohys, it enters the Cranium with the small Coroides through the hole of the nerves of the first conjugation, where they become one common velum. The lesser feeding a limb to the organ of hearing by the hole called Cæsum (or the Blind) also enters the Cranium, and is spot in the thicker meninx near to the hole of the third and fourth conjugation of nerves. The external Jugular vein being greater and fatter, most commonly simple, yet sometimes double, either prefently at his beginning, or a little after, sends superficially on both sides of the neck, between the broad muscle, or thin pandules, being there eafe to be defemcered, and other muscles situate at the sides of the neck, into which, as also into the skin, it lends certain branches for nourishment.
The Figure of the hollow vein, whole and freed from the rest of the body.

A The trunk of the hollow vein. The lower A A, at this place of the liver, is distended the left part of the vein, and distributes branches to the left side.

B floweth how the trunk of the hollow vein in the chest (to give way to the heart) is curved or bowed to the right hand.

Between A and B, that part of the hollow vein which is nearest the gibbous side of the heart and the subclavia.

C The left under-vein called Phrenica, which divides from the trunk of the chest to the diaphragm, the lungs, and affords to those muscles that lie upon the chest, for the course of the vessels, and do grow together.

D The branches of the hollow vein which groweth unto the heart.

E The upper-vein called Coronaria, which lay a course commissuris the lungs, and afford spaces to be filled therewith as far as to the one or point.

FF The trunk of the vein Azygos or non-pari, descending along the right side of the ribs into the lungs.

GG The lower intercostal veins, to the branches of the vein Azygos, which go unto the distances between the ribs, and afford spaces unto the lungs which lie upon the ribs and the back, and to the membrane of the chest.

H The division of the hollow vein into two subclavian trunks near the Jugulum under the breast-bone.

I The subclavian branch tending on either side unto the arm, called by some Axillaris. K The upper intercostal vein which commonly foundeth three fifts unto the distance of the upper ribs, unto which the first intercostal vein joins no branches. L. The descending mammary vein: This descendeth under the breast-bone unto the vein which commonly sendeth three slips unto the distances of the upper ribs, unto which the first intercostal vein is propagated with many spaces into the muscles that occupy the lower parts of the chest, and the upper parts of the chest.

M The first branch runneth deep unto the muscles which arise out of the part of the breast, to the skin of that place, and to the skin of the arms. N The subclavian branch distributed near the skin.

O The subclavian branch, which goeth unto the backward muscles of the neck. P The first branch runneth deep unto the muscles which arise out of the external protuberance of the arm. Q The second branch which goeth to make the median vein.

R Other branches running obliquely above the arms and the underfide of the arm, to the abdomen.
Of the Vital parts

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ed at), with the branch of the Ballica marked with x. m. The Ballica which is the right hand is called Hepatica, on the left hand Lenticis. n o A branch of the Ballica going to the heads of the muscles of the crib at x, and to the muscles themselves at c. P A notable branch of the Ballica running obliquely, and following the arteries upon the muscles that arise from the pisiform bone. This branch descends together with the fourth nerve. q Direction of the Ballica into two branches, and that which is noted with q, is ever accompanied with an artery. r A branch of this vein impinged upon the arm. s A branch of the Ballica which together with the branch of the Cephalica marked with h, makes the mediania or middle vein marked with a. t A branch of the Ballica going to the inner head of the arm. u A branch giving out of the former that creepeth along unto the wrist, and toward the little finger conjoyning it self with a branch of the Cephalica. v A very numerous into the skin at the ankle of the foot. v p A propagation giving out of a branch of the Ballica marked with r, lower z, A branch of the Ballica x, going to the skin of the arm. a. The mediania or common vein. b. The partition of the median vein above the wrist. c. From which it impinges a small branch to the skin. d. The internal branch under, which toward the middle and the ring finger is ostensibly divided. e. The vein of the thumb diffusely into the mountainet or hilllock, which is impinged with the branch noted with d. f. The trunk of the iliac vein from which little branches unto the parts seated under the lower, g. The fatty vein called Anippota branches, which goeth unto the foot of the mountains. h. The vein of the thumb diffusely through the matter of the foot into the vertebrae. i. The beginning of the hollow vessel called Vas varicousum. j. The veins of the lungs called Lumbraces, which are fine in the lungs or to the back-bones, to the margin of the back, to the muscles that lie upon the lungs, and to the Peritonem. k. The bifurcation of the hollow vein into the Blush branches, which bifurcation is not unlike l. Muscles flexorum, a transverse branch going to the muscles of the Abdomen, and to the Peritonem. m. The division of the left Blush vein, into an inner branch at n, and an outer at o. n Muscles media, the outer propagation of the branch s. o. Distributed through the muscles of the coxa and the skin of the thigh. p. An inner propagation of the same branch d, which goeth through the bones of the thigh, and the skin of the buttocks. q. The vein Hypogastria distributed to the bladder, to the muscles of the fundament, and the skin of the buttocks. r. A vein arising from the outer branch marked with s, which is impinged with some branches of the internal vein, near the bones or perforations of the bone-horn. s. A vein which when it is passed the bone-horn, divisible into many branches that impinge upon the skin of the coccyx, and to the muscles of that place. t. Another small branch which runneth under the skin at the ankle of the thigh, u. The expanse or meeting of the fore-limb vein, with a branch marked with char. v. And distributed into the leg. w. The Epigastrick vein, a propagation of the outer branch b perforating the Peritonem, whereas, at all the muscles of the Abdomen, and the skin it impinges with branches to the muscles of the foot. x. A Propundans an inner propagation of the branches z. Running downwards unto the precipices. y. Saphena or the ancle-vein or the inner branch of the cranial trunk, which creepeth through the infra of the leg under the skin unto the tops of the toes. a. The first interior propagation of the Saphena offered to the groin. b. The outer propagation thereof divided to the fore-knee or surface of the thigh. c. The second propagation of the Saphena going to the first muscle of the leg. d. The third propagation of the Saphena going to the skin of the knee-bone, and unto the bones. e. The fourth propagation of the Saphena giving its bifurcation forward and backward. f. Branches from this unto the fore-knee of the interior ankle, to the upper part of the foot. g. Veins minor, called after Muscles interior the inner branches of the cranial trunk, divided into the muscles of the coccyx, and to the skin of that place. h. And also some marked with Saphena. i. The extensor and toffer which passeth into some muscles of the leg. j. The inner, greater, and deeper into the muscles of the thigh. k. The vein called Poplitea, made of two cranial veins divided under the knee. l. From this, a jet is moved upward into the skin of the thigh, m. The greater part runs by the bones of the knee under the skin as far as the heel, and is divided into many branches. n. The vein called Suralis, or calf-vein, beyond it runneth unto the muscles that make the calf of the leg. o. The division of the Sural-vein into an external trunk p, and an internal q. r. The direction of the external trunk, under the knee into an external branch, which along the bones attendant unto the muscles of the foot, and an internal. s. The division of the external trunk, under the knee into a second branch, which along the bones attendant unto the muscles of the foot, and an internal. t. The internal branch of the Sural-vein which runneth into the back-side of the leg. u. A branch thereof defecting to the skin of the feet, and the great toe, and it is divided into divers smaller. v. Veins major impinge out of the internal trunk of w, and running through the muscles of the calf. w. A propagation thereof divided unto the upper part of the foot, and affording bone forefoot to every toe. x. The remainder of the inner inner trunk, behind the inner ankle approacheth to the bottom of the foot, and is contained into all the other. y. The division of the vein Poplitea with the small or calf-branch at z. 

But when it arrives to the skin of the lower part of the head, it is divided into more branches, one whereof is carried to the muscles of the bone Hyoïds, the Laminæ, the tongue and the lower part of the tongue (in which place it is commonly opened in the Sphagianes, and other intum- nations of the part of the mouth) and to the root of the face. Another is carried to the Sinus or nasale, passing through a hole, situated under the bone named Laminae, and besides, ascending to the bone of the back-part of the skull, it comes obliquely to the upper part of the future Lambhites, where these branches meeting together, pass into the repudication of the Dura mater, dividing the fore- part of the brain, that so, joyed and united, they may make the Tortaules, the third ascendent is distinguished upon the back-part and bases of the lowest jaw, to the lips, the sides of the nose, and the muscles thereof; and in like manner to the greater corner of the eyes, to the fore-head and other parts of the face, and at length by meeting together of many branches, it makes in the fore-head of the vein which is called vena ruba, or vena fronsis, that is, the fore-head vein.
fourth ascending by the glandules behind the ears, after it hath sent forth many branches to them, is divided into two others, one whereof falling before, and the other behind the ear, are at length found in the skin of the head. The fifth and last wandring over all the lower part of the head going to the back-part thereof, makes the veins of the head by the fore-head, is good in griefs of the hinder-part of the head, and so on the contrary. But we must observe, that in the 5th and 6th veins by one or more manifold passages, leads some portion thereof to the inner part of the head, so that the Veins of the head.

CHAP. XIV.

THE DISTRIBUTION OF THE NERVES, OR SINUSTR of the sixth conjugation.

Because the distribution of the Arteries cannot be well shewed, unless we violate those nerves which are carried over the chest, therefore before we shew the distribution of the arteries, we will, as briefly as we can, precocitate the distribution of these nerves, which are given forth by the glands behind the ears, after it hath sent forth many branches to them.

Now in the sixth conjugation there is forth three pair of nerves for passing out of the skull, as it comes down to the chest, by the way sends forth some branches to certain muscles of the neck, and to the three ascending muscles of the Larynx on each side of the Sternum, and upon the clavicles. Then that the remainder descending into the chest, is divided on each side into the three pairs. The first pair makes the Romes oculares. The second, the Ramus recurrens. The third pair, the Ramus naso-orbita. The Ramus ophthalmicus, or orbital branch, is so called, because descending by the root of the ribs, even to the holy bone, and joining themselves to the frame which proceed from each of the Vertebrae of the spine, they are carried to all the natural parts.

The Ramus ophthalmicus, or orbital branch, is also so called, because as it were fraying out from the chest, it must ascend upward again. But these two recurrent nerves do not run back from the same place, but the right from below the artery, called by some the Axillary, by others Subclavian, and the left from beneath the great artery, descending to the natural part. But each of them on each side ascending along by their way, even to the Larynx, and then they inflame themselves by the wings of the nerves of the nerves naso-orbitalis, and Thymus into the proper muscles, which open and shut the Larynx.

By how much the nerves are nearer the original, to wit, the brain, or spinal-marrow, they are 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 Larynx. But the Stomachicus or stomachic branch is so called, because it descends to the stomach or ventricle. For this branch descending on both sides by the sides of the gullet, finds many branches from it into the inner substance of the lungs, into the coat thereof, into the Pernic ain, and heart, and then coming into the upper orifice of the stomach, it is spent in many branches, which folded after divers manners and ways, chiefly makes that mouth or stomack, which is the seat of the animal appetite (as they term it) and hunger, and the judge of things convenient or hurtful for the stomack. But from thence they are diversly disseminated 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 force as should be sufficiently necessary for it. Here you must note, the stomack branch descends 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 it to the nerve of that side. To which purpose, the right is carried above the gullet, the left below it, so that these two stomack become four, and again thefe four presently become two.

CHAP. XV.

THE DIVISION OF THE ARTERIES.

The artery arising forth of the left ventricle of the heart, is presently (the two coronal arteries being frill spread over the substance of the heart) divided into two unequal branches. The greater whereof descends to the lower parts, being distributed, as we formerly mentioned in the third Book, Chap. 22. The lesser ascending to the upper parts, is again divided into two other unequal branches, the latter of which ascending towards the left side, finds forth no artery from it, until it arrive at the rib of the chest, where it produces the Subclavian artery, which is distributed after the manner following.

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

Secondly, It brings forth the mammary branch, which is distributed as the mammary vein is.

Thirdly, the Cervicalis, which ascends along the neck by the transverse productions to the Dura mater, being distributed as the Veins Cervicalis is.
The Figure of the Arteries.

A. The orifice of the great artery, or the beginning thereof, where it issueth out of the heart.

B. Coronaria, so called, because like a crown it comformeth the base of the heart.

C. The division of the great artery into two trunks, V t.

D. The left subclavian, climbing obliquely toward the rib.

E. The upper intercostal artery, or a branch which followeth four propagations unto the distance of the lower rib.

F. The neck-artery which through the transverse process of the back-bone of the neck attaineth to the scull, beflowing the vessels unto the marrow and his contiguous muscles.

G. The left mammary artery running under the breast-bone, and to the scull. It distributeth the vessels to the Medullary, the muscles of the breast, and of the abdomen.

H. Mucula, or a branch attaining to the backward muscles of the neck.

I. The Scapular-arteries which go unto the hollowness of the blade, and of the muscles that lie therein.

J. Humerae which climbeth over the top of the shoulder.

K. Thoracica which passeth through the transverse processes of the back-bones of the arm, and communicateth vessels to the little finger, the ring-finger, and the middle finger. A little branch unto the muscles about the little finger.

L. The abdominal arteries which go unto the hollowness of the blade, the muscles that lie thereon.

M. Thoracica descending which passeth along the sides of the chest, and attaineth to the arm.

N. The axillary artery running out into the arm, and affording branches unto the muscles thereof.

O. A branch reaching to the outside of the chest lying deep.

P. Branches to the joints of the elbow.

Q. The upper branch of the artery running along the Radius, and offering arteries to the thumb, the forefinger, and the middle-finger. A branch creeping unto the outside of the hand, and betwixt the base of the thumb, and that of the after-branch, supporteth the forefinger where we use to feel the pulse.

R. The upper branch of the artery running along the Ulna, and communicating vessels to the little finger, the ring-finger, and the middle finger. A little branch unto the muscles about the little finger.

S. The division of the upper and lower branches into the hand and the fingers. The trunk of the great artery descending unto the jugular, and the division thereof in that place into X Y Z.

T. X the left Carotid, or sphenous artery. Y Subclaviana dextra, divided into branches, as the right is divided. Z Carotides dextra, called also Apoplectica and Lethamica. The division of the left Carotis in the chaps. The interior branch of that division going into the face, the temples, and behind the ears. The inner branch going to the throat, the lips, and the tongue. The division thereof at the base of the skull, into two branches which enter the lumen of the Diastra. A division of the branch b, unto the muscles of the face. The distribution of the branches, under the root of the ear. The forebranch hereof passing up the temple. The back-branch running on the back-side of the ear under the skin. The trunk of the great artery, descending unto the tendons of the back, with the lower intercostal arteries which go unto the distance of the eight lower ribs, from which are offered arteries to the marrow, and to the muscles that grow in the back, and to the chest. A branch of the middle called Phrenica or Diaphragmatica.

[Continued with a list of arteries and their functions, distributed throughout the body.]
The inner branch going to the bladder, the urethra, and the neck of the womb. 4 The umblical artery. 5 The remainder of the branch is affined from the inner branch, near the iliac flexure, and so falling through the hole of the diaphragm into the leg. 7 Epigastria, it ascends upward into the right side of the abdomen, and shortens the cavo-venous, and so joins with the mammary artery. 2 Pelvis, it crosses under the greater omentum. 3 The Crural trunk without the peritoneum. 4 Muscula cruralis interna, going into the femurs of the thigh. 5 Muscula cruralis externa, going into the muscles of the inside of the thigh, the junction of this artery with the branches. 1 Poplitea, going to the muscles on the back-side of the calf. 2 The distribution of the Crural artery under the thigh into three branches. A Tibialis externa, it accompanies the brachial, and is confined into the muscles. B The chief part of the crural artery. 2 The lower and backer Tibialis externus running into the upper side of the foot at 6. C A propagation of the crural artery going to the inner and upper side of the foot, and finishing in a branch near the sole. 2 A propagation was the lower part of; the foot which afforded arteries to each toe.

Fourthly, running out of the chest, from the back-part of the chest, it sends forth the musculofdia, whereby it gives life to the hind-muscles of the sole, even to the back-part of the heel. Finally, having wholly left the chest, it sends forth the two Humeraria, or shoulder-arteries, the one whereof goes to the muscles of the hollow part of the shoulder-blade, the other to the joint of the arm and muscles situate there, and the gibbous part of the shoulder-blade.

Sixthly and lastly, it produces the Thoracica, which is also twofold; for the one goes to the fore-muscles of the chest, the other to the Latissimus, as we said of the vein, the remnant of it makes the Analis of that side.

The other greater branch likewise ascending, by the right side, and so to the first rib of the chest, makes also the subdivision of that side, which, besides those divisions it makes on this side, also goes to the lungs, Larynx, and tongue, and entering into the head by the long hole and back-part of the upper jaw, it sends many branches to the eye, the eyes, the muscles of the temporal muscles, and to the Crista meningee, or Dura mater: The remainder of this branch going by the side-holes of the brain, that it might make the Plero adnible, as we fee. And then it is spent upon the spina or spine, the division of the internal branch of the Sphen artery. The Carotis, or sleepy arteries, their division, the distribution of the internal branch of the sleepy arteries.

To what parts the external branch of the sleepy artery.

To what parts the internal branch of the sleepy artery.

What the Thymus is a glandule, of a soft, rare, and spongious 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 their 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 their vessels might become the stronger; for so we fee that nature hath provided for others, especially such as are the more noble and worthy. This glandule appears very large in beef and young men, but in such as have attained to full growth it is much less, and scarce to be seen.

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The Figure of the *Afpera Arteria, or Weazon*.

A. The orifice of the great artery, cut from the heart.
B. The internal arteries of the heart.
C D. The division of the great artery into two trunks: the ascending C, the descending D.
E. The left auxiliary, or subclavian artery.
F. The right auxiliary or subclavian artery.
G. The right Carotis or ophthalmic artery.
H. The left Carotis.
I. The trunk of the rough artery of the neck.
K L. The division of the rough artery into two branches, of which the right branch goes into the right, and left into the left side of the lungs, which branches are again subdivided into many others.
M. The head of the rough artery called the Larynx or Throttle.
N. Certain glands or knots at the root of it.
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 of the great artery.
S S. The left recurrent nerve.

Compouser. It is composed 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 external comes from the Peritonnaum; the internal, which is the stronger and woven with the right fibers, from the inner coat of the mouth, which is common with the inner coat of the *afpera* or gullet. And also it is composed of round gristles, yet not drawn into a perfect circle, composted in manner of a channel, and mutually joined together in order, by the ligaments that proceed from their sides and ends.

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 lungs.

The temper and action.
Book IV.

contained in the Chest.

CHAP. XVIII.

Of the Gullet.

The OEjhhagm, or CiJIct, which is the passage of the meat and drink, is of a middle faculty between flesh and bones, because it consists of one nervous membrane, and another bulky. The nervous is placed the innermost, and is continued to the inner coat of the mouth even to the lips, whereby it comes to pass, that the lips tremble in diseases which are ready to be judged by a critical vomiting; and to the inner part of the Alpera Arteria, it consists of right Fibers for the attraction of the meat, which we see is sometimes so quick and forcible in hungry people, that they have scarce time to chew it, before they find it, to be pluck'd down, as it were, with hand. The Essay is placed without is woven with transverse fibers, to help the going of the meat into the stomach, and for expulsion in vomiting and breaking of wind. These two coats are continued with the two coats of the stomach, and have the like lines. Besides, the gullet hath these parts composing it, as a vein from the gate and hollow adherent vein, a nerve from the sixth Conjugation, an artery from that which creeps along the bottom of the stomach with the Vena Gastro, or else from the arteries ascending the hollow part thereof; but also, besides all these vessels, it may have a third coat from the membrane investing the ribs, or Pleura.

The magnitudes of the gullet is large enough, yet some be bigger, some less, according to the magnitudes of bodies. The figure of it is round, that so it might be more large to swallow meat, and less subject to offence. It is placed between the back-bone and warrant from the roots of the tongue even to the stomach. But as it descends along the back-bone, when it comes to the fourth Vertebra of the chief, it turns to the right side, to give way to the great Artery Aorta, and the descending artery, then it turns to the left side to the stomach, or mouth of the ventricle. Nature hath fastened it to the Diaphragm with strong membranous ties, left that, if it had lain upon the artery, it should have hindered the passage of the vital spirit to the lower parts. It is only one, and that tied to the fore-mentioned parts, both by its vessels and membranes. It is of temper rather cold than hot, as all the other parts, which are more nervous than bulky, are. The action thereof is to draw and carry down the meat, and to cast forth such things by vomit as trouble the stomach. Here you must note, that whilst we swallow down, the gullet is drawn downwards, and the weapon upwards, which is the cause that we cannot sip and blow, swallow and breathe, together at the same instant, which we must think to happen by God's singular providence, to whose name be glory for everlasting. Amen.

The End of the Fourth Book.
BOOK V.
Of the Animal parts contained in the Head.

CHAPTER I.
A general description of the Head.

Having hitherto declared two general parts of man's body, that is, the natural and vital, it is now fit to take us to the left, that is, the animal, 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, as from a fountain, infinite actions and commodities arise. It is fastened above the rest of the body, that the animal spirit from thence, as from a Tower, may govern and moderate the whole body, and perform all actions according to the prescript of nature. By the head we understand all that which is contained from the crown of the head to the first Vertebra of the neck.

The part of the head is round, lightly flattened on each side, resembling something to the face and hind-part thereof. For from hence is taken an argument of the goodness of the senses; 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 crown, and hind-part.

By the face we understand, whatsoever is contained between the eye-brows and the lower part of the chin. By the forehead, all the space from the eye-brows even to the coronal future. By the temples, whatsoever is hollowed 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 coronal future, even to the future Lambdoides. And on each side to the Offa porrosa, the bony bones, or fleshy futures. By the crown we understand a certain point exquisitely in the midst of the sagittal future, which is sufficiently known. By the Occiput or hind-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, some contained. Of the containing, some are common to all the parts of the head, as the skin, the fibrous pannicle, and pericranium; others are proper to certain parts, as the fleshy pannicle to the neck, face, forehead, and skin covering the cranium, the common coat of the muscles to the face and face; the skull and both the Meninges to the brain.

The parts contained, are the substance of the brain, the four ventricles, and the bodies contained in them, the nerves, the mammillary processes; the Plesen-Choroids or Rete admirable; the Glandula basilaris, and others, of which we will speak hereafter.

We must now fpeak of the containing parts beginning with the skin; for the order of teaching requires, that we take our Exordium from the more simple; but first we will fay something of the hair.

The hair is nothing else than an excrement generated and formed of the more gross and tenement portion of the superfluities of the third concoction, which could not be wasted by infamous transpiration. The benefit of it is, that containing the gross and fulliginous, or fappy excrements of the brain, it becomes a cover and ornament for the head.

This hair of the head and eye-brows, have their original from the first conformation of the infant in the womb, the rest of the hairs of the body arise and grow forth as the body grows and becomes more dry, of which sort are the hairs which cover the chin, arm-holes, groins, and other parts of our body.

CHAPTER II.
Of the hairy scalp or the Head (commonly called the hairy scalp) and of the Pericranium.

The skin which covers the skull, and is covered with the hair, is far more fleshy, thick, hard, and dry than any other part of the body, especially which wants hair. The skin hath almost the like condition of quality as those parts have, which it doth finely cover, both as it were, let in them, or grown into one with them, as in the lips and forehead with the fleshy pannicle, wherefore it is there called musculus; in other places it adheres to the gristles, as on the sides of the nostrils and corners of the eyes, whereupon it is there called gristly.

It hath connection with the Pericranium, because joynted to it, it receives nerves from the first and second Vertebra of the neck, and from the third conformation of the brain, which are distinguished through all its substance, whereby it comes to pafs, that the wounds, contusions and impollutions, that happen in upon this skin, are not to be neglected.
Of which this is an argument: for in what part of any skull a membrane is hurt, presently the hurt or fafe thereof comes to the Crassa meningis. For so those who have but their little toe hurt, when they sneeze or cough, perceive an increase of their pain, by the passage thereof to the brain.

The other two are called the Falci, fuffy and fcaly futures, by reason they are made by a fcaly conjuncti on of the bones, not by a toothed faw or comb-like connection. But if any wile, why the head confifts not of one bone, that fo it might be the ftronger. It is, that fo it might be the ftronger. But this third Suture Lambda b 0 is fo called, becaufe it represents the capital Greek Letter Lambda.

The ufe of this Pericraniun is to cover the skull and to give notice of things hurtful, by the motion thereof. For it hath made the head to confift of diverse bones, that when one is broken, the other may be the violence of the blow being ftaid in the division of the bones.

Whereby you may know, that if the skull chance to be broken in the oppofite fide to that which the blow came therefrom, the fafe thereof enters into the skull, and they are of that largenefs, that you may put a point thereon, that the vapo urs may have free passage forth, otherwise there would be danger of death. Thus Nature hath been careful to provide for man against internal injuries; and in like manner against external, for it hath made the head to confift of diverse bones, that when one is broken, the other may be fafe. For if the Pericraniun were not, the cranial membrane would be ftripped off, and there would be ftronger blow, and the brain would be left to the violence of the blow. In what bodies the ufe of this Pericraniun fteadily occurs.

The vapo urs may have free paffage forth, otherwise there would be danger of death. Thus Nature hath been careful to provide for man against internal injuries; and in like manner against external, for it hath made the head to confift of diverse bones, that when one is broken, the other may be fafe. For if the Pericraniun were not, the cranial membrane would be ftripped off, and there would be ftronger blow, and the brain would be left to the violence of the blow.
The Cranium, or Skull covering the brain like an Helmet, is composed and consists of seven bones of which some are more dense, thick and hard than others. The first is the Os frontis, or brow-bone fixed in the back-part of the head, more hard and thick than the corneal, and on the forehead bone. The second bone of the skull is in the front-part, and is called the Os coronale, or Os frontis, the forehead bone, and consists of the forehead bone in the cavities of this bone. The third and fourth bones of the skull, are the Os parietalis, or Bones, having the third place of density and thickness, although this density and thickness be different in divers places of them. They are in the upper part of the head, or crown (where that substance turns not to a bone in children, until they have all their teeth, so that it feels soft in touching, and through it you may feel the bleeding of the brain,) these bones are very tender, so that oftentimes they are no thicker than ones nail, that in the moist and vaporous extremities of the brain, that up where the greater portion of the brain resides, may have a teer passage by the brains Diaphane and Syphilit. These two figure bones are bounded above with the fagittal bone, below by the four, on the part with the Lambdoides. The fifth and sixth bones of the skull, are the two Os parietis, oraly bones, which are next to the former in strength. They are bounded with the fulte or bulbar-future, and with part of the Lambdoides, and wedy-bones. The sixth is the Os frontis, or brow-bone, which is called the Frontale, because it is (as it were) the brow of the head. To this the rest of the bones of the head are fitted in their places. This bone is bounded on each side with the bones of the forehead, the stone bones, and bones of the nowl and palate. The figure represents a Bat, and its processes her wings. The three bones of the Auditory-passage,  

What the Cranium is.  
Why the brow-bone is harder than the rest.  
My Author means by the brow-bone in this place the wedy-bone.  
the brow-bone.  
the brow-bone.  
The forehead bone, more to the nowl-bone, is harder than the rest.  
A cavity to be observed in the forehead-bone.  
Osi. parietalis.  
Osi. frontis.  
Osi. frontalis.  
Osi. lambdoides.  
Osi. squamosus.  
Osi. occipitalis.  
By what means a Chirurgion may conjecture that there are extraordinary futures in extraordinary places of the skull.  
The skull of a child is inhabited by the Southern customs, as they are more hard and dense.  
We must observe the eyes, the forehead, the face, which are in some bones.  
The face and gracefulness of the zygo.
The upper table is thicker, denser, stronger and smoother than the lower. For this as it is the thinner, so it is the more unequal, that it may give place to the internal veins and arteries, (which make a manifold impression into the second table on the inside thereof) from which branches enter into the skull by the holes which contain the eyes. Which thing历史新高s the Craffa membra to the skull, and is therefore very worthy to be observed.

For in great Convolutions, when no fracture and suffice appears in the skull, by reason of the great concussion or shocking of the brain, the veins are often broken, which happens a flux of blood between the skull and membranes, and finally death. But it is in the Ostrich bone take good heed to the tender and soft fullness of the Diploe, that when he comes to it, having puffed the fruit table, he may carefully use his Trepan, lest by leaning too hard, it run in too violently, and hurt the membranes lying underneath it, whence convulsion and death would follow. To which danger I have found a remedy, by the happy invention of a Trepan, as I will hereafter more at large declare in handling the wounds of the head.

CHAP. V.

Of the Membranes that is, the two Membranes called Dura mater and Pia mater.

The Craffa membra is one of the first and principal membranes of the body; it goes forth by the fissures and holes of the nerves that proceed out of the skull; and it puffs forth by the bone Enchymides perforated for that purpose, to carry smells to the brain, and purge it of excrementitious humors. This same Craffa membra invests the inner coat of the note yallei it puffs forth of the great hole through which the spinal narrow veins, veiled with this Craffa membra, 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 Membranes, it straight conveys the hurt to the head by conduction.

The Craffa membra is thicker and harder than all other membranes in the body; wherein it hath got the name of the Dura mater; besides all, it begins, produces and defends the other membranes.

The use of it is to involve all the brain, and to keep it when it is dilated, that it be not hurt by the hardness 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 Craffa membra yields another commodity, which is, that it carries the veins and arteries, cutting the skull for a long space. For they incline themselves into that part, where the duplicate or folded Membranes separate the brain from the Corvellaum, and so from thence they are led by the sides of the Corvellaum, until they come (as it were) to the top thereof; where being united, they unite themselves into that other part of the Craffa membra, where, in like manner being duplicated and doubled, it part the brain at the top into the right and left. These united veins run in a direct passage even to the forehead, after the manner of the angular future. They have called this passage of the mutually interfolded veins, the Temporal or Preh, because the blood which nourishes the brain, is prefixed and drops from thence by the infinite mouths of these small veins. Therefore also here is another use of the Craffa membra, to distinguish the brain by its duplication, being it about it fell deep into its body, into two parts, the fore and hind, and prettily to separate the fame into the right and left that one part being hurt, the other may remain safe and found, performing its duty to the creatures, as we see in force that have the Palpe. Calendar observed that this Membra was double, and very I have found it true by my own sight.

What the brain is.

The use of the Craffa membra.

The other Membranes or membrane of the brain, called Pia mater, is most slender, intermixed with divers veins and arteries, for its own and the brains nourishment and life. This doth nor only involve the brain, as the Craffa membra doth, but also more deeply penetrate in the unfruitful passages thereof, that it may every where join and bind it to itself, not only 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 the life, as we have mentioned, and not pluck it away until the subsistence of the brain.

These membranes when they be hurt or afflicted, cause grievous and most bitter torment and pain; whereas I dare say, that these membranes are rather the authors of feents, than the brain itself, because in dislocations of the brain, as in the Lehargy, the part affected is troubled with little or no sense of pain.

CHAP. VI.

Of the Brain.

Now followeth the brain, the beginning of the nerves and voluntary motion, the instrument of the first and principal faculty of the Soul, that is, the Animal and Rational. Man hath this part filled in greater plenty than any other Creature, for it almost fills the whole skull. But if it should have filled it all, the brain could not be moved, that is, dilated and convexed in the skull. It is of a cold and moist Temperature. The inaudible temper of the brain is known by the integrity and perfection of the internal and external senses; the insensibility of sleep and waking, the maturity or ripeness of judgment, and constancy of opinions, from which, unless it meets with better and more probable, it is not liable to be moved.
The first Figure of the Head, as it appears when the skull is taken away.

The second Figure, shewing the brain, the skull and Dura mater being taken off.

A A B B The Dura meninx, or thick membrane.

C C C The third Sinus of this membrane.

D D The course of the veins as they run through the membranes or the second vein of the brain.

E E The first vein of the brain.

F F F Certain small veins which perforate the skull, and reach to the Pericranium, or skull-skin.

G G G Fibers of the Dura meninx passing through the coronal fissure, which fibers make the Pericranium.

H H H Fibers passing through the sagittal fissure.

I I I Fibers passing through the lambdoidal fissure.

R A knot which refists to grow to the Sinus of the skull.

L A cavity in the forehead-bone.

M M The skull.

N N The Pericranium or skull-skin.

Figure 2.

A A A part of the Graffia meninx dividing the brain.

B B The third Sinus of the same craft's membranes opened.

C C The beginning of the veins out of the third Sinus into the Pia mater.

D D D The propagation or branches of these veins.

E E E The Pia mater, or thin mem-

F F F Certain veins running through the convolutions or branches of the brain.

G G G Certain branches of veins running through the sides of the Dura meninx.

B H H The thick membranes reflected downward.

You shall know the brain is more hot, by the quickness of the senses and motions of the body, by the quickness of sleep, the sudden conceiving of opinions, and change of them, by the slippery and falling memory, and lastly, by easily receiving hurt from hot things, as the Sun and Fire. Such as have a cold brain, are slow to learning, and to conceive other things, but they do easily put away their once conceived opinions. They have flow motion to action, and are sleepy. Those who have a dry brain, are also slow to learn, for you shall not easily imprint 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 brain do easily learn, but have an ill memory, for with like facility as they admit the species of things and imprint them in their minds, do they suffer them to slide and slip out of it again. So clay doth easily admit what character or impression fovere you will, but the parts of this clay, which easily gave way to this impression, going together again, mixes, obliterates and confounds the fame. Therefore the fenses proceeding from a cold brain are dull, the motions flow, the deep profound.

The action of the brain is to elaborate the animal spirit and necessary sense serving the whole body, and to officiate it as an instrument to the principal faculties, as to reason. The brain is twofold, the fore and hind. The hind by reason of its smallness is called the Cerebellum, (the little or after-brain.) But the fore by reason of its magnitude, hath retained the abfolute name of the brain. Again, this fore-brain is twofold, the right and the left, parted by that deprelion which we formerly mentioned, of the Meninges into the body of brain. But this division is not to be here to the fore-brain taken, as though the brain were exactly divided, and separated into fo many parts, but in the ledge we lay the liver and the lungs are divided a pretty way, whereas at their backs they have one continued body. The outward surface of the brain is soft, but the inward hard, callous and very smooth; when on the contrary, the outward appears indented and unequal with many windings, and eroded, as it were, with many worm-like foldings.
Of the Ventricles and Mammillary Processes of the Brain.

The substance of the brain is porous, and sweats forth blood.

The four ventricles thus.

The septum lucidum, or clear or thin partition, is nothing else than a partition of the brain indifferently solid, but very clear, that so through this partition the animal spirits contained in these two ventricles, may mutually pass and be communicated, and yet no other grosser substance may pierce the thin density thereof.

The septum lucidum.

Wherefore it is not to be feared, that the water contained in one of the ventricles may pass to the other through this partition, as I have oft-times observed to the great admiration of the spectators in the dead bodies of such as died of the Palsy, in which I have found the ventricle of that side which was taken with the Palsy much dilated, according to the quantity of the water contained therein, the other being either wholly empty and without any, or certainly no fuller than in any other, dead through any other occasion. For some affirm, that there is a certain kind of water, moisture always to be found in the ventricles, which may be made by the condensation of the animal spirits by the force of the deadly cold. But these two first ventricles of the brain go into one common passage, as both the bellows of a furnace, whereby the spirit imbued with the species of things sensible, may go from one into another. The tricks thereof, the Plexus choroides is to consider, and in like manner the passage by which the groffer and cleansed, but in other ventricles, the pure and already elaborate spirits are only received. These ventricles are white and smooth in their inner surfaces but, that on each side they have an exuberancy at the midst of the semi-circle, fixture at the basis of the pillar of the middle ventricle towards the nose under the septum lucidum, or clear partition, fevering or parting in further these two ventricles.

The septum lucidum, or clear or thin partition, is nothing else than a portion of the brain indifferently solid, but very clear, that so through this partition the animal spirits contained in these two ventricles, may mutually pass and be communicated, and yet no other grosser substance may pierce the thin density thereof.

The third Figure represents the Cerebellum with the Pons sewn from it.

AB The right and left part of the After-brain.
CD The Anterior and Posterior regions of the middle part of the After-brain.
E The Anterior ventricle process.
F The Posterior ventricle process.
GG In this place the After-brain did grow to the spinal marrow.
H The cavity in the spinal marrow made the fourth ventricle.
IK The Anterior and Posterior process of the brain, called Vermi-formes, or the ventricle process.

For this in them who have the Catarrh and Convulsions, or Palsy, neither the air, nor smelts can penetrate into the brain; when frequent sneezings ensue, the brain strongly moving it felt the expulsion of that which is troublesome to it. But of the excrements of the brain, whether bred there, or proceeding from some other part, some are of a humide and vaporous nature, which breathe internally through the tissues of the skull, others are gross and vivid, of which a great part is expelled by both these productions, or through each of them. For thus in the Palsy you may see some who have one of their nostrils open, 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 Plexus, as in a conveniente vernal habitation, fixing the mind there embraces and disposes in order the species of things brought in from the external senses, that so it may receive a true judgment of them from reason, which resides in the middle ventricle.
The fourth and fifth Figure of the Brain.

**Figure 5.**

R R R. The lower superficials of the callous body reflected.

S T V. The triangular surface of the Fornix or Arch.

X X. The lower part of the partition of the Ventricles continued with the arch.

Y Y. The upper part of the partition continued with the callous body.

**Figure 6.**

A A A. The lower surface 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 sanguine arteries through the lower side of the ventricles, for the forming of that complication of the vessels, which is called Plexus choroides.

H. A vessel issuing out of the fourth Sinus under the arch, and passing into the third ventricle.

I K L. The division of this vessel, a part whereof goes to the right ventricle at K, 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 through the ventricles of the brain, produced from the vessels K and L.

P. Other veins arising from the same, dispered without the ventricles into the Pia mater.

Q. A passage from the third ventricle unto the Fossa, or Tunnel.

R S. Canals, or Sinus, graven or furrowed in the substance of the ventricles; in which the phlegm is led along to the orifice of the forefaid passage marked with Q.

The sixth Figure of the Brain.

**Figure 10.**

A A. Parts of the spinal marrow cut from the brain.

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

D E. The testicles.

F G. The buttocks.

H. The Fine glandule.

From I to K. A part of the third ventricle going to the fourth, under the testicles.

K L M N. A part of the fourth ventricle which is engraven in the marrow.

O. The top of the fourth ventricle.

P. The place where the spinal marrow goes out of the skull.

**Figure 11.**

A B. Parts of the optic nerves.

C D. The sanguine arteries.

E F. The Fossa or Tunnel hanging down.

F. A hole or perforation of the Dura mater, through which the Tunnel reaches unto the glandule.

G G. Parts of the second conjunction of sinews.

**Figure 12.**

A. The glandules.

B. The Fossa or Tunnel, called Pelvis or Infundibulun. C D E F. The four holes through which the phlegmatick excrement issueth.
Book V.

The third ventricle is situated between the hindermost extremities of the former ventricles, and the last ventricle of the Cerebellum. In this, six parts present themselves to our consideration, that is, the Falx, or Arch, the Conivium or pine glandule, the butocks, or butock glandule, the butocks which are found in rotten wood. It doth, as it were, perform the office of a Porter for the whole substance of the brain, which opinion is confirmed by the imprinted notions of things to be remembered. The Worm is a production of the Cerebulum, or after-brain, to wit, a portion of the same being in the top, or arch, or after-brain, and as it were in the entrance thereof, being like many little circles, or wheels mutually jointed together by slender membranes; 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 for the formerly mentioned passage, that it may go out and enter into the Cerebulum, a necessary quantity of spirits, when need requires, let that, if they should run with a sudden vehemence into the Cerebulum, they might confound the imprinted notions of things to be remembered. The Falx, or Bafon, is a passage appointed for the carrying away of the gross excrements by the channel, and is so called, because it hath the similitude and use of a channel. Now there remains the last ventricle, that is, the channel or passage, running from this third ventricle into the fourth, for the use formerly mentioned. This channel depending in its original from the bason, goes from thence under the butocks into the last ventricle, the Membrane being perforated; which, that you may know, it is in you the end of a Spathe through it. The benefit of a 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 situated in the place we formerly mentioned; it is left than the rest, but more solid; let us and which was to receive the spirit before it was purified, and cleansed from all impurities, but more solid, that it might contain it the safer. The use thereof is, to be as a treasury and store-house of the opinion, and judgments which reason shall decree, that when need requires, we may fetch and draw them from thence as laid up in store. I know Galen and the Greek Physicians have not so distinguished in places, the third ventricle, but have written, that they are all over-confounded through the whole substance of the brain, which opinion I follow in his Phaenomena. Yet I had rather follow this opinion, as commonly received and celebrated by the Archias Physicians. The mamillary prococesses are the intimations and puffsages of Smelling, being of the same fullness with the brain, and like nerves, which run out from the hind-bones of the upper or foremost ventricles of the brain to the lomomes and spheny bones of the nose, that hence they may receive the diverse kind of smell, and carry them into the brain. But although they be like nerves, yet they are not accounted nerves, because they go not out of the skull.

CHAP. VIII.

Of the seven Constructions of the Nerves of the Brain, so called, because they always flow the nerves congeries and doubled, than is, on each side.

The nerves are the ways and intimations of the animal spirit and faculty, as of which the spirits are vehicles, as long as they are contained in the brain; they consist of the only and simple marrowy substance of the brain, or spinal marrow. But passing forth of the brain, the have another membraneous substance which joins them, joined with them from the two membranes of the brain, and according to the opinion of some Anatomists, they have allied to a third from the ligaments, drawn as well from divers others, as from those by which they are enclosed to the Peritoneum; yet this opinion seems absurd to me, being such a membrane, as that which is insensible, wholly repugnant the condition of a nerve, which is to give life to the parts to which it is applied. The magnitude of the nerves is different, according to the diverse necessity of sense incident to the parts into which they are infused. Their figure is round, and long, like to a Conduit-pipe to carry water in the membranes of the brain, with the nerves, are covered, being dilated and stretched over them, after the same manner that the prococesses of the Peritoneum involves the

What the Visera or butocks are.

The Worm is.

What the Conivium is.

What the Falx or Bafon is.

The Channel from the third into the fourth ventricle.

The use of the Mamillary prococesses.
Their use, jugation of their number.

The first conjugation of the nerves.

The first conjugation of the nerves of the brain is thicker than all the rest, and goes to the eyes, to carry the vitive spirit to them. These arising from divers parts of the brain, in the middle way before they go out of the skull shall meet together crosswise, like the iron of a Mill (which is fastened in the upper horn) going into one common passage with their cavities not visible to the eyes; that the spirits brought by those two nerves may be communicated, and they are mutually joined and meet together so, that being driven back from one eye they may fly back into the other. An argument whereof may be drawn from such as aim at any thing, who shutting one of their eyes see more accurately, because the force of the neighbouring spirits united into one eye, is more strong than when it is divided into both. This conjugation, when it comes into the gillie humor, is spent in the structure of the net-like coat which contains this humor on the back-parts.

The seventh figure showing the eighth conjugation of the nerves of the brain.

FIG. I.

FIG. II.
of which some are carried to the temporal muscles, into the
skin of the face, forehead and nose. Others are sent into
the auditory muscles, and those which are called the round,
which incompress the mouth on the inside, the last are waited in
the coat of the tongue, to bellow upon it the food of talking.
The fourth conjugation is much smaller, and is almost wholly waited upon the coat of the
The fourth conjugation.

The fifth as its original, and having not as yet passed forth of the skull, is divided into two, and

The fifth conjugation.

The sixth being the greatest, next to the first, passing entirely forth of the skull, imparts some small
branches to certain muscles of the neck and throat, and then descending into the chest, it makes
its way to the recurrent nerves, and dispersed over all the parts of the two lower bellies, it passes even to the
bladder and testicles, as we showed in the former Book.

The seventh invested and spent upon the muscles of the bone Hipvs, the tongue, and some of the
diaphragm to give them motion; it passes forth of the skull by the hole of the nose-bone at

The seventh conjugation.

Chap. IX.
Of the Rete Mirabile, or wonderful Net, and of the Wedge-bone.

The Animal spirit is made of the vital, sent from the heart by the internal sleep arteries to

The existence of the brain. For it was requisite, that it should be the more elaborate, because the action of the animal
of the brain is more excellent than that of the vital: Nature hath framed a texture of ar-
teries in many places running cross one another, in the form of a Net divers times doubled (where-
upon it had the name of the wonderful Net) that so the spirit by longer delay in these Labyrinthian
or Maze-like turnings, might be perfectly concocted and elaborated, and attain to a greater intensity
to perform the animal functions.

This wonderful Net situated at the sides of the Apophyses clivides, or productions of the wedge. The far and
bone is two-fold, that is, divided by the primary glandule, which is situated between the said
Apophyses clivides, having the wedge-bone lying under them, next to the Craga minora, being perfor-
ated on the right and left side, next to which lie bones as a rare as a sponge even to the palate,
by which the phlegm is purged by the mouth and nose; and therefrom, I think, that spitting flows,
which such as have a moist brain, continually spit out of their mouth.

The eighth Figures of the Brain.

Fig. 1.
A The brain.
B The Cerebellum, or after-brain.
C A process of the Brain, but not that it is called Mammillaris.
DD The marrow of the back, or it is yet within the skull.
E The Mammillary process or instrument of smellings.
F The optic nerve.
G The coat of the eye into which the optic nerve is spread.
H The nerve that moveth the eye or the second pair.
I The third conjugation, or the harder and softer branch of the nerves of the third conjugation brought forward.
K The fourth conjugation or the greater and thickest nerve of the third pair bending downward.
L A branch of the nerve marked with
K, which goeth to the fore-head.
M Another branch of the nerve I, reaching to the upper jaw.
NN A nerve proceeding from the branch I, intended or moved with the cost of the skull.
O The nerve of the temporal muscle issuing from the branch I.
P A nerve continued of the nerves K and L.
Q A nerve proceeding from the branch K, to the fleshy of the upper teeth.
R A nerve hanging from the nerve K
to the lower jaw.
What the Apophyses dis excell.
Whether the Nerves minister differ from the Plexus choroides.

Thefe Appluvius dis excell are certain productions of the Os sphenoides, or wedge-bone (called the fiddle these between) with which, as I said, the pithy glandule liés with part of the wonderful Net.
There is a great controversy among Anathomists concerning this part: for, Vellanius denies that it is in man, Columbus admits it; yet he fears to continue it with the Plexus choroides. Truly, I have observed it always after the manner, as Sylvius alleges against Vellanius. It remains, that we recite the perforations of the Skull, because the knowledge of these much conduces to the understanding of the inflations of the veins, arteries and nerves.

CHAP. X.
Of the holes of the inner Basis of the Skull.

In the first place are reckoned the holes of the bone Ethmoides; then those of the Optic nerves. Thirdly, of the nerves moving the eyes. Fourthly, of that portion of the nerves of the fourth conjugation which go to the temporal muscles. Fifthly, are reckoned these holes scarce visible, situated under the pithy glandule, by which the fiddle is evacuated. Sixthly, that hole which is in the wedge-bone made for the entrance into the internal fleery arteries, composing the wonderful Net, and then passing into the brain by a great slit. That perforation which we reckon in the seventh place is commonly double, made for the entrance of one of the branches of the internal Jugular-vein. The eighth hole is somewhat long, of an oval figure, by which part of the veins and arteries going to the auditory passage, above the foramen ovalium. In the eleventh place are reckoned the perforations which yield passage for the sixth pair of nerves, to part of the fleery arteries, and of the internal jugular. In the twelfth, those which yield a way out to the seventh conjugation. The great hole of the tongue-bone through which the spinal marrow passes is reckoned the thirteenth. The fourteenth is that which most commonly is behind that great hole, by which the Cervical veins and arteries enter.

CHAP. XI.
Of the perforations of the external Basis of the Brain.

There is a hole on each side at the eye-brows, by which paffes a small nerve from the third conjugation coming out of the cavity of the eye, and going by the forehead bone to the eye-brow, that it may give motion to the two muscles of the upper eye-brow and forehead. Yet in some of these holes is but to be seen on one side, often-times there is a cleft in fide thereof, other-times 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 coat of the nofe; in this hole the Glandula Lacrymalis is seated. The third is feared under the eye, that it may give way to the other portion of the nerves of the third conjugation going to the part of the face, and the teeth of the upper jaw. The fourth is at the beginning of the palate, among the cutting and hearing-teeth, through which a vein, an artery, and the coat of the palate paffes 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.
Book V.

The holes of the palate serving for the respiration, and the flegm falling from the brain by the nostrils. And there is a cleft under the zygomatic bone extending into the orb 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 mamillary process, which is not perforated in the judgment of the sense. Besides, there is thought to be another at the frontal 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.

Chapter XII.

Of the Spinal Marrow, or Path of the Back.

The spinal marrow is like a river running from the fountain of the Brain. 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 heretherto them, are on each side thirty. This same spinal marrow is covered with the two membranes investing the brain, distinguished by no distance of place, as in the Brain. But also it hath 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 forwards and about. The diseases of this marrow do almost cause the like symptoms, as the diseases of the brain; for they hurt the sense and motion of all the parts lying beneath them. As for example, if any of the Vertebrae of the back-bone be moved out of their place, there follows a distortion or wrenching of the marrow, but then especially if it happen that one of the Vertebrae is 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, the veins and arteries go to the spinal marrow for to give life and nourishment to it, as the nerves by them pass forth unto all the lower parts of the body.

Figure 1. Sheweth the form of the spinal marrow properly so called, with its membranes, and the nerves proceeding from it.

Figure 2. The spinal marrow naked and bare, together with its nerves, as most parts of Anatomists have described it.
The descriptive powers may wonder that I have ended my Fifth Book of Anatomy, 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 defect, in my treatment, and, as it were, as one breaches, so profuse the Anatomy of the Muscles. Wherefore, because the parts of the Head are not yet described, principally of the Muscles, therefore I define to comprehend them together with these same descriptions of the extreme parts of the body, beginning at the upper part of the face, to wit, the eyes: But having first described the bones of the face, without the knowledge of which it is impossible to form the original and invention of the Muscles. We have formerly noted, that by the face we mean whatsoever lies from the eye-brows even to the chin. In which there is such admirable industry of Nature, that of the infinite multitudes of men you cannot find two so like, but that they may be distinguished by some unlike-ness in their faces; also, it hath adorned this part with fair complexion beauty, that many have died by longing to enjoy the beauty desired by them. This same face which is a little exceeds half a foot, yet it indicates and plainly intimates by the sudden changes thereof, what affections and passions of hope, fear, fortune and delight pass in our minds, and what state our bodies are in, sound, sick, or neither. Wherefore fitting the face is of so much moment, let us return to the Anatomical description thereof. Which that we may safely and plainly perform, we must begin with the bones thereof, whereby, as we formerly said, the original and invention of the Muscles may be more certain and manifest to us.

### CHAP. I.

Of the Bones of the Face.

The bones of the face are sixteen or seventeen in number. And first, there be reckoned six about the orbs of the eyes, that is three to each orb, of which one is the biggest, another lobe, 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 fowy-bone, and so makes the Zygo-plates, that is, the Os Jugal, or Yoke-bone, framed by Nature for preservation of the temporal muscle. The lesser is seated at the greater corner of the eye, in which there is a hole perforated to the nose, and in this is the glandule in which the Lachrymal duct is formed. The middle is in the bottom, or inner part of the orb, very slender, and as it were of a membranous thinness; that follow the two bones of the nose which are joined to the fore head-bone by a future, but on the fore side between themselves by harmony. But on the back and hind-part with two other bones, on each side one, which descending from the bone of the forehead (to which also they are joined by a future) receive all the teeth. These two in Galenus opinion are seldom found separated; but there are the thickest of all the bones of the face hitherto mentioned, kept by a future with the greatest bone of the orb, on the back part with the wedge-bone, on the inner side with the two little inner bones of the palate, which on the inside make the extremity thereof, whereby it comes to pass, that we may call these bones the hinder, or inner bones of the palate. They receive one of these bones the eleventh, and the other the twelfth-bone of the head; these two 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 Book, we said were seated upon the membrane of the palate.

And in Galenus opinion there be other two in the lower jaw, joined at the middle of the Chin, although some think it but one bone, because by the judgment of some there appears multiplication or separation therein. But you may see in children how true this their supposition is, for many men of perfect growth it appears but one bone; these two are reckoned for the thirteenth and fourteenth bones. Now these two bones making the lower jaw, have in their back-part on each side two productions, as they lie to the upper jaw, the one of which represents the point of a Sword, and is called the Canine. The other is obtuse and round, which is infected into the cavity seated at the root of the process of the fowy-bone, near to the pugiliz of the ear. This may be strained to the fore-part by violent gaping, by retraction of the muscles arising from the wing-like processes, and ending at the lower angles of the broader part of the face jaw. This jaw is hollow, as also the upper, especially in the back-part, being filled with a white and glistening humours, conducting to the growth of the teeth. This humour hath its matter from the blood brought thither by the veins, arteries, and nerves of the third Conjunction entering here by a pugiliz large enough. Whereby it comes to pass, that this part is not only nourished and lived, but also the teeth receive fascie by the benefit of the nerves entering thither with the
Book VI. and other extreme Parts of the Body.

the vein and artery; by small holes to be seen at the lower roots of the teeth; and thence it is that a beating pain may be perceived in the Tooth-ach, because the defluxions may be by the arteries or other because the humour flowing to the roots of the teeth, may press the artery in that place: Besides also you may see some appearance of a nervous substance in the root of a tooth newly pluck'd out.

But also you must consider, that this jaw from its inner capacity produces at the sides of the chin two nerves of a sufficient magnitude, over against the lower Dog-teeth, and the art of the smaller grinding teeth, as I have noted in the description of nerves of the third conjugation, I have thought good to put thee in mind of thefe, that when thou hast occasion to make inspection in those places, thou mayst wisely and discreetly handle the matter, that these parts receive no harm.

There are six of the roots of the eyes, at 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 reckon the fifteenth.

Now it comes, having spoken of these bones, that we treat of the Teeth, the Eye-brows, the Skin, the fleshy pannicle, the muscles; and lastly, the other parts of the Face.

CHAP. II.

Of the Teeth.

The teeth are of the number of the bones, and those which have the most, have thirty-two; thirtieth, fourteenth, and so many below; of which in the forepart of the mouth there are four above, and as many beneath, which are called Incisori, cutting or shearing teeth, to cut in funder the meat; and they have but one root; to these are joyned two in each jaw, that is, on each side of the other one, which are called Canini dentis, Dog-teeth, because they are sharp and strong like Dogs-teeth; these also have but one root, but that is far longer than the other have.

Then follow the Molares, or grinders, on each side five, that is, ten above, and as many below, that they may grind, chaw, and break the meat; so that it may be the sooner concocted in the stomatch because they are sharp and strong like Dogs-teeth, these which are fitted into the upper jaw, have most commonly three roots, and oft-time four. But these which are fitted into the lower, 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 fixed, needed not so many stays as the upper, which, as it were, hung out of their seats. The shearing-teeth cut the meat, because they are broad and sharp; the Dog-teeth break it because they are sharp pointed and firm: but the Grinders being hard, broad and sharp, chaw and grind is abler. But if the Grinders had been smooth, they could not have performed their duty; for all things are chawed and broken abler easily by that which is rough and angular.

Wherefore they sharpen their Millstones when they are smoother than they should be, by picking them with a sharp iron. The teeth are fastened in the jaws by Gomphosis, that is, as a stake or fastned in the earth, 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 partition of the eyes, at each three.

There is the better remember the number of the bones of the face, I will here make a repetition of them. There are six of the roots of the eyes, at 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 reckon the fifteenth.

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The teeth are of the number of the bones, and those which have the most, have thirty-two; thirty-first, fourteenth, and so many below; of which in the forepart of the mouth there are four above, and as many beneath, which are called Incisori, 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 Canini dentis, Dog-teeth, because they are sharp and strong like Dogs-teeth; these also have but one root, but that is far longer than the other have.

Then follow the Molares, or grinders, on each side five, that is, ten above, and as many below, that they may grind, chaw, and break the meat; so that it may be the sooner concocted in the stomatch because they are sharp and strong like Dogs-teeth, these which are fitted into the upper jaw, have most commonly three roots, and oft-time four. But these which are fitted into the lower, 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 fixed, needed not so many stays as the upper, which, as it were, hung out of their seats. The shearing-teeth cut the meat, because they are broad and sharp; the Dog-teeth break it because they are sharp pointed and firm: but the Grinders being hard, broad and sharp, chaw and grind is abler. But if the Grinders had been smooth, they could not have performed their duty; for all things are chawed and broken abler easily by that which is rough and angular.

Wherefore they sharpen their Millstones when they are smoother than they should be, by picking them with a sharp iron. The teeth are fastened in the jaws by Gomphosis, that is, as a stake or fastned in the earth, 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 partition of the eyes, at each three.

There is the better remember the number of the bones of the face, I will here make a repetition of them. There are six of the roots of the eyes, at 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 reckon the fifteenth.

Now it remains, having spoken of these bones, that we treat of the Teeth, the Eye-brows, the Skin, the fleshy pannicle, the muscles; and lastly, the other parts of the Face.
Now we should prosecute the containing parts of the face; to wit, the skin, the flesh pannicle and fat; but, because they have been spoken of sufficiently before, I will only describe the flesh pannicle, before I come to the description of the eye, that we may the more easily understand all the motions performed by it, whether in the face or forehead.

First, that you may more easily see it, you must curiously separate the skin in some part of the face. For unless you take a good head you will pull away the flesh pannicle together with the skin, as also this broad muscle to which it immediately adheres, and in some places so closely and firmly, as in the lips, eye-lids, and the whole forehead, that it cannot be severed from it. Nature hath given motion, or a moving force, to this broad muscle, that whilst it extends or contracts it, it might serve to shut and open the eye. It will be convenient to separate the muscle thus freed from the skin, beginning from the fore-part of the clavicles even to the skin, and then turning back as far as you can; for thus you shall how it mixes itself with the skin and muscles of the lips.

When you shall come to the eyes, thou shalt teach how the eye is shut and opened by this one muscle, because it is composed of three sorts of fibers; although by the opinion of all who have 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 lesser corner, from whence extending it fell to the middle of the gristle. It meets, it meets with the former ending there; but they are in part extended over all the eye-lid, whereby it cometh to pass, that it also in some sort becometh moveable. But although in public dissections, these two muscles are commonly wont to be shewed, after the manner I have related yet I think, that those which shew them, know no more of them than they do. I have grounded my opinion from this, that there appears no other muscular flesh in these places, to those which separate the flesh pannicle, or broad muscle, than that which is of the pannicle 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-brows, 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 slit 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 those same proper muscles which we have described should be in the upper eye-lid, it should be meet (because when one of the muscles is in action, the other, which is its opposite or Antagonist, rests or keeps holy-day) that when that which is said to open the eye is employed, the opposite thereof resting, the upper eye-lid should be drawn towards its original, as we see it happens in Contusions; because the operation of a muscle is the collection of the part which it moves towards its original.

Therefore facing such a motion or collection appears not any where in the eye-lid, I think it therefore manifests, 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 fibers of the corona of the neck. But it is infected into all these parts of the head which want hair, and the whole face, having divers fibers from so various original, by the motion of which it performs such manifold motions in 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 professed those nine conditions, which in the 1st Book of my Anatomy I required in every part, because I may seem to have sufficiently declared them in the description of the muscles of the Epiglottis. Wherefore henceforward you must expect nothing from me in the description of the Muscles besides their original, insertion, action, composition, and the designation of their vessels.

Of the Eyes-lids, and Eye-brows.
Of the Eyes.

The Eyes are the Instruments of the faculty of Seeing, brought thither by the vital spirit of the optic Nerves, as in an aque-null. They are of a soft substance, of a large quantity, being bigger or lesser, according to the bigness of the body. They are fixed in the head, their fire, the motion of the small motions of the body, to perceive and think such things as might endanger or embarrass the body, and the action of the Eye is most quick, so 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 Fabrick and Beauty of the Heavens and Earth, distinct with the infinite variety of colours, we perceive and know the Magnitude, Figure, Number, Proportion, Sight, Motion, design, of all bodies. The Eyes have a pyramidal Figure, whilst they ascend transversly to the outward corner, it involves the eye so far, that it is inserted in the Coniunctiva Adnata, whence it stretches over all the white of the Eye even to the irris or Rainbow. The duty of it is to strengthen, . . . the five Coats of the Eye.

Of the Muscles, Coats, and humors of the Eye.

The five Coats of the Eye, of which four perform the four direct motions of the Eye: the third contrary to that, for that it hath its original from the lower part of the orb at a small hole, by which a Nerve of the third conjunction passes forth; and being that it is most fudder, whilst it ascends transversely to the outward corner, it involves the eye so far, that it is inserted in it by a small Tendon, so that the Tendons of both are often-times taken for one.

For thus may truly and accurately observe this anatomical description of the Eye, the Eye must not be plucked out of its orb, but rather the orb itself must be broken and separated.

For thus that certainly and plainly see the fore-mentioned original of the Muscles. For the five Coats, the first which is first met with in division, comes from the Periostium, and is extended over all the white of the Eye even to the irris or Rainbow. The duty of it is to strengthen, bind, and contain the Eye in its orb, wherefore it had the name Coniunctiva, others call it Ascias, or Epiphyses.

The second is called the Coniunctiva, because it refembles a Horn in colour and consistence; this coat...
how the Vejfeis do join the hard Membrane with the Horny Coat. Cemao or the thin Membrane dilated, but 

The ciliar or hairy processes, beamingly strunged through the fore-part of the Glafe humour, beginning of the Grapy coat made of a

The coat of the Chryftalline. of the Eye, for here being perforated, it adheres to the horny Coat by the Veins and Arteries which it communicates to it for life and nourishment. But when it arrives at the Iris, then forking the Cornea, it defends deep in the Eye, and in some fort is turned about the Crystalline humour, to which also it most firmly adheres, in bounding the watery humour, and also prohibiting that the Allbutances humour do not overwhelm the Crystalline. This grapy Coat is, as it were, died on the inside with divers colours, as black, brown, blue, or green like a Rainbow, and that for the ensuing benefits.

The coat differs and varies from it fully, for in the fore-part, as far as the Iris goes, it is clear and perfect, but thick and obscure in the hind part, by reason of the diverse polishing. On the fore-part it is dense, that it may preserve and contain the Crystalline and watery humour, but withall transplant 2 processes, to give the object a free passage to the Crystalline. It hath its original from the Graffe Membræ, proceeding forth from the inner holes of the orb of the eye, for it comphanes the eye on every side.

The third is called Graffe or Grapy Coat, because in the external part it represents the colour of black Grape; it arising from the Iris Mater, and encompasses all the Eye, except the Papilla or Apple of the Eye, for here being perforated, it adheres to the homy Coat by the Veins and Arteries which it communicates to it for life and nourishment. But when it arrives at the Iris, then forking the Cornea, it defends deep in the Eye, and in some fort is turned about the Crystalline humour, to which also it most firmly adheres, in bounding the watery humour, and also prohibiting that the Allbutances humour do not overwhelm the Crystalline. This grapy Coat is, as it were, died on the inside with divers colours, as black, brown, blue, or green like a Rainbow, and that for the ensuing benefits.

The fourth is, if that it had been tinctured with one colour, all objects would have appeared of the same colour, as it comes to pass when we look through green or red Glasses. But it must be coloured, that for it may collect the spirits dissipated by the Sun and Stenting.

Table 3. Fig.1. Sheweth the Membrane and humour of the Eye, by the skittles after the manner of a true Eye.

Table 4. Sheweth the homy coat with a portion of the optic nerve.

Table 5. The Grapy Coat of a Mans Eye.

Table 6. The Horn, Grapy, and the Choroides.

Table 7. The posterior part of the Horny coat, together with the optic Nerve.

Table 8. The coat of the ciliar or grapy humour called Hyaloideas.

Table 10. The humours joined together.

The Explanation of the first Figure by itself.

a The Cryftalline humour.

b The Grapy humour.
c The Watery humour.
d The anterior Coat called Adnata.
e The dark part of the Horny Membrane, which is not transparent.
f The Grapy Coat called Retiformis.
g The coat of the grapy humour called Hyaloideas.
h The coat of the Crystalline.
i The optic nerve.
j The ciliar or hairy processes, called Proceilus illarii.
k The infusion of the Grapy coat where it departeth from the thick coat.
l The homy coat, a part of the thick coat.
m The Watery humour dijposed upon the Crystalline.
n The first is, if that it had been tinctured with one colour, all objects would have appeared of the same colour, as it comes to pass when we look through green or red Glasses. But it must be coloured, that for it may collect the spirits dissipated by the Sun and Stenting.

Fig.1. The former part of the Crystalline.

Fig.12. The Crystalline humour covered yet with its Coat.

Fig.14. The Grapy coat of a Mans Eye.

Fig.15. His Coat.

Fig.16. The Watery humour diffused upon the Crystalline raised above.

Fig.17. The hairy processes beamingly strunged through the fore-part of the Coat of the Grapy humour.

Fig.18. The fore-part of the Grapy humour.

Fig.19. The place of the Watery humour.

Fig.20. The Grapy humour containing or comprehending the Crystalline.

The Figure of the Eye.

a The Cryftalline humour.
b The Grapy humour.
c The Watery humour.
d The anterior Coat called Adnata.
e The dark part of the Horny Membrane, which is not transparent.
f The Grapy Coat called Retiformis.
g The coat of the grapy humour called Hyaloideas.
h The coat of the Crystalline.
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m The Watery humour dijposed upon the Crystalline.
n The first is, if that it had been tinctured with one colour, all objects would have appeared of the same colour, as it comes to pass when we look through green or red Glasses. But it must be coloured, that for it may collect the spirits dissipated by the Sun and Stenting.

The Figure of the Eye.
Book VI. and other extreme Parts of the Body.

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6. Amphiboloscleris or Retiforma, the Net-like Coat, because proceding from the Optick Nerve dilated into a Coat, is woven like a Net with Veins and Arteries which it receives from the grapy Coat, both for the life and nourishment both of itself and of the Glaffie humour which it encompasses on the back-part. The principal commodity of this Coat is, to perceive when the Cryftalline humour shall be changed by objects, and to lead the optic fentiment, or furnished with the faculty of Seeing, by the mediation of the Caffe humour even to the Cryftalline, being the principal instrument of Seeing. It is furer than any other Coat, left the touch of it should offend that humour. Wherein thou wilt admire the singular order of Nature, which in other things it paffes not from one extreme to another, unless by a Medium, so here it hath not need to have a hard horny Coat to the soft humours, but by interposition of this Adherent, of a middle confidence. For thus, after the harder Coats either of the forms, it hath placed the grapy Coat, by fo much furer than the other two, as the Net-like Coat is furer than it, that it might pas from extreme to extreme, as it were, by these degrees of hardnes and softnes.

The fifth and laft Coat is called Arachnoidea, because it is of the confiftence of a Spiders Web. And we may well refemble this Coat to that skin of an Onion which exceeed the other in clearnefs, whitenes, and thinnes. This Aranona or Cobweb-like Coat encompasses the Cryftalline humour on the fore-fide, peradventure it is fo as to defend it, as the chief instrument of Seeing, if the other humours should at any time be hurt. It hath its origin and proceeds from the excrementitious humour, hardened into that Coat by the coldnefs of the adjacent parts, absolutely like the thin skin which encompasses the white of an Egg.

The firft humour of the Eye is called Aqueus, or Waterfull, from the fimilitude of Water, it is diftributed between the transparent part of the hornye Coat, the portion of the Cryftalline humour lying towards the Apple of the Eye, and that reflection of the grapy Coat which comes from the fore to the circumference of the Cryftalline humour, that filling the empty space it may diftend the Cornea, and fo hinder the falling thereof upon the Cryftalline which would spoile the fight; as also that by its moifure it might hinder the drying of the Cryftalline humour. Peradventure it is made of the whatty humour dewing out of the Vealls of the Coats, having their orifices for the most part in that place where this waterfull humour refides. The second humour and middlemoft in fituation is called the Grappus, or Cobweb-like Coat, as the grapy Coat "superfluous humour," which it encompasses the Cryftalline humour, hardened into that Coat by the coldnefs of the adjacent parts, absolutely like the thin skin which encompasses the white of an Egg.

The third humour of the Eye is called Caffeus, or Waxfull, from the fimilitude of Wax, it is in the extreme and other extreme parts of the Body.
hony Coat at his original, that is, in the parts next the Ir, neath to be very nigh the Crystalline humour, because all the Coats in that place mutually agree as touching one another; but as it runs further out to the Tampilla, so it is further distant from the Crystalline. Which you may easily perceive by Anatomical dissection, and the operation of touching or taking away a Catarrh; for whereas a Catarrh is seated between the horny Coat and Crystalline humour, the needle thrust in, is carried about upwards, downwards, and on every side through a large and free space, neither touching the horny Coat nor Crystalline humour, by reason thebe bodies are covered by a good distance filled with spirit and a thin humour. The use of it is, that it may be like a Looking-glass to the faculty of seeing carried thither with the wave spirit.

The third and last humour is the Viteron, the Glafs, or rather Albugineous humour: called so, because it is like molten Glafs, or the white of an Egg. It is seated in the hind-part of the Crystalline humour, that so it may in some sort break the violence of the spirit flowing from the Brain into the Crystalline humour, no otherwise than the watery humour is placed on the fore-side of the Crystalline to hinder the violence of the light and colours entering that way. This Glafs humour is nourished by the Net-like Coat.

We have formerly spoken sufficiently of the Nerves of the Eye: Wherefore it remains that we speak of the Veins. Some of these are internal, carried thither with the Coats of the Veals of the Brain; others, in ren external stretched over the external parts of the Eye, as the Muscles and Nerve Adnexus, and by these Veins inflammations and redness often happen in the external parts of the Eye:

For which the Veas pupill must be opened, and Cupping-glasses and Horn must be applied to the nape of the Neck and shoulders: as, in the internal inflammations of the Eye, the Cephalick Veins must be opened to avert and evacuate the morbid humour.

CHAP. VII.

Of the Nose.

The Nose is called in Greek Nosa, because the excrements of the Brain flow forth by this passage; thou must understand it hath divers substances by composition. The quantity, figure, and use are sufficiently known to all. But it is composed of the Skin and Mufcles, Bones, Grifles, a Membrane or Coat-nerves, Veins, and Arteries. The Skin and Bones, both contained and containing, have formerly been explained, as also the Nerves, Veins, and Arteries. The Grifles of the Nose are fix in number, the fift is double, separating both the Noftrils in the top of the Nose 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 Nose. The fifth and sixth being very slender, and containing on both sides of the Nose, make the wings or moveable parts thereof. Therefore the use of these Grifles is, that the Nose movable about the end thereof, should be less obnoxious to external injuries, as fractures, and bruises; and besides, more fit for drawing the air in, and expelling it forth in breathing. For Nature for this purpose hath bestowed four Mufcles upon the Nose, on each fide two, one within and another without.

The External takes its original from the Cheek, and extending obliquely from thence, and after some part annexed to that which opens the upper lip, is terminated into the wing of the Nose, which it dilates:

The Internal going on the inner fide from the Jaw-bone, ends at the beginning of the Grifles that make the Wings, that is, it may contract them. The Coat which inwardly invests the Noftrils and their passages, is produced by the Sive-like Bones from the Craniae ministv, as the inner Coat of the Pulp, Throttle, Wazon, Guller, and inner Ventricle; that it is no marvel, if the affects of each part be quickly communicated with each other.

This fame Coat on each fide receives a portion of a Nerve from the third Conjugation, through the hole which descends from the Nerve the great branch from the third Conjugation, through the hole which descends from the Nerve by the great corner of the Eye.

The Nose in all the party thereof is of a cold and dry temper. The action and profit thereof is to carry the air, and off-times fixeth to the mammillary processes, and from thence to the four Venrices of the Brain, for the rational senses thereof. But because the mammillary processes being the passages of the Air and Smells are double, and for that one of these may be obstructed without the other, therefore Nature hath allo disliminated the passage of the Nose with a pifty partition put between, that when the one is obstrued, the air by the other may enter into the Brain for the generation and perfection of the animal spirit. The two holes of the Nose at the firt ascend upwards, and then downwards into the Mouth, by a crooked passage, left the cold air or dust should be carried into the Lungs. But the Nose was parted into two passages, as we fee, not only for the forementioned caufe, but alo for helping the respiration and vindicating the Smell from external injuries, and lastly, for the ornament of the Face.

CHAP. VIII.

Of the Mufcles of the Face.

Their number.

Now we muft describe the Mufcles of the Face pertaining as well to the Lips as to the lower Jaw. These are 18 in number, on each fide 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 firth of the upper Lip being the longer and narrower, arising from the Yoke-bone, descends by the cor-
Thereof that it (hould be Icfsfubjea: or obvious to external injuries. Nature hath as it were concour e of the greater Bones of the Orb and upper Jaw) detrend obliquely to the corner and place where the V?f[els pafs which go to the Head, and the Nerves which arefent to the Arm. (the Cheek in that place under the Eyes Handing fomewhat out like an Apple arifing from the lower Jaw, from the corner thereof to the end of the root of the procefs Corowe, that fo it may about It. The other Mufcle almoft equal to theformer in bignefs, being called the or Grin-

The Mafeter, (which bends it felf, as it were, back, that it may make part of the Yoke-bone) and inferts it fd'f into 

The third Mufcle of the Bone

The feventh Mufcle of the

The Figure of the chief Mufcles of the Face, 

A The Mufcle of the Fore-head and the right Fibers thereof. 
B The Temporal Mufcles. 
C The inferiors, or His femicircular original. 
D The Mufcle of the upper lip. 
G The Tafl-bone under which the Temporal Mufcles pafs. 
J The Mufiter, or Grinding Mufcle. 
K The upper Grifle of the Nofe. 
M A Mufcle forming the Cheeks. 
N The Mufcle of the lower lip. 
O A part of the fifth Mufcle of the lower Jaw called Digaftricus, that it, double-bellied. 
Q R The frst Mufcle of the Bone Hycoides, growing unto the rough Artery. 
S The Scond Mufcle of the Bone Hycoides under the Chin. T The third Mufcle of the Bone Hycoides drawn to the ear. T K The Scond Mufcle of the Head, and his infertion at T. V V The two principal of the fourth Mufcle of the Bone Hycoides. Φ The place where the Sippele pafs which go to the Head, and the Nerves which are fent to the Arm. 

The Mufiter or Grinding Mufcle.

Therefore that it should be left subjeft or obvious to external injuries, Nature hath, as it were, made it a setting place in the Bone, and fortified it with a Wall of Bone raised somewhat higher about it. The other Mufcle almost equal to the former in bignefs, being called the Maffeter, or Grin-
ding Mufcle makes the Cheeks it defends from the lowest part of the greatst Bone of the Orb (which bendit felf, as it were, back, that it make part of the Yeoke-bone) and inferts it felf into the lower Jaw, from the corner thereof to the end of the root of the procefs Corowe, that fo it may draw this Jaw forward and backward, and move it like a Hand-Mill. 

Wherefore Nature hath composd it of two forts of Fibers, of the which fame from the Neck (the Cheek in that place under the Eyes handinf somewhat out like an Apple arifing from the concourse of the greater Bones of the Orb and upper Jaw) defend obliquely to the corner and hinder
The Roiind Mufcle of the caefs of the Wedge-bone, is inferted within into the broadeft part of the lower Jaw, that fo in like manner it may draw the fame to the upper. This is the Mufcle through whofe occafion we faid this tower Jaw.

The fore-part of the Chin, near to the connexon of the two bones of this Jaw, to draw this Jaw forward. This Mufcle is {lender and tendinous in the midriff, that fo it might be stronger, but it is fleOiy at the ends. All thefe Mufcles were made by the singular Providence of Nature, and engnaffed into this part for the performance of many ufes and functions.

The nature and compofition of the ears. What the Fig. ears and Pinnæ arc. The figure and reafon thereof.

The third which is the round Mufcle, arifes from all the Gums of the upper Jaw, and is inferted into all the Gums of the lower, inverting the fides of all the Mouth with the Coat, with which it is covered on the infide, being otherwise covered on the outside with more fat then any other Mufcle. The action thereof is, not only to draw the lower Jaw to the upper, but alfo as with a fhovel to bring the meat diſpofed over all the Mouth under the Teeth, no otherwise than the Tongue draws it in.

The fourth being shorter and lea than the reft arifing from all the hollowes of the winged procefs of the Wedge-bone, is inferted within into the breadtheft part of the lower Jaw, that fo in like manner it may draw the fame to the upper. This is the Mufcle through whose occaſion we faid this lower Jaw is sometimes diſlocated.

The Figure of the Mufcles of the lower Jaw.

A hole in the fore-head bone in the brim of the feat of the Eyn, sending a small Nerve of the third part to the Mufcles of the fore-head and the upper eye-brow.

B The temporal Mufcles.

The fifth and left Mufcle.

The ufe of thefe membra- ned Mufcles.

The fifth and left Mufcle of the lower Jaw from the procefs Spinae of the Stony bone, ascends to the fore-part of the Chin, near to the connection of the two bones of this Jaw, to draw this Jaw downwards from the upper in opening the Mouth. This Mufcle is flender and tendinous in the midriff, that fo it might be stronger, but it is fleony at the ends. All these Mufcles were made by the singular Providence of Nature, and engraffed into this part for the performance of many uſes and actions, as biting affender, drawing, grinding and levering the near into small particulars, which the tongue by a various and harmfull motion puts under the teeth. Thus much I thought good to fay of the parts of the Face, as well containing as contained.

CHAP. X.

The Ears are the Organs of the fenfe of Hearing. They are compofed of the skin, a little fleath, a grifly, veins, arteries, and nerves. They may be bended or folded in without harm, becaufe being grifly they fally yield and give way but they would not do fo if they fhoold 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 two twining paffages like a Smalls flieath, which as they come nearer to the foramen coecum or blind hole, are the more ftrained, that fo they might the better gather the air into them, and conceive the differences of founds and voices, and by little and little lead them to the Membrane.

This Membrane which is indifferently hard, hath grown up from the Nerves of the fifth conjugation, which they call the Auditory. But they were made thus into crooked windings, left the founds rufhing in too violently fhould hurt the fenfe of Hearing. Yet for all this, we oft find it troubled by little and little likewife as by the more ruihing in too violently fhould hurt the fenfe of Hearing. Yet for all this, we oft find it troubled by little and little likewife as by the more ruihing in too violently fhould hurt the fenfe of Hearing. Yet for all this, we oft find it troubled by little and little likewi...
Rocks, wheels about into many turnings; this collision of the beaten air flying back divers ways from arched and hollow-roofed places, as Dens, Giffem, Wells, thick Woods, and the like, yields and produces a double sound, and this reduplication is called an Echo. Wherefore the Hearing is thus made by the air, as a medium: but this air is two-fold, that is, External and Internal.

The Figure of the Ears and Bones of the Auditory passage.

Fig. 1. Sheweth the whole external Ear, with a part of the Temple-bone.
Fig. 6. Sheweth the left Bone of the Temple divided in the middle by the instrument of Hearing, whereby on either side there are certain passages very particularly described.
Fig. 2. Sheweth the three little bones.
Fig. 3. Sheweth part of the bone of the Temple which is seen near the hole of Hearing divided through the middle, whereby the Nerves, Bones, and Membranes may appear, as Velatus of thence conceived.
Fig. 4. Sheweth the Venae, Membranes, Bones and Holes of the Organ of Hearing, at Pleaterus both described them.
Fig. 5. Sheweth the little Bones of the Hearing of a man and of a calf, both joined and separated.

The exterior is that which encompasses us, but the interior is that which is shut up in the cavity of the mandibular process, and formos exuvia, which truly is not pure and sole air, but tempered and mixed with the auditory spirit. Thence proceeds the noise or beating of the Ears when vapors are there mixed with the air in stead of the spirits, whereby their motion is perturbed and confused. But neither do 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 Anvil, another the Malleolus or hammer, the third the Stapes or Stirrup, because the shape thereof resembles a German Stirrup. Also it may be called Veloides, because it is made in the shape of the Greek Letter Δ.

They are placed behind the Membrane, whereas the Anvil and Hammer moved by the force of their use, the entrance of the external air, and beating thereof against that Membrane, they more distinctly express the difference of sounds, asstrings stretched within under the head of a Drum. As for example: These bones being more gently moved represent a low sound to the common sense and faculty of Hearing, but being moved more vehemently and violently, they present a quick and great sound. To conclude, according to their diverse agitation, they produce divers and different sounds.

The Glandules should follow the Ears in the order of Anatomy, as well those which are called the exuviae of the Brain, that is, the Parotides, (which are placed, as it were, at the lower part of the Ears,) as those which lie under the lower Jaw, the Muscles of the Bone and the Tongue, in which the Scoopula, and other such cold abodes breed. It shall here suffice to set down the use of all such like Glandules.

The Parotides are framed in that place by Nature, to receive the virulent and malign matter secret forth by the strength of the Brain, by the Veins and Arteries fired over that place. The red fervor to strengthen found, and of the Veins, to procure the Ligaments and Ratchets of the Jaw, lest they should be dried by their continual motion. Their other conditions and uses are formerly handled in our first Book of Anatomy.
The reason of the name.
The composition.
The action of the Mucles.
The quantity.

The bone Hyoides.

The motion of the Mucles.

The substance of the Bone Hyoides is the same with that of other Bones. The figure thereof
imitates the Greek Letter θ from whence it took the name, (as also the name θυγόιδες);
and from the Letter θ it is in like sort called ἄνδρος, from hence it is filled of Aliments,
and of a Tongue, that is, the Throat-bone and Tongue-bone. The composition thereof consists of many
Bones joined into one by the interconnexion of Grilles.

This Bone is bigger in Beasts and composed of more Bones, and that not only by the interconnexion
of Grilles, but also of Ligaments. It is flawed with its base (being gibbous on the fore-part
for conscience, and arched on the inside that it might receive and contain the root of the Tongue) upon
the upper part of that Grille of the Throttle, which is called Scutiformis, or Shield-like; for (this
form to prop it up by the strength of two processus rising at the basis thereof) and the root of the
Tongue. From this basis it fans forth two trains to the sides of the Tongue on each side one, which
in men are tied to the Appendix Styloides by Ligaments sent from it forth. Contrary as this is in
Beasts, who have it of many Bones; united, as we said, by the interconnexion of Ligaments even to the
root of the Styloides. Therefore this Bone hath connection with the fore-mentioned parts, and
other hereafter to be mentioned. It hath the same temper as other bones have. The use of it is, to
manier Ligaments to certain Mucles of the Tongue, and infection as well to the two forementioned
and upper Mucles of the Throttle, as to its own, of which we will now treat.

The Mucles of the Bone Hyoides, according to the opinion of some, are eight, one each side fours
of which there be two, one of which Galen refers to the common Mucles of the Larine or Throttole,
and the other to those which move the Shoulder-blade upwards. However he it be, the first of the
four before-mentioned arises from the Appendix Styloides, and running over the nervous substance
of the Mucle opening the lower Jaw, is inserted into the horns of the Bone Hyoides. This Mucle is
very thin, yet somewhat broad, the which in that respect may easily be cut, unless you have a care in
separating the Mucle which opens the lower Chap. The second ascends obliquely from the upper
part of the Shoulder-blade near the production thereof called Coracoides, to the beginnings
of the horns of the said Bone Hyoides. This is round and nervous in the middle, so that it might be
the stronger, as that is which we formerly said opens the lower Jaw; and it is referred for Galen
amongst those which move the Shoulder-blade upwards. The third arises from the upper part of the
Sternum, and is inserted at the root and basis of the Bone Hyoides, yet Galen refers it to the common
Mucles of the Larine, whose opinion takes place rather in Beasts than in Man, seeing in Man this
Mucle cannot be found either to proceed, or be inferred into the Throttle, as it is in Beasts. The
fourth and last defends within from the Chin to the root of the Bone Hyoides. The first of these
Mucles with its Companion or Partner, moves the Bone Hyoides upwards, the second downwards,
the third backwards, and the fourth forwards. I declare wherefore these Mucles have their Veils,
had I not abundantly satisfied that thing, when I treated of the distribution of the Nerves, Veins
and Arteries.

CHAP. X.

Of the Tongue.

The Tongue is of a fleshy, rare, loofe, 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
Mucles thereof, which thing hath moved some, that they have made a fourth kind of flesh
proper to the Tongue and different from the rest, the Fibrous Muscularis, and that of the Bowels.
The quantity thereof is thick, that it may be contained in the Mouth, and easily moved to each part
thereof. The Figure of it is triangular, which it rather expresseth in the basis, which is at the root
of the Bone Hyoides, than in its point, or fore-part, wherefrom 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,) Mucles four, Nerves two on each side, the one whereof is sent from the third conjugation, into the
goat thereof; the other, from the forepart is sent into the mucilagous substance even to the end thereof
for motion makes, so that those fibrous Nerves from the third conjugation, only give to judge
of Tastes, compose the Cost, and touch or cut not the flesh. Besides, it is composed of Veins and
Arteries on each side one, which it receives from the external Jugular and Carotis, running mani
festerly to the end thereof on the lower side, that so they might be easily opened in the diffabs of the
Mouth and Throttle; they commonly term these the Vena nigra, or black Vein.

The Mucles of the Tongue are absolutely ten, on each side five. The first narrow at the begin
ning, and broader at the end, descends into the upper side of the Tongue from the Appendix Styli
der, and together with its Co-partner draws it upwards. The second hath its original within from
the lower Jaw, about the region of the Grinding Teeth, and is inserted into the lower side of the
Tongue, the 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 the
Mouth. The fourth, the greatest and broadest of them all, composed of all sorts of Fibres, pullith
forth from the basis 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 teeth, that
it
may move it to the sides of the Mouth. The temper thereof, as of all other flesh, is hot and moist. The first action and commodity thereof is, to be the Organ of the sense of Taste, wherefore it was made tongue and spongy, that by reason of the softness of it, it might more easily admit the tastes conjoined with the perturb 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 help to chew and swallow the meat. For which cause it is like a sieve or dill with which we throw back the Corn into the Mill, which hath failed grinding. And because, when the Tongue is dry, it is less nimble and quick to perform its motions, as appears by those which can scarce speak 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 suck and receive, both from the Batin and other places, a water, and spotly humour, with which they harden and make more gritty, not only the Tongue, but also the other parts of the Mouth, as the Throat and Jaw; these glandules are called the Tonfuie, or Almonds of the Throat.

CHAP. XIII.

Of the Mouth.

The Mouth is that capacity, which, bounded with the Cheeks and Lips contains within its borders the Teeth, Tongue, and the beginning of the Throttle and Gullet. Therefore the use of the Mouth is to contain the Tongue, and serve it in the finer performance of its actions; and although many parts hereof have been formerly handled, as the Lips, Teeth, Jaws, Tongue, Almonds, and passages of the Palate coming from the Nose, yet it remains that we declare what the Palate, the Gargareon or Uvula, the Pharynx, and faucies or Chops are. The Palate (or, as it is commonly called, the Roof of the Mouth) is nothing else but the upper part of the Mouth bounded with the Teeth, Gums, and upper Jaw. In which place the Coat common to the whole Mouth, is made rough with divers wrinkles, that the meats put up and down between the Tongue and the Palate might be broken and chewed more easily by that inequality and roughness. If any would find the Nerves, which defend into the Palate from the fourth Conjugation, let him separate that thereof, and cast it from the fore to the hind-part of the Mouth: for he shall find them at the sides and hind-parts of the bones of the Palate, which encompass the Palate, and at the beginning of the inner holes of the Mouth, which defend from the Nose, and region of the productions of the Wound-bone called the Saddle. Those holes or passages are open, that we may breath the better when we sleep, and that when the Nose is not well, the excrements which seek their passage by it, may be easier drawn away by the Mouth. This fame Coat is woven with nervous Fibers, that like the Tongue it may judge of Tastes, these Fibers compose a Coat that hath a middle consistence betwixt soft and hard. For if it should have been any harder, like a Bone or Grille, it would have been without taste, but if softer, hard, acid, and sharp meats would have hurt it.

CHAP. XIV.

Of the Gargareon, or Uvula.

By the Gargareon we understand a spongy body, in shape like a Pine-Apple, hanging directly down at the further end of the Palate and base of the bone Ethmoides, where the two holes of the Palate come from the Nose, above the entrance of the Throttle. This little body is situate in this place to break the violence of the air drawn in by breathing, and that by delay it might in some part temper and mitigate it by the warmth of the Mouth. Besides, that it might be as it were the Phaeton, or quill of the Voice, so to diffuse the fuliginous vapour fresh in breathing, that it may be dispersed over all the mouth, that refounding from thence it may be articulate, and by the motion of the Tongue distinguished and formed into a certain Voice. Which use is not small; when we see by experience, that such as have this particle cut away, or eaten, or corrupted by any accident, have not only their Voice wasted and degreaved, but speak ill-favouredly, and, as they say, through the Nose, and besides, in process of time they fall into a Confinement by reason of the cold air falling down before it be qualified. This same particle is also a means to hinder the dust from flying down through the Wexson into the Lungs. By the Phaeton and Emitter is meant the inner and back-part of the mouth, set or placed before the entrance of the Throttle and Gullet, being so called, because that place is narrow and frail, 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. XV.

Of the Larine, or Throttle.

First we must know what is meant by the Larine and Throttle, then pronounce the other conditions of it after our accustomed manner. Therefore by the Larine we understand nothing else in this place than the Head and extremity of the rough Artery, or Wexson, which sometime answers to gravelish fululence, than to any other. The quantity thereof is sufficiently large.
yet diverse according to the diversity of bodies. It is magnified in shape the head of a German pipe.

The composition of it consists of 18 Muscles, on each side nine, which as they are like in quantity, follow in strength and actions: of three Grilles, Veins, Arteries, and Nerves, as we have when we spoke the distribution of the Veles; as also of a double Coast, the one external, the other internal, as we when we spoke of the Wexon. Thrice these Grilles are joined together by certain Ligaments and Muscles; the foremost Grille, which also is the greater, is called by the Greek Students, in Latin commonly Statoironis, that is fish-like, because it resembles a fish.

The second, being the hinder and middle in magnitude, wants a Name, wherefore it is called the aninmatarum, or namial Grille. The left and right, which notwithstanding may be parted into two, follow the edges of the other, that it resembles the mouth of an Otter, or a Pether, whereupon the Grille call it argustiea. Thrice the Grille thus fitted amongst themselves utter a distinct

Wherein the Infinite variety of Vessels proceed.

The Muscles of the Larix.

Their number

A notable History.

The Epigastie, or After-Tongue.

Of possible things some what always fall upon the Lungs.

Of the Muscles and Bones Book VI.

The Magnitude, figures, and composition.

The description of the three Grilles of the Larix.

Wherein the infinite variety of Vessels proceed.

The Muscles of the Larix.

Their number

A notable History.

The Epigastie, or After-Tongue.

Of possible things some what always fall upon the Lungs.

Of the Muscles and Bones Book VI.
there are four Muscles hollowed upon it, two which may open it, and two that shut it, on each side one. The opening Muscles defend from the root of the bone Hyoid, and to the commencement, growing upon the Muscles inging one, they are terminated in the root of this body, that is, the Epiglottis in the first, and the base part of the Epiglottis thereafter. The shutting Muscles (in those Creatures where they are found) arise on the inside between the Coat and Griffe thereof. Truly I could never observe and find these four Muscles in a man, though I have described them canently, and sought for them, but I have always observed them in Beasts. Therefore some have boldly affirmed, that this little body in swallowing lies not upon the orifice of the Throat, unless when it is pressed down by the heavens of such things as are to be swallowed, but that at all other times by reason of the continual breathing it stands upright, the Throat being open. There remain, as yet to be considered, two small bony or cavities, or rather fissures which the Nature hath hollowed in the very Throat under the Epiglottis, on each side one, that if by chance any of the meat or drink should fall, or slip aside in the Larynx, it might be there fluid and retained by the Mucous of the Throne, and thence the Air too violently entering, should be in four or five broken by these clifts or chinks, so otherwise then the blood and fpirit entering into the heart through the Arienae, or Ears thereof.

What the Neck is, and the parts thereof.

First in the Neck, the Vertebrae must be considered, and we must know what they have proper and peculiar, and what common amongst them, that we may more easily know the original and intention of the Muscles growing out of them and ending in bones. The Neck consists of seven Vertebrae, or Rack-bones in which you must consider their proper bodies, and then the holes by which the Spinal-marrow passes, thridly, the Apophyses or processes of the Vertebrae, fourthly, the holes through which the Nerves are disseminated into other parts from the Spinal marrow, and besides the perforations of the transverse productions which the Veins and Arteries, which recall the vertebrae, ascend along the Neck, and lastly, the connexion of those same Rack-bones, being the proper parts thereof, and the Ligaments, as well those proper to the Neck, as those which it hath in common with the Head and thistle, as those of its own. Therefore the Neck is nothing else than a part of the Head, which is contained between the Nowl-bone and the first Vertebra of the back Neck.

What the Transverse parts are.

First in the Neck, the Vertebrae must be considered, and we must know what they have proper and peculiar, and what common amongst themselves, that we may the more easily know the original and intention of the Muscles growing out of them and ending in bones. The Neck consists of seven Vertebrae, or Rack-bones, in which you must consider their proper bodies, and then the holes by which the Spinal-marrow passes; thridly, the Apophyses or processes of the Vertebrae, fourthly, the holes through which the Nerves are disseminated into other parts from the Spinal marrow, and besides the perforations of the transverse productions which the Veins and Arteries, which recall the vertebrae, ascend along the Neck, and lastly, the connexion of those same Rack-bones, being the proper parts thereof, and the Ligaments, as well those proper to the Neck, as those which it hath in common with the Head and thistle, as those of its own. Therefore the Neck is nothing else than a part of the Head, which is contained between the Nowl-bone and the first Vertebra of the back Neck.

What the Transverse boards are.

First in the Vertebrae, we understand the fore-part thereof upon which the Gullet lies. For the hole, that is not always the largest in those Vertebrae which are next to the Head; but it is always encompassed with the body of the Vertebrae, and belothes with three forms of processes, except in the first Rack-bone, that is right, transverse and oblique. By right, we understand those extuberancies in the Rack-bones of the Neck which are hollowed directly in the upper part of them, and rise up ered on each side to contain and receive the boughs of the Rack-bone which is set upon it. By the oblique processes, we understand the bouching out by which those Rack-bones are mutually knit together by Ginglymos, or joints, which are seated between the transverse processes. By the transverse, we understand the productions next the body, which divide the Vertebrae into their own bodies, and four in their oblique processes. By the two first communications they are so mutually articulated in their own bodies, that each is joined with other both above and below. But by the four other by their oblique ascendent and descendent processes on each side two, they are so mutually incation, that at the fourth Rack-bone of the Neck by its oblique ascendent processes is received of the descendent processes of the third Rack-bone, to it receives the oblique ascendent processes of the first, by its oblique descendent, for always the oblique ascendent is received, and the descendent receive. Yet we must except the first Rack-bone of the Neck which is contained with four communications by his lower oblique processes, and by its upper it receives the oblique processes of the Nowl-bone, and of the second Rack-bone. The second Vertebra, or Rack-bone, must also be excepted, which is held by five communications, that is to say, four by its oblique processes, and 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 branch or exuberancy in this manner, it makes so common passage with the second Vertebra, for the putting forth of the Nerves, it is perforated at its sides of the body, and it is made very thin of the fore-side, as if it were without body, and through the it might receive the fore-processes raised in the upper body of the second Rack-bone, which Hip-Tooth, or process calls the Tooth, to which the principal Ligament of the Head is fastned, which defends within from the hind-part of the Head under the Apophyses Claviculae, or processes of the Wedge-bone.

As the Neck is so variously and variously conditioned amongst the Creatures, so must the parts thereof also be so considerable. For the hole, that is not always the largest in those Vertebrae which are next to the Head; but it is always encompassed with the body of the Vertebrae, and belothes with three forms of processes, except in the first Rack-bone, that is right, transverse and oblique. By right, we understand those extuberancies in the Rack-bones of the Neck which are hollowed directly in the upper part of them, and rise up ered on each side to contain and receive the boughs of the Rack-bone which is set upon it. By the oblique processes, we understand the bouching out by which those Rack-bones are mutually knit together by Ginglymos, or joints, which are seated between the transverse processes. By the transverse, we understand the productions next the body, which divide the Vertebrae into their own bodies, and four in their oblique processes. By the two first communications they are so mutually articulated in their own bodies, that each is joined with other both above and below. But by the four other by their oblique ascendent and descendent processes on each side two, they are so mutually incation, that at the fourth Rack-bone of the Neck by its oblique ascendent processes is received of the descendent processes of the third Rack-bone, to it receives the oblique ascendent processes of the first, by its oblique descendent, for always the oblique ascendent is received, and the descendent receive. Yet we must except the first Rack-bone of the Neck which is contained with four communications by his lower oblique processes, and by its upper it receives the oblique processes of the Nowl-bone, and of the second Rack-bone. The second Vertebra, or Rack-bone, must also be excepted, which is held by five communications, that is to say, four by its oblique processes, and 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 branch or exuberancy in this manner, it makes so common passage with the second Vertebra, for the putting forth of the Nerves, it is perforated at its sides of the body, and it is made very thin of the fore-side, as if it were without body, and through the it might receive the fore-processes raised in the upper body of the second Rack-bone, which Hip-Tooth, or process calls the Tooth, to which the principal Ligament of the Head is fastned, which defends within from the hind-part of the Head under the Apophyses Claviculae, or processes of the Wedge-bone.

And
By the articulation the head is bound forwards and backwards, as it is moved to the sides by the articulations of the first Rack-bone with the second. That process is bound by two ligaments, the frith of which being greater and broader is external, comprehending in the compass thereof all the upper articulation, ascending from the Rack-bones to the Head, or rather defending it from the Head to them, as any other Ligament going from one bone to another. The other is the stronger, and also encompass the articulation mixing it itself with the Grisle, which by its interposition binds together all the Rack-bones, the frith excepted, as you may fee in pulling aunder the Rack-bones of a Swine and the whole Spine, or Rack-bone is tied together, and compassed throughout with such Ligaments.

Table 1. Shew the foore and upper face of the Neck, &c. See Dr. Cowper p. 398.

From A to B the seven Vertebrae of the Neck.
From C to D the twelve Vertebrae of the Gleft.
From E to F the five Rack-bones of the Loins.
From G to H the Os sacrum, or Holy bone consisting, commonly, of six Vertebrae.
From I to K the Bone Coccyx, or the Rump-bone, according to the late Writers.
L L The sides of the Vertebrae.
M The Tranverse processes of the Vertebrae.
N The defendant process.
O O The ascendant process.
P P The backward process.
Q Q The holes that are in the sides of the Vertebrae, through which the Nerves are transmuted.
R R A gritty Ligament betwixt the Vertebrae.
A 2 3 4 The hole wherein the marrow of the Rack-bone is.
E 2 3 The cavity which admitteth the rent of the second Rack-bone.
G 3 4 A cavity or Sinus in the same place crossed over with a Grifle.
D 2 A prominence in the outward region of the Sinus.
E F 2 3 The Sinus, or cavity of the first Rack-bone which admitteth the two heads of the Neck.
G G 2 3 4 The transverse process of the first Vertebra. H I The hole of this transverse process. I 3 The Sinus which together with the cavity of the Neck-bone marked with E, maketh a common passage prepared for the Nerves. K 3 4 A rough place where the Spine of the first Rack is wanting. L L 2 Two cavities of the frith Rack containing the two bunches of the second Rack marked with MN. M N 5 6 The two bunches of the second Rack which fall into the cavities of the first. O Q The Appendix or Tooth of the second Rack. P S A bunch of that Appendix crooked over with a Grifle. Q 6 The back side of the Teeth. R 6 The Sinus or cavity of the Tooth, about which a transverse Ligament is round, containing the said Tooth in the cavity of the first Rack. S T Certain cavities in the sides of the Tooth whereas the roots iffue of the fore-branch of the second pair of Sinus.
V S The points of the Teeth. X 3 An aperture or roughness, where is a hole, but not thorough through.
Y 6 A cavity of the second Rack which together with the cavity marked with Z, maketh a hole through which the Nerves do offire. Z 4 The Sinus of the frith Rack. A 5 6 7 The double fith of the second Rack.
S B 5 6 7 The transverse proofs of the second Rack. C T 7 The hole of the said transverse proofs. D 6 7 The defending proofs of the second Rack whose cavity is marked with d, in the third Figure. E 6 7 The place where the body of the second Rack defended downwards. F F 8 The lower side of the body of the third Rack at f, the two eminent parts of the same at e, h 8 The defending proofs. F G 8 The two defending proofs.
H 8 The transverse proofs.
S 9 The Spine or backward proofs. C T 8 The transverse proofs of the third Rack. X 9 The defending proofs. F 9 The transverse proofs of the third Rack. Y 9 The hole of this transverse proofs. B 9 The upper followed part of the body of the third Rack.
S 9 The Sinus or cavity which maketh the lower part of a hole through which the congregations of the Nerves are led. C T 7 The upper part of the same hole.

The Holy-bone is composed of four Vertebrae (or rather of five or six, as in the Figure above) besides the Rump-bone, it receives, and holds fast the Offa Dorsum, or Hanch-bones, and is as a Band to all the Rack-bones placed above it, whereby it comes to pass that the Rack-bones from the Head to their lower-most part grow thicker, because that which supports ought to be bigger than that which is supported. There is a certain moisture, rough and fatty, put between the Rack-bones, as also in other parts to make them glib and slippery, so that they may the better move. Whilst this motion is made, the Rack-bones part one from another.
Of the Muscles of the Neck.

The Muscles of the Neck, 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 three or four, the neck it self. Of the seven which move the Head, and with the head the first Vertebra, some extend and creft it, others bend and decline it, others move it obliquely, but all of them together in a successful motion move it circularly: and the like judgment may be of the Muscles of the Neck.

But before I can come to the description of their original and infection, I must admonish thee, that the two Muscles of the Shoulder-blade mutt first be taken away by dissection; that is, the Trapezius or Table-muscle, and the Rhomboides, or Square-muscle whole original and infection that we may the better demonstrate, (or rather the action by which we feel that original and infection) they must be pulled up, beginning at their original, which is the upper and upper angle of the Shoulder-blade, and thence be thowed in the proper place, turning them up towards their original, that is, to the Spine. Besides, the left Rhomboides, the hinder and upper (called also the Deltoid or toothed-Muscle) must be rasped from its original, which is at the three lower Back-bones of the Neck and the flats of the Back, and turned up to its infection, which is at three spaces of the lower ribs nigh to the hind and upper angle of the Shoulder-blade, as shall be thowed in its place hereafter. These Muscles thus rasped up, the four Muscles which creft and extend the Head, must be taken away, and then these two which move it obliquely; and lastly, one which bends or declines: for thus Anatomical order requires.

Yes, if you think good, you may, not haunting the other, cut all cut away that which is called the Masticat, which declines or bends the Head. For these four which lift up and extend the Head, the first from the figure of the Spleen is called the Spleinus, it ascends from the five upper spaces of the Back, and the four lower of the Neck, and is obliquely infected at the back-part of the Head, and the Mammillary processes, whereas you may rasped it towards its original. The second by reason of its composition is called Complacent, this passing from the third, fourth, and fifth transvers e proccs of the Back, and from the fifth of the Neck: ascends directly to the back-part of the Head, encompassing the lower and side-part of the Neck, you may easily take it up, if you begin at the spine, and go forward to the transverse processes and mammary proccs of the Nodd-bone. This Complacent may be divided into two or three Muscles, but that with some difficulty, by reason of its folded texture. The third and fourth, which are two of the eight little Muscles, being four on each side, do ascend somewhat obliquely, the first truly from the whole side of the second Vertebra. This second from the whole side of the proccs of the first Vertebra, which is hith in head of a Spleen, they ascend to the back-part of the Head, just against the Spine; these two Muscles by the vour of all Anatomists, are called right or direct Muscles, only moving the head, these truly must not be plucked from the places of their original, nor infection, but only bound by a string put under them, so that they may be the more easily thowed. On each side follow two oblique Muscles, one whereby only moves the Head; the other primarily the first Vertebra, but secondarily and by accident the Head it self. For the first, contrary to the opinion

The commodities or uses of the Spine are said to be four. The first is, That it is as it were, the seat and foundation of the whole body, as the Carcass is in a Ship. The second, That it is a way or passag for the marrow. The third is, Because it contains and preserves the same. The fourth is, That it serves for a Wall or Balwark to the entrails, which he and rest upon it on the inside. And, because we have fallen into mention of Ligaments, it will not be amiss to infect in this place that which ought to be known of them. First therefore, we will declare what a Ligament is, then explain the divers, several, others, and chiefly, prosecute their differences.

Therefore a Ligament is nothing else than a simple part of Mans Body, next to a Bone and Grille the most temperful, and which most usually arises from the one or other of them either mediately or immediately, and in the like manner ends in one of them, or in a Muscle, or in some other part; whereby it comes to pass, that a Ligament is without blood, dry, hard, cold, and without fens, like the parts from whence it arises, although it resemble a Nerve in whiteness and consistence, but that it is formosly harder.

A Ligament is taken either generally, or more particularly in general, for every part of the body, which ties one part to another, in which sense the skin may be called a Ligament, because it contains all the inner parts in one union. So the Peritoneum comprehending all the natural parts, and binding them to the Back-bone: so the Membrane investing the Ribs, (that is, the Pleurs) containing all the Vital parts; so the Membranes of the Brain, the Nerves, Veins, Arteries, Muscles, Membranes; and lastly, all such parts of the Body which bind together, and contain others, may be called Ligaments, because they bind one part to another; as the Nerves annex the whole body to the Brain, the Arteries fatten 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 membraneous and thin; others broad, others thick and round, some hard, some soft, some great, some little, some wholly gritty, others of a middle consistence between a Bone and Grille, according to the nature of the motion of the parts which they bind together in quickness, vehemency, and slowness. We will show the other differences of Ligaments, as they shall present themselves in dissection.
of some, it arises from the transverse processes of the first Ribs, and then is inserted, above the inferior of the first right Muscle: the which in like manner you must lift up, by something put underneath it, but not separate it. The other entering forth of the Spine of the second Verte¬bra, is inserted at the processes of the first, contrary to the original of the precedent, although some think otherwise. It will be convenient in the like manner, first to lift up this with a string, and not pluck him from its 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 contrariety of its original and infer¬

tion shew.

The Fourth Figure of the Muscles. This Figure sheweth the cavities of the middle and lower Bellies, the Bones being taken out, but most part of the Bones and Muscles remaining.

AB The first Muscle bending the neck, called Longus.
CC The second bender of the neck, called Scaleni.
DDDD The outward intercoftal Muscles.
EEEE The inner intercoftal Muscles.
FFFF The second Muscle of the Chest, called Ferrius major.
G The first Muscle of the Shoulder-blade, called Ferrius minor, separated from his original.
H The first Muscle of the Arm called Pectoralis, separated from his original.
I The second Muscle of the Arm, called Deltoidea.
KK The Bone of the Arm without flesh.
LL The first Muscle of the Cubit, called Biceps.
MM The second Muscle of the Cubit called Brachicus.
NN The first Muscle of the Chest, called Subclavius.
OO The third Muscle of the Head, called Obliquus inferior.
PQ The second Muscle of the Head, called Complexus.
RR The fourth Muscle of the Shoulder-blade, called Levator.
TT The two Bellies of the fourth Muscle of the bone Hyoid. XX aa The fifth Muscle of the back whose original is at a a.
YY bb cc The sixth Muscle of the Thigh, called Psoas, whose original is at c c, and tenden at b b.
ZZ The seventh Muscle of the thigh.

Wherefore when the first oblique moves the Head obliquely forward, the second pulls it back by the first Vertebræ; 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 casting it backwards; the other circular. The first in Galen's opinion is performed by the first Vertebræ moved upon the second; the second by the Head moved upon the first Vertebræ, for which he is reproved by the later Anatomists, who teach, that the Head cannot be turned round, or circularly upon the first Vertebræ, without putting it out of joint.

For the left 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 Apophysis Malleus, or mammillary process of the hind part of the Head, whence it is called the Mioideus. You may divide this by reason of its manifold original rather into two, than into three Muscles. But it had been better that the Head might have been moved every way, equally backwards and to the right and left sides, but thus it would often have been strained to our great damage and danger of life; neither could there have been such facility of motion without a loosening of the joint. Therefore Nature had rather bestowed on the Head an harmless faculty of fewer motions, than one furnished with more variety, but with a great deal more uncertainty and danger. Wherefore it hath made this juncture not lax or loose, but stiff and strong.
After the following of these Muscles, we must come to three or four of the Neck, of which number, two (which some reduce to one) extend, another bends, and the last moves side 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 fix transverse processes of the fix upper Rack-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 some call it the Transversarius, The Transvers- 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.

The Fifth Figure of the Muscles. In which some Muscles of the Head, Chest, Arms, and Shoulder-blade are described.

Marvel not if you find not this distinction of their original 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 laft of the neck, is inserted into other Spines of the Neck, so that it might easily be confounded with the former by Galen. The third bends the Neck, and arving within from the Body of the five upper Vertebrae of the Back (though with a very obscure original, especially in lean Bodies) it ascends under the Gullet, along the Neck, even to the Nowl-bone, into whose inner part it is obscurely inserted. Wherefore it is likely that it helps not only to bend the Neck but also the Head. This Muscle is made of oblique Fibers proceeding from the body of the Vertebrae, all the way it passes to the transverse processes of the other Vertebrae, but it forms with its co-partner which is opposite to it, to make a certain hollow path upon the bones of the Vertebrae, 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 itself 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 fall from the forthest and lowest processes of the Neck into the first or highest thereof. The passage of the Nerves through this to the Arm makes this Muscle seem double, or divided into two.
the Veins and Arteries pertaining to the Neck, they have been declared in the proper Chapters of the distribution of the Vessels; it remains that you note, All these Muscles receive Nerves from the Vertebrae, whence they arise.

The Sixth Figure of the Muscles, Shewing some of the Muscles of the Head, Back, Chest, Shoulder-blade and Arm.

A D The second part of the Muscles of the Head, or the two Complexi, the first part is at A D.
B C The second part, E F The third part rising up under G, and inferior at F.
G The fourth part of the Muscles of the Head according to Fallopius, which Vesalius made the fourth part of the second.
G G (Between the Tibia) the external intercostal muscles.
I The original of the two muscles of the Back.
M His tendons at the Back-bone of the neck.
O The upper O, the fourth muscle of the Arm, or the greater round muscle.
O O The lower, The first muscle of the Chest, or the Serratus, hanging from the original.
Q The fourth muscle of the Arm or the upper Blade-rider inverted.
V The third ligament of the joint of the Arm.
X The fourth muscle of the Shoulder-blade or the Heaver.
Z The second muscle of the Chest, or the greater Saw-muscle.
Ξ The three muscles of the neck called Transversals.
Π The fourth muscle of the neck called Splenius.
Σ The first muscle of the Back or the Square muscle.
Φ The two muscles of the Back, or the Long-geals, whose original is at L, and his tendons at the Vertebrae at M M.
Ω The fourth muscle of the back called Splenius.
Θ The back of the Shoulder-blade flayed.
The Second Figure of the Muscles. Shewing some Muscles of the Head and Neck, the Trapezius, or Table-muscle being taken away; as also of the Blade and Arm.

A The prominent part of the fourth Muscle of the Neck called Scalenus, posterior.
\[\Delta\] The first muscle of the head called Splenius.
EE The insertion of the muscle of the head, called Complexus.
I The Celler bone bared.
M The back-part of the second Muscle of the Arm called Deltoid.
\[\varepsilon\] His backward original.
\[\circ\] His implantation into the Arm.
NN The fourth muscle of the Arm called Latissimus.
S His original from the Spine of the Rach-bones, and from the holybone.
\[\circ\] His connexion of this Muscle with the Haunch-bone, which is led in the side from \(\varepsilon\) to \(\circ\).
\[\chi\] The place where it lieth upon the lower angle of the Ribs of the Shoulder-blade.
O The four Muscles of the Arm called Rotundus major.
\[\sigma\] Some Muscles of the Back do here offer themselves.
P The fifth Muscle of the Arm, called Super-scapularis inferior.
Q The sixth Muscle of the Arm called Super-scapularis superior.
S The beginning of the third Muscle of the Arm called Latissimus.
V The third muscle of the Blade called Rhomboidales.
\[\varepsilon\] His original from the Spine of the Rach-bones.
\[\chi\] His insertion into the Ribs of the Shoulder-blade.
\[\chi\] The fourth muscle of the Blade called Levator.  + A part of the oblique descendens muscle of the Abdomen.
The Eight Figure of the Muscles, especially those of the Chest, Head, and Shoulder-blade: the Trapezius Latissimus, and Rhomboides, being taken away.

A. The fourth Muscle of the Chest, or the upper and hinder Sam-muscle.
B. The five Muscles of the Chest, or the lower and hinder Sam-muscle.
ab. A membraneous beginning of the Muscle of the Abdomen, defending obliquely down from the Spine of the back.
C. The first Muscle extending the Chest at c, its original is from the neck of the Arm, and from the lower Bases of the Blade at A.
D. The Original of the fourth Muscle of the Bone Hyls from the Blade.
E E. The Outward Intercojial Muscles.
I. The Clavicle or Collar-bone bared.
N. The Upper, the second Muscle of the Arm called Deltoids, char. 4.5. the beginning of this Muscle.
N. The third Muscle of the Arm or the broad Muscle separated.
O. The fourth Muscle of the Arm or the lower Super-capularis, or blade-rider.
1 2 3. Char. his original at the Bases of the Shoulder-blade at 12, and his insertion into the joint of the Arm at 3.
Q. The fifth Muscle of the Arm or the upper Super-capularis.
X. The fourth Muscle of the Blade, called Levator, or the Heaver.
Z. The second Muscle of the Chest, or the greater Sam-muscle.
7. Char. the Ribs.
F. The fourth Muscle of the Chest, or the Muscle called Sacro-lumbarus.
E A. The first Muscle of the Head, or the Splenius.
E E. The second Muscle of the Head, or the insertion of the Muscles called Complexi.
\Phi. The second Muscle of the Back, or the Longest Muscle. \Omega. The fourth Muscle of the Back, called Semispinatus.
Of the Muscles of the Chest and Loins.

W e must now speak of the Muscles both of the Chest which serve for respiration, as also of the Loins. But first we must know that the hind part of the Chest, called the Meta-pleuron, or Back, consists of twelve Vertebra, the Loins of five, all which differ not from the Vertebra of the Neck, but that they are thicker in their bodies than those of the Neck: neither are they letter in holes, neither have they their transverse processes perforated or parted in two, as the Rack-bones of the Neck have. Besides, each of these Rack-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 Rack-bones of the Chest, whether transverse, right or oblique, they differ nothing from those of the Neck; mean even to the tenth, but that the transverse seeing they are not perforated, as we said before, do as it were sustain the Ribs, being firmly 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 Loins are different, not only from those of the Neck, but also from the ten first of the Back, for reason of their oblique processes, because from the eleventh which is received, as well by that which is above it, as that under it, for the strength of the whole Back, and the easier bending thereof without fear of fracture or dislocation the above-mentioned processes of the lower Rack-bones, which were wont to receive, are received as on the contrary they receive, which are wont to be received. They differ besides from all the fore-mentioned, by reason of their Spines, because from the eleventh they by little and little do look upwards, contrary to the former.

But if any ask how the tenth Vertebra of the Back may be termed the midst of the Spine, seeing the whole Spine consists of twenty four Vertebra? He may know that this may be true, as thus: If the first 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 Rack-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 those Muscles are four score and nine, that is, on each side forty four, alike in strength, thickness, size, and action; and one besides in the midst which they call the Diaphragma, or Midstiff. Of those the Muscles dilating the forty four, there are twenty two which dilate the Chest in drawing in the breath, that is, the Subclavius.
Of the Muscles and Bones

The Muscles contracting the Chest.

The Serratus major is the first of the Muscles lining the first Thoracic Spine, and is the most powerful in the whole Frame of the Body, of which it is the principal Part, and is the principal Muscle of the Shoulder-blade. It is attached on the one Side to the Lower Back, and on the other to the Head of the Humerus.

The Serratus major has four Parts, corresponding to the four Parts of the Chest: The first and largest Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The fourth Part is that which arises from the Holy-bone and lower Spines of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The Serratus major is divided into four Parts, corresponding to the four Parts of the Chest: The first Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

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The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

The fourth Part is that which arises from the Holy-bone and lower Spines of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

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The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

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The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

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The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

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The second Part is that which arises from the Spine of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.

The third Part is that which arises from the Holy-bone and lower Spines of the Back, by means of a thin Membrane and Ligament, and is attached to the lower Spine of the Rib, in the middle of the Back.

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The fourth Part is that which arises from the Holy-bone and lower Spines of the Back, and is attached to the lower Spine of the Rib, in the middle of the Back.
Therefore the Blade-bone on that part which lies next unto the Ribs is somewhat hollowed; wherefore on the other side is somewhat bunched out. It hath two Ribs, one above, another below; by the upper, is meant nothing else but a smaller or right line, which looking towards the Temple is extended from the external angle thereof: and the Collar-bone even to the proxes Coracoides which in Ribs produces in the end thereof. By the lower, the under-side which lies towards the lower belly and the short Ribs.

Before, 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 Back-bone. By the Head we understand the narrower part thereof, in which it receives the head of the Arm in a cavity, indifferently hollow, which produces both by it, as also by certain Grilles which there formed, encompass that cavity. This kind of cavity is called Glena.

This receives and contains the Bone of the Arm by a certain strong ligament encompassing and strengthening the Joint, which kind of ligament is common to all other Joints: this ligament arises from the bottom of the cavity of the Shoulder-blade, and circularly encompasseth the whole Joint, fasting it to the head of the Arm; there are also other ligaments besides this, which encompass and strengthen this articulation. By the Spine is meant a process, which arising by little and little upon the gibbus part of the blade, from the Basis thereof where it was low and deep, becomes higher until it ends in the Acromion or upper part thereof. Nature hath made two productions in this Bone (that is to say, the Acromion from the Spine and the Coracoides from the upper side) for the strengthening of the articulation of the Arm and Shoulder-blade; that is, let the Arm be softly drawn upward or forwards; besides, it is fastened to the clavicle by the process Acromion.

The Muscles which move the Shoulder-blade are fix in number, of which four are proper, and two common. The first of the four proper fixted in the fore-part, ascends from the bones of five or six of the upper Ribs to the Coracoides, which it draws forwards, and is called Serratus minor, i.e. the hinge Saw-Muscle, which that you may plainly shew, it is fit you pull the pedicular Muscle from the Collar-bone, almost to the middle of the Sternum. The other fixt opposite against it is placed on the fore-side, and draws its original from the three lower spines of the Neck, and the three upper of the Chest, from whence it extends itself, and ends into all the gritty Basis of the Shoulder-blade, drawing it backwards; it is called the Rhomboides. The third from its Action is called the Levator, or the Heaver, or lifter up, seated in the upper part, it descends from the transverse processes of the four first Vertebrae of the Neck into the upper angle and spine of the Blade. The fourth called Trapezius or the Table-Muscle, is fixt in the back-part, and is membranous at the original, but presently becomes fleshy: it arises from almost all the back part of the head, from all the spines of the Neck, and the eight upper Vertebrae of the Chest, and then is infixed by his nervous part, almost into the whole bulk of the blade, extending it felf above the Muscle thereof, even to the middle of the Spine, where as the fixing it is infixed even to the Acromion, the upper part of the Clavicle, and in fome part to the upper ribs. This Muscle hath a three-fold action, by reason of its triple original. The firt is to draw the Shoulder-blade towards its original, that is, to the Nowl and Spine of the Neck; the other is to draw it towards the Back, because of the contraction of the middle or transverse Fibers, which lead it directly thither; and the other to draw it downwards by reason of the original it hath from the fifth, sixth, seventh, and eighth Spine of the Vertebrae of the Chest.

But we must note that thefe divers actions are not performed by this Muscle, by the afiftance of one only Nerve, but by more, which come into it by the Spinal marrow, by the hole of the Vertebra as well as the Neck as the Chest, from whence it takes the original. For the two other which are the common Muscles of the Blade, and Arm, or Shoulder, we will describe them with the Muscles of the Shoulder, or Arms: for one of thefe which is called the Langismus, that is, the broadest, ascends from the Holy-bone to the Shoulder-blade and Arm.

The other, named the Pectoralis, comes from the Sternum and Collar-bone to the Shoulder-blade and Arm.

C H A P. X X.

The description of the Hand taken in general.

Now it befits us to describe in order the Muscles of the Arm; but first we must know what it is that we call the Arm. But being that cannot be fitly be understood, unless we know what the hand is, seeing that the Arm is a part of the Hand, therefore first we must define what a Hand is, and then divide it into its parts. Therefore the hand is taken two manner of ways, that is, generally and specially. The Hand generally taken, signifies all that which is contained from the joining 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 fourteentb bones of the cabbit, 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, Cubit, and Hand, vulgarly and properly so called; but the hand taken thus in particular is again divided in three other parts, the Corpu or Branchia, the Wrist, the Fasciculus or Pellevali, the After-wrist, and the Fingers: all these parts (feeming each of them are not only organical parts, but also parts of organical parts, are composed of all, or certainly of the mot of the similar parts that is, of both the Skins, the fheath Fasciculus, the fat Vess, Arteries, Nerves, Muscles, or Flegg, Coats both common and proper; Bones, Grilles and Ligaments; all which we will describe in their order. But
The differences of the hand from the rest thereof.

But first I think good to admonish you of the differences of the hand taken from the rest thereof, and their differences are fix in number, the fore, the hind, the internal, the external, the upper and lower side, or part thereof.

By the fore, we mean that part which looks directly from the Thumb to the Shoulder, by the hind, we understand the part opposite to it, which from the little finger looks towards the base of the Shoulder-blade. By the internal, we signify that part which lies next to the sides of the body, when the hand retains it natural site, by the outside, the part opposite to it. The upper and lower side you may know by the very naming thereof.

The Hand properly so called, is divided into five Fingers, that so it may hold and take up bodies; of all figure, as round, triangular, square, and the like, and gather up the least bodies with the Fingers ends, as Needles, Pins, and such like.

Nature hath bestowed 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 Nails, that confiding of soft flesh of a hard name, they might serve for all actions, for the nails is a ray to the soft flesh, which otherwise would turn away in meeting with an hard body; the use of the Nails is to scratch, and pull off the skin, to rend, pinch, and pluck, andlander small bodies. They have not bony hardnes, that so they might not break but bend.

Yet other Creatures have hard Nails to serve them in stead of Weapons. Their figure is round, because such a figure is less obnoxious to external injuries; and, by reason they are subject to wear and tear, they grow continually.

Nature hath placed these on the inner and side part of the Fingers, so to prefr more finely the things they ence take hold of; so, that beholding them close together we can hold Water that it may not run out. The length of the Fingers is unequal, that when they are opened and stretched forth, as they make it were, a circular figure; for so it comes to pass, that the hand can hold all bodies, but especially round.

It remains that we prosecute the distribution of the Veins, Arteries, and Sinews, which run over all the parts of the Hand taken in general and particulars, whereby we may more commodiously hereafter handle all the proper parts thereof.

CHAP. XXI.

The distribution of the Subclavian Vein, and fork of the Cephalic or Humeralia.

Two large Veins descend from the Subclavian, one from the lower side, the other from the higher. Yet sometimes, and most usually, both thefe proceed from the same common orifice, as in men of a low stature in the Arm. The one of these is called the Axillary, the other the Humeralia or Cephalic; therefore this Cephalic, putting forth of the Subclavian runs freely along the fore-side, between the Muscle Dilatact, and the tendon of the pectoral Muscle, and descends in the midst between the common Coat of the Muscles and the fhitty Parenchyme, even to the bending of the cubit, where in lean bodies it is plainly to be seen, 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 through the arm is divided into many branches, both to the skin, as also to certain Muscles over which it runs, and it is divided into two, a little above the outward protrusion of the Arm. One of the branches into which it is divided descends obliquely to the fore-part of the cubit, a little below the bending of the cubit, it meets and is united with the like branch in the same place, as shall be shown hereafter.

That which arises from this concourse, is called the Median Vein, because it arises from two branches, and is united between them. They usually open this Median Vein in the diseased 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 general evacuation of the whole body; you may cut one of thefe branches by whose concourse it is made, which you shall think the fitter, and because each branch draws from the next parts, according to the fhrightness of the Fibers, rather than from the oppofite side; if you would evacuate the Head and Liver equally by opening either of thefè branches, it is convenient that opening that branch (for example) which comes from the Cephalic, you preferentially lay your Thumb upon it, until you suppose you have drawn a just quantity of bloud from the Liver by the basilica or Liver-vein; which done, you may take off your Thumb and suffer the bloud to follow freely, by the open branch of the Cephalic, until you have drawn as much bloud 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 basilica, and contrary to the generation of the Median.

Moreover, when there is need to open the basilica, and it shall be no where conspicuous, the Cephalic or Median being, eafe to be perceived at the fame time, you may in head thereof open the Median, or if it be not to be found, the Cephalic, peeling but the trunk thereof with your Thumb, as we said before, let the Head should be evacuated in head of the Liver. You may do the fame in the basilica, if when there shall be necessity to open the Cephalic, it shall not appear. Molt of thieves which at this day open a Vein, in head of the Median, open that branch of the basilica which ascends together with the Cephalic to make the Median. But you must understand that the Median descends between the two bones of the cubit, even to the end thereof, and then divided into many branches, it is at length sent on the back of the hand behind the Thumb, the fore and middle Fingers, or the After-wrist. Sometimes it runs back into the following branch,
and other extreme Parts of the Body.

Book VI.

The Description of the Axillary Vein.

The Axillary Artery arising at the junction of the pectoral muscle, or a little higher, after it hath produced the two Thoracic, it is divided under the tendon of that Muscle into two fair branches, that is to say, into the inner deep Axillary, and the skin or outward Axillary. The deep or inner having full for its Conception in its descent, the Axillary Artery, and the Nerves of the third conjunction, after it hath produced the small external muscular of the Arm, it goes into the bending of the elbow, where running somewhat deep with the Artery and Nerve into the Muscles of the cubit, it is divided into three other branches, of which one descending with the Wand, slides under the ring into the inner side of the hand, and hath bestowed two small branches on the Thumb, two others on the fore, and one upon the middle fingers, so that all of them ascend by the sides of these fingers, the other descending with the Artery, as the former amongst the cubit sendeth branches to the rest of the fingers, like as the former. The third goes on the fore-side between the two bones even to the wrist, and the fourth Muscle.

And you must note that the Veins of which we now treat, do not only make these divisions 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 nourish.

And so much of the internal and deep axillary Vein. For the external or skin-axillary (which first appears under the skin, especially in lean bodies, a little above the inward productions of the arm) is divided in that place into two branches, the one whereof descending to the bending of the arm meets, and is united with the Cephalick branch, sooner or later, so that it may produce the Median, as we formerly mentioned.

The other branch having sent forth many shoots of a different length and thickness, as well into the skin, as into the other neighbouring parts, descending along the lower side of the bone of the cubit, proper so called, is at length found upon the fore and outward Cephalick branch, which we said descended along the wand, and thus united, they run over all the hand, where in the right hand, between the middle and fore-finger, they make the Splanchnica; but in the left, in the same place they produce the Splanchnica.

But always remember, (in so far as you find any thing otherwise than we have delivered in) that the distribution of the Vessels is various, (especially in the hands) that there can no certain rule be delivered thereof.

The Distribution of the Axillary Artery.

The Axillary Artery from the first original, which is presently after the the two Thoracic descending between the Muscle called Brachium, or the two-headed Muscle, and the Brachium, with the deep Axillary Vein, distributes a large branch amongst the outward Muscles of the Arm, which extend the cubit, and is spent in the external Muscles of the same, which arise without from the productions of the Arm.

And this is called the Roman Musculosis or muscular branch, as also the Vein that accompanies this Artery. Then this Artery when it comes to the bending of the Cubit, thrusting itself into the Muscles bounding the Fingers, communicates certain branches to the parts pertaining to the desigation of the Cubit with the Shoulder, and other parts thereon, as it did in the upper parts, by which it descended higher. Very it may be a general Rule, that every Vessel sends or bellows certain portions thereof by the way to all the parts by which it passes. But if you should ask, why I have not professed their productions? I would answer, I never intended to handle other than large and fair branches of Vessels, by rash incision of which, there may happen danger of death or a disease. For it would be both an infinite and needless business to handle all the divagations of the Veins, Arteries, and Nerves. Therefore this Artery took those Muscles, when it comes almost to the midst of the Cubit, and therefore, a little after it is divided into two large branches, the one of which along the Wand, and the other amongst the Cubit, is carried into the hand on the inside under the Ring. For both these branches are distributed and spent upon the hand after the same manner as the branches of the internal axillary Vein, 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, bellows two springs upon the Thumb, on each side one, and 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.
Of the Nerves of the Neck, Back, and Arm.

Now we should handle the sinews of the Arm, but because we proceed from the Nerves of the Neck and Back, I think it fit therefore to speak something of them in the first place.

The second pair. The branches of the second pair are distributed, some with a portion which they receive from the third pair over all the skin of the head; the two others go as well to the Muscles, which are from the second pair. These branches of the second pair are distributed to the arms, and from the same to the third pair of the head and neck, as also to the long Muscle and Midriff, the third is communicated to the Levatores or Having-Muscles of the Arm and Shoulder.

The third pair. One of the third pair of nerves is communicated to the Head, as we said before, but others to the Muscles which extend, or ered the Head and the necks; there is also one of these distributed into the neighbouring face-Muscle and part of the long Muscle and Midriff.

The fourth pair. The Nerves of the fourth pair go, one to the Muscles as well of the Head, and to the broad Muscle; the other, after it hath sent some portion thereof into the long Muscle and the side-Muscles of the Neck, it divides with a portion of the fifth and fourth pair to the Midriff. One of the branches of the first pair is divided on the hind Muscles of the Neck and Head, the other upon the long-Muscle and Midriff; the third is communicated to the Levatores or Having-Muscles of the Arm and Shoulder.

The fifth pair. One of the Nerves of the fifth pair goes to the hind-Muscles of the Neck and Head, another to the Midriff, the third with a portion of the seventh pair of the neck, and of the first and second of the neck, go to the Arms, and having-Muscles of the Shoulder-blade.

The sixth pair. One of the branches of the seventh pair runs to the broad-Muscle, and to the neighbouring Muscles both of the Neck and Head; another, increased with a portion of the fifth and fourth pair of the neck, and a third joined to the second and third pair of the Chefs, extending into the Arm, go to the Hand.

But you must note that the Muscles which take their original from many Vertebras, whether from above downwards, or from below upwards, admit Nerves not only from the Vertebras from whence they take their original, but also from them which they come near in their descent, or ascent.

The seventh pair of Nerves of the neck, and the first pair. There pass twelve Conjugations of Nerves from the Rack-bones of the Neck. The first entering forth from between the last Rack-bone of the Neck and the first of the Chefs, is divided (that is, on each side) into two or more portions, as also all the rest. Therefore the branches of this first Conjugation go some of them to the Arms, as we said before, others to the Muscles, as well thee of the Head, as others affin there, or running that way.

The branches of the second Conjugation are distributed to the same parts, that these of the first were.

But the branches of all the other Conjugations even to the twelfth, are communicated, some to the intercostal Muscles running within under the true ribs even to the Sternum, and under the Bifceribs even to the right and long Muscles, and the collateral Nerves of the sixth Conjugation are augmented by meeting these intercostal branches by the way as they defend by the roots of the Ribs. Other particles of the said Nerves are communicated to the Muscles as well of the Chefs as Spine, as the same Muscles pass forth, or run along by the Vertebras, from whence their Nerves have either their original or passage forth.

Having thus therefore thew the original of the sinews of the Arm, it remains that we shew their number and distribution.

Their number is five or six; proceeding from the fifth, sixth, and seventh Vertebras of the Neck, and the first and second of the Chefs. The fist of which is mixed with any other from the fifth Vertebras of the Neck, goes to the Muscle Deltoideus, and the skin which covers it.

The other four or five when they have mutually embraced each other, not only from their first original, but even to the shoulders, 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 those sometimes even to the Hand, is by the way communicated to the Muscle Biceps, and then under the said Muscle it meets, and is joined with the third Nerves. Thirdly, It is communicated with the longest Muscle of the cubit, in the bending whereof it is divided into two branches descending along the two bones of the cubit, until at last born up by the fifth nerve it is fixed upon the skin and inner side of the hand.

The third lower than this is, from united with the first, and descending the Muscle Biceps, and then straightway separated from it, it finds a portion thereof to the Arm which lies under it, and to the skin thereon, 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 Biceps with the internal Arteries and Vein, is turned towards the outward and back-part of the Arm, there to communicate it fell to the Muscles extending the cubit, and also to the inner skin of the neck.
of the arm, and the exterior of the cubit: the remainder of this branch whicb 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 outside of the wrist: the other associating the wrist, as on the outside in like manner to two branches, bevelled upon the thumb, and in as many upon the fore-finger, and by a fifth upon the middle finger, though more obscurely.

The fifth branch being also lower than the rest, thining between the muscles bending and extending the cubit, when it comes behind the inner protrusion of the cubit (in which place we said before the third branch meets with this) it is communicatad to the internal muscles of the face, and then divided into three portions, one of which on the outside along the middle of the cubit, goes in two sprigs to the little finger, and so many to the middle finger, and one to the ring-fingers the other two, the one without, and the other within the ring, go to the hand: where after each of them hath bestowed what was requisite on the muscles of the hand, they are wasted into another communication of the, of which these which are from that portion which descends without the ring, feed two sprigs to the little, two to the fore, and one to the middle finger, but those which come from that which passes under the ring, by such a distribution communicates it felt to other fingers, as two sprigs to the thumb, two to the fore, and one to the middle-finger. The fifth to the lowest, and last, runs between the skin and flithy pannicle, by the inner protrusion of the arm, and then is spent upon the skin of the cubit.

CHAP. XXV.

The description of the Bone of the Arm, and the muscles which move it.

But to come to the original and inference of these muscles: the one of these two which more the original arm forwards called by reason of this, the Peloidal, arising from more than half of the and inferior Collar-bone, and almost all the Sternum, and the tenth, seventh and eighth ribs, goes up and下沉s it of the peloidal fell to the Coracoid, by a membrunous or a membroens tendon fasciulata, of strong (for which cause it is) said to be common to the shoulder and arm) and it goes into the arm between the muscles Deltoideo and Biceps, with a strong tendon composed of fibers coating each other, of which some descend from the Collar-bone, and the upper part of the Sternum, others extend from the lower original hereof, that is, from the tenth, seventh and eighth ribs, and although the action of this muscle be diverse by

O

reasor
Of the Muscles and Bones

**The Deltoideus.**

Of the diversity of its fibers arising from diverse places, yet always it draws the arm forwards, whether it be moved upwards, downwards, or to the breadth; the other which is his companion, descends from the whole lip or brow of the fomites, or hollow part of the blade, which it fills in the fore-part of the arm near the head thereof. For the two Levatores, or the lifters up of the arm, the one named Deltoideus, descends almost from half the clavicle, the process Acromion, and all the spine of the shoulder-blade into the fore-fade of the arm, the breadth of four fingers below the pynn. It hath divers actions according to the diversity of the fibers, as also every muscle hath: yet howso- ever it is contrated, whether by the fibers from the clavicle alone, or by the spinal alone, or by both at once, it always lifts 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 and thereof, and the spine between the processes Acromion and Coracoides, to the neck of the arm: and this we will call the Epiplaster or Scapularis; that is, the shoulder-muscle. But the first and larger of the two muscles, which draw the arm backwards, arises from the greatest part of the outer lip of the gibbous part of the shoulder-blade, which is under the spine thereof, and lying upon the blade itself, it goes into the hind-part of the arm above the neck thereof. The other which is contiguous to it, and in par- ticular in working, but letter, passes from the upper and exterior part of the lower rib of the shoulder-blade, and thence, as it were, in some form extending it, is upon the gibbous part thereof, near unto that rib, it goes into the arm. This muscle being to the same with the former, being fifthly with- out, even above the top of the shoulder. One and the letter of these two which draw downwards, enters out from the first line of the lower rib of the blade, and goes into the lower part of the arm about the neck thereof. The other called the Latissimus, or breadth, ascends from the spines of the holy-bone of the loin, and often also from the nay corner of the cheet, by the lower corner of the shoulder-blade into which it is inserted by a membranous tendon, as also it is into the inner part of the arm near the neck 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 easily be stretched forth, or lifted up.

**Table 24.** Sketched the Brain together with the After-brain, the Spinal Marrow and the Nerves of the whole Body.

A That part of the brain that is next the noftrils.
B That part which is at the sides of ventricles.
C The back part of the brain.
D The Cerebellum or After-brain.
E The mammillary process in the right side.
F The original of the optic nerve.
G Their conjunctions.
H The place into which the optic nerve is ex- tended.
I The second pair of the nerves of the brain.
K The lesser root of the third conjugation.
L The third root of the same conjugation according to the common opinion.
M The fourth conjugation of the nerves.
N The lesser root of the fifth pair.
O The bigger root of the same pair.
P The spinal membrane of the ear which they call the Tympany.
Q The lower branch of the bigger root of the fifth conjugation.
R The fourth pair of nerves.
S The second pair of sinews.
T The seventh pair.
V The beginning of the spinal marrow out of the middle of the bofe of the brain.
X The right fissure of the middle cut off.
Y A branch from the fifth pair creeping to the top of the shoulder.
Z The first nerve of the arm, from whence there goeth a branch to the chin.
A The second nerve of the arm, and a branch therefrom into the first muscle of the cubit.
B The third nerve of the arm, and a branch going to the skin on the one-fade.
C A branch from the third nerve to the second muscle of the cubit.
D The syllogists, or meetings, of the second nerve with the third.
E A final branch from the third nerve to the second muscle of the Radian.
F The distribution of the second nerve into two branches.

* The lesser branch of this division lengthened out to the skin as far as the thumb. a The place of the spi- nal.
费斯他肌肉，所追随者，则为弯曲或伸展的肌肉，即弯曲或伸展肘部的肌肉。因为这些肌肉的运动大体上由附着于骨骼上的肌腱来完成。于是在此，我们先要描写这些骨骼本身。但确实，除非首先描写这些骨骼，否则要正确地说明它们的动作是不可能的。因此，首先拜托我们的是观察这些骨骼。但首先我们要明白一点，即骨骼的动作是通过附着在骨骼上的肌腱来完成的。因此，对于附着在骨骼上的肌腱的分析将有助于我们理解骨骼的动作。
The figure of the cubit bone or ell.

The muscles moving the cubit: 
The biceps, or two-headed muscle. 
The brachially.

The Longus.

The Brachial.

What the hand properly called is, 
that is, that which covers the forehead, but that which is thick towards the arm, but slender towards the wrist, and that in the same place is gibbous or bunching forth on the outside: but it is round and firm, unless on that side which lies next the wrist. For the rest, it is hollow and full of marrow like the wand.

The fire of the Radue, or wand, is oblique, but that of the cubit or ell, is right, that the arm might be the better and more easily moved, because the motion by which the arm is extended and bended, is according to a right line, but that by which the innide of the hand is turned upwards and downwards, is performed obliquely and circularly.

Wherefore it was expedient, that the hand should be oblong, and the cubit shorter, that the cubit-bone is appointed for to extend and bend the arm, but the wand for the performing of the wheeling, and turning about thereof, and this is the cause that it was fitting, there should be a different connexion of these bones with the arm. 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 and 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 fitted in the arm, the cubit-bone or ell. These are four in number, two extending it, and two bending it. The first of the bidders is called Biceps, by reason of its two heads, the one whereof descends from the Coracoid, the other from the lip of the cavity of the shoulder-blade by the fissure or cleft of the head of the bone of the arm. These two heads under the neck of this arm becoming fleshy, are firmly united at the belly and middle of the arm, and thus united, are at the length implanted by a strong tendon to the inner pronunciation of the wand. The other is the Brachialis, by reason of the firm coherence thereof with the bone of the arms, this fucceeding under the Biceps, and the Longus descends from the lower rib of the shoulder, and cleaving to the bone of the arm, goes thither (fattened, and as it was always firmly joined with his fellow-muscle, specially near the cubit), wherefore you shall preferently hear. The other, termed the Brachioradialis, or short muscle, being the companion of the long, descends on the hind-part of the bone of the arm, 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 Olecranon, by mutual assistance to extend the cubit.

The Description of the Bones of the Wrist, After-wrist and Fingers.

What the hand properly called is, that is, that which covers the forehead, but that which is thick towards the arm, but slender towards the wrist, and that in the same place is gibbous or bunching forth on the outside: but it is round and firm, unless on that side which lies next the wrist. For the rest, it is hollow and full of marrow like the wand.

This ring is placed there, as well for the preservation of the sinews, veins and arteries passing under it (lest when we lean upon our hand and wrist, these parts should be hurt by compression) as also for the commodijry of the action of the muscles bending the finger, which in the performance of their actions, and the compressing themselves, might deform the hand by their pushing forth of the cavity of the wrist. For what assistance lover is made by things, if it be free, and not hindered, is according to a strict line.

What the accessor ring is, 
that is, that which covers the forehead, but that which is thick towards the arm, but slender towards the wrist, and that in the same place is gibbous or bunching forth on the outside: but it is round and firm, unless on that side which lies next the wrist. For the rest, it is hollow and full of marrow like the wand.

Now follow the bones of the second part of the hand, or of the after-wrist. These are four in number, gibbous without, but arched within, or hollow in the middle; for hence is the palm of the
the hand, or certainly the greater part thereof; their ends next the fingers are somewhat remote from each other, that in their climes the muscles firkaffs might find a place and seat. But their ends have each an appendix, as you may perceive in the Skeleton of a Child. But you must note, that by the first bone of the wrist, or after-wriff, we mean that which is in the fore-side of the hand, that is to say, that in the wriff which lies under the thumb, and that in the after-wriff, which is seated under the fore-finger, as those which keep in order the fingers: which exceed the rest in necessity and dignity.

The Figures of the Bones of the Hand. The first.through the inside of the right-hand, and the second through the back-side of the same.

After these follow the fifteen bones of the fingers: that is, three in each, which are hollow, The bones of and titulous, full of a thin and liquid marrow, and not of gross and thick, akin the arm and thigh, the fingers. They are outwardly gibbous, but inwardly hollow and that for the fitter seat of the tendons attending, along the fingers on the inside even to the upper joint. The which that Nature might the better strengthen and preserve, hath produced from the lips of the inner cavities of these bones a membraneous and strong ligament, which running over-thwart from one side to the other, strictly clofe the tendons to their bones, that they cannot go forth of their places, or incline to either side. They are connexed on the out-side, that they might be more fit to hold any thing. But for the first bones of the four fingers and thumbs, four are joined together with so many bones of the after-wriff by Synarthrofis, for the bones of the after-wriff are moved by no manifest motion; the fifth is knit to the second rank of the bones of the wriff, therefore that bone cannot be attributed to the after-wriff, as some have written, seeing it hath manifest motion and is knit by Diarthrofis, but the bones of the after-wriff are only linked by Synarthrofis. For the fecond and third rank of bones of the fingers, they are knit the fecond to the firft, and the third to the fecond by Diarthrofis and Arthrodes, because, besides the manifest motion they have, they receive each other by a superstitious cavity, as thofe of the firft rank, the bones of the after-wriff and thofe of the fecond rank, them of the firft; and thofe of the third, them of the fecond. And all the bones of the fingers are larger and thicker at their baftes, but smaller towards the ends; and they are bound by ligaments efpically proper, which (as we faid formerly) defend from the firft to the fecond, fo that the latt bones, feeing they have not to whom to communicate their nerves, make and produce nails thereof. Wherefore the nails are generated by the fibers of the ligaments, and the exulations which the cement of the tendons which are terminat'd at the bottom of the nails. Now remain the off's nails are generat'd by the fibers of the tendons of the fingers, as you may perceive in the Skeleton of a Child. But you must note, that by the first bone of the wrist, or after-wriff, we mean that which is in the fore-side of the hand, that is to say, that in the wrist which lies under the thumb, and that in the after-wriff, which is seated under the fore-finger, as those which keep in order the fingers: which exceed the rest in necessity and dignity.

They are made for this use, that they may firm and strengthen the joints, fo that the bones of the Their use fingers may not be torn away, or thrust forth of their places by strong and violent motions, as it sometimes happens in the whifhbone of the knee. They are called Sefanides, from the resemblance they have to the feed of Sefanum, which is somewhat long and flat.
The muscles of the cubit.

Now we must describe the muscles of the formerly described parts; that is, those which are seated in the cubit, which are carried to the inside of the hand, and those which are called the Interni. Now the muscles of the cubit are fourteen, seven external, and seven internal. Two of the seven external do primarily twine or turn up the wrist; and secondarily, by an accident, turn the palm of the hand upwards, whereupon they have called them Supinatores, or turns up of the hand; two extend the wrist, whereupon they are named Carpi-tenores, or the wrist-extendors; two the fingers, wherefore they are called Digitii-tenores, or finger-extendors. To conclude, the seventh and last is termed Abdurator, or Obligator externus.

The first of the two Supinatores is called the long, or long-sleeved, because it descends from the underside of the arm above the proceess thereof, and is buried by a round and strong tendon into the lower appendix. The other descends, outwardly from the outward and upper proceess of the arm, and is inserted at the third part of the wrist by a membranous and fleshy tendon before, and on the inside thereof. The upper of the two extenders of the wrist, descends from the external and upper process of the arm, is inserted by two tendons into the first and second bone of the after-wrist, which sustain the fore and middle-fingers.

The other and lower, descending from the four tendons, above the cubit, is inserted into the fourth bone of the after-wrist which bears up the little-finger. These muscles whilst they move alone, that is, each with his antagonist, 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-extendors, arising from the Obrliquator, or bone of the cubit, descends obliquely between the two bones of the cubit even to the wrist, in which place it is divided into four tendons, which passing under the ring finger there, endeth (each distinguished by a common ligament above the bone of the after-wrist) in the last joints of the fingers, adhering never-the-less firmly to the bones, which are above their joints.

The other, which is the lesser, arising almost in the middle of the wrist, goes obliquely to the thumb, into which it is inserted by two tendons: The one thicker, which is inserted into the root thereof, and draws it from the other fingers; the other flenderer continued even to the upper joint thereof; and by its action extending the thumb.

The greater of the Giltii-tenores.

The last is the Abdurator or Obligator, seated at the hind-part of the hand, that is, towards the little-finger. We have often found this divided into two, yea verily we have found it three, or divided into three, this year in three or four bodies; 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.

For that 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 four muscles they have made one, divided into two tendons. Wherein is a great mistake. Because whereas the Obrliquator is wanting, as is formerly shewed, but when the Obrliquator is present, it is as it were a new muscle, which we saith hath seven tendons, is only a production of the deep fore-muscle, which is born from the space between the bones of the cubit, yet had rather make it a muscle of four parts, as we said thereof. But when the Obrliquator is wanting, it is a small muscle, whilst it is divided into two tendons, which go into the middle and fore-fingers.

The muscles of the inner part of the hand.

For the external muscles of the cubit, the first of which compasses the skin of the palm of the hand, whereon it is called the Palmarius. The second and third joined by the combination of their action turn down or prone the wrist, and consequently the hand, so that the palm looks towards the head, whereupon they are called Pronatores.

The fourth and fifth joined also in affinity of action bend the wrist, wherefore they are named Carpi-flexores, wrist-benders. The sixth and seventh are appointed to bend the wrist, second, and third joints of the fingers, wherefore they are termed Digitii-tenores, finger-benders. For their original they are called Pronatores, the leaf and uppermost of them all, defends fleshy from the hind-process of the inner arm, and with a little after ending in a long fleshy tendon, it is fleshy in the skin of the palm of the hand even to the root of the fingers. For it was necessary that the skin should firmly cohere with the subjacent parts, not only for the fitter taking or comprehension of any thing, lest that skin in holding should be wrinkled and drawn away from the palm and fingers, and so be an impediment, but besides, that the hand might have a more exact fleshy to distinguish of hot, cold, moist, dry, smooth, equal, rough, soft, hard, white, black, and such other qualities.

Then follow the two Pronatores, of which one called the round, comes obliquely from the inner side of the hind-process of the arm almost to the middle of the wrist, to which it adheres by a membranous and fleshy tendon, even to the place appointed for insertion. The others, three or four in number, round, yet somewhat flesher, seated within all under the muscles which depend on the inside to the wrist or fingers, upon the ends of the bones of the cubit, ascends transfervely from below the c11, unto the top of the wrist, where it ends in a membranous tendon. Both the Carpi-flexores, or wrist-benders, arise from the hand, but inner procece, and defend obliquely, the one more...
more, or less than the other,) the one along the ell, but the other along the wand; and that which defends along the ell, is inserted into the eighth bone of the wrist, which we said was middle part of the ring; the other which follows the wand is inserted with his greater part into the bone of the wrist, and with the rest into the first bone of the after-wrist which sustains the fore-finger.

Now remain the Digitum-externus, or finger-binders, which because they lie upon one another, the upper is called the Sublimis, but the lower this Profunda. The Sublimis, or upper, arising from the inner part of the bend of the arm, and from the upper part of the ell and wand, descends between the two bones of the cubit, even to the wrist and ring; divided into four tendrils, it is inserted into the second deep articulation of the four fingers, which it binds by the force of this his proper insertion and also the rest, as well by the power of the common ligament, as by certain fibers coming from it, which it finds thither by the way in its passage. But their four tendrils near into this their insertion are divided into two, so to give passage and add strength to the tendons of the deep muscles defending into the third and last joint of the fingers.

But this same Profunda or deep muscle arising from the upper and inner parts of the ell and wand, defends between their two bones under the Sublimis, also undivided even to the wrist, where it is divided into four tendons which it brings forth under the common ligament, and the divisions of the tendons of the Sublimis even to the last joint of the fingers, which they bind, by this their proper insertion, as also of the bones of the first and second joints of the fingers by the means of the common ligament and fibrous productions which they follow upon them by the way; besides the fore-mentioned, there is seen also a certain membranous ligament which engirts the tendons in the compass of the fingers.

CHAP. XXXIX.

Of the Muscles of the Inside of the Hand.

The muscles of the inside of the hand are few in number; the first is called Thenar, because it makes the greater part of the palm; the second from the site is called the Hypothenar, the third the external Abductor of the thumb. The four other are called by reason of their figure the Lumbrici, or worms-muscles, or the Abductor, 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 after-wrist, taking its beginning from that bone which bears up the ring-finger, whence ascending along the vital line even to the end thereof at the first bone of the after-wrist sustaining the fore-finger, it is at length inserted into the last joint of the thumb by the longest fibers, but by the middle and shortest fibers almost into all the inner parts 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 original.

Some divide this muscle into three, by reason of his divers actions, making the first to strike from the root of the bone of the after-wrist which bears up the ring-finger but the other from that middle bone of the after-wrist which sustains the middle-finger, but of the third, the upper end of that bone which under-props the fore-finger: and that the infection of them all is, as we formerly mentioned, but the former opinion likes me better, both for stunning confusion, and abbreviating the doctrine of the number of muscles.

The Hypothenar arises from the fourth bone of the after-wrist, and that bone of the wrist which sustains it, and then with its longest fibers, it is inserted into the second joint of the ring-finger, and by the shortest into the first, through which occasion, as also in respect of its two-fold action, some have divided it into two, that the one of them might lead it from the rest, and the other might draw it to the thumb.

The third the external Abductor of the thumb, defends from the first bone of the after-wrist, into the first and second joint of the thumb; wherefore some have divided it into two. The Lumbrici, or four external Lumbrici, of the fore-fingers, arise from a membrane, investing and binding together the tendons of the Digitum-externus, or finger-binders, and at length on the sides towards the thumb even by a small tendon, running even to the second joint of the fore-fingers.

Now the Interossei of the after-wrist, remain to be spoken of; there are fix, two in each of the spaces between the fingers, one internal, the other external, of which the internal defending with oblique fibers from the site of the first bone of the after-wrist, goes also into the sides of the fingers, that to it may the more closely bind together the bones of the after-wrist, whole often immovably, when we thrust our fingers into a firm 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 after-wrist, to the last joint of the fingers, intimating the internal, which we now described after the manner of the letter K, to extend the palm of the hand, and help the drawing away of the fingers of the thumb.

Here concluding the description of the muscles of the whole hand taken in general, you shall note that they are thirty nine in number, that is, eight appointed to move the arm; four feet to move the cubits, in general seven fixed on the out-side of the cubit, and as many on the inside in the same cubits, moving the wand, and with it the hand; seven on the inside of the hand; and lastly, the six Interossei. Some increase this number, saying, there are nine on the external part of the cubit, and eleven on the inside of the hand.
A description of the Leg, taken in general.

After the hand follows the description of the leg. Wherefore to take away all doubts and fears, we will first define the leg; and then divide it into the parts more and less compound;thirdly, we will enumerate 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 Leg, is used two manner of ways, that is, either generally or specially, and specially again after two forts, that is, either absolutely and simply so, or with an addition. It is simply taken for all that which is between the knee and foot. But with an addition for the greater bone thereof. But the leg taken in general, is the instrument of going, containing all whatsoever is from the hips, to the very ends of the toes. It is divided into three great parts, that is to say, the thigh, the leg, or shank, and the foot. By the thigh, we mean, that which lies between the hip and the knees. By the leg, properly so called, or shank, that which is contained between the knee and the foot. By the foot, all from thence to the ends of the toes.

Again, they divide the foot into three parts; that is, the Tarso or instep, the Pedes or top of the foot, and the Digiti pedum, or toes. We understand by the instep, that which is contained in the first seven bones, which answers in proportion to the after-writ of the hand. By the portion to the entire width of the hand, that which is comprehended in the five following bones, which is answerable to the after-writ of the foot. That which remains, we call the toes. But because all these parts have other common and proper parts, we will only follow the distribution of the veins, arteries and nerves; seeing we have sufficiently explained the rest, when we described the containing parts of the body in general.

A description of the Crucial-vein.

The Crucial-vein begins then, when the hollow-vein, passing forth of the Peratissum, and throught to the branch-bone; and the sides of the Pubis in the groin, is first divided into two branches, the one of which descends on the inside, along the bones of the whole leg, together with the artery and nerves; the other runs down outwardly and superficially along the leg, between the fat lying under the skin, and the muscles even to the foot, and is spent in the skin thereof. This, because it is always apparent and manifest, is called properly by the Greeks Saphes, but commonly Saphosa.

This vein, by the way, preferably at its original is divided into two branches, the one internal, the other external, of which the internal is spent upon the Bubones, and other glandules of that place and the skin, and by this branch come the deformities called Bubonis, the other branch is waited in the fore and utter skin of the upper part of the thigh; then a little lower, that is, about the breadth of three or four fingers, it is gathered again into one branch made of many little ones, which is spent in the fore and hind-skin of this thigh. Thirdly, a little below the middle of the thigh, it is again divided into two other branches, of which the one goes into the skin on the fore-side, and the other on the hind-side. Fourthly, it is distributed by two other small sprigs into the skin, on the four and hind part of the knee; which often-times are not found, especially when the Popiles, or ham-vein, is somewhat larger than ordinary. Fifthly, a little below the knee, the other branches, lying upon each other, is spent into the fore and hind-skin of that place. You must note, that branch which runs into the skin of the hind-part, is carried by certain other sprigs, which it produces into a branch of the Popiles passing forth of the two twin-muscles. Sixthly, in the bigger part of the call of the leg, it is divided into two other branches, which, in like manner are distributed into the skin, as well in the fore-side as the back-side of the leg.

At length, after many divisions, which for brevity 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 leffer of which descends to the heel, the other in many sprigs is spent upon the skin of all the upper and lower parts of the foot and toes.

The second branch of this crucial-vein, which we said descends within together with the artery and nerves, even into the foot, is divided, first, piercing somewhat deep in, it produces four divisions; one internal, descendice below the original of the Sapheo, into the muscle called Obliquus externus, and into certain other external muscles. The three other run outwardly, the first towards the tacle-bone, by which the Iliuses is made; the other two into the four muscles of the thigh, neither are these sprigs far remote from one another. Secondly, all that branch is divided into two other branches, the one above the other below; an artery always 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 betows many branches upon the fore and inner-muscles of the thigh; depending to the ham, it produces the Popiles, or ham-vein, made sometimes of two branches, the one proceeding from above, and the other from below. This Popiles depending by the bending of the ham, is spent one while upon the skin of the call of the leg, another while upon the knees; others, while increasing with branches of the Sapheo, it goes on the out-side of the ankle to the skin, on the upper-side of the foot, and sometimes on the lower.

Thirdly, a little below the original of the ham-vein, and under the bending of the knee, it brings
Suralis, or calf of the leg, and Suralis itself, which is bound up with the muscle of the
upon the skin of the inner side thereof, and of the foot, continued sometimes even to the inner part

Fourthly, under the head of the hinder appendix of the bones of the leg, it produces between

Fifthly and lastly, it brings forth the hypogastrica, or greater femoral, which is divided into two branches of an unequal bigness; the larger whereof, from its original descending along the hip, brings forth the Peroneus, or thin-bone, is continued between it and the hind, yet sometimes it is produced, not only even to the muscle the Abductor of the toes, but also by five furcles, even to the fourth toe, and the sides of the middle toe.

CHAP. XXXII.
The Distribution of the Crural Artery.

The Crural Artery arising from the same place whence the Crural vein proceeded, and descending with the internal Crural Vein, is distributed as followeth:

First, into the muscle of the thigh, which spreading itself through the muscles thereof, meets with the unnamed hypogastrica, descending with the vein through the common hole of the huckle and share-bone, and is joined with it.

Secondly, when it arrives at the ham, between the Condylus, or processes of the leg, it sends two branches into the tibia.

Thirdly, a little after it produces another branch, which it sends to the exterior muscles of the leg; and when it arrives at the middle of the leg, it is divided into two branches, between the Twin-muscles and Soleus, the one internal, the other external; the internal, some furcles communicated by the way to the parts by which it pulses, but specially to the joint of the ankle,分支一it fell over the sole of the foot, between the lower extremity thereof and heel; whither when it arrives, it is disseminated into five furcles, of which it betokens two on the great toe, two on the next, and one on the middle toe. The external descending in like manner to the sole of the foot, between the Fibula and the heel, besides other sprigs, which it may form by the way, it produces one without on the joint of the ankle, another in the muscle the Abductor of the toes; to the wrist and back of the foot. But the remainder is divided into five portions, of which two are sent to the fourth, and two to the little toe, and one to the middle.

CHAP. XXXIII.
Of the Nerves of the Loin, Holy-bone and Thigh.

Here arise five Conjugations of Nerves from the Loin, divided into external and internal branches; the external are disseminated into the Fœ Obturator, or chin-muscles, the muscles Sartorius and Sacro, and skin lying over them. The internal are first into the collective, external and transverse-muscle of the lower belly, into the Piriformis, into the bone and joints, and meets with the nerves of the hip conjugation of the loin, and oftentimes also of the second, but that sometimes they send a small sprig to the testicles, when the coital have sent none thither, but some lower are partly disseminated there, and partly sent another way; so the greater portions, both united among themselves, then preferped with the portion of those of the holy-bone, go into the thigh, as we have shewn in the distribution of the nerves of the holy-bone. Now from the holy-bone, proceed six conjugations of nerves, reckoning that for the first which proceeds from the latum Viscera of the loin, and first of the Holy-bone, and that the sixth which proceeds from the lowest part of the holy-bone, and the first of the Rump. These Conjugations of nerves are divided into external and internal branches.

The external descending by the way from 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 surrounding parts, that which is needful, then prefers to others as much as it can.

Wherefore if thou wouldst know whither each part hath its 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 severely and conveniently as they can, intermingle themselves into the parts, sometimes at the head or beginning, sometimes by the middle or extremities thereof, as there is occasion.

But a nerve principally enters a muscle at the head thereof, or at least not far from thence, but never by the tail, whereby it may easily be understood by what branch of each vein, artery, and nerves, each part may have nourishment, life, and sense. The other internal branches of the footed conjugations go especially the four uppermost united from their original with the three lowermost of the loins, into all the legs, as you shall presently hear. But the two lower are continued upon the muscles called Levatares Ani, the Spinalis-chord of the same place's bend, upon
upon the muscles of the yard, and neck of the bladder in men, but in women upon the neck of the womb and bladder.

For these parts admit another in their bottom from the coital nerve, being of the sixth conjunction of the brain: These thus considered, let us come to the nerves of the thigh, which (as we said) from their first original, as it were compounded of the three inner and lower branches of the loins, and the four upper of the holy-bone, are divided in the thigh into four branches, of which the first and higher descending from above the Perineum, to the little Trochanter, is waited upon the inward and superficiou muscles of the thigh, and the skin which covers them a little above the thigh.

The second, descending with the cranial vein and artery by the groin, is divided 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 deep muscles of the thigh, ending above the bone. But the external descending superficially with the Symphysis, even into the foot, gives branches by the way to the skin which covers it.

The third last described under these former, putting by the hole common to the thistle and hunk-bone, sends certain branches to the groins, to the muscles called Observaturs, to the Truncitores, and sometimes to the muscles of the yard, and ends at the midst of the thigh.

The fourth, which is the thickest, folider, and handful of all the nerves in the body, descending wholly from the productions of the holy-bone, and descending outwardly, between the lower part of the same bone, and the Os Ilium, or hunk-bone to the thigh, belows certain fringes to the hind-muscles thereof, proceeding from the protonization of the Ilium, or hunk-bone, and in like fort it gives other bone to the skin of the buttocks, and also to the skin covering the fore-mentioned muscles.

A little after, it is parted into two branches descending divided even to the bowing of the knee, they both are communicated by divers fringes of the muscles of the leg; yet for as the feller produces another branch from the end of the portion thereof descending on the fore-part of the leg, along the thin-bone unto the top of the foot, where it is divided into ten fringes appear to the fight, two running to each of the toes. The others greater, descending in like manner in the remainder of its portion by the hand-part of the leg into the sole of the foot, calls it fell with the veins and arteries between the heel and leg bone, where first divided into two branches, each of which presently parted into two, fed two fringes to the fides of the toes. And these are the most notable and necessary distributions of the veins and nerves; we purposely omit others which are infinite, and of which the knowledge is imperfect.

CHAP. XXXIV.
Of the proper parts of the thigh.

Having explained the common parts of the leg in general: Now we must come to the proper parts of the thigh. The proper parts of the thigh, are muscles, bony ligaments. But because the demonstration of the muscles is somewhat difficult, if we be ignorant of the description of the bones from whence they arise, and into which they are inserted; therefore we judge it worthy our labour, first to shew the bones, and the dearticulation of these of the thigh beginning with those bones which are knit with the upper part of the holy-bone. And they are two in number, on each side one, commonly called the Os Ilium; each of these is composed of three bones; of which one is the upper, another the lower and anterior, and the third the middle, and after a manner the posterior. The upper by a particular name is called the Ilium, the hunk-bone, and it is the largest and biggest, having a gingly Appendix in the compass thereof, even to the connection it hath with the other neighbouring bones, whose upper part we term the right line thereof but the hunk, which is adjointed to it by Symphysis, we call the lip, or brow thereof, because it bends both somewhat out and in, after the manner of the brow. But that which lies between the lip and hair line, we name the Ribs this upper bone hath two hollow superficies, the one internal, the other external. The connexion thereof by Symphysis is twofold, the one with the upper part of the holy-bone; the other, with that bone we call the middle, and after bone for the posterior, which taking its beginning from the narrow part of the Os Ilium, makes that cavity in which the head of the thigh is received; this cavity the Greeks call Coyle, the Latins Acetabulum, and it is ended by the side of the hole common to the share bone at the lower part of the common hole, in which place it appears very rough and unequal, and it is called the Tuberosity of the hunk-bone, at whose extremity also it brings forth a little head somewhat refembling the proceeds of the lower jaw called Corono. The third bone named Os pubis, or the bone-bone, threnches it felt even to the highest part of the Pelvis, where it is adjoined 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 travel, yet hitherto I can find no certainty thereof.

You may perceive a manifest separation of these three bones in the Sexton of a child; for in the course of many years, the gristles which part between these connections turn into bones.

Now follows the thigh-bone, the biggest of all the bones of the body; it is round, and so bounded, that it is gibbous on the exterior and fore-part thereof, that so it might be the faster from the external
The two Ap"... the thigh-bone.
To the Sinus marked with 1, which is between the heads of the thigh. L 5 A Sinus fitted for the inner head of thigh. L 5 A Sinus agreeing with the external head of the thigh. 1 5 The lower fibula appears rough and unequal.

The other Appendix of the thigh, that is, the lower, is the greatest and thickest; rising, as it were, with two heads, which are divided by two cavities, the one superiour, and on the fore-side, whereby it receives the whirl-bone of the knee; the other deep, and on the back-part, by which it receives the grifly, and, as it were, bony-ligaments, proceeding from the osseity, which is seen, between the two cavities of the upper Appendix of the bone of the Leg, which Huperatus lib. de Fratibus, calls in his tongue Displagia.

CHAP. XXV.

Of the Muscles moving the thigh.

Their number.

The muscles of the thigh are just fourteen in number; that is, two bend it, whereupon they are called Flexores, or benders; three extend it, whereupon they are called Tenores, extenders; three move it inwards, driving the knee outwards, and drawing the heel inwards, as when we crofs our legs; yet some make three one, and call it the Tricia, or three-headed muscle. Six spread it abroad, and dilate it, as happens in the act of Venery, whereby it receives the whirl-bone of the knee,—the two former are called Gemina, or Twins, by reason of the uniformity of their thickness, original infertion, and action; the other two are called Obturatores, because they flpop the hole which is common to the thigh and back-bone.

Now one of the two Flexores, being round, depends on the infeite with fibers of an unequal length from all the rauferfe processes of the bone, above the hind-commumir of the head and shre-bone, and is inferred into the little Trochanter; the other broader and larger from the original paffes forth of the whole lip, and inner brow of the hand-bone, and flpling the inner cavity thereof, is inferred above the fore-part of the head of the thigh, into the little Trochanter by a thick tendon, which is with the fellow muscle lately decribed, produces evem from the fiihy part thereof, wherefore you need to take no great pains in drawing, or plucking them away.

The three Tenores, or Extenders, make the buttocks, of which the first being the thicker, larger, and external, arising from the rump, the holy-bone, and more than half of the exterior and hinder lip of the hand-bone, is inferred by oblique fibers, from four fingers breadth from the great Trochanter at the right-line, which we faid, refembled an Alces back.

The second, which is the middle in biginefs and fize, depends from the ref of the hip, and from the fore and outward rib of the hand-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 lefs, thinner and thinner, lying hid under thefeformer, proceeds from the middle of the external furface of the hand-bone; and then is inferred into the greater part of the line of the great Trochanter.

Thefe three muscles have a great and large original, but a narrow infertion, as it were, by oblique fibers.

Then follow thofe three muscles which move the thighs inwards, ftreiten and crofs them, fo that the knee ftands forwards, or outwards, but the heel is drawn inwards, as you may understand by their infertion, although fome think otherwise. But thfe three muscles by their original, partly fiihy, and partly membranous, ftare from the upper and fore-part of the circumference of the fiihy-bone, and thence are inferred into the hind-line of the hand-bone, fome higher than others; fo the left and flhorter stays at the roots of the little Trochanter, the middle defends a little deeper, the third with the length of his fibers, defends even to the midft of the line.

This, if it be fo, that is, thfe muscles proceeding from the fore and upper part, to be inferred into the hinder-line of the hand-bone, whereby they alone perform their action, and draw the thighs togetber, they will turn them outwards, juft fo as when we put them across, but they will not draw one heel to another, and put the heel outwards, for fuch like motion is performed by the inner valv muscle of the thigh, moving the leg. Now follow the fea which move the buttocks.

The ftiff and higher of the Quadriceps, or the four Twins-muscles, paffes forth of the cornetlity of the holy-bone, with the bone of the ramp, or rather, from the lowest extremity of the holy-bone, and thence it is inferred into the cavity of the great Trochanter by a tendon of a sufficient largeness.

The fccond proceeding from the hollow part, or fiffure, which is between the extremity of the holy-bone, and the tubereity or swelling out of the fame, is inferred in like manner into the cavity of the great Trochanter.

The third ascends from the inner part of the swelling out of the hand-bone, a little above between the two Trochanteres, into the cavey of the greater of them.

The fourth and laft, the lowest and broadest of them all, proceeds from all the exterior protruberancy of the hand-bone, and thence is inferred into the great Trochanter, and thfe four muscles lie hid under the thick and more eminent part of the buttocks, wherefore, that you may the better fliow them, they must be turned up towards their original.

The two Obturatores remain to be fpoken of, that is, the internal and external, both which arise from the circuit and circumference of the hole which they flpop, which, as we faid, is common to the thigh and back-bone, but the internal ascends to the exterior root of the great Trochanter, by
by the middle future between the upper part of the protuberancy of the huckle-bone, and the spine which stands up in the hinder base of the hand-bone.

But the external proceeds from the exterior cavity, and the middle space between the tuberosity of the huckle-bone, and cavity thereof, and is inserted into the lower part into the cavity of the great Trochanters, together with the Quadrigemina.

If you would plainly see the exterior Obturator, you must either cut off the beginning of the three-headed muscle, or handomely pluck it away, and then extend it, and turn it up; the internal is easily discerned when the bladder is taken away.

Book VI and other extreme Parts of the Body.

CHAP. XXXVI.

Of the Bones of the Leg or Shank.

The bone which would describe the muscles of the leg, ought first to describe the bones thereof, beginning at the Rauta, or whirld-bone of the knee.

This bone is gristly on the out-side, and round in compass, but on the inner and middle part after some part gibbous, but somewhat flattened at the sides, that so it may be better applied to the joynt of the knee, and joined within the anterior cavity of the two appendices of the thigh, and the upper and fore-most of the leg.

The use thereof is to strengthen the joynt of the knee, and to hold the leg at this due extent, so that it may not be bowed so far forwards, as it is backwards.

The bones of the leg are two; the one thicker, called by the particular and proper name, the Os Tuba, or leg-bone; the other which is less, is termed Perone, or Fibula, but commonly the latter style. The thicker being hollow and marrowy, is seated in the inner part of the leg, having two processes, the one bigger, the other lefs.

The bigger seated on the upper-part of the bone, and (mployed to it by Symphyses, makes two superficial and distant joints; whereas the bone is joined to the bone of the thigh by Gygmata. For in the cavities thereof it receives the lower and hinder protuberancy of the appendix of the thigh-bone, but the middle eminence thereof, is received by it between the two protuberancies thereof.

This joint is strengthened, not only by the force of the tendons, or muscles ending there, but also of three strong ligaments of which, one proceeds from all the external, another from all the internal parts of that connection; the third, which we call Hippeorus, called Diaphyses, from the distance or space between them. The other proceeds from the leg-bone, which we termed the les, seated in its lower part thereof; namely, as it were, a double cavity, whereby it receives the Antaraginosus, or pattern-bone; but on the inside it makes the ankle, as the Perone makes it without: Between these ankles the Antaraginosus is received on the sides, and turned as the nut in a Cross-bow, as often as there is need to bend or extend the foot. Besides, this same leg-bone, being triangular, hath three eminencies made in the shape of an Affes back, the upper defends the fore-part, called by the Greeks Anticnemion; the second remaineth on the inner-parts and the third on the outer: All these must be diligently observed, and chiefly, that on the fore-part, because it is as a guide and rule to the Surgeon in the well-setting of a broken leg. The Perone, or thin-bone, is seated, as it were, on the out-side, and as behind the leg-bone; it hath also two appendices hollow on the inside, but gibbous on the out; this bone by the upper of which is bundled and inferred under the inner, and in some part the hinder appendices of the leg-bone, so that it is in no sort articulated with the thigh, but serves only instead of a leaning-stock. But by the lower, this same bone is not only received in the lowest part of the leg, or ankle, or pattern-bone, but also receives part thereof, which is jointed on the same side with the heel, effectually then when we bend our feet outward.

This bone is fastened to the fore-mentioned bones by Systartibus, but bound by strong ligaments proceeding from the same bones, and mutually fasten one to another, or, if you had rather, from the upper into the lower, as we laid in the arm. But this same Fibula, or thin-bone is also triangular, having three lines of which one stands outwards, and another on the fore-side, and the third behind.

CHAP. XXXVII.

Of the Muscles of the Leg.

All the motions of the leg, are performed by eleven muscles, of which there be six on the Their names.

fore-side, and five on the hind. But of those, some move the leg only, as those which take their origin from the bone of the thigh, others truly move the leg, but with the thigh, as those which arise out of the thigh, that is, from the hanch, huckle and thiree-bones.

The hirt of those on the fore-side, called the long, but commonly the Symphysis (or Tailor-muscle, The Longus, by reason of its action) it arises from the lower and fore-extremity of the spine or appendix of the hand-bone, and depending obliquely above the other muscles, is inflected by a large and membraneous tendon, in the fore and inner part of the leg, under the knee. The action thereof, is to cross the legs, but being first bonded by the muscles precedent to be treated of, it helps also the three-headed muscle in the performance of the fore-mentioned action.

The second of these four muscles is termed the Membranous, or membraneous, because it is The Membr.

mostly fuch, unlike the original where it descends body from the root and base of the above, next.

mentioned spine of the hand-bone, and that obliquely with its membraneous and broad tendon
Of the Muscles and Bones

Book VI.

The bones of the foot not being first known, therefore it first behoves us, to set forth their description. Therefore the bones of the foot are six and twenty in number, distinguished into three ranks; that is, the bones of the Tarus, or instep, are seven; those of the Peison, the after-wrists, or back of the foot five, and those of the toes, fourteen. Of the seven bones of the instep, there are four named, and three unnamed. The first of the named immediately following the bones of the foot is called Articulare, the patellar or ankle bone. This hath three connections, one, as we said before, in the upper and broader part, with the bones of the leg, of which it is received in the cavity of the Os Naviculare, or Scaphoides, that is, the boat-like bone. By the first connexion the foot is extended and bended: by the second it is moved with the heel to the sad: the two first connections are by Tarsus, the laft by Synarthrosis. But it is strengthened by strong and broad ligaments, and defended and affording from one bone into another, as also they are strengthened by membranous, muscles and tendons, depending to the foot, above and under and joints. But this bone hath three processes, one the fore, fastened to the bone of the heel: one is the fornt and laid is under the outer-ankle: the bigger (which Cola feah, makes a round head, fastened on a long neck) looks towards the fore-part of the foot, over against the great toe, and the upper to it: the middlemost is at the heel, behind the leg-bone.
The Figure of the bones of the foot properly so called.

Figure 1 and 2 shew the bones of the right foot fastened together, their upper face and their posterior face.

Figure 3, 4, 5 and 6 shew the bones, inner and outer sides of the Talus, or Pfaëter.

Figure 7, 8, 9 shew the same sides of the heel.

Figure 10 and 11 shew the forward and backward side of the boat-bone.

Figure 12, 13 shew the front and back part of the wrist made of four bones.

ABCD 35 6 The protuberation of the Talus joyned to the apex of the leg-bone, and of this protuberation four sides.

EE 3 A Sine through which the sixth muscle of the foot is led. 1 2 The place of the heel.

FF 3 Two bounding parts of the Talus.

G 3 The inner side of the protuberation of the Talus covered over with a gristle, joyned to the inner ankle.

H 6 The outward Sine of the protuberation of the Talus covered over with a gristle receiving the inner ankle.

I 5 A rough Sine of the Talus, receiving a gristly ligament from the inner ankle.

K 6 A Sine of the Talus, receiving a gristly ligament from the outward ankle.

LM 5 6 Two Sines in the hinder part of the Talus.

N 3 4 5 6 The neck of the Talus, or Pfaëter-bone.

O 3 4 5 6 The head of the Talus going under the Sine of the Boat-bone.

P 7 8 9 The head of the heel covered over with a gristle, and going under the Sine of the Talus, or the Pfaëter-bone.

Q 4 A large Sine of the Talus, receiving the head of the heel.

R 7 8 9 A Sine of the heel whereby to the inner part of the head of the Talus is joined.

A 4 The inner power of the head of the Talus going into the Sine of the heel.

T 7 8 9 The head of the heel covered over with a gristle, and going under the Sine of the Talus, or the Pfaëter-bone.

U 7 8 9 A large Sine of the heel, receiving the head of the heel.

V 7 8 9 The heel, which is joined to the inner part of the head of the Talus.

W 7 8 9 The distance of the upper part of the heel.

X 7 8 9 The hinder part of the heel.

Y 7 8 9 The inner side of the heel.

Z 7 8 9 The place where the tendons that run to the bottom of the foot are reflected.

A 7 8 9 The outer side of the heel.

B 7 8 9 Here the tendons of the seven and eight muscles of the foot are reflected out.

C 7 8 9 The fore-part of the heel which is joyned to the Pfaëter-bone.

D 7 8 9 That part of the heel which is joyned to the Cube-bone.

E 7 8 9 The Sinus of the Cube-bone, receiving the head of the Talus.

F 7 8 9 The lower part of the head of the Talus going under the Sinus of the Talus, or the Pfaëter-bone.

G 7 8 9 A Sine of the heel whereby to the inner part of the head of the Talus is joined.

H 7 8 9 That part of the heel which is joyned to the Cube-bone.

I 7 8 9 The Sinus of the Boat-bone, receiving the head of the Talus.

J 7 8 9 That part of the heel which is joyned to the Cube-bone.

K 7 8 9 The plane surface of the three inner bones of the wrist whereby they are articulated to the Boat-bone.

L 7 8 9 That part of the heel which is joyned to the Cube-bone.

M 7 8 9 The plane surface of the three inner bones of the wrist whereby they are articulated to the Boat-bone.

N 7 8 9 That part of the heel which is joyned to the Cube-bone.

O 7 8 9 That part of the heel which is joyned to the Cube-bone.

P 7 8 9 That part of the heel which is joyned to the Cube-bone.

Q 7 8 9 That part of the heel which is joyned to the Cube-bone.

R 7 8 9 That part of the heel which is joyned to the Cube-bone.

S 7 8 9 That part of the heel which is joyned to the Cube-bone.

T 7 8 9 That part of the heel which is joyned to the Cube-bone.

U 7 8 9 That part of the heel which is joyned to the Cube-bone.

V 7 8 9 That part of the heel which is joyned to the Cube-bone.

W 7 8 9 That part of the heel which is joyned to the Cube-bone.

X 7 8 9 That part of the heel which is joyned to the Cube-bone.

Y 7 8 9 That part of the heel which is joyned to the Cube-bone.

Z 7 8 9 That part of the heel which is joyned to the Cube-bone.

A 7 8 9 That part of the heel which is joyned to the Cube-bone.

B 7 8 9 That part of the heel which is joyned to the Cube-bone.

C 7 8 9 That part of the heel which is joyned to the Cube-bone.

D 7 8 9 That part of the heel which is joyned to the Cube-bone.

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G 7 8 9 That part of the heel which is joyned to the Cube-bone.

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W 7 8 9 That part of the heel which is joyned to the Cube-bone.

X 7 8 9 That part of the heel which is joyned to the Cube-bone.

Y 7 8 9 That part of the heel which is joyned to the Cube-bone.

Z 7 8 9 That part of the heel which is joyned to the Cube-bone.

A 7 8 9 That part of the heel which is joyned to the Cube-bone.

B 7 8 9 That part of the heel which is joyned to the Cube-bone.

C 7 8 9 That part of the heel which is joyned to the Cube-bone.

D 7 8 9 That part of the heel which is joyned to the Cube-bone.

E 7 8 9 That part of the heel which is joyned to the Cube-bone.

F 7 8 9 That part of the heel which is joyned to the Cube-bone.

G 7 8 9 That part of the heel which is joyned to the Cube-bone.

H 7 8 9 That part of the heel which is joyned to the Cube-bone.

I 7 8 9 That part of the heel which is joyned to the Cube-bone.

J 7 8 9 That part of the heel which is joyned to the Cube-bone.

K 7 8 9 That part of the heel which is joyned to the Cube-bone.

L 7 8 9 That part of the heel which is joyned to the Cube-bone.

M 7 8 9 That part of the heel which is joyned to the Cube-bone.

N 7 8 9 That part of the heel which is joyned to the Cube-bone.

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R 7 8 9 That part of the heel which is joyned to the Cube-bone.

S 7 8 9 That part of the heel which is joyned to the Cube-bone.

T 7 8 9 That part of the heel which is joyned to the Cube-bone.

U 7 8 9 That part of the heel which is joyned to the Cube-bone.

V 7 8 9 That part of the heel which is joyned to the Cube-bone.

W 7 8 9 That part of the heel which is joyned to the Cube-bone.

X 7 8 9 That part of the heel which is joyned to the Cube-bone.

Y 7 8 9 That part of the heel which is joyned to the Cube-bone.

Z 7 8 9 That part of the heel which is joyned to the Cube-bone.
The afterfoot, which sustains the little toe, which joins the tendons of the middle and small toes, is so large that it is the first bone of the after-foot. Two feed-bones placed under the bone of the after-foot which joins the middle toes, and two bones in the motion of the great toe. 272 273 The Talus or Os calcaneum. 274, 275 The heel-bone, 276, 277 The bone of the toes. 278, 279 Two bones of the great toe, 280, 281 The five bones of the after-foot.

Phalanges, still, 3. lib. at fol. 25. The nameless bones, or Os innominata, or Calcanum 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 processes, the one great, the other little. The great is received in the third and outer process of the before-foot, which the foot had a round head fastened to a long neck. Besides, it is round on the hind-part, and much disjoyned from the leg-bone; but on the fore and longipt part, it is fast by Synarthrofis to the die-bone, whose lower and inner part it seems to receive; the irregularity thereof is wholly unequal, and rising up with many swellings. On the inner side, it makes, as we were, a channel, so to give way, as well to the velo, as tendons going to the sole of the foot and toes. Lastly, we must consider the holes by which the velo passes into this bone to give it nourishment; by reason of which velo the fracture of this heel-bone, is very dangerous, and ligaments and tendons properly so called, coming from one bone to another. The three bones of the foot is named Synarthrofis, or Boat-like, from the resemblance it hath to a Boat, for on the outer part which is next the heel, it is hollow; but on that part which is next the three named bones, it looks towards the Pakeen-bone, it is hollow; but on that part which is near the bone of the toes, it seems to sustain the three fore-mentioned bones by Synarthrofis, and they are knit by the fore-mentioned ligaments: This bone is arched on the upper part, but somewhat hollowed or flattened below, the inner part ends in a point, like the prow of a ship, but the outer side like the round of an ellipse. The fourth bone of which there are names, is named Calcanum, from the resemblance to a Calcanum, although that name is now obsolete.

On the fore-foot it sustains the toes, which by a certain proportion to the fingers of the hand, may be called the ring and little toes, but it is fastened on the hind-part, with the back-part of the heel; on the inner side it is joined with the Boat-like bone, and that nameless bone which sustains the middle toe, on the outer side it produces a rising like the back of an Ail, which on the lower part is extended transversely all the length thereof; at two sides of this eminency, or rising, there are two small cavities, in form of a channel.

The first and the greater of the Offa innominata, or nameless bones, sustains the great toe; the lesser and second, the next toe thereto, the third and middle in between, the middle toe. These three bones are arched on their upper part, but somewhat hollowed below. They are knit to the three fore-mentioned bones by Synarthrofis, of which they are received, but on the hind-part with the Boat-like bone which they receive. Now we must come to the bones of the second rank, that is, of the Pedum, or back of the foot; these are five in number, bearing up the five bones of the toes. They are somewhat gibbous on the upper part, but somewhat hollow below; each of them hath two processes at the end thereof, by the lower and side of which they receive the three nameless and die-bone, but by the upper made into a round head, they are received of the first bones of the toes. Their connections, whether with the toes, or bones of the instep, are by Synarthrofis. The ligaments as well proper as common are fast, as we said of the former. The bones of the third order now remain to be spoken of, which, we said, makes the toes, and they are fourteen, two of the greatest toe, but three each of the other toes. The first is somewhat long, but the rest are very short, except that of the great toe, all of them on the upper part are round and convex but on the lower somewhat hollow, and plain-wise, that the tendons which bind them, may pass more easily and safely without inclining to either side, even to their utmost joints, although such stiffnesses are much helped by the membranous and common ligaments, which rising from the sides of these bones, involve their tendons, as we mention in the fingers. To conclude, each of these bones, the last excepted, have a double connexion by Synarthrofis, they are all unequal in their bigness, that is, thick at their beginning, (where they receive the heads of the precedent bones, upon which they move as a door upon the hinges) and so they grow thinner towards the ends but in these ends, they are received of the following bones: At their ends they rise into two eminencies on their sides, distinguished by a cavitation between them, through which occasion they are far thicker at their ends, than in their middle. The Ligaments by which their connectios are fastened, are such as the former. The Os fasciulare or feed-bones of the feet, are like in number and use to those of the hand. But this is to be noted, that those feed-bones which are in the hand Articulation are somewhat bigger than the rest, and they are round and longish on the out-side, but smooth and hollow on the in-side, divided between two cavities, compassed by three sinnings, of which two are on the sides, and the third in the middle of the extremity of the feed bone of the Pedum, which chiefly binds up the great toe. To conclude, before we come to speak of the Mucles, we must observe, that the foot was made for two commodities. The first is to hold and bear the whole body, when we stand, for which sake Nature forsooth did it contrary to the other, as it placed the thumb on the hand. The other is for application, taking hold of, whereas Nature framed and made the foot, and those moveable and pointed in the toes, as in the fingers of the hand. Besides all, for that we must go upon our feet, Nature hath made them in some places hollow on the lower side, and in other some plain in a triangular figure, that our toes may carry us over every foil, plain, mountainous, equal and unequal, through all parts of the world.
The muscles of the leg moving the foot are absolutely nine, three in the fore-part, and six in the hind. Two of these fore-muscles bend the foot, when they jointly perform their motion, but when severally, each draws it to his side; the third chiefly extends the toes, for otherwhises it forms its flenderer and longer tendon (which exceeds not that bone of the Pedum, which sustains the little toe) to help all to bend the foot.

The first is called Peronaeus, because it defends along the bone Peronaeum. The other the Tibialis anticus, for that it defends along the OrTibia, or bone of the leg. The third from its action is called the Digitus-tractor, or Toe-toucher. For their original, the Peronaeus which seems to have two heads, defends from the upper appendix of the Peronaeum, or thin-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 thaws 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, go the thickest under the sole of the foot, ending in the die-bone, and that bone of the Pedum which sustains the great toe; the other goes on the outer-side to the die-bone, and the last and least bone of the Pedum which leaveth the little toe, being a fonder portion thereof is produced even to the side of the little toe, extending and drawing it from the ret. The Tibialis anticus or fore-leg muscle proceeding from the upper and outer appendix of the leg-bone defends above the surface of the fame bone, which between the four and outer-line to which it adheres, as alo to that surface even to the middle, from which place it places one tendon, which defending on the fore and lowest part, ends on the outer-side into two of the named bones, that is, into the first which is the thickest, and into the middle one, but besides, by a fonder portion thereof, it is extended into the thin and greater bone of the Pedum, so to extend the great toe, drawing it towards to the other foot. And this muscle with the precedent bends the foot, if they both perform their parts at once; but if severally, each draws the foot towards his side. The third, which is the Digitus-tractor, or Toe-toucher, is twofold; the one takes its original from the top of the leg, and running along the thin-bone, and passing under the ring, carries it into the foot, in which it ends by five tendons going to all the joints of the toes, and by a sixth at that bone of the Pedum which sustains the little toe, whereby (as we formerly said) it helps the bending of the foot. The other defends into the midst of the thin-bone, and somewhat fainted by, one tendon passing under the ring, it goes to the great toe. But you must note, that all these tendons have nervous, linkeatous, and falty fibres to separated from each other, that they can equally alone perform their function, as if they were more distinct muscles. And we must think the fame of the ret which have distinct tendons presently from their fibby part.

The fix hind-muscles follow: of which the first are called the Gomuli, or Twins, by reason of the malformity of their thickest, original, infection and action. The third is called the Plantaris, because it is spent upon the foot of the hind, as the Palmaris upon the palm 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 Tibialis posterior or hind-leg-muscle, which defends along the back-part of the leg-bone. The sixth last and the Digitus-Severus, or Toe-bender, equivalent to the dorso-lateral side of the hand. Some make but one muscle of this, and the Tibialis posterius, which produces three tendons, others had rather make three, as thus, that one should be the Tibialis, the other the bender of four toes, the third the binder of the great toe.

Now for the two Gomuli, or Twins, the one is internal, the other external; the internal paftes forth from the root of the inner Condyle of the thigh, but the external from the external Condyle; and from thistheir original presently becoming flithy, especially on the outer-side, they meet together a little after in their fibby parts, and with the Soleus they make the thick and great tendon at the midst of the leg, which from thence is inflected into the back-part of the heel in this very tendon, breed painful kites. The action thereof is, to help our going by putting forth the foot, whith it draws the heel towards its original. The Plantaris the hind and solemuscle of them all, paftes forth flithy from the outward head of the leg-bone, and from thence the face of some few tragers breadth it ends in a strong and fnder tendon, which it bands between the twins and sole muscles 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 thickeft of them all, and fated under the Twin-muscles, doth from the Committure of the thin and fbones, and about the midst of the leg-bone, after it hath mixed his tendon with that of the twin-muscles, it runs into the forefoot place that it may extend the foot for the forefoot sake.

The Tibialis posterius defends from the hinder appendix of the leg and thin-bones, and adhering to them almost as far as they go, by a strong tendon, being, as it were, born at the end thereof, it is inflected into the Boot-like bone, and the two twin named bones so to help the oblique extention of the foot.

The last being the Digitus-Severus, or Toe-bender, is two-fold; for one ancles from the leg-bone, in that place where the Planterius ends, and inflected into that same bone, it goes even to the back-side of the inner ankle, and from thence into the joints of four of the toes. The other draws left from almost the middle of the thin-bone, and somewhat inflected into is, it goes by the
Of the Muscles and Bones. Book VI.

Chapter XI.

Of the Muscles moving the toes of the feet.

Now follow the muscles moving the toes; these are eight in number, one on the upper, and even on the lower side. The first proceeds from the pattern, heel, and die-bones below the external ankle, or the ligament of those bones with the leg-bone; and obliquely flected 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, wherein it is called the Abductor of the toes, and also Pediofus, because it is stretched over the Pedestum, or back of the foot. The first of the seven of the lower side called the Flexor superior, or upper-bender, arises from the heel and is flected along the foot under the strong membrane (which from the heel is first entirely faftened to the extremity of the bones of the Pedestum,) to strengthen the parts contained under it, or the tendons of the four toes which it bends. Here you must note, that near the termination thereof, this muscle divides it self, that like a muscle of the hand which is called Subgluteus, is faftened by a motion to give way to the deep, which (as we said) draws them inwards to the bone all along the lower part of the toes, even to the last dearticulation. The second equivalent to that muscle of the hand which is called Subnaticus, that so it may give way to the deep, which involves and faftens it to the bone all along the lower part of the foot, arises from the inner and hollow part of the heel and pattern-bones, and ends in the side, and inner part of the great toe, which it draws from the ret drawn outwards: This may be divided into two or three muscles, as the Thrcnr, or inner side of the hand, to draw the great toe to the ref, as much aver, and as the feet is faftened to the extremity of the bones of the Penedium, or bone-bound muscles of the foot, it is in the manner faftened to the top of the foot under the strong membrane (which is faftened to the bones in the feet from the fom, or back of the foot), to the bone it self, or bone-bound muscle, that so it may faften to the bone all along the lower part of the toes, even to the last dearticulation.

The fourth muscle is in another manner faftened to the bone all along the lower part of the toes, even to the last dearticulation. Theide proceeds from the pattern, heel, and inwards of the foot to the bone. The third proceeds from the inner and hollow part of the heel and pattern-bones, and ends in the side and inner part of the great toe, which it draws from the ret inwards: This may be divided into two or three muscles, as the Thrcnr, or inner side of the hand, to draw the great toe to the ref, as much aver, and as the feet is faftened to the extremity of the bones of the Penedium, or bone-bound muscles of the foot, it is in the manner faftened to the top of the foot under the strong membrane (which is faftened to the bones in the feet from the fom, or back of the foot), to the bone it self, or bone-bound muscle, that so it may faften to the bone all along the lower part of the toes, even to the last dearticulation.

Chapter XII.

An Epitome, or brief recital of the bones of a man's body.

He whole head which hath the leaft consists of sixty bones; but that which hath moft, of sixty three, that is, fourteen of the Cranum or skull, fourteen or seventeen of the face, and thirty two teeth: Of the bones of the skull there are eight containing, and six contained in the containing are, the Os frontis, or forehead-bone, the two bones of the Synapsis, one the two inner of the palate, the two of the lower jaw in children and last of all the bone of the neck, twelve of the chest, five of the loins, six of the holy-bone, and four of the rump. Being the middle gristle or partition of the nose, the two thirty teeth are equally distributed in the upper and lower jaws; and of these three are the teeth of the fore, four of the tongue, five of the bones, six of the holy-bone, and four of the rump. Besides, there are two bones of the throat, or collar-bones.

The ribs are twenty four, that is, fourteen true, and ten bastard ribs. The bones of the Sternum, or breast-bone, are as often frequent times, other times few, as sometimes in young bodies. Hence coming to the arm there are reckoned thirty two, beginning with the shoulder-blade, as there...
there are two shoulder-blades, two arm-bones, four bones of the cubit, that is, two ell-bones, and two wrists, fourteen of the wrist, eight of the after-wrist, and thirty of the fingers; into this number also come the Sternales, or feed-bones, of which some are internal, and these always twelve at the least, although sometimes there may be more found, a great part of which rather merit the name of grittles, than bones; there are others external, if we believe Sylvius.

The first forms the fore-part of the Skeleton of a man, &c.

The Declaration of these three Figures put into one.

A 3. The cranioc future called in Greek 

B 2 3. The future like the letter λ, called λυστεσθηναν. 

C 2. The sagittal face called σαγιτταν. 

D 2 3. The scale-like Conjunction called έν τα υπό δύο. 

a 2 3. Os verticis, or Synaptidis, the base of the Synaptis, called έν τα υπό δύο. 

b 1 3. The forehead bone, that is μεταμεσον. 

c 1 3. The bone of the nose or naris. 

b 2 3. The bones of the temples of μεταμεσον. 

a 2 3. An appendix in the temple-bone like a bodkin, ωκυλοκρισια. 

1 2 3. A process in the temple-bone like the root of a dog, called therefore Mammillaris and μεσομεταμεσον. 

E 2 3. The wedge-bone, μεσομεσον. 

f 3. The stony part of the skull. 

g 1 3. A process of the wedge-bone much like the wing a Bat, and therefore called πτερογενη. 

Now remain the bones of the leg, which (if we reckon the Os Ilium, on each side three, as the bones of in young bodies it is fit it should) they are sixty fix, besides the feed-bones, that is to say, two the whole leg hamsh-bones, two thark-bones, two huddle-bones, two thigh-bones, two whirl-bones of the sixty six, knees, four of the leg, that is, two leg-bones, and two thin-bones. Fourteen of the instep, as two heel, two paten, boat-like, two dix, and fix nameke bones. Ten of the Petiuns, or back of the foot, that is, five in each foot, and twenty eight of the toes and as many feed-bones in the feet, as the hands enjoy. But I have thought good to add these Figures for the better understanding of what hath been spoken hereof.
The second and third figures shew the backside of the Skeleton, and the lateral part of the Skeleton.
Book VI.
and other extreme Parts of the Body.

This Figure shews the Selection of the bones and profiles of a Woman, so that it may appear all her bones are in proportion softer than the bones of a man. But in this Figure, only these parts are marked with letters,

wherein a Woman differs from a Man in her bones and profiles.

A. The sagittal suture dividing into the face, and dividing the forehead-bone, which is sometimes found in women, very rarely in men, but always in infants.

BB. The chief somewhat depressed before, because of the paps.

CC. The cheifi somewhat depressed because of the paps.

D. The breast-bone perforated sometimes with a hole much like the form of a heart, through which the veins do run outward, from the mamillary vein into the paps.

E. The gristle of the rib, which in women are somewhat bigger, because of the weight of the ducts.

F. A part of the back reflected, or bent backward above the lats.

G. The compass of the hand-bones running more outward, for the womb to rest upon, when a woman is in child.

I. The suture of the base-bones fitting up with a thick gristle, in the birth they might better yield somewhat for nature's need.

K. A great and large cavity circumvscribed by the bones of the Coccyx and the siumbo.

L. The thumb or coccyx, curved backward to give way in the time of the birth.

M. The thigh-bone by reason of the largeness of the forsepal cavity, have a greater distance betwixt them above, whence also is it that Women's thighs are thicker than Men's.

CHAP. LXII.

An Epitome of the names and kinds of composition of the Bones.

Because it is necessary for a Chirurgeon to know the manner of setting and repairing broken bones, as to put them in their places when they are dislocated, or out of joint; but seeing neither of them can be understood when the natural connexion of the bones is not known, I have thought it a work worth my labour, briefly to set down, 1. What and how many means the bones are mutually knit and fastened together, 2. The universal composition and structure of all the bones in a man's body, is called by the Greeks 

Skeleos. But all the bones are composed after two sorts, that is, articulate, and not articulate. There are many other kinds of both these sorts. For there are two kinds of Articulation, that is, Diarthros, or De-articulation, and Synarthros, or Co-articulation; which differ as thus: De-articulation is a composition of the bones with a manifest and visible motion, Co-articulation hath a motion of the bones, yet not so manifest, but more obscure. But these two, do again admit a subdivision into other kinds. For Diarthros, contains under it: Enarthros, Arthrodia, and Ginglymos. Now Enarthros or Inarticulation is a kind of Dearticulation, in which a deep cavity receives a thick and long head, such a composition hath the thigh-bone with the buckler-bone. Arthrodia is when a lightly engraven cavity admits a small and short head; such a connexion is that of the arm-bone with the shoulder-blade; or of the foot with the heele. The Greeks have distinguished by proper names these two kinds of cavities and heads; for they call the thick and long head Caput, that is, a head aboslutely, but the lesser they term Conus, or Conorn, which what caput the Latins call Capaculum, a little head. But they call a deep cavity Concus, and a superficial one in Glege. The third sort called Ginglymos, 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 cubit-bone, that is in the connexion of the thighbone, and thus much of me.
Suture is a composition of the bones after the manner of sewing things together, example whereof appears in the bones of the skull. *Symphyses* is when one bone is fastened in another, as pins are 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 joined together.

Hitherto we have spoken of the first composition of the bones by articulation and the kinds thereof. now it follows we treat of *Symphyses*.

*Symphyses* 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 other things, after which fort, in excess of time the bones of the lower jaw grow together, which formerly in children were manifestly distinguished, or by the mediation of some medium, but that happiness three manner of ways, by interposition of three several Media, as first of a gristle, which kind of union the Greeks call *Symphyses*, after which manner the bone-bones grow together, and also some Appendices, in young bones; secondly, of a ligament, and it is named by the Greekians *Synnesuros*, the name of a nerve being taken in the largest sense, sometimes it is used for a tendon, other times for a ligament, other times for a nerve, properly foculated, and is the author of sense and motion. But this *Symphyses*, or unio, hath place by *Symphyses*, or interposition of a nerve, or in certain bones of the Sternum and hands.

Thirdly, the bones grow into one by interposition of flesh, called in Greek *Symphyses*; thus the flesh of the gums fattens 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 explication comes into my mind, which I was hitherto accustomed by Cremius Curio Doctor of Phylic, which if you will observe it, is both blus]es and more easy for your understanding.

*An Epitome or brief recital of all the Muscles of mans body.*

As I have formerly reckoned up the bones, so here, I have desired to recite the muscles of man's body. Wherefore in the face we first meet with the broad or skin-muscle arising from the fleshy palate, and covering the whole mouth, and almost all the face. Then, so far as pertains to the upper eye-lids. In the orbit of the eye lie fourteen, that is, seven in each eye, of which four are called nigh, two oblique, and one pyramidal. Then succeed four of the nole, two external, on each side one, and two internal; these draw it together, and the other open it. After these come the six muscles of the lower jaw, of which two are called the *Coronals*, or temporal; two *Mastoide*, or grinders, two sound (which from some certain to the Coro]; in these bones, to the teeth, than to this jaw, which little ones hold in the mouth, arising from the noked projections of the wedge-bone; two openers of the mouth being nervous or ten- dinos in their midst. Then follow the eight muscles of the lips, that is, four of the upper, and as many of the lower, flattering and opening the mouth. The tongue with his ten muscles hold, as it were, in the midst of the mouth. Wherefore the muscles of the face are fifty one. In the four part of the neck are found the muscles of the bone *Hyoid* and throat: Now eight muscles hold the bone *Hyoides* as equally balanced; of which there are two upper arising from the chin, two on the flades *Splenius*, perforated in their midst, through which the two openers of the mouth in that part nervous do pass; two arise from the Sternum, and bulk, two from the upper rib of the shoulder-blade to the Coracoide, which also in their midst are nervous, in which place the two *Mastoides* lie upon them.

The muscles and bones united mutually by Symphyses, or union; by which they are so assigned that there is no disfigu- larium, or heterogeneous body, at least which may be disjunct, interposed between them. Such union ap- pears in the two bones of the lower jaw at the ear, in the bones of the Sternum, the bones with the bone-bones, and the bone-bones between themselves; of this union there are no more kinds, for by this it comes to pass, what bones which were more and distant meet together by interposition of one Mid- dian, so wide, a gristle, which now indeed, as by a gristle, but is turned into a bone.

Epistaphe, when the head of a bone is wholly received in the cavity of another, and bid therein, as the thigh-bone is joined with the bone-bones. Arthrodia, when in a lightly engraven and not much depressed cavity thus 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 neighboring muscles) it would otherwise have been in pernicious dan- ger of dissocation. Thus the arm-bone is fastened to the shoulder-blade. Ginglymous, when the bones mutually receive each other, and in their composition both the cubes and arm-bone.
The Throttle composed of three gristles hath eighteen or twenty muscles of which six or eight are common, and twelve proper. Of the common there are two above, two below, and two at the side of the gristle; to which we may add two or two which serve for the opening of the Epiglottis, which are always found in great four-footed beasts for to puff down the Epiglottis. The proper are twelve, which almost all of them come from the second gristle, so to be inserted into the first and third, of which some are before, others behind the > Thyroides. Besides, there are the > Middles which bend the head. But in the back part of the neck 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 > Middles, and the twelve hind-muscles, that is to say, the two > Splenii, two > Complexi; four right, and so many oblique, which are very short, so that they pass not beyond the hill and second vertebras. The neck hath eight muscles, of which two are called the > Largi, lying before upon the bodies of the Vertebrae, the two > Scaleni, which stand at the sides; the two > Spinalis, which run along the spine; the two transverse, which go to the transverse processes of the chest. The chest hath eighty one muscles, of which some are on the fore-part, some on the side, others on the sides; they are all combined and coupled together, except the midriff. Now of these there are the two > Subclavi, the two great saw-muscles which proceed from the bails of the shoulder-blade; the four > Rhomboidei, or square-muscles, that is, two above, and two below; the two > Spinali, the two binders of the gristles within the chest. Besides, there are twenty and two external, and as many internal intercostal muscles, twenty four > Intercostales; that is, twelve external, and as many internal; so that the intercostal, and > Intercostales, are fifty eight, which with the twelve before mentioned, make the number of eighty. Add to these the midriff being without an associate, and you shall have the number formerly mentioned, tw, eighty one. But all, if you will add to these the muscles of the lower belly, I will not much gainsay it, because by accident they help inspiration and expiration. Whereof the eight muscles of the > Epigastrium, there are four oblique, of which two are defendant, and to many succeed; two right, to which you may add the two supinating or pyramidal muscles which come from the spine-bone; if it please you to separate them from the head of the right muscles. There are six or eight Muscles of the Lungs, of which two bend the Lungs, which are the triangular; the two > Semispinales, the two > Scapulae two are in the midst of the back, which for that cause we may call the > Recti, or > Chinæ-muscles. Now, that hereafter we may severally and distinctly set down the muscles of the extreme parts, we will come to the privities. Where for the use of the thighs, there are two muscles called the > Gubernaculi, or hanging-muscles. At the root of the yard, or > Pectineum, there are four others, partly for the connections pulling of the urin and feed, and partly for erecting the yard. The > Spinalis-muscle is seated at the neck of the bladder. At the end of the right gut are three muscles, two > LesQuarter Anti, or lifters up of the fundament, and one > Spinale or standing-muscle. Now let us proceede the muscles of the external and internal parts. But it will be sufficient to mention only the muscles of one side, because seeing these parts of the body are double, those things which are said of the one may be applied to the other. Whereof the muscles of the arm, beginning with those of the shoulder-blade, at the hand, are forty two, for these are found the shoulder-blade. Of the arm properly or particularly so called, there are five or eight; and there are three, four or five proper muscles of the cubit, that is, appointed for the performance of the motions thereof; in the inner part of the cubit there are seven, and as many in the outer; but those of the hand are reckoned thirteen at last. The four of the shoulder-blade are the > Trappi, resembling a Monks Cowl, which moves it upwards, and downwards, and draws it backwards; the second is the > LesQuarter, or lifter up; the third the > Trapezius, lying under the spectacle, which may seem two, backwards and upwards, the fourth, the lesser saw-muscle, which is inserted into the > Coracoidei. The arm is moved forwards, backwards, upwards, downwards, and circularly. The pectoral muscle rising from the clavicle, breast-bone, and neighboring ribs, draws it forward; the > Humilis, or low-muscle, coming from the lower-most of the shoulder-blade draws it backwards; the > Deltoidei upwards, and the > Latissimus downwards, and somewhat backwards. But the three feared about the shoulder-blade move it about, or circularly. The > Eppeus or > Scapularei upwards; the > Supercapulare, which may be seen two, backwards and downwards; the > Subscapulare which is in the cavity of the shoulder-blade; moves it forwards, so that by a certain vicissitude and feciuation of action, they move it circularly. Two muscles bend the cubit, the one named > Burse, or two-headed, and the other > Bidenti or the arm-muscle; but one, two or three muscles extend it; for, if you have respect to the original, this muscle hath two or three heads, but one only insertion. In the inside of the cubit are seven muscles, one > Palmaris, two > Bifil-bendes, two > Pronatores, one square, another in some fore round; two > Fingers-benders; and one > Abductor, or drawes side. These fourteen internal and external muscles of the cubit, do not indeed move the cubit, but only cease these motions. There are the thirteen muscles of the hand; the > Tension which may not be divided into two, but into six, not only by the divers actions it performs, but also by the branches divided by a manifest space between them; the second is called the > Hypothenar, which lies under the little finger, as the > Thenar doth under the thumb; the third is the > Abductor of the fingers, then comes the > Lumbricales and ten Interossi, although eight may be reckoned, and ten at the most. The whole leg hath at the least fifty muscles, for we reckon there are fourteen muscles in the thigh. The muscles of this thigh, there are eleven made for the use of the leg; there are nine seated in the leg, three before, and six behind, which serve for the use of the foot and toes; in the foot are seated fifteen. Therefore of the fourteen muscles serving the thigh to bend it, one called the > Lumbricales, the other sitting from the cavity of the hanch-bone; but the three which make the buttocks and the > Trocan or three-headed.
headed muscle, (which if you please, you may divide into three) extend it. Besides these, the four twin-muscles, and two Obiitamnos, of which the one is internal, and the other external, turn the thigh about. The leg hath eleven; that is, the long, the membraneous, the four Miliaris, or hind-muscles (three of which come from the huckle-bone, but the other from the committee of the Shoe bone) the right, the two vast, the Crureus or leg-muscle, and the Popliteus, or ham-muscle. Inside foot ed in the leg for the use of the foot and toes, are three free, and six hind-muscles: Two of these bend the foot, one of which is called the Tibialis anticus, the other Peronaeus, which you may divide into two. The third the bend er of the toes, although it also partly bend the foot, to which also the bender of the thumb may be revoked. One of the hind is the toe-bender, others extend the foot; and are in this order: Two vast, one Plantaris, one Solen, one Tibiae fibulares, and the great bender of the toes, to which may be revoked the bender of the thumb. Of the fourteen feated in the foot, one is above, seated on the back of the foot, which we call 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 side of the foot; the other lends his help to the great toe, which you call the Abductor of the thumb, another is seated on the outside for the use of the little toe. To these are added the four Lumbricales, besides the eight Intercostes, or 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 Feins, the Fat, and all the fatty membrances are taken away, that part of the fatty Membrane excepted, which takes upon it the nature of a muscle, as being conjoined with the muscles.

1. The muscle of the fore-head.
2. the temporal muscle.
3. the muscle covering the eye-rid.
4. the muscle opening the wings of the nose.
5. the front part of the eye-bone.
6. the muscle of the upper lip, tending to the nose.
7. the beginning of the vast muscle or grinding muscle.
8. the broad muscle consisting of a fatty membrance.
9. the beginning thereof which rises immediately from the collar-bone, and the top of the shoulders.
10. that part thereof which bends forwards to.
11. the muscle which lifts up the arm.
12. the pectoral muscles.
13. the membraneous part of this muscle which is joined to the smaller part of the vast muscle of the Abdomen, or belly.
14. the fifth and seventh ribs, and the insertion thereof.
15. the muscle drawing down the arm.
16. the oblique defending muscle of the lower belly.
17. the infraspinatus.
18. the Linia alba, or white-line, at which the two oblique defending muscles meet, covering the whole belly, 
19. the yard, the skin being taken away, y the vessels of food.
20. the muscles wrapped in the fatty membranes. 
21. the fore-muscle bending the cubit.
22. the muscle extending the cubit.
23. the two-headed muscle extending the wrist.
24. the muscle turning up the wound.
25. the upper muscle pleasant to the arm.
26. the long muscle flaring the wound, y the end of the arm-benders, whose beginning is a. and tendon of.
27. a portion of the muscle, whereof one part yields tendons to the arm, the other to the thumb.
28. the fifth part of the arm, a muscle divided into two tendons, the one whereof is inserted into the first joint of the thumb, the other into the following. 
29. the first muscle of the thigh, whose head is at a, and tendon at b.
30. the end of the second muscle of the thigh. 
31. the end of the third muscle of the thigh.
32. the fourth muscle of the leg, the beginning at c, almost wholly membraneous at d. the ninth muscle of the leg, e the eighth of the thigh.
33. a portion of the fourth and fifth of the thigh, f the glands of the groins.
34. the eighth of the thigh.
35. the ninth muscle of the leg, g the infraspinatus.
36. the first muscle of the foot, h the original i, j and k the junction of the foot. 
37. the tendon of the muscle lifting up the great toe. 17 the muscles extending the four other toes. 
38. the adductor 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 latter toes.

The end of the sixth Book.
BOOK VII. Of Tumors against Nature in General.

C H A P. I.

What a Tumor against Nature, vulgarly called an Impostume, is, and what be the differences thereof.

An Impostume, commonly so called, is an affect against Nature, composed and made of three kind of Diseas: distemperature, ill Conformation, and Solution of Continuity, concurring to the hindering or hurting of the Action. An humour, or any other matter, answering in proportion to a humour, abolishing, weakening, or depraving of the office, or functions of that part or body in which it resides, caueth it.

The differences of Impostumes are commonly drawn from five things, Quantity, Matter, Accidents, the Nature of the part, which they affect or posses; and lastly, their efficient causes. I have thought good for the better understanding of them, to describe them in this following Scheme.

A Table of the differences of Tumors.

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Matter</th>
<th>Accidents</th>
<th>Natural Nature</th>
<th>Efficient Causa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Great</td>
<td>A humour, or any other matter, answering in proportion to a humour, abolishing, weakening, or depraving of the office, or functions of that part or body in which it resides, caueth it.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indifferent</td>
<td>A humour, or any other matter, answering in proportion to a humour, abolishing, weakening, or depraving of the office, or functions of that part or body in which it resides, caueth it.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Small</td>
<td>A humour, or any other matter, answering in proportion to a humour, abolishing, weakening, or depraving of the office, or functions of that part or body in which it resides, caueth it.</td>
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<tr>
<td>Great</td>
<td>A humour, or any other matter, answering in proportion to a humour, abolishing, weakening, or depraving of the office, or functions of that part or body in which it resides, caueth it.</td>
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From their Quantity, to the natural nature of the part which they posses. From the efficient causes, or rather the manner of doing. For some Impostumes are said to be made by defluxions, others by congestion, the first are generally hot, and the other commonly cold, as it shall more manifestly appear by the following chapter.

C H A P. II.

Of the general causes of Tumors.

There 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 humours, because the expulsive faculty resident in that part is provoked to expel them, moved thereto, either by the troublesome nature of their Quantity or Quality. The part receiving, draws and receives occasion of heat, pain, weakness, whether natural or accidental, opennes of the passages, and lower situation.

The causes of heat, in what part soever it be, are commonly three, as, all immoderate motion, under which defluxions are all contained, and the ufe of heat, acrid Meats and Medicines. The causes of Pain are four, the first is a sudden and violent invasion of some intertempore thing, the second is occasioned by a Wound, Luxation, Fracture, Contusion, or Diffention, the third, is the expulsive force of the part, for you feel no pain in cutting a bone, or expelling it to cold or heat; the fourth is, the attention, as it were, of the Animal Faculty for the mind, diverted from the actual cause of pain, is less troubled, or insensible of it.
Of Tumours against Nature in general.

Book VII.

Two causes of weakness.

Two causes of congestion.

A part is weak, either by its Nature, or by some Accident : by its Nature, as the Glandules and the Eminentures of the principal parts ; by Accident, as if some dissembler, bitter pain, or great definition have felt upon it, and weakened it ; for the strength is weakened and the palefhes dilated. And the lowness of life yields opportunity for the falling down of humours.

The causes of congestion are two principally, as the weaknefs of the concordive faculty, which re-cedes in the part, (by which the affumulation into the substance of the part of the nourishment flowing to it, is frustrated) and the weaknefs of the expansive faculty ; for, whilst the part cannot expel excre¬tures, their quantity continually increases.

And thus often times cold Impofhumes, have their original from a gross and tough humour, and do are more difficult to cure.

Lastly, All the caufes of Impofhumes may be reduced to three ; that is, the primitive or externals; the antecedent or internals; and the conjunct or containing : as we will hereafter treat more at large.

CHAP. III.

The signs of Impofhumes or Tumours in general.

Before we undertake the cure of Tumours, it is expedient to know their kinds and differences, which knowledge must be drawn from their proper figns, the fame way, as in other Diseases. And because the proper and principal figns of tumours are drawn from the effence of the part they poffefs, we must first know the parts, and then consider what their effence and com¬position are.

We are taught both by Skill in Anatomy, and the observation of the depraved Function, effec¬tually when the affected part is one of thofe which lie hid in the Body, for we know whether or no the external parts are affefled with a Tumour againft Nature, by comparing that with his Natural, which is contrary. For comparing the found part with the difeased, we shall eafily judge whether it be fve¬dless or no.

But becaufe it is not fufficient for a Chirurgeon only to know thefe general figns (which are known even to the vulgar) he muft attentively obferve fuch as are more proper and near. And thefe are drawn from the difference of the matter and humours, of which the tumours confift.

For this, Galen teaches, That all differences of Tumours arife from the nature and condition of the matter which flows down and generates the Tumour ; alo they are known by fuch accidents as happen to them, as colour, heat, hardnefs, softnefs, pain, tension, refiftance.

Wherefore pain, heat, rednefs, and tension, indicate a fanguine humour; coldnefs, softnefs, and no great pain, Phlegm; tension, hardnefs, the livid colour of the part, and a pricking pain by fits, Mel¬ancholy; and yellownefs and pale colour, biting pain without hardnefs of the part, Choler.

And besides, Impofhumes have their periods and exacerbations following the nature and motion of the humours of which they are generated. Wherefore by the motion and fits it will be no difficult matter to know the kind of the humour, for as in the Spring, in the Morning the bloud is in motion; in the Summer, in the midft of the Day, Choler, as in Autumn, in the Evening, Melancholy, as in Winter, in the Night: the exacerbation of Phlegm are most predominant. For Hippocrates and Galen teach, that the Year hath Circuits of Diseases, lo that the fame proportion of the excess and duration are between both, although that is far better than this. The figns by which the Chirurgeon teaches. That all differences of Tumours arife from the nature and condition of the matter which flows down and generates the Tumour; alo they are known by fuch accidents as happen to them, as colour, heat, hardnefs, softnefs, pain, tension, refiftance.

It is beft to terminate a tumour by refolution, and the worft by corruption; fuppuration and in¬sation when the matter is digefted and ripened; thirdly, by induration, when it degenerates into a Scirrhous hardnefs; the fourth, which is the worft of all, by a Corruption and Gangrene of the part, which is, when overcome with violence, or the abundance or quality of the humour, or both, it comes to that diftemper, that it lofses its proper adfion.

Therefore firft they are terminated by infeffible tranfpiration or refolution; fecondly, by fuppuration when the matter is digefted and ripened; thirdly, by induration, when it degenerates into a Scirrhous, the thinner part of the humour being dissolved; the fourth, which is the worft of all, by a Corruption and Gangrene of the part, which is, when overcome with violence, or the abundance or quality of the humour, or both, it comes to that diftemper, that it lofses its proper adfion.

It is beft to terminate a tumour by refolution, and the worft by corruption; fuppuration and in¬sation are between both, although that is far better than this. The figns by which the Chirurgeon may predece that an Impofhum may be terminated by refolutions, are the remotion or slackening of the swelling, pain, palpitation, tension, heat, and all other accidents, and the unaccufomed livelnefs and itching of the parts and hot Impofhumes are commonly thus terminated, becaufe the hot humour is eafily refolved, by reafon of its fubtility.

Signs of fuppuration are the intention or increafe of pain, heat, swelling, palpitation, and the fever; for according to Hippocrates, Pain and the Fever are greater when the matter is fuppurring, than when it is not fuppurred.

The Chirurgeon muft be very attentive to know and obferve when fuppuration is made, for the purulent matter oft-times lies hid (as Hippocrates faith) by reafon of the thicknefs of the part lying above or over it.

The figns of an Impofhum degenerating into a Scirrhous hardnefs, are the diminution of the tumour...
Book VII.  
Of Tumours against Nature in general.

The causes of the hardness not going away with the swelling, are the weakness of Nature, the fetnesses and thickenesses of the humour, and unskilfulness of the Chirurgeon, who by too long using revolving things hath occasioned, that the more subtle part of the humour being dissolved, the rest of the grosser nature like earthly drugs remains concrete in the part.

For so Potters, Vellums dried in the Sun, grow hard. But the unskilful Chirurgeon may occa-

sio-

nes a Scirric hardnesse by another means, as by consuming the skin, and incrusting the hu-

mours by too much ufe of repercutious. But you may perceive in an Impoishment to degenerate

into a Gangrene thus, if the accidents of heat redency, pollution and tension shall be more

than they are wont to be in suppuration, if the pain presently cease without any manifest cause, if

the part wax livid or black, and lastly, if it stink, without any manifeft caufe. But we shall treat of

this more at large when we come to treat of the Gangrene and Spatulas.

A sudden diminution of the tumour, and that without manifeft cause, is a sign of a gangrene at hand.

Gangrene and Wart.

And the part wax livid or black, and turned into the body again, which may be occasioned by the immediate ufe of refrigerating

thinges, and sometimes much fluxency mixed with the matter, although there be no fault in the thinge which were applied.

Fever and many other malign Symptoms, as Swolnendings and Convulsions, by translation of the matter to the noble parts, follow this flowing back of the humour into the body.

Chap. IV.

Of the Prognostick in Impoishments.

Tumours arising from a melancholy, phlegmaticke, gross, tough, or vicious humour, ask a longer time for their cure, than those which are of blood or choler. And they are more difficultly cured which are of humours not natural, than those which are humours of yet contained in the bounds of Nature.

For those humours which are rebellious, offerred rather than in quantity, and undergo the diverse forms of things differing from Nature, which are joined by no formula or affinity with things natural, as Suse, Poultis, Honey, the dregs of Oil and Wine, yea and of solid bodies, as Stone, Sand, Coal, Strawes, and some divers things of living things, as Worms, Serpents, and the like Monsters.

The tumours which offend the inner parts and noble entrails, are more dangerous and deadly, as also those which are in the joints, or near to them. And those tumours which first upon great Vellums, as Veins, Arteries, and Nerves, for fear of great effusion of blood, waiting of the parts and con-

vul
gation of the parts, are often deadly by reason of the great resolution of the spirits caus'd by their opening. Therein the greatest part is the great resolucio of

the spirits, and hard to cure, as also those which are in the hand, for they are of such humours as are more difficultly cured.

Of Disappearance of a Tumor, and the signs thereof.

Tumours made of matter not natural, are more difficulty cured.

Cold tumours require a longer cure.

Chap. V.

Of the general Cure of Tumours against Nature.

Here be three things to be observed in the cure of Impoishments. The first is the officine thereof, the second, the quality of the humour causing the Impoishments, the third, the temper of the part afflicted. The first indication drawn from the Efficacy, that is, from the greatest or smallest of the Tumor, varies the manner of curing, for the Medicins must be intermixed or distributed according to the greatness of the Tumor. The second, taken from the nature of the humour also changes our counsel, for a Pergonum must be otherwise cured than an Enfinial and an Odenum, than a Scorbutus and a simple Tumor, otherwise than a compound. And also you must after another manner a Tumor coming of an humour not natural, than that which is of a natural humour, and otherwise that which is made by consumption, than that which is made by delusion.

The third Indication is taken from the part in which the Tumor resides, by the nature of the part we understand its temperature, conformation, size, faculty, and lumen.

The temperature indicates that some Medicins are convenient for the flay parts, as those which are more moist, others for the nerves, as more dry, you must apply some things to the Eye, and others to the Throat; one sort of things to those parts which by reason of their rarity are early sus-

ceptable to delusion, another to those parts which by their density are not conducive to it.

But we must have good regard to the fire of the part, as if it have any connection with the great Vellums, and if be to purr forth the matter and humour when it is inflammated.

Galen by the name of Faculty understands the ufe and finding of the part. This hath a manife-

st

indication in curing, for some parts are principal, as the Brain, Heart, and Liver, and others to the Throat; one sort of things to those parts which by reason of their rarity are early sus-

ceptible to delusion, another to those parts which by their density are not conducive to it.

For the pains of the head, we should consider the state of the humour, and the time when it is inflamed.

What we must understand by the nature of the part.

What we must understand by the faculty of the part.
Of Tumours against Nature in general. Book VII.

What things differ from us from using repellents.

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first is, if the matter of the tumour be venenous: the second, if it be a critical abscess: the third, if the defluxion be near the noble parts: the fourth, if the matter be goit, tough, and viscid: the fifth, when the matter lies far in, that is, flows by the Veins which lie more deep: the sixth, when it lies in the Cleanthes. But if the whole body be phlebitic, a convenient diet, Purging, and Phlebotomy, must be appointed, freidions and busses must be ufed. Ill humours are amended by diet and purging.

If the weakness of the part receiving draw on a defluxion, it must be strengthened.

If the part be infeft in its fire, let the Patient be feated, or laid, that the part receiving, as much as may be, may be the higher. It pain be the cause of defluxion, we must aflage it by things mitigating it. If the thickefs, eloppinff of the humour caufe a defluxion, it must be infpilTate by Meats and Medicins, But for the matter contained in the part, becaufe it is againft Nature, it requires to be evacuated by infipilating things, as Cataplafms, Ointments, Fomentations, Cupping-glafles, or by evacuation, as by fprikling, or suppurating things, as by opening, and opening the Impoflume, Lattly, For the conjund accidents, as the Fever, Pain, and fuch like, they must be mitigated by aflaffing, mollifying and relaxing Medicins, as I shall fhow more at large hereafter.

CHAP. VI.

Of the four principal and general Tumours, and of other Impoflumes which may be reduced to them.

The principal and chief Tumours which the abundance of humours generate, are four, a Phlegmon, Eryphilem, Oedema, and Scirrhus: innumerable others may be reduced to these, diftinguished by diftlers names according to the various condition of the efficient cause and part receiving. Wherefore a Phlegmonem, Pneuma, Pelle, Fallen, Carbohydr, Infiruation of the Eyes, Squin¬dym, Iodo, and later, all forts of hot and meitl tumours may be reduced to a Phlegmon. The Herps, maladies, the eating Herps, Ring-worms, and Terles, and all Impoflumes brought forth by cholers, are contained under an Eryphilem, Eryfipelas, Stomatoma, Moliereides, the Tudor or Yrphes, Ganglion, Knots, Kings-Evils, Weis, Watery Ruptures, the Affzes and Lymphophlegmonas may be reduced to an Oedema, as also all darkl tumours, which the abundance of corput Phlegm produces.

In the kindred of the Scirrhus are reckoned a Cancer, Lepruph, Warts, Corns, a Typhus, a Pus, Morphe black and white, and other Impoflumes arizing from a Melancholy humour.

Now we will treat of these Tumors in particular, beginning with a Phlegmon.

CHAP. VII.

Of a Phlegmon.

A Phlegmon is a general name for all Impoflumes, which the abundance of inflamed blood produc¬des. That is called a true Phlegmon, which is made of laudable blood, offending onely in quantity. But a Bufard Phlegmon, or a phlegmonous Impoflume hath fonie others, and proper names, a Carbohydr, Fallen, Ganglion, Spliacel, and the like malignant Pulfules. So when there is a conflux of difters humors into one tumour, divers kinds of phlegmonous Impoflumes called by divers names, according to the more abundant humour, arife, as if a fmal portion of Phlegm fhall be mixed with a greater quantity of blood, it fhall be called an Oedema a Phlegmon, burr, on the con¬trary, the quantity of plegm be the greater, it fhall be named a phlegmonous Oedema, and fo of the rest, always naming the tumour, from that, which is predominant in it.

Therefore we must obferve that all the differences of fuch tumours arife from that, either becaufe the blood cauing it offends onely in quantity, which if it do, it caufes that tumor which is properly called a Phlegmon; if in qualtity, it makes a phlegmonous tumour, becaufe the matter themefl is much dep¬parted from the goodness of blood.

But blood is fail to offend in quantity, either by admixture of fome other matter, as Phlegm, Cho¬ler, or Melanchofy, from whence proceed Oedena, Eryphilem, and Scirrhus Phlegmons, or by corruption of its proper fubftance, from whence Carbuncles and all kinds of Gangrenes, or by con¬cretion, and when Nature is difappointed of its attempted and hoped for fuppuraticn, either by de¬fault of the Air, or Patient, or by the error of the Phyfician, and hence off-times happen Ather¬oma, Stomatoma, and Moliereides. Although these things be fett down by the Ancients, of the simple and furprifing manner of the true Phlegmon, yet you must know, that in truth there is no Impoflume, whose nature exquitifly fhews the Nature of one, and that simple humour, without all admixture of any other matter, for all humours are mixed together with the blood yet from the plenty of blood predominate, they caufe it to be amalgamated, as if they were of blood alone.

Wherefore if any tumours resembbe the nature of one simple humour, truly they are not of any na¬tural humour, but from fome humour which is corrupt, vitiated and offending in quality; for fo blood by naduration degenerates into Choler and Melanchofy.

Therefore a true Phlegmon is defined by Galen: A tumour against Nature, of laudable blood, flowing into any part in too great a quantity.

This tumour, though most commonly it be in the flegth, yet sometimes it happens in the Bones, as Hippi, and the Bones above the Knocks.

A Phlegmon is made and generated thus: when blood flows into any part, in too great a quantity; firt the greater Veins and Arteries of the part affected are filled, then the middle, and latter, the finall and capillaries: so from thence, the blood flows out of the pores and small passages, like dew, and with this the void spaces which are between the finall parts are
first filled, and then with the fame blood all the adjacent parts are filled, but especially the thir, as
that which is most fit to receive defcriptions, by reason of the pungent rarity of its substance, but
then the nerves, tendons, membranes, and ligaments are likewise fuffed full, whereas a Tumour
must neceflarily follow, by reason of the repletion which exceeds the bounds of Nature: and from
hence also are Tension and Refflance: and pain also happens at the fame time, both by reason of the
tension and pernatal heat.

And there is a manifest pollution in the part, specially whilst it appurates, because the Veins, Ar-
teries, and Nerves, are much, being they not accoud habitually within the bounds of the ferved
humour, but prefled without by the adjacent parts. Therefore feizing the pain comes to all the adja-
cent parts because they are too immoderately heated and priffed, the Arteries, which are in the per-
nominal motion of their fitaf & diaphore, while they are dilated, fire on the other infumed parts,
whereupon proceeds that burning pain.

Hereunto add, The Arteries, then filled with more copious and hot blood, have greater need to
seek refignation by drawing in the encompassing air: wherefoare they must as of necessity, have a
confent with the neighbourhood parts which are swollen and pained. Therefore from hence is that
pollution in a Phlegmon which is defcribed by Galen, an agitation of the Arteries, painful and fenfible
to the Patient himself, for otherwife as long as we are in health, we do not perceive the pollution of
the Arteries.

Wherefore thefe two caufes of pollution, or a pullfick pain in a Pbugmon, are worthy to be ob-
erved, that is, the heat and abundance of blood contained in the Veins and Arteries (which more
frequently than their wont incite the Arteries that is, to their dilaf and diftention) and the
comprefion and draining of the faid Arteries, by reason of the repletion and dilution of the adja-
cent parts, by whose evidence the parts affed are troubled and beaten by the trembling and frequent pullation
of Arteries are in pain.

Hence they commonly fay, that in the part affed with a Phlegmon, they fain, as it were, the fane
other kind or frofe of a Mallet or Hammer fmiting upon it. But also, befide this pollution of the Arteries, where
is, as it were, another pullation with itching from the humours whilst they putrefy, and appuritate,
by the permiffion, motion, and agitafion of vapours thereupon arising.

The caufe of heat in a Phlegmon is blood, whilst it flows, more plentifully into the part is'as it were, trodden or thrud down, and caufes obdulion, from whence neceflarily follows a.

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The Princi- The Prin-

CHAP. VIII.

The Prin-

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The Prin-

ciples of a Phlegmon.
Of Tumours against Nature in general. Book VII.

For if he left that age, or have so led his life that he cannot want the use of Wine, let him use it, but altogether moderately. Reft must be commanded: for all bodies wax hot by motion, but let him chiefly have a care that he do not exercise the part possesed by the Phlegmon for fear of a new defluxion. Let his beep he moderate: neither, if he have a full body, let him beep by day, especially fiercely after meat. Let him have his belly soluble, if not by Nature, then by Art, as by the frequent use of Clysters and Suppositories. Let him avoid all vehement perorations of mind: as hate, anger, worrying: let him wholly abstain from Venus.

This manner of diet thus prescribed, we must come to the second Scope, that is, the diversion of the defluxion, which is performed by taking away its cause, that is, the lusing and illness of the humours.

Both which we may amend by purging and blood-letting, if the itrogram and age of the Patient permit.

But if the part receiving we break, it must be strengthened with those things which by their attribution amend the openings of the paffages, the violence of the humour being drawn away by Cupping, and

Fridicics, Ligatures. But if pain trouble the part, which is often the occasion of defluxion, it must be mitigated by Medicins allwaging pain.

But in the Beging we begin to reperculus to drive away the matter of the Phlegmon flowing down, as the White of an Egg, Oxytare, the Juices or Waters of Houftiek, Plantain, Robs, Carataphes of Henbane, Fongramante, Fills, Balataines, Bole Armatiques, Terr pigs, Oyl of Roses, Quinces, Myrtis, Poopy.

Of these simples variety of compound Medicines are listed. This may be the form of a Cataplasm.

R far, bordered 3 ½, mixt fingerprints, plantae, 1 ½. pul. maltis, Acidum pyrogum, aqua, 3 ½. Oyls, rifu, 1 ½. rifu, 1 ½. mixt. farina hord. ii. mixt. farina semen. Uni &focquantur in oxycrato, contundatur. Cucumer, agrefi. an. ii. forum chamam. & melilot. ana m. addenda farina hord. & melilot. ana. ii. farina semen. Uni &focquantur in oxycrato, contundatur. This Platter fol-

being. Wherefore then we must use more powerful and strong, dicatives, and only then, beginning with the more gentle, left the subtiler part of the humour being the

The third Scope is to overcome the Conjunction. That we may attain to this, we must enter into the consideration of the tumour, according to its times, that is, the beginning, increas, state, deducation. For from hence the indications of variety of Medicins must be drawn. For in the beginning we begin to reperculus to drive away the matter of the Phlegmon flowing down, as the White of an Egg, Oxytate, the Juices or Waters of Houftiek, Plantain, Robs, Carataphes of Henbane, Fongramante, Fills, Balataines, Bole Armatiques, Terr pigs, Oyl of Roses, Quinces, Myrtis, Poopy.

But when the violence of pain and other symptoms are allwaged, it is likely that the Phlegmon is come to determination. Wherefore then we must use more powerful and strong, dicatives, and only then, beginning with the more gentle, left the subtiler part of the humour being the

The fourth Scope of curtowing a Phlegmon confine in correcction of the accidents which accompany it's

Of which, Pain is the principal.

Wherefore the Chirurgeon must be diligent to allwage it; for befaide, that it weakens the strength, and declaration. The fourth Scope is, to overcome the Conjunction. That we may attain to this, we must enter into the consideration of the tumour, according to its times, that is, the beginning, increas, state, deducation. For from hence the indications of variety of Medicins must be drawn. For in the beginning we begin to reperculus to drive away the matter of the Phlegmon flowing down, as the White of an Egg, Oxytare, the Juices or Waters of Houftiek, Plantain, Robs, Carataphes of Henbane, Fongramante, Fills, Balataines, Bole Armatiques, Terr pigs, Oyl of Roses, Quinces, Myrtis, Poopy.

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Buch of Tumours against Nature in general.

CHAP. V.

The Cure of an ulcerated Phlegmon.

For which purpose Galen forme the rised part with Water or Oyl being warmt or with both of them: and then applies this following Cataplasme.

\[ \text{Cataplasma} \]

\[ \text{Galen} \]

\[ \text{Sometimes the swollen part with Water of Oyl being warm or with both of them, and then applies this following Cataplasme.} \]

\[ \text{Oft.} \]

\[ \text{Dioscorides magnum, col. bif.} \]

\[ \text{You may profitably use for the same purpose.} \]

When the heat, pain, fever, and other accidents shall remit, when the tumour hath a sharp head, then when by the pressing of your finger, you find the humour to flow, as it were, to and fro, then you may know that it is ripe.

Wherefore without any further delay the tumour must be opened, lest the matter too long shut up corrode the adjacent parts, and the Ulcer become sinuous and fistulous.

For this usually happens, especially then, when the matter is venenate or malign, or when the swelling is near a Joint, or at the Fundament, or such like hot and moist places.

For the decree of Hippocrates we should anticipate the maturation of such Tumours by opening.

They may be opened with an Incision-knife, or Cautery, and that either actual, or potential.

For the Patient shall be hearted and less confident, so that he either cannot, or will not endure anyInstrument, you must make way for the matter by a Potential Cautery. You may also do the business by another flight as this:

Thrust the point of a sharp Knife or Lancet through a brass Counter, that it may stand fast in the midst thereof, then cover diligently with some Emplastic or Cataplasme, that neither the Patient nor bystanders by perceive the deceit: then laying on the Plaister, as if that you would make a passage for the matter by that mean: 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 impression into the Tumor sufficient for excluding the matter. I have here expressed three delineations of such Instruments, that you may use these, either bigger, leffer, or indifferent, as occasion shall live.

B COUNTERS with the points of Knives or Lancets put through them.

But there are seven things which must be diligently considered in opening all sorts of Impetiginous:

The first is, That you put your Knife to that part of the Abcess which is the softer, and yields to the impression of your fingers, and where it rises into a head or point. The second is, That you make choice of that place for incision 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 Fibres 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 destroyed, the spirits being much wasted together with the unprofitable humour. The sixth is, That after the opening, when the matter is evacuated, the Abscess be cleansed, filled with fleth, and lastly, consolated and cicatrized. But seeing that commonly after such incisions some part of the Tumour remains, all the contained humour being not wholly suppurated, the Chirurgeon may perceive that this is an implicit affect, that is, a Tumour and Ulcer. But the Cure thereof must be fo, that you take away the Tumour before the Ulcer: for the Ulcer cannot be healed before the part be restored to its nature. Therefore the Suppuratives formerly prescribed must be used, and the Ulcer must be dressed for two or three days with this following Medicin.

Other
Rings in which little Knives lie hid, fit for to open Abstercues.

The Delination of a Trunk or hollow Instrument going with a Spring.

A Shews the thicker Pipe.
B Shews another, which enters and is folooned in the other by a Screw.
C The point of the Instrument looking out.
D The spring which forces the Instrument.

Of Tumours against Nature in general. Book VII.

Of Fevers and the Cures of those Fevers which accompany Phlegmons.

The Fever of a Phlegmon. What a Fever is.

R. Vindemium unius oss. terebinthi, Veneti, & ob. Rosae, &c. 5 fil. medieamentum. Then you must seek to cleanse it by this following Medicine.

V. Melis rofar. Syrupi rofar. & tereb. Venet. an. 3. f. fl. hominis ad usum. For this very purpose there is a singular Detergent made of Apium or Smallage, of which this is the description.

W. Sancto aequ. Plantag. beton. &c. 3. Melli commen. v. terebinthi. Venet. 5. f. tarvis. Hordei & Orobi, an. 3. in. pulveris Asis. rad. &c. ferr. myrrhae, an. 5. in. coponem mal. cum fum. quid. amabilis auxil. medicamentum ad forum nugatos. But if you would cleanse it more powerfully, you may use Unguentum Apiziderum, or Unguento. Anticam & Egyptiunum mixed according to the force you conceive in your minds; when the Ulcer shall be sufficiently cleansed, it shall be filled with flesh, and cicatrized after the manner we shall declare in the proper treatise of the Cure of Ulcers.

C H A P. XI.

Of Fevers and the Cures of those Fevers which accompany Phlegmons.

A Monstt the Symptoms which most usually accompany Phlegmons, and affect all the body of the Patient; Fevers are the chief, that is, hot and dry diltemper kindled in the heart, and thence by the Arteries sent over all the body; yet those which usually follow this kind of Tumours, are Ephemera, that is, Diary, unputrid Symptoms, of whose nature and order of Cure I will here briefly relate what I have learnt from my Masters, that is, Doctors of Physick, as I have been conversant with them in the practice of my Art.

The Ephemera, or Diary (that is, of one day) is a hot and dry diltemper kindled in the vital spirits. It hath that name, because by its own nature it tarries not above the space of one day, or twenty four hours, by reason it is kindled in a subtile easily diltempable matter.

The efficient causes of this Fever are weaning, hunger, and drunkenness, anger, fury, sorrow, watching, great and piercing cold, Aduction, Bathes, and manner of living inclining more to heat than ordinary; applying, alking, drinking of acid Medicins, as Pesto, or of hot Meats, or drinks; to conclude, all the efficient causes common to all Fevers, putrefaction only excepted, which properly appertains to putrid Fevers.

For a Bubo also, which is a Phlegmon of the Glandules, causes a Diary, as Hippocrates shews. All Fevers proceeding from the Tumours of the Glandules are evil, the Diary excepted. Which Aphorism must be understood warmly and with that distinction which Galen gives in his Commentaries, where he saith, it is not only to be understood of Tumours lying in the Glandules without occasion, that is, without any evident and manifest cause; for otherwise Fevers, that thence take their original,
The common signs 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 caused by anger; sometimes little, if the Fever proceed from farren, hunger, cold, crudity; for other respects equal and ordinary.

The most certain signs are, if the Fever come upon one not by little and little, but suddenly, and that from external and evident cause; no loathing of Meat, no caulse of weariness, no deep sleep, yawning, great pain, restlessness, nothing, nor cold going before, and lately, no other troublesome symptom preceding. We here make no mention of the Urin, because most frequently they returning the Urins of found bodies; for in so short a time as Diaries endure, there cannot go a great perturbation be raised in the blood that there may be signs thereof found in the Urine. A Diary is ended in one fit, which by the proper nature of this Fever lasts but one day, although sometimes otherwise it is extended to three or four days space; and then it easily degenerates into a Putrid, especially every error of the Patient, Physician, or those which attend him, concurring therewith, or if the external things be not rightly fitted.

Now the cure of a Diary-Fever consists in the decent use of things Not natural, contrary to the cause of a disease; wherefore Baths of warm and natural Water are very profitable, so that the Patient who be not Plethoric, one stuffed with excrescences, one chronicous to Catarrhs and Deformities, because a Catarrh is easily cauaded and augmented by the humours diffused and disdilofed by the heat of a Bath; therefore in this case we must despise frictions, and anointing with warm oil, which things notwithstanding, are thought very useful in the last kind of Fevers, especially when they have their original from extreme labour, by stiration of the skin, or a Bubo. Let this be a general rule, that to every Cause whence this Fever proceeded, you oppose the contrary for a remedy; as to labour, rest; to watching, sleep; to anger and sorrow, grateful society of Friends, and all things replenished with pleasant good will; and to a Bubo, the proper cure thereof.

Wine moderately tempered with Water according to the custom of the sick Patient, is good and profitable in all causes of this Fever, except he be.pained in his head, or that the Fever draw its original from anger, or a Bubo: for in this last case especially, the Patient must abstain wholly from Wine, until the inflammation come to the State, and begins to decline. This kind of Fever often troubles Infants: and then you must preferbe such Medicines to their Nurses, as if they were sick, that by this means their Milk may be made Medible. Alfo it will be good to put the Patient himself into a Bath of natural and warm Water, and prefently after the Bath to anoint the ridg of the Back and Breast with Oil of Violet. But if a Phlegmon pests any inward part, or otherwise by its nature be great, or heated near any principal Bowel, fo that it may continually feed from it either a putrid matter or exhalation to the heart, and not only affect it by a quality of preternatural heat by the continuity of the parts, thence will arise the putrid Synochez, if the blood by contagion purifying in the greater Vessels, confits of one equal mixture of the four humours. This Fever is thus chiefly known: it hath no exacraations, or remittances, but much left intermissions; it is extended beyond the space of twenty four hours, neither doth it then end in vomit, sweat, moisture, or by little and little insensible transpiration, after the manner of intermitting Fevers or Agues; but remains constant, until it leaves the Patient for altogether: it commonly happens not, unless to those of a good temper and complexion, which abound with much blood, and that tempered by an equal mixture of the four humours. It commonly endureth not long, because the blood by some peculiar putrefaction degenerating into Choler or Melancholy, will presently bring forth another kind of Fever, to wit, a Terrific or continued Quartan.

The cure of this Fever (as I have heard of most learned Physicians) chiefly consists in blood-letting, For by letting of blood the fisthess is diminishe, and therefore the obturation is taken away, and lightly the putrefaction. And feizing that in this kind of Fever there is not only a fault of the matter, but by the putrefaction of the blood, but also of the Tempest by excess of heat; certainly Phlebotomy helps not only, as we said, the putrefaction, but also the hot tempest. For the blood in which all the heat of the creature is contained, whilst it is taken away, the acid and fuliganous excrescences enter it, which kept it, increaseth the Fever-lasting. Moreover the Veins, to than emplasteth, which Nature abhors, are filled with much cold air in head of the hot blood which was drawn away, which follows a cooling of the habit of the whole body, yea, and many by means of Phlebotomy have their Bellsies loofed, and sweat, both which are much to be defired in this kind of Fever.

This moved the ancien Physicians to write, that we must draw blood in this disease, even to the fainting of the Patient.

The use of Wine in a Diary.

The cure of a Diary Fever.
Yet because thus, not a few have poured 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 greatest of the diffeafe shall require, and the strength of the Patient may bear.

When you have drawn the blood, forthwith inject an emollient and refrigerative Clyfter; lest that the Veins emptied by Phlebotomy may draw into them the impiety of the Guts; but tho' Chyfters which cool too much, either bind the belly than kope it. The following day the Worfsick matter must be partly evacuated by a gentle Purge, as a bawl of Caffia, or Catherion: then must you appoint Syrups which have not too much a refrigerative qualitie, but also to refit putrefaction, fuch as the Syrup of Luminous, Berries, of the Juice of Citrons, of Pomagrate, Sorrel and Vinegars, let his diet be abolutely cooling and humeding, and also flender: for the native heat much debilitated by drawing of great quantity of blood cannot equal a full diet. Therefore it shall flattice to feed the Patient with Chicken and Veal Broths made with cooling Herbs; as Sorrel, Lettuce, and Porflan.

Let his drink be Eury Blood, Syrup of Violets mixed with some quantity of boiled Water, Julepum Afeidenum, fpecially if it be troubled with fooring or kaths. But the Phyfitian must chyftie have regard to the fourth day: for if then there appear any figns of concodion in the excre¬dance of the Caffia must be expected on the feventh day, and that either by a loofeness of the belly, or an abundance of Urin, by Vomitis, Sweats, or Bleeding. Therefore we muft then do nothing but compite the whole bufineffe to Nature.

But for drinking cold Water, which is fo much commended by Galen in this kind of Fever, it is not to be fuffered before there appear figns of concodion: moreover in the declining of the Difeafe, the use of Wine will not be unprofitable to help forwards Sweats.

CHAP. XII.

Of an Eryfipelas, or Infammation.

HAVING declared the cure of a Phlegmon, caufed by laudable blood; we muft now treat of thofe Tumors which acknowledge Choler the material caufe of their generation, by reafon of that affinity which intercedes between Choler and Blood. Therefore the Tumors caufed by natural Choler, are called Eryfipelas, or Infammation, and contain two great things to chace which chiefly poffeft the skin, as alfo oftentimes fome portion of the flefh lying under it. For they are made by moft thin and flubtle blood (which upon any occasion of inflammation eafily becomes Choleftick) or by blood and Choler, hotter then is requifite, and fometimes of choler mixed with an acrid ferous humour.

Thal which is made by sincere and pure choler, is called by Galen, a true and perfect Eryfipelas.

But there arife three differences of Eryfipelas, by the admixture of choler with the three other kinds of humour. For if it being predominant be mixed with blood, it fhall be termed Eryfipelas Phlegm-

Two kinds of Eryfipelas.

Galen acknowledges two kinds of Eryfipelas, one fpangle and without an ulcer, the other ulcerated.

For choler drawn and fevered from the warmneffe of the blood, running by its fubtility and acrimony into the skin, ulcerates it; but relaterd by the gentle heat of the blood, as a bridle, it is hindered from piercing to the top of the skin, and makes it tumour withouit an ulcer. But of unnatural choler are cauëd many other kinds of cholerick tumors, as the Herpes, Excedent, and Militare: and lately, all forts of tumors which come between the Herpes and Cancer. You may know Eryfipelas chyftie by three figns, by their colour, which is yellowifh red, by their quick fleding back into the body at the leat comprefion of the skin, the caufe of which is the fubtility of the humour and the outward fift of it under the skin, (wheretupon by fome Eryfipelas is called a Difeafe of the Skin:) lately, by the number of the Symptoms, as Heat, Palloration, Pain. The heat of an Eryfipelas is far greater than that of a Phlegmon, but the palloration is much lefs, for as the heat of the bloud is not to great as that of choler, fo it far exceeds choler in quantity and thickneffe which may cauie comprefion and obfruction of the adjacent Mucfe.

For Choler eafily dilipable by reafon of its fubtility quickely vanifties, neither doth it fuffer it felf to be long continued in the empty spaces between the Mucles; neither doth an Eryfipelas agree with a Phlegmon in the propriety of the pain. For that of an Eryfipelas is prickling and being without tendon or heaviness: yet the primitive, antecedent, and conjunct caufes are alike of both the tumors. Although an Eryfipelas may be incident to all parts, yet principally it affails the Face, by reafon of the rarity of the skin of that place, and the lightneffe of the cholerick humour flying upwards. It is ill when an Eryfipelas comes upon a wound or ulcer, and although it may come to fuppuration, yet it is not good: for it thaws that there is obftruction by the admixture of a grofs humour, whereas there is fome danger of crofion in the parts next under the skin.

CHAP.
CHAP. XI.

Of the Cure of an Erysipelas.

Of the Cure of an Erysipelas we must procure two things, to wit, Evacuation and Refrigeration. But because there is more need of cooling, than in a Pilegmon, the chief scope must be for Refrigeration. Which being done, the contained matter must be taken away and evacuated with moderately resolving Medicines. We must do four things to attain these fore-mentioned ends. First of all, we must appoint a convenient manner of Diet, in the use of the four things not natural, that is, we must instill, refrigerate, and moisten, as much as the nature of the Disease and Patient will suffer, much more than in a Pilegmon; then we will evacuate the attendant matter by opening a Vein, and by Medicines purging cholers, and that by cutting the Cephalick Vein, if there be a portion of the blood mixed with choler, if the Erysipelas pollute the face, and if it be spread much over it.

But if it shall invade another part, although it shall proceed of pure choleric, Phlebotomy will not be for necessary, because the blood which is as a bridge to the Choler being taken away, there may be danger, lest it become more fierce; yet if the body be phlegmick, it will be expedient to let blood, because this, as Galen teacheth, is oft-times the cause of an Erysipelas. It will be expedient to give a Chydris of refrigerating and humecting things before you open a Vein; but it belongs to a learned and prudent Physician to prescribe Medicines purging choler.

The third case must be taken for Topick, or local Medicines, which in the beginning and increase must be cold and moist, without any other drinks or aliment, because the more acid matter by use of alimentous things being driven in, would unerate and fret the adjacent particle. Galen and Avicennas much commend this kind of remedy; Take fair Water \( \frac{3}{4} \) of the sharpest Vi- negar \( \frac{3}{4} \), make an Oxycrate, in which you may wet linen clothes and apply to the affected part and the circumambient parts, and renew them often. Or, R. Sures salis, plantag., & temperifica. an. 3. brace. \( \frac{3}{4} \), Mercarcinum fom., Fytilis \( \frac{3}{4} \) of succi hyoscyami \( \frac{1}{2} \) of Mijcros. But if in the Erysipelas be upon the face, you must use the Medicines following.

\( \text{R. Urgentes.} \)
\( \text{R. in suci plantaginis.} \)
\( \text{Temperific.} \) an. 3. truciode, de Compoles \( \frac{3}{4} \), seteri parvis; let them be mixed together and make a Liniment. But if the heat and pain be intolerable, we must come to narcotic Medicines. As, \( R. \) Succi hyoscyami, salis, cincta, an. 3. albitum cormum \( \frac{3}{4} \), seteri 3 \( \frac{3}{4} \), bis & Compoles, ang. 4, \( \text{et} \) seteri \( \frac{3}{4} \), Mercarcinum fom., psydr., & feign, curavit in ap. op., \( \frac{3}{4} \), plantag., an. 3. \( \frac{3}{4} \), de papar., \( \frac{3}{4} \), flat laetiasmum, addendo, refrigerante Gol. compolets, Mijcros. 31. Yet we must not use such like Medicines too long, lest they cause an extinction of the native heat and mortification of the part.

Wherefore such Narcotic Medicines must be used with regard of place, time, and such other circums- tances. Therefore we may take three ways understood when we desire to use Narcotic or Superactive Medicines. The first is when the Patient in the affected part feels not to much heat, pricking and pain, as before. The second is, when the part feels more gentle to the touch than before. The third, when the fiery and pulsat colour begins by little and little to wax livid and black, for then we abstain from Narcotic, and use refrigerating and strengthening things, whereby the part may be revived and strengthen'd by recalling the native heat; As, \( R. \) Parisa herba, & Cynab., an. 3. \( \text{in potentiam.} \)
\( \text{in Hydroptilum} \)
\( \text{vel} \)
\( \text{acqua potatoria.} \)
\( \text{addendo} \)
\( \text{feque} \)
\( \text{et} \)
\( \text{chamom. an.} \)
\( \text{in} \)
\( \text{frat capitis endemic.} \) Or you may use this following Tincturation, \( R. \) Red. Althoe \( \frac{3}{4} \), fai. matric. biflorum. pavon., &c. Gol. an. 3. \( \text{in} \)
\( \text{frat.} \)
\( \text{chamom. mixtum, robor.} \)
\( \text{an.} \)
\( \text{in} \)
\( \text{acquar potass.} \)
\( \text{et} \)
\( \text{in} \)
\( \text{frat flavo conflag.} \) After the tincturation, you may apply an Emplastrum of Distillata Frument. or Pulsatula dilatata in Oyl of Chamomile and Moholic, and such other oint. The fourth Intention which is of the correction of accidents, we will perform by those means which we mentioned in curing a Pilegmon, by varying the medicaments, according to the judgment of him which undertakes the Cure.

CHAP. XIV.

Of the Herpes; that is, Tetter, or Ring-worm, or such-like.

Herpes is a tumour caused by pure choleric separated from the jell of the humours, that is car- ried by its natural lights and tangency even to the outer or external skin, and is diffused over the surface hereof. makes three sorts of this tumour. For it perfect choleric of an indifferent substance, that is, not very thick, cast this tumour, then the simple Herpes is generated, obtaining the name of the Greens; but if the humour be not so thin, but compounded with some small mixture of Phlegm, it will raise little blisters over the skin like to the seeds of Millet, whence it was that the Ancients called this Tumour the Herpes Militaris. But if it have any admixture of Melancholy, it will be an Herpes exquisitus, terrible by reason of the extrace or eating into the Skin and Muscles lying under it.

There are absolutely three intentions of curing; The first is to appoint a Diet jutt like that which we mentioned in the cure of an Erysipelas. The second is to evacuate the attendant choler, by Medici- nes purging the peccant humour, for which purpose oft-times Clysters will suffice, especially if this a great part of the humour may be carried into the bladder. The third shall be to take away the conjunct cause by Local Medicines ordered for the swelling and ulcer; Therefore the Chi-
A rule for healing Ulcers contained with tumours.

The force of gut tumours. The force of gut tumours for retarding Ulcers.

Description of an intermitting Fever. A vulgar description of an intermitting Tertian Fever.

An ulcer description of an intermitting Tertian Fever.

The cause of Tertian Fevers. The cause of Tertian Fevers, which happen upon Fryspelous tumours.

The signs of an intermitting Tertian. Why Terrains have an abhorrent collection of the Fever at the end of each fit.

The symptoms of Tertians in Summer are shorter, in Winter longer.

Where the beginning of the Fit is accompanied with fliplifhes, or stretching, the state with sweat, whereupon, if the Nose, Lips, or Mouth, break forth into pimples, it is a sign of the end of the Fever, and of the power of nature which is able to drive the conjunct cicatrice of the disease from the center to the habit of the body, yet these pimples appear not in the declining of all Terrains, but only then, when the cholerick humour causing the Fever shall reside in the Stomach, or is driven thither from some other part of the first region of the Liver. For hence the fainter portion thereof, carried by the continuation of the inner Coat to the Mouth and Nose, by its acrimony causeth Pimples in these places. The Cure is performed by Diet, and Pharmacy.

Therefore let the Diet be so ordered for the six things not natural, that it may incline to refrigeration and humification, as much as the digestive faculty will permit, as Lettuce, Sorrel, Gourds, Cucumbers, Mallows, Barley, Creams, Wine much allaid with Water, thin, small, and a little, and that sparingly, and not before signs of concocition shall appear in the Urine; for in the beginning he may not use Wine, nor in the declining, but with these conditions which we have prescribed.

But for the time of feeding the Patient, on that day the Fit is expected, he must abstain nothing for three hours before the Fit, lest the Angus heat lighting on such Meats as yet crud, may corrupt and putrifie them, whereas the nature of the Fever may be increased, (because it is proper to that heat to corrupt all things, as to the native to preserve and vitiate a way from putrefaction) the Fit lengthened, and Nature called away from the concocition and execution of the Morbicide humour; yet we may temper the severity 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 it self; but that only sparingly, lest the strength should be too much impaired.

If for Pharmacy it must be considered, whether the strength of the Patient be sufficient, if the humours abound for then you may prescribe Diaphragnum simplex, Caffia newly extracted, the decoction of Violets, of Citrin Myrobolanes, Syrups of Violets, Roses, of Pomegranats and Vinegar. But if the powers of the Patient languish, he must not onely not be purged, but also must not draw blood.
blood too plentifully, because Cholerick men cannot by reason of the facile and catie dissipation of the subtle humors and spirits: besides, such as are subject to Terrann Fevers do not commonly abound with blood, unless it be with cholerick blood, which must rather be renewed, or amended by cooling and humecting things, than evacuated. Ye verily, when it is both commodious and necessary to evacuate the body, it may be attempted with more safety by such things as work by insensible transpiration, which provoke Sweats, Vomit, or Urin, by reason of the falsity of the cholerick humor, than by any other. Also the frequent use of emollient Clysters made with a decoction of Prunes, Jujubes, Violets, Bram, and Barley, proton much. If the Patient fall into a Delirium, or talk idly by reason of the heat and directions of the head, with a particular excess of the cholerick humor, the head must be cooled by applying to the Temples and Fore-head, and putting into the Nofe Oyl of Violets, Roefs, or Womans Milk. Let the feet and legs be bathed in fair and warm Water, and the feet of the feet be anointed with Oyl of Violets, and such like.

In the declining, a Bath made of the branches of Vines, the leaves of Willows, Lettuce, and other refrigerating things boiled in fair Water, may be profitably used three hours after meat eaten. 

But I would have you to understand the Declaration, or declining, not of one particular Fit, but of the Disease in general, that the humours already conceded, allured to the skin by the warmness of the Bath, may more easily and readily breath forth: than otherwise ordains a Bath at the beginning of the Disease, will cause a constitution in the skin and habit of the body, by drawing thither the humours peradventure tough and grofs, no evacuation going before.

Alfo it will be good after general purgations to cause feaft by drinking White Wine, thin and well tempered with Water, by a decoction of Strawage and Daill. Certainly Sweats are very laudable in ev'ry putrid Fever, because it evacuates the compact matter of the Disease; but charity in a Terrann, by reason that choler by its inbred levity easilly takes that way, and its falsity is easilly reduced into sweat. But that the sweat may be laudable it is fit it be upon a critical day, and be fore-showed by signs of concord agreeable to the time and manner of the Disease. Sweats, when they flow more slowy are forwarded by things taken inwardly and applied outwardly; by things taken inwardly, with a decoction of Figs, Raisins, Stoned Grass, Roots, and the like opening thing, things outwardly applied, and Spoons dipped in a decoction of hot Herbs (as Rosmary, Thyme, Lavender, Marjoram, and the like) applied to the Groins, Armpoles, and Rudge of the Body. You may for the fame purpose, fill two Swines bladders with the same decoction, or else Stone-bottles, and put them to the feet, fides, and between the thighs. Then let this be the bound of Sweating, when the Patient begins to wax cold, that is, when the Sweat feels no more hot, but cold. But by the consent of all, blood must not be let after the third Fit, but presently at the beginning of the Fever, according to the opinion and prescription of Galen; for fixing this Fever for the most part is terminated at seven Fits, if you stay until the third Fit be past, the Fever will now be gone to its State; but Happenates forbids us to move any thing in the state, left Nature then baffed in concealing the Disease, be called from its begining unpleasant.

CHAP. XVI.

Of an Oedema, or Cold Phlegmatic Tusmor.

Here we have treated of Tumors, now we must speak of cold; Cold Tumors are one by two, an Oedema, and a Sypurf. And for all that Hippocrates and the Ancients used the word Oedema for all Tumors in general; yet by Galen and the Physicin he which succeeded him, it hath been drawn from that large and general significatiou, to a more strict and special, only to design a certain Gouty or kind of Tumor. Wherein the Ancients made eight differences of Tumors proceeding of Phlegm: The first they termed a true and lawful Oedema proceeding from natural Phlegm; from unnatural Phlegm by admission of another humour they would have three sorts 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 natural Tumors either pulled up by flatulence, or to flow with water, moisture, they called some Oedema flatulent, others watery; but also when they saw this same Phlegm often to turn into certain Phlegmatic blood, they thought that hence proceeded another kind of Oedema, which they called one while by the name of Atheros, another while by the name of Steraxis, and sometimes by Mollefr, as they called that kind of Oedema which is caus'd by partur and corrupt Phlegm, Strepitul. For we must observe that Phlegm sometimes is natural, and sometimes only in quantity, whence the true Oedema proceeds; otherwhiles it is not natural, and it becomes not natural, either by admission of a strange substance, as Blood, Choler, or Melancholy, whence ariseth the three kinds of Oedema, as before noted. By the way, or by the partur and corruption of its proper substance, whence the Steraxis and Strepitul proceed: or by concurrence, whence Kernels and all kinds of Wests, Ganglisa, and Knots: or by concretion, whence all slatulent and watery Tumors, as the Hydromata, Pecoes, and all kinds of Drupaxes.

The caud of all Oedemas are the defects of a Phlegmatic humour, or flatulent humour into any part, The Cause, or the concretion of the same made by little and little in any part, by reason of the immobility thereof in concealing the nourishment, and expelling the excrement. The signs are a colour whith whith and like unto the skin, a soft Tumor, rate and lax by reason of the The Sighs.
... How Oedema are terminated. The Diet.

The invention of curing Oedema.

The Distinctive

Exercise.

What can be observed in the use of Venery.

A Rowler.

A Pocket Medicine.

What can be done in the application of Empoliotics.

In what place Plethora may be observed.

plentiful moisture with which it abounds, and without pain, by reason this humour infers no fain of heat, nor manifest cold; when you press it with your finger the print thereof remains, because of the density of the humour and slowness to motion. Oedemas breed either in Winter than in Summer, because Winter is fitter to heap up Phlegm, they chiefly poffefs the Nervous and Gladiolous parts, because they are bloudless, and so cold and more fit by reason of their loofeft to receive a de- formation for the same cause, bodies full of ill humours, ancient, and not excercised, are chiefly trou- bled with this kind of Tumor.

An Oedema is terminated sometimes by resolution, but oftener by concretion; feldom by suppression, by reason of the small quantity of heat in that humour.

A Symptomatical Oedema, as that which follows upon a Dropie, or Conspiration, admits no cure unless the Diseafe be fªtt taken away.

The general care is placed in two things, that is, in evacuation of the conjunct, and matter prohib- iting the generation of the antecedent. We attain to this by four means,

1. Local Cures. The general cure is placed in Venery added to his prefent infirmity, he fall into an incurable coldnefs, from whence

2. Useful Medicines. They chiefly poffefs the Nervous and Glandulous parts.

3. Solute Medicines. For in the beginning and increafe, preffcribe a fomentation of Oxyeratum used with a

4. Spunge. But if to be that the Oedema be upon the Arm or Leg, a repelling Rowler is very good, that is, fuch a ones is brought from below upwards. So thefe Medicines following are very fit for the

5. Cure purpose, R. Linetis ex Formatione, & caution, an. 3. in Terras & Atmumts an. 5. b. oihat is mix all together and make a decoction, wherein hot Wepges and foment the place. Also you may use the following Cataplasm, W. Favis toris 3. as conjunct in Linum communis, ebojetum phle-

6. tryi matt capsulfi, curcum gromaeranx, balatun, an. 5. & Myrrha, Afora, aluma, al. 4. of Martian. Myrtha, fl. 3. of Carna. Capsulfi. In the state and decimation, you must use drying, and cooling Medicines, as, Nau-

7. tram capsulfi, grana, afor, balatun, an. 5. & Salmis, origa, calamus, Hiephi, melifce, an. m. refi-

8. rhis, planus, ebojetum, eph, kark, continued an. m. fr. aluma, tarax, & folk com. 5. conjunct in con-

9. licionis is fooment it with a Sponge, then presently apply this following Cataplasm, R. Radis Bront a. 3. ab. sub. planus, castis, chamou, molitii pelgus, an. m. f. conopar in hydromelum, pectine, triticins, addenius patranus ref. rub rub, chamou, m. com. an. 5. fl. Carna. Capsulfi.

10. Lately, You may have with good success the refolving Empoliotics and Ommortans, fight hearing, or chating the part by frication or tommation, as well mod as dry; otherwise Empoliotics will for- eady do their duty, by reason of the great coldness of the part, being not sufficient of itself to affi-

11. dibute the nourishment, or to expel the superfluous and unprofitable humour. Let a fomentation be made with white Wine, in which Sige, Rosmarini, Thyme, Lavender, Chamomile and Melilot flowers, red Roses, Orris roots, and fuch like have been boiled, with a little Vinegar added thereunto. Though hot Bricks in the fame decoction, and apply them wrapped in linen cloths to the affected part, for to vapours will breath forth, which hath an attenuating, piercing, refolving and strengthening faculty. But you may, in feed of the Bricks, only apply Bricks or Oxz blouders, filled half full with the forefaid decoction, and that hot. The frictions must be made of hot linen cloths, for to the native heat together with the blood and spirits is recalled to the part, and fulgentious hu-

12. mours contained under the skin are refolved, whereby the strength of the part is in some part recov-
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They in this differ from a true and legitimate Oedema, that when you lay your finger upon them and take it off again, there remains no sign of the pressure thereof, because they are dillent by vapour and not by humour, for the vapour being presf ed returns swiftly again, as you may perceive by balls or bladders filled with wind.

The cause of such tumours is the weaknefs of the native heat, not being able easily to resolve and waft the Phlegm by which the windy Tumours are raised: for to the morning Sun (which in some flats refers on our native heat) cannot resolve the mids dispersed in the airs, which at noon it easily resolves into pure air. Also after the fame manner our weaker heat fifts up vapours from that Phlegm it could not dissolve, which are the matter of inflammations, or swellings. But oft-times although the native heat be sufficiently powerful, yet because the humour lieth deep, or is kept by the thickness of some Membranes, Tendons, or Ligaments, the stirred up vapour cannot exhale, whereby it comes to pafs, that increafed by little and little it caufes a Tumour. The figns of fuch tumours are a certain renitency or refiftance, perceived by preffure with your finger; and fometimes a noife as if you smite upon a Drum, especially if there be a ball therein, fuch as are often gathered together in the hollownefls of the belly, and in the spaces between the larger Muscles. The Tumour is neither red, nor hot, but rather cold and white, as in an Oedema. It often poffefles the joints, and especially the knees, and it is very difficult to be resolved. If fuch favourly be gathered together in the Guts, it caufeth the Wind or Collick, in which sometimes the dilution is fo great, that Death ecides by reason of the retenting or caining of the Guts.

CHAP. XVIII. Of the Cure of a flatulent and waterish Tumour.

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Although these tumours may be thought to be comprehended under one genus with the other

Of Tumours, and Nature in general.

Book VII.

Of an Atheroma, Steatoma, and Meliceris.

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Of Chirurgery to be used to these tumours.

What the cause may be, that we sometimes find fales in these tumours.

What a Steatoma, or Tallow is.

What the Nodis, or Knots.

What a Glandula is.

What a Nodus, or Knot, is a tumour sometimes hard, sometimes soft, yet always round, used to

The cure of Lupias, that is, Wens, or Ganglions.

When a Ganglion is.

The cause.

Signs.
great bigness, in the space of six or seven years, some of them yield much to the touch, and almost all of them are without pain.

You may hinder such as are beginning and first growing from increase, by somewhat a strong and frequent rubbing, with your fingers. For their bag or bladder, together with the skin, wax thin, and the contained humour grows thicker, it is attenuated, and refolved. But if you nothing prevail, you must lie upon them with your whole hand, or a flattened piece of Wood, as heavy as you can, until such time as the cit, or bag, be broken by your impression; then apply and strongly bind unto it a Plate of Lead, rubbed over with Quicksilver; for I have many times found by experience, that it hath a wonderful force to resolve and waste the subject humour. But if the Wen be in such a place in which you can make no strong impression, as in the Face, Cheek, Belly, and Throat, let there be applied an Emplast, which hath a resolving force, such as this following hath: R Compositum ammod., lead, lath, &c., an. 3. In fine turpis, &c. trapiantur per fistulum, addendo olei librorum & liquinis., an. 3. i. api. viso parracm, pulvis. travis. falsam ammod. falsam. ven. vitri Rhamn. an. 3. b. Let them be incorporated together, and make an Emplast, according to this. But if the Tumor cannot be thus resolved, it must be opened with a Knife, or Cautery. And after the Eschar is removed, and the bag walled by Ægrotium, Mercury, and the like, the ulcer must be cleansed, replenished with Felth, and cicatriz'd.

Sometimes Wens grow to so great a mass that they cannot be cured by the described remedies, wherefore they must be taken away by the root, by your Hand and Instrument so be that there be no danger by reason of their greateft, and so that they adhere 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 shall be your way to cut them off, and take them away. A small Infection must be made, even to the bladder or bag, by which thrust is a Probe of a fingers thickness, hollowed in the middle, round the end, and as long as need shall require; then draw it many times about between the skin and the bag, even to the root of the Wen, that to the skin may be divided long ways, then it shall be requisite to make another Incision overthwart, so that they may intersect each other like a Cross; then proceedely draw the skin from the bladder, from the corners of the Wen towards the root, and with your finger covered with a fine linen cloth, or else with a Razor, divide required.

But you must observe, that in a Wen there are always certain Vessels which are small in the beginning, but much increased in years of time, according to the increase of the Wen, whereof they are, as it were, the roots; wherever if any Hemorrhage, or flux of blood happen, let it be stopped by binding the Vessels at their heads and roots, or make a tight ligature at the roots of the Wen, with a piece of Whipcord, or with a many times doubled thread, and let the ends hang forth, until it fall away of its own accord. Neither will it be sufficient to have cut away all this tumor, but also it will be best to cut away a portion of the skin, wherewith the tumor was covered, and only to leave so much as shall suffice to cover the part, and then with a Needle and Thread draw together the lips of the incision, but in the interim let tents be put into the bottom of the ulcer until it be perfectly cleared, and the Cure be Workman-like performed, even to the cicatrizing thereof.

The Chirurgeon Gall, and I, using this method, in the presence of Master Dr. Violatius the King's Physician, took away a Wen from Marshal Collard the Master of Burton, it hanged at his neck, as big as a Mass head, and it weighed eight pounds, which made it so troublesome and burdensome to him, that he was forced to carry it bound up in a Towel, even in a Sack. Very likely, if the kind of Tumors have a slender root and broad top, they must be finely tied, and so cut off. But it is very difficult and full of dangerous, to take away such Wens as are fastened in the Neck near unto the Jugular Veins, those under the Arms-holes, in the Groins, and such as are under the Ham; by reason of the deadly force of such symptomatics as may thence arise. We can only conjecture, not certainly say, what kind of matter may be contained in them. We can only know what for it is, when by incision it is preferred to your sight. Yet in such as are very hard, and do much redil the Touch, there are often found matters, which in confidence may be resembled to little Stones or Pebbs.

I being on a time called to open the body of a great Lady, found in one of her Breasts a body which might equal the bigness of an Hen's Egg, hard, and compact like a rough Pebble; it was held, whilst the blood, both by the Physicians and the Chirurgeon, to be a Cancer, because this hardness was very painful to her when it was but gently pressed down. But after some few years ago, I, being called to the Cure of a very honest Woman, which was troubled with the same disease, strongly withstood the Physicians and Chirurgeon, affirming it to be a Cancer, for the tumor had taken so deep root, the habit of the part was not changed from the native colour, the Veins about it were not twisled, neither was there any other convincing sign of a Cancer. For this same Woman had her Courses at their due and usual time, and was well-living, and had a good colour in her face and body, was free from all sort of pain, unless when you pressed down the part afflicted. Besides, therethrough the Tumor grew not at all, no other evil accident befell her, yea verily the lives merrily, and well both in body and mind.

CHAP. XXI.

Of a Ganglions more particularly so called.

There are also certain small Tumors of the kind of Dupes, or Wens, which grow on divers parts of the body, but chiefly on the whelps of the hands, and ankles of the feet, being called by a more properly particular name Ganglia: they appear on the top of the skin, neither do they ever lie to be called deep. The cause of them is either the imbecility of a nerve or tendon, got by overworking, exertion, a blow, labour, or other such like cause. Through which occasion the alimentary juice which

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Of Tumours against Nature in general.

Chapter XXII.

The Scrophula or Scrofula, that is, the Kings Evil.

What the Scrophula or Kings Evil is.

Their material cause. How they differ from other glandulous tumors.

Their cure by Diet. Enmunities and referring Medicines.

Suppuratives.

A Note to be observed in operating from tumors.

Natural heat, how the caustic of suppuration.

The Chirurgical manner of curing Scrofulula.

Of the Strumus or Scrofula, that is, the Kings Evil.

The Scrophula are encrinous tumors rising in the glandular parts, as the Beefs, Arm-holes, Groins, but chiefly in the glands of the neck. They appear either one or many, according to the quantity of that matter from whence they proceed, commonly contained in their proper cell, a bag, as Adromones, Scrofula, and Melicone are.

They are made of a gross, cold, viscid, and phlegmatic matter with some admixture of Melancholy. They differ from other glandulous tumors, in that number, for most usually there appear many of them united together, springing from fome deeper root than glandulous tumors do, hence of them are moveable, otherwife woven with the neighboring nerves, remaining unmovable.

Scrophula appear fewer in number, and are without pain, but Scrofula often-times are painful, especially when they wax hot by purgation, for their fometime degenerate into cancerous Ulcers, not to be touched by Instruments nor acrid Medicines.

Phlegmatine, melaneholicks, and glutinous persons, and such as are accustom to feed on cold and moist nourishments, as thick and cold water, and lead's butter and bread, are subject to the Scrofula.

They are cured by a milder Diet, for the native heat by want of nourishment turned upon the material cause of such like tumors, wasteth it.

And they are cured by purging off the superfluous humours, and also by application of emollient reliving and suppurating Topick Medicines, after this following manner. In Scrofula alba, fenfc, & fucum panac. 5. of olate litorum, & chinnia, 5. of munglcula inters & aurigg. purg. 3. of Terebinth. Vin. 5. ammoni, & colica in apo diffolutione, 3. of cocur aceo quantum suffe, fit orcum fecon. ad modum Dubosi magni.

The Ointment for the Frees and Ulcers, and the Emplastir of Vigo with Mercury, are excellent for this purpose, especially, if we continue lo long until the Patient come to Salivation, for so nature will abandon it of the humour generating the Scrofula, which have sometimes tried with happy success, in compurgi fandulal. ab. & mar, orfrom de fcriptio pekinis. Tholotti, 5. of olate litorum parum, fit emplastirum fatis mole.

But the Scrofula cannot by this means be resolved, but, as it of times happens, tend to suppuration, you must use Suppuratives, as R. Rad. alba, & fubia, 3. olate litorum, 5. olate anti-inferior, & aurigtg. purg. 3. of Terebinth. Vin. 5. ammoni, & colica in apo diffolutione, 3. of cocur aceo quantum suffe, fit orcum fecon. ad modum Dubosi magni.

We must admonish the Chirurgeon that he be not the Scrofula before all the contained humour be fully and perfectly turned into pur, or matter, otherwise the residue of the humour will remain crude, and will cause in a long time to be brought to maturation, which reception must be principallly observed in the Scrofula, and also sometimes in other abfections, which come to suppuration.

For we must not, as soon as any portion of the contained humours appear converted into pur, procure and bathe the aperture. For that portion of the suppurated humour cover the root foever to run into pur, which you may observe in insatiate bodies. For fruits which begin to perish and rot, unless we perfectly cut away the putrifying part, the residue quickly becomes rotten; there is also another reason, the native heat is the efficient cause of suppuration; it therefore (Scrofula being oped) diminished and weakened by reason of the diffipation of the spirits, evacuated together with the humour, will cause the remaining portion of the humours not to suppurate, or by that very indigestion, and with much difficulty. Yet if the tunecled part be subject, by its own nature, to corruption and putrification, as the Fungurum if, the contained matter be malignant, or critical, it will be far better to bathe the aperture.

There is also another way of curing the Scrofula, which is performed by the hand. For such in the neck, and have no deep roots, by making incision through the skin, are cut away from those parts with which they were intangled. But in the performance of this work, we take especial care that we do not violate or hurt with our instrumnet the Jugular Veins, the Flepy Arteries, or recurrent Nerves. If at any time there be danger of any great effect of blood, after they are placated from the skins, they must be tied at their roots; by thrusting through a needle or thread, and first cut the thread thrice on both sides, that it be not fall off by themselves by little without any danger. The remainder of the Cure may be performed according to the common rules of Art.
HAVING shewed all the differences of cedematous Tumors, it remains, that we briefly treat of the Symptomatical Fever, which is sometimes seen to happen upon them. This therefore retaining the motion of the humour by which it is made, is commonly of that kind, which they name intermittent Quantias. Now the fit of a Quotidian comes every day, and in that repetition continues the space of eighteen hours, the residue of the day it hath manifest intermission.

The primitive causes of this Fever, are the coldness and humidity of the air encompassing us, the long use of cold meats and drinks, and of all such things as are easily corrupted, as Summer Fruits, crude Fishes, and lastly, the omission of our accustomed exercizes.

The antecedent causes are a great repetition of humours, and the especially phlegmatic. The consequent cause is Phlegm putrefying in the habit of the body, and in the residue of the day it hath manifest intermission. The causis of this Fever continues the space of eighteen hours in the residue of the day it hath manifest intermission.

They name intermitting Quotidiens. Now the list of a Quotidian comes every day, and in that repetition comes every day, and in that repetition.

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Both the Stomach with the air encompassing us, and the coldness and humidity of the air encompassing us.

The symptoms of this Fever are the pain of the mouth of the Stomach, because that phlegm in the Stomach being concocted in a place of crude humors, whereby it comes to pass, that this Fever oft-times lasts sixty days. But have a care not to be deceived, and take a double Tertian for a Quotidian, because it takes the Patient every day as a Quotidian Fever. Verily it will be very easy to distinguish these Fevers by the kind of the humour, and the propensity of the symptoms and accidents, be it a Quotidian Fever. The manner of the pulse and heat is a Quotidian.

Quotidian Fever is commonly long, because the Phlegmatic humour being cold and moist by Nature, is heavy and unapt for motion; neither is it without fear of a greater Disease, because oft-times diareas are oftentimes long. INTO WHAT QUOTIDIAN FEVERS doth take one in the hot and dry months.
Chap. xxv.

Of the Cure of a Scirrhus.

The Cure of a Scirrhus chiefly consists of three heads. First, The Physician shall prescribe a convenient Diet, that is, sober and moderate feeding, tending to humidity, and indifferent heat; for his manner of life, let it be quiet and free from all perturbation of anger, grief and falseness, so as to abate the use of Vestry. The second is placed in the evacuation of the antecedent matter, as by Phlebotomy, if need require, and by purging, by procuring the Hemorrhoids of men, and the Courtes in Women, let Purgations be prescribed of Decoctus, Flera, Digestiv, Polyposy, Ephedra, according to the mind of the learned Physician. The third consists in the convenient use of Tripilick Medicines, that is, emollient at the beginning, and then profusely refrigerating, or rather those as are mixed both of resolving and emollient faculties, as Gutter teaches: for the use of oven emollient things there is danger of putrefaction, and a Cancer; and only of resolving there is fear of concrescence, the fuller part being resolved, and the groffer subduing.

Chap. xxiv.

Of a Scirrhus, or an hard Tumor proceeding of Melancholy.

Having knew the nature of Tumors caused by Blood, Choler, and Phlegm, it remains we speak of those, which are bred of a Melancholick humour: of these there are said to be four differences. The first is of a true and legitimate Scirrhus, that is, of an hard Tumor ended with little febula, and so commonly without pain, generated of a natural melancholick humour. The second is, of an illegitimate Scirrhus, that is of an hard Tumor insensible, and without pain, of a melancholick humour concrete by too much refrofing and refrigerating. The third is of a cancerous Scirrhus bred by the corruption and addition of the melancholick humour. The fourth of a phlegmonous, Eryphiouls or Oedemazous Scirrhus, caused by Melancholy mixed with some other humour. The cause of all these kinds of Tumors is a grofs, tough, and tenacious humor concrete in any part. But the generation of such a humour in the body happens either of an ill and irregular diet, or of the unnatural affects of the Liver or Spleen, or by suppression of the Stomachs, or Courtes.

The Signs.

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What a true and legitimate Scirrhus is.

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What are illegitimate Scirrhuses.

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Of Tumours against Nature in general.

When you have sufficiently used emollient things, fume the tumour with (Irong Vinegar and Qua Viu poured upon a piece of a Millstone, Flint, or Brick, heated very hot; for so the mollified humour will be rarified, attenuated, and resolved. Then some while after renew your emollients, and then again apply your resolvers to waller that which remains, which could not be performed together, and at once; for thus Galen healed a Scirrhus in Carcinum his Son. Goats dung is very good to dose Scirrhous tumours; but the Emplater of Pica with a double of Mercury is effectual above the rest, as that which mollifies, resolves, and waivers, all tumours of this kind.

CHAP. XXVI.

Of a Cancer already generated.

A Cancer is an hard tumour rough and unequal, round, immovable, of an ath or livid colour, the Patient with pinching pain, with acrid heat, the gross blood running in the Veins growing hot, and inferring a sense like the pricking of Needles, from which notwithstanding the Patient hath oftentimes some rest. But because this kind of tumour by the Veins extended and spread about it like the nature of daws and feet being of a livid and alh-colour, associated with a roughness of the skin and tenacity of the humour, representing, as it were, the toothed claws of the Crab, therefore I thought it not amiss to insert (as before) the Figure of the Crab, that so the reason both of the name and thing might be more perspicuous.

CHAP. XXVII.

Of the Causes, Kinds, and Prognostick of a Cancer.

Cancer is held almost incurable, or very difficult to be cured, for it is a Diftelse altogether malign, to wit, a particular Leprofe. Therefore, faith Aetius, a Cancer is not easily liad, until it hath eaten even to the innermost of the part which it pollutes. It invades Women.
A Cancer beginning, is oft hindered from increasing before it falls its roots; but when it hath once increased, it admits no cure but by means that which contains, by reason of the malignity and constancy, the force of all Medicines. Gaen 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 thinning all things which may breed ill, and excite blood. The damper of the Liver must not be corrected, the Spleen, as also the part affected in Men the Humours, in Women their Courses must be procured. Therefore thick and stodgy Wines, Vinegar, brown Bread, cold Herbs, old Chedde, old and faded Flesh, Beef, Venison, Goat, Hare, Turkey, Onions and Mushrooms, and lastly, all acrid, and other delicate things, which may by any measure affect the blood, and inure the tumours must be avoided. A cooling and humouring diet must be preferred; Fasting, echewed, as also Watchings; immediate Labours, Sorrow, Caress, and Mourning; let him use Peppafr, and in his Brothers boil Mallow, Spinares, Lettuce, Sorrel, Peppafr, Sucebys, Hoys, Violts, Borragae, and the succulent seeds. But let him end on Mushrros, Veal, Kid, Capon, Pullet, young Hares, Partridges, Fishes of Stony Rivers, ears Eggs, and use white Wine but moderately for his drink.

The part affected with the Cancer must be gently handled, and not over-burdened with hard or heavy things, or by too solid or too Emplasters, on the contrary, gentle and mitigating Medicines must be used; applying, if at certain times such things as red vitriol, or purgative, as Tinct and Mopsinacta. After Milk is exceeding fit to allay the acrimony of the cancerous humour. Therefore it must not only be taken inwardly, but also applied outwardly to the cancerous Ulcer, making thereof a fomentation.

A Cancer ulcerated hath many signs common with that which is not ulcerated, as the roundness of the tumour, the inequality, roughness, and pain; to the judgment of the eye the tumour seems soft, but it is hard to the touch; the Ulcer is filthy, with lips, thick, fleshy, hard, knotty, turned out, and standing up, having a horrid aspersion, and casting forth ichorous, filaceous blood. This kind of Ulcer is malign, rebellious and uncontrollable, as that which contemns mild remedies, and becomes more fierce by acrid and strong things, the pain, fever, and all the symptoms being increas’d, from whence the powers are desisted, the wasting and consumption of the body which shall possess the lips, may be more happily and easily cured. But when it is increas’d, and covers the noble parts, it is in decayed bodies, whose strength fail, especially if the Cure be too violent; we must not attempt the Cure, neither with Instrument, nor with Fire, neither by too acid Medicines, as potential Caustics; but we must only seek to keep them from growing more violent, and from spreading further, by gentle Medicines, and a palliative Cure. For thus, many troubled with a Cancer, have attained, even to old age. Therefore Hippocrates admonishes us, that it is better not to cure occult or hidden Cancers, for the Patients cured (faith he) doth quickly die, but such as are not cured live longer.
Of the Topic, Medicines to be applied to an ulcerated and not ulcerated Cancer.

At the beginning use repugnitive Medicines, such as are the juices of Nightshade, Plantain, Repelling Matter, Henbane, Lettuce, Sorrel, Houndthek, Water, Lovage, or Ducks-meat, nettle-grass, dittis. Pomegranates, and the like. Also Alum, Ruffium, Omphalium, the powders of Starch, Berberis, Litharge, Coriandrum, Burnt-lead, Tussia, Quick-dish, and the like. Of which you may compose Inunctions, Inunctions, Ointments, Cataplasmis, Emplastis. Emplastrum Dintycolena, dissolved with juice of Nightshade, and Oil of Roses is very fit for not ulcerated Cancers. Postbiopha, or Tonsa, waled in juice of Nightshade, or Plantain, is very good for ulcerated Cancers. Besides, this following Medicine is very commendable:

- R. Lithargy, &c. comp. As liquor morbo mortibus, canes alia refer, donec redducantur ad condensationem tesiels vel segmentis, and there may be mix'd of a resolving and repugnant Ointment, as, &c. plasma uti post pumilium, there an. 3. i. 3. alboth, rosa, 3. i. oleum rufium, 3. ii. coe. 3. iv. sic. and ointments very fit for the removal of ulcerated Cancers.

- O. Oly m. corpus alt. an. 3. ii. 3. ferrici grattat. & solani, &c. 3. alii, comp. 3. loco 3. i. plasma mixt. loca. &c. medicus. This following Ointment I have often used Emplastis. with good success.

W. Theriac, coe. 3. ferrici cancerum 3. &c. ferrici talhe & olei refer. an. 3. i. 3. ziz. ommum. 3. acini eriollis. 3. i. comp. 3. loco 3. i. plasma t. liquoris. & ointmentum.

- Et Spum. argente. alcoo. corporis. erecti cere alt. an. 3. f. &c. h. 3. viii. ziz. ommum. aff. iv. 3. t. succum. formacinum. 3.疣. &c. An when you will use it, mix it with a little Ointment of Roses. I have al-
flush it into the part. by disburdening the part of some portion of the malign humour, which forms the ulcer.

- Leaches. The application of the juice of the herb Erythraea, or Houllock, being beaten, is very good to be applied to a Cancer, but if the Cancer be ulcerated, he boils this same herb in a Houllock. and by injection and lotions cleanses the ulcer and mitigates the pain. If the Cancer affect the Womb, the Patient feels the pricking of the pain in the groin above the pubes, and in the Kidneys, and is often troubled with a difficulty of making water, but when it is ulcerated, it pours forth feces, or matter, exceeding thinking and carion-like, and that in great plenty, the filthy vapour of which is often applied and renewed ever and anon. for so the acrimony and force of the inflammation is retarded and

- The State of the Cancer in the Womb, as well as the following Medicines are of good use.

K. Minorium. ferrum. It. ferrum. carrolls. in aqua refer. & plantagnis. quod fate. of. Of this being warm make a Pectoration.

U. Rad. Attaef. 1. 3. comp. in hydromelis, pityoret & etacinum, addenda. ole refer. parum. fist Cataplauma. Also you shall make divers peffaries according to the different kind of pain, also make injections of the juice of Plantain, Kno-graffs, Lettuce. Furfate, mixed together, and agitated or laborated in a Leaden Mortar with a little Oil of Roses; for this kind of Medicine is commended by Galen in every kind of ulcerated Cancers. Also this following Water is very profitable, and often pres-

- ed by me. Re Stero. imbhis. 1. in. berba. Roberti. Planting. Lepereium. Lyco, pursuer. Salvia. officinae, folacia. radix. cannon. an. doc. cancer. fait. XIX. Let them be all beaten together and difficult in a Leaden Amphoe, keep the liquor for use, and with it make often injection into the part, or if the part of the cancer be ulcerated, to be applied and renewed ever and anon, for to the armament and force of the inflammation is retarded, and the pain augmented. Galves bears into powder River Crabbs burnis, the powder mixed with Oint-

- ment of Roses is most probably applied upon leucoderma Cancers.

- It will be very convenient to put into the neck of the Womb the following Instrunment made of Gold or Silver, whereby the cancerous fluid may have free and easy passage forth, and the filthy and purulent Vapours may more easily breathe forth. Therefore let it be hollow quite through, of such a size as may fit between two fingers long, and about the bigness of one thimble, at the upper end, and forsooth with many holes whereby the fluid may have passage forth. Let the outer or lower end be form twoingers thick in the circumference, make it with a coat spring, that may hold tight and

- open, for in the end there is a needle and thred, that so you may rule and govern the observable way of taking a cancer from the lip.
Of Tumours against Nature in general.

...more or less, according to the Physician's mind; let there be two firings or laces put unto it, by which being tied before and behind to the rowler, with which the Woman shall girt her loins, the Device may be kept from falling, as you may see in the following Figure.

A Vent made like a Pessary, for the Womb afflicted with a cancerous Ulcer.

A
B
C
D
E

Neither is that remedy for not ulcerated Cancers to be contempted, which consists of a Plate of Lead beaten over with Quick-silver; for Galen himself testifies that Lead is a good Medicine for malign and invertebrate Ulcers. But Guido Cauza, a physician of ancient credit and learning, that such Plates of Lead rubbed over with Quick-silver, to such malign Ulcers as contain the force of other Medicines, are, as it were, Antidotes to waste and overcome their malignity and evil nature. This kind of remedy, when it was prescribed by that most excellent Physician Holanus, who commanded me to apply it to the Lady of Montegi, Maid of Honour to the Queen-mother, troubled with a Cancer in her left Breast, which equalled the biggest of a Walnut, did not truly thoroughly heal it, yet notwithstanding kept it from further growth. Wherefore at length growing weary of it, when she had committed her fate to a certain Physician, boldly promising her quick help, the tried, with lots of her life, how dangerous and disadvantageous the cure of a Cancer was, which is undertaken according to the manner of healing other ulcers; for this Physician, when he had cast away this our Medicine, and had begun the cure with mollifying, heating and attracive things, the pain, inflammation, and all the other symptoms increasing, the tumor grew to that size, that it was esteemed more a Pomegranate than a Walnut; whereupon an immoderate flux of blood followed, for staying whereof he was forced to strew caustic powders thereon; but thereby the inflammation and pain becoming more raging, and woundings coming upon her, the poor Soul in stead of her promised health, yielded up her Ghost in the Physician's bosom.

CHAP. XXXI.

Of the Fever which happeneth in Scirrhous tumors.

Such a Fever is a Quartan, or certainly coming near unto the nature of a Quartan, by reason of the nature of the Melancholick humour of which it is bred. For this shew in a certain face in which it makes the tumour, by communication of putrid vapours heats the heart, above measure, and enflammes the humours contained therein, whereas an Affection. Now therefore a Quartan is a Fever coming every fourth day, and having two days intermission.

The primitive causes thereof are these things which increase Melancholick humours in the body, such as the long eating of Puls, of coarse and burnt Bread, of salt Flesh and Fish, of gross Meats, as Beef, Goat, Venison, old Hares, old Chees, Cabbadge, thick and muddy Wines, and other such things of the same kind.

The antecedent causes are, heaped up plenty of Melancholick humours, abounding over all the body. But the concurrent causes are Melancholick humours putrefying without the greater Vessels, in the small Veins, and habit of the body.

We may gather the signs of a Quartan Fever from things which they call natural, not natural, and against nature. From things natural: for a cold and dry temper, old age, cold and fat, Men, having their Veins small, and lying hid, their Spleen swollen and weak, are usually troubled with Quartan Fever.

The signs.

Why they are frequent in Autumn.

Why a Quartan happens upon Scirrhous tumors.
Quarains, or tertian or quartan fevers, are especially to be attended to at the approach of spring, and generally take place every fourth day.

The fit begins with an itching sensation over the body, particularly on the legs, and the pulse at the beginning is light, slow, and deep, and the urine is white and watery, inclining to somewhat a dark colour.

In the declining stage, when the matter is concurred, the urine becomes black, not occasioned by any malignant symptom or preternatural excess of heat (for so it should be deadly) but by the operation of the conjunct matter. The fit of the Quarain continues twenty-four hours, and the intermission is forty-four hours. It often takes its origin from an obstruction, pain, and Saturnus of the spleen, and of the suppurating of the tuncus and hemmorhoids.

Quarains 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 succession of any disease of the liver, spleen, or any other preceding disease, are worse than such as are bred of themselves, and commonly end in a death. But those which happen without the fault of any bowels, and to such a patient as will be governed by the physician in his diet, incur no greater harm, but free him from more grievous and long diseases, as melancholy, the falling-fitches, convulsion, madness, because the melancholy humor, the author of such fevers, is expelled every fourth day by the force of the fit of the Quarain.

A Quarain Fever, if there be no error committed, commonly exceeds not a year; for otherwise, some Quarains have been found to last to the twelfth year, according to the opinion of Ariscon. The Quarain beginning in autumn is oftentimes ended in the following spring; the Quarain, which is caused by adult blood, or cholera, or flatulent humour, is more easily and formerly cured, than that which proceeds from adult melancholy humour, because the melancholy humour, terrestrial of its own nature, and harder to be difcharged than any other humour, is again made by addition (the subtiler parts being dissolved and the grosser fibering) more stubborn, grost, malign, and acrid; the cure is wholly absoved by two means, that is, by diet and medicines. The diet ought to be preferred contrary to the cause of the fever. As much as lies in our power. Wherefore the patient shall chaw sweet fishes, flatulent, vititious and glutinous meats, fatten Fowls, salt meats and Venison, and all things of hard digestion. The use of white Wine indifferently hot and thin, is convenient to attenuate and inside the gross humour, and to move 'twixt and between ye very 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 shortly after the fit, for then it is the fooner provoked, the fives of the stomach being liquefied and relaxed, and the fomach is more pleasant, happy, and an e evacuation of the Phlegmatic and choleric humour, and less troublesome to nature. And of all the crudities with which the mouth of the ventricle abounds in a Quarain, by reason of the more copious influx or the melancholy humour, which by its qualities cold and dry disturbs all the actions and natural faculties. Moreover, exercises and frictions are good before and after the paroxysms of the mind are as contrary to the cause from which this Fever takes its original, as fit to be exalted by the patient, as Laughter, Jelling, Muffling, and all such things full of pleasance and mirth. At the beginning the patient must be gently handled and dealt withal, and we must abstain from all very strong medicines, unless such times as have been of some continuance. For this humour, contagious at the beginning, when yet modest, hath arranged nothing, is again made more stubborn, terrestrial and dry, by the almost fiery heat of acid medicines. If the body abound with blood, some part thereof must be taken away by opening the Median or Basilic vein of the left arm, with this caution, that if it appear more gross and black, we suffer it to flow more plentifully; if more thin, and tintured with a laudable and red colour that we presently fry it. The matter of this Fever must be ripened, concurred and diminished with the Synops of Ephedri and Scopodendria, of Maiden-hair, Agrimony, with the waters of Hops, Bagle, Borage, and the like. I sincerely protest, next unto God, I have cured very many Quarains by giving a portion of a little Tincture dissolved in about two ounces of Aqua viva, also tinctures by two or three grains of Musk dissolved in Muscardine, given at the beginning of a particular fit towards the general declination of the disease after general purgations, the humour and body being prepared, and the powers strong; And certainly an inveterate Quarain can scarce ever be discharged, unless the body be much heated with meat and medicines. Therefore it is not altogether to be discouraged, which many say, that they have driven away a Quarain by taking a draught of wine every day since as they came forth of their beds, in which some leaves of Sage had been infusied all the night. Alto it is good a little before the fit to anoint all the spine of the back with the Oyl of Ras, Walnuts, of the Peppers, mixed with a little Aqua viva, but for this purpose, the Oyl of Catus erum which hath been boiled in an Apple of Cotinum, the Kernels taken out, upon hot coals, to the consumptiion of the heart, mixing therewith some quantity of the Powers of Pepper, Pellitory of Spain, and Euphorbus, is excellent. Certainly, such like illuminations are good, not only to expel the rebellious humour, but also to provoke sweats for because by their heated heat they diffuse this humour being dull and rebellious to the expulsivi faculty, for the Melancholy is, as it were, the dregs and mud of the blood. Therefore, if on the contrary, the Quarain Fever shall be caused by adult cholera, we must hope for and expect a cure by refrigerating and hot medicines. Let us use, Purulane, baths of the decoctions of Cucumbers, Good- Mixed, and Potpinnions. For in this case, if any hot hot medicin, he shall make this humor more oblique by the softening of the fibulous parts. Thus Trattatus boalts that he hath cured

What Quarains must be cured with refrigerating things.
Inward parts must be cured.

Histology.

What it is.

In what parts they chiefly happen.

Medics must also be mixt, as if it were a confuted kind of Fever of a Quotidian and Tertian, it may be cured by a medicine composed of things evanescent, benign, and choleric.

What it is.

Histology.

A History.

Histology.

Histology.

Histology.

Histology.

Histology.

Histology.

Histology.

Histology.

Histology.

Histology.

Histology.
of particular Tumors against Nature.

The PREFACE.

What it is. The cause.

Of an Hydrocephalus or watry Tumor which commonly affects the heads of Infants.

Differences by reason of position.

The Greeks call this Difcase Hydrocephalus, as it were a Drop of the head, by a watery humor; being a diseafe almost peculiar to Infants newly born. It hath for an external caufe the violent comprifion of the head by the hand of the Midwife, or otherwise at the births, or by a fall, contufion, and the like. For hence comes a breaking of a vein, cranberry, and a defillation of the blood under the skin. Which by corruption becoming whafli, laftly degenerateth into a certain watery humor. It hath also an inward caufe, which is the abundance of fces and acid blood, which by its tonicity and heat sweats through the pores of the vessels, fontines between the mucous skin of the head, and the Periomenum; fontines between the Periomenum and the skull, and fontines between the skull and membrane called Dura mater, and otherwhiles in the ventricles of the brain.

The figures of it, contained in the space between the mucous skin and the Periomenum, are a ma- siffed tumor without pain, foft, and much yielding to the preffure of the fingers. The figures when it remaineth between the Periomenum and the skull, are for the most part like the fore-named, unless it be that the Tumor is a little harder, and not so yielding to the finger, by reafon of the parts betwixt it and the finger: And alfo there is somewhat more fcente of pain. But when it is in the space between the skull and Dura mater, or in the ventricles of the brain, or of the whole fufpence there-of, there is a difcharge of the focces, as of the light and hearing the tumor doth not yield to the touch, unless you utle frong impulfion, for then it faleth somewhat down, especially in Infants newly born, who have their skulls almoft as foft as wax, and the junctures of their futures lax, both by nature, as alfo by accidents, by reafon of the humor contained therein refiuating and ex- terning by the fpace the humor contained here lifts up the skull somewhat more high, espe- cially at the meetings of the futures, which you may thus know, becaufe the tumor being prefufed, the humor flies back into the fecret passage of the brain.

CHAP. I.

Of particular Tumors againft Nature.

and Cures and new Checles for his meat, and to apply them in form of Cataplaffis upon the griwed and fivolv part. At night he used a Piffan of Barley meal and Poppy feeds, and was purged now and then with a Clyfter of refrefating and emollient things, or with Gaffis alone, by which medicines he faid he found himself much better. The caufe of fuch a bony confitution of the Ar- teries, is, that the hot and fervid blood first dilates the coats of an artery, then breaks them; which when it happens, it then borrows from the neighbouring bodies, a fit matter to reftore the loofed continuity thereof.

This matter, whilft by little and little it is dried and hardned, it degenerateth into a gritty or dife a bony fubftance, putt by the force of the fame material and efficent caules, by which iones are generated in the veins and bladder. For the more terrestrial portion of the blood is dried and condenced by the power of the unnatural heat contained in the part affefted with an Anurusifnis, whereby it comes to pafs, that the fubftance added to the dilated and broken artery is turned into a body of a bony confitution. In which the singular providence of Nature, the Hand-maid of God, is thumbed, as that which, as it were, by making and oppofing a new wall or barr, would hinder and break the violence of the raging blood dwelling with the abundance of the vital spirits; unlesfs any had rather to refer the caufe of that hardnes to the continual application of refrefating and altrigineous medicines; Which have power to confufate and harden, as may not obtinently be gathered by the writings of Galen. But beware you be not deceived by the fore-nominated figns, for fometimes in large Aneurifmas you can perceive no pulfation, neither can you force the blood into the artery by the preffure of your fingers, either becaufe the quantity of fic blood is greater than which can be contained in the antient receptacles of the artery, or becaufe it is condenced and converted into cloths, whereasupon wanting the benefit of ventilation from the heart, it pre- fently purfeth. Hence confide great pain, a Gangrene, and mortification of the part, and laftly, the death of the creature.

The end of the Seventh Book.

BOOK VIII.

Of particular Tumors againft Nature.

Chap. i.

Ecaufe the care of Difafees must be varied according to the variety of the temper, not only of the body in general, but alfo of each part thereof the strength, figure, form, fize, and fhape thereof being taken into confideration; I think it worths my pains, having already figned of Tumors in general, if I fhall treat of them in particular, which affe§ each part of the body, beginning with thofe which affeft the head. Therefore the Tumor either affefts the whole head, or elfe only fome part thereof, as the Eyes, Ears, Nose, Gum, and the likke. Let the Hydrocaphahis, and Physocephalos be examples of thofe Tumors which afflict the whole head.
To conclude, the pain is more vehement, the whole head more swollen, the fore-head heads somewhat further out, the eye is fixed and immovable, and also weeps by reason of the furious humour (weaving out of the brain). Fehmilus writes, that he saw a Girl of two years old, whose head was thicker than any mass head by this kind of Tumor, and the skull not bony, but membraneous, as it used to be in Abortive births, and that there was nine pound of water ran out of it. Mchevius tells, that he saw a Child whose whole head grew every day bigger by reason of the watery moisture contained therein, till at length the Tumor became so great, that his neck could not bear it neither standing nor sitting, so that he died in a short time. I have observed and had in cure four children troubled with this disease, one of which being deciphered after it died, had a brain so bigger than a Tennis-Ball. But of a Tumor and humor contained within under the Cerebrum, or skull, I have seen none recover, but they are easily healed of an external Tumor.

Therefore whether the humor lies under the Pterionenum, or under the muscosous skin of the head, it must first be affailed with resolving medicines, but if it cannot be thus overcome, you must make an Incision, taking heed of the Temporal Muscles, and then procure 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 hath been caused by contusion ; then the wound must be filled with dry lint, and covered with double boulters and laftly, bound with a fitting ligature.

**CHAP. II.**

Of a Polyposis, being an eating Disfigure in the Nose.

The reason of the name.

Lith. 2, ch. 8. The differences hereof.

Which of them admits no manual operation.

An Anodyne.

Why it must be often clear away.

What it is.

The differences. Their signs and symptoms.

**CHAP. III.**

Of the Parotides, that is, certain swellings about the Ears.

The Parotis is a tumor against Nature, afflicting the glands and throat parts fested behid and about the Ears, which are called the Enunceratures of the brain; for thence because they are bony and spongy, are fit to receive the excrements thereof. Of thence some are critical, the matter of the disfave somewhat digested being fent thither by the force of Nature, or Symptomatical, the excrements of the brain increased in quantity, or quality, ruffling thither of their own accord. Such abloves often have great inflammations joined with them, because the biting humour which flows thither is more viriated in quality than in quantity. Besides also, they often cause great pain, by reason of the dissidence of the parts induced with the most exquisite fire, as also by reason of a mixture of the fifth Conjugation spread over these parts. As also of the neighbou-cr hearing membranes of the brain, by which means the Patient is troubles with head-ache, and all
Of particular Tumors against Nature.

his face becomes livid. Yet many times this kind of Tumor afeets to be raised by a rough, violent, and gross humor. This diffuse death more grievously affect young men than old; it commonly brings a Fever and Prognosis.

watching. It is difficult to be cured, especially, when it is caused by a gross, tough, and viscid humor, first thither by the Creta.

The cure must be performed by diet, which must be contrary to the quality of the humor in the temperament and constitution of the patient. If the inflammation and redness be great, which indicate a blood, Phlebotomy will be profitable, yes very necessary. But here we must not use the like judgment, in application of local medicines, as we do in other tumors, as we have already shown.

So we should imagine or fore-throw the endeavors of Nature forcibly toil to it from the morbid humor. But we must use this rimel, or drive it back, if the matter which hath flowed thither be very putrid, to do the reflow thereof to the noble parts would prove mortal. Wherefore the Chirurgeon shall rather aim at Nature in attracting and drawing forth that humour. Yet the de-destination shall be to be violent, if the pain be severe, so that there may be fear of wounds, and a Fever, which may depair the powers. Gaseous bodies, it will be expedient with many relieving medicines to mix some repelling. Wherefore at the beginning let such a Cautery be applied.

For Iod. & foc., cop., &c., ant. 3, 4, nux vom., &c., decoct. bals., rec. & aloe cham. Gentle relieving medicines. And the following Ointment will also be good.

**CHAP. IV.**

Of the Epulis, or over-grown of the flesh of the Gums.

The Epulis is a fleshly excreence of the gums between the teeth; so that it is both hinderers the speech and eating, it causeth fulness and thinking, and not seldom degenerates into a Cancer, which you may understand by the propriety of the colour, pain, and other accidents; for thus you must by no means touch it with your hand. But that which doth torment the Patient with pain, may be pluck'd away, and let the manner thereof.

Let it be tied with a double thread, which must be finer twined until such time as it fall off, when it shall fall away, the place must be burnt with a cautery, put through a trunck or pipe, or with The Creta. Agerat. orcy of Viput, but with great care that the round parts adjoining thereby be not hurt. for it so be that it be not burnt, internally returns.

I have often by this means taken away from large tumors of this kind, that they hung out of the mouth in so small bigness, to the great disfiguring of the face, which when vnoo Chirurgeon daint touching, because the teeth looked livid, I ventured upon, because they were free from pain; and by taking them away and cauterizing the place, I perfectly healed them: not truly Suddenly, and at once; for although I burnt the place after dilatation, yet nevertheless they sprang up again, because a certain portion of the bone and sockets in which the tooth land fainted, were become rotten. I have often observed such like feets by continuance of time to have turned into a gritty and hard substance. Wherefore the cure must be begun as speedily as maybe: 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 success of time is hardened, and makes the taking away thereof more difficult.

**CHAP. V.**

Of the Ranula.

I have oft-times a tumor under the tongue, which takes away the liberty of pronouncing or speaking: whereas the Greeks call it Broadhorns, the Lateins, Ranula, because such who say it is as have this disease of the tongue, from to express their minds by croaking rather than called.

by speaking.

It is caused by the falling down of a cold, moist, gross, tough, viscid, phlegmatic matter, from the brain upon the tongue, which matter in colour and consistence resembles the white of an Egg; yet sometimes it looks of a cinereous or yellowish colour.

That you may safely perform the cure, you must open the Tumor rather with a Castrum of hot iron, than with a knife, for otherwise it will return again. The manner of operating 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 first, that the hole may be upon the part

$ 3
Of particular Tumors against Nature. 

CHAP. VI.

'Of the cutting of the Glandules, or Almonds of the Throat.

Why the glandules are called Almonds. 

Their office.

their tumor.

Symptoms.

Cure.

Extreme diseases must have extreme remedies.

How you must open the weapon.

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 down from the brain, both lest that the too violent falling down of the humor should hinder the tongue in speaking, as also, that the tongue might always have moisture, as it were, laid up in store, lest by continual speaking, it should grow dry and fail. For thus this spittle being confined by feverish heats, the Patient is scarce able to speak, unless they first moisten their tongue by much whetting 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, phlegmatick and viscid 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 painful and troublesome to the Patient, and commonly he hath a Fever. Sometimes the neighbouring muscles of the throat and neck are so swollen together with these glandules, that (as it usually happens in the Slitwhay) the passage of the breath and air is stopped, and the Patient strangled. We relist this imminent danger by purging and blood-letting, by applying Cupping-glases to the neck and shoulders, by frictions and ligatures of the extreme parts, and by washing and gargling the mouth and throat with astringent Gargarisms. But if they come to Suppuration, you must with your Incision-knife make way for the evacuation of the matter, but, if on the contrary, these things performed according to art, defluxion be increased, and there is present danger of death by stopping and intercepting the breath, for the slumbering so great and imminent danger, the upper part of the 

Assura arteria or Weazon must be opened, in that place where it usually stands out, and 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 better made, the Patient must be wished to bend his head back, that so the artery may be the more easily come to by the instrument; then you shall make an Incision overthwart way with a crooked knife between two rings (not hurting nor touching the gristly substance) that is to say, the membrane which ties together the gristly rings, being only 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, until the danger of suffocation be past, and then it must be sewed up not touching the gristle; But if the lips of the wound shall be hard and callous, they must be lightly scarified, that so they may become bloody for their easy agglutination and union, as we shall the 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 gristly rings thereof cut with a great wound, as we shall note when we shall come to treat of the cure of that wounds of that part.

CHAP. VII.

Of the Inflammation and Relaxation in the Uvula or Columella.

What the uvula is and what the use there is. 

The cause of the swelling thereof.
many symptoms; for by the continual irritation of the distilling humor the cough is caused, which
also hinders the speech, and intercepts the liberty of speech; as also, by hindering respiration, the Pa¬
tient cannot breathe, unless with pain. They are exasperated with a vain endeavoring to swallow
(chewing, as it were, a mortel sticking in their jaws) and are in danger of being strangled.

This disease must be resisted and assailed by: bleeding, cupping, taking of dyes, using
stringent gargles, and a convenient diet; but if it cannot thus be overcome, the cure must be
tried by a cautery of Aqua fortis, which I have divers times done with good success. But if it cannot
be so done, it will be better to put your hand, than through friends to force the Patient to
remain in imminent and deadly danger of strangling: yet in this there must very great caution be
used; for the Chirurgeon shall not judge the Vula fit to be touched with an instrument, or cautery,
which is swollen with much inflamed, or black blood, after the manner of a Cancer; but he shall
boldly put to his hand, if it be neither exceeding red, nor swollen with too much blood, but white
and without pain. Therefore that you may more easily and safely cut away that which resounds and is superfluo-
sous, desire the Patient to sit in a light place, and hold his mouth open; then take hold of the top
of the Vula with your scissors, 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 in-
strument is to be ascribed to Honestus Tafellanaus, that diligent and learned man, the King's Physi-
cian ordinary, and the chief Physician of the Queen-mother. Which also may be used in binding
of and warts in the neck of the womb.

The Delination of Constrictory-rings, fit to twist or bind the Columella, with a twisted thread.

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 Vula.

But if an eating Ulcer shall affect all this relaxation of the Vula, together with a flux of blood,
then it must be burnt and erased with a hot Iron, so thrust into a Trunk, or Pipe, with an hole in
it, that some found part of the mouth may be offended therewith.
The differences.

What it is.
The kind.
The third.
The symptoms.

The way of resolution is the more to be desired; it happens when the matter is small, and that fille; especially, if the Physician shall draw blood by opening a vein, and the Patient afe taking Gargarifns. A critical Squinicy divers times proves deadly, by reason of the great falling down of the humor upon the throat, by which the passage of the breath is suddenly shut up. Broths must be used made with Capons, and Veal seasoned with Lettuce, Purslane, Sorrel, and the cold Seeds.

If the Patient shall be somewhat weak, let him have poached Eggs, and Barley Creams, the Early being somewhat boiled with Raisins in Water and Sugar, and other meats of this kind. Let him be forbidden Wine, instead whereof he may use Hydromelita, and Hydrofacharita, that is, drinks made of Water and Honey, or Water and Sugary also Syrups of dried Roses, of Violets, Sorrel and Limprons, and others of this kind. Let him avoid too much sleep. But in the mean time the Physician must be careful of all, because this disease is of their kind, which break no delays. Wherefore let the Redhot be perfectly opened, on that side the tumor is the greater, then within a short time ter the same day, for evacuation of the conjunct matter, let the vein under the tongue be opened, let Cupping-Glasses be applied, sometimes with Sacrification, sometimes without, to the neck and shoulders, and let friction and painful ligatures be used to the extreme parts. But let the in-

The second difference is said to be that, in which the tumor appears inwardly, but little or scarce any thing at all outwardly, the tongue, glandules and jaws, appearing somewhat swollen.

The third, being least dangerous of them all, causeth a great swelling outwardly, but little inwardly.

The cause.

Diet.

Cure.

Repelling Gargarifns.
Of particular Tumors against Nature.

Of the contrary, Repressives must not be outwardly applied, but rather Lenitives, whereby the external parts may be relaxed and relaxed, 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 the Fever leave the Patient, if he swallow, speak, and breathe more freely, if he sleep quietly, and the pain begin to be much allievated. Therefore then Nature’s endeavour must be helped by applying resolved medicines, or else by acting Suppuratives inwardly and outwardly, if the matter seem to turn into Paste. Therefore let Gargarisms be made of the roots of Marsh-mallows, Figs, Jujubes, Damask-prunes, Dates, perfectly boiled in water. The like baselit may be had by Gargarisms of Cows-milk with Sugar, by Oyl of Sweet-almonds, or Violets warm, for such things help forward Suppuration and alluvage pains; let Suppuratives be applied outwardly to the neck and throat, and the parts be wrapped with wood moistened with Oyl of Lilies. When the Physician shall perceive that the humor is perfectly turned into Paste, let the Patient’s mouth be opened with the Speculum, and the abscess opened with a crooked and long Incision-knife; then let the mouth be now and then washed with cleansing Gargles; as R Aquae bardel lib. 13, mater nigra, & precurs, si detegunt an. flat gargarismis. Also, the use of anemis, that is, Wine and Honey, will be fit for this purpose. The Ulcer being cleansed by these means, let it be cicatrized with a little Roch-Alum added to the former Gargarisms.

The Figure of an Incision-knife, opened out of the haft which serves for a Flesh Knife.

CHAP. IX.
Of the Bronchocele, or Rupture of the Throat.

That which the French call Goutte, that the Greeks call Bronchocele, the Latins Gutturis Hernia, that is, the Rupture of the throat. For it is a round tumor of the throat, the matter whereof coming from within outwards, is contained between the skin and weason, it proceeds in women from the same cause as an Anomian,

But this general name of Bronchocele undergoes many differences; for sometimes it retains the nature of Molluscous, other-whiles of Steatom or Anomian’s in some there is found a sandy substance having some small pain; some of these are small, others so great, that they seem almost to cover all the throat; some have a cist, or bag, others have no such thing at all, how many forever they be, and what end they shall have, may be known by their proper signs; these which shall be cistare, 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 divers times, and disced by fit remedies; and lastly, let the ulcer be contracted and cicatrized.

CHAP. X.
Of the Pleurifie.

The Pleurifie is an inflammation of the membrane, investiling the ribs, caused by subtile cholerick blood, springing upwards with great violence from the hollow Vain into the Arteries, and thence into the intercostal veins, and is at length poured forth into the empty spaces of the intercostal muscles, and the mentioned membrane. Being contained there, if it tend to suppuration, it commonly, infers a pricking pain, a Fever, and difficulty of breathing. This suppurated blood is purged and evacuated one while by the mouth, the lungs finking it, and so calling it into the weason, and fo into the mouth; otherwhiles by urine, and sometimes by blood.

But if nature, being too weak, cannot expel the purulent blood poured forth into the capacity of the chest, the dispace is turned into Enzymynas, 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; and that must be done either with an actual or potential cautery, or with a sharp knife drawn upwards, towards the back, but not downwards, left the vessels should be vio
tated which are dissemated under the ribs. This incision may be lightly and easily performed by this actual cautery, it is perfected with four holes, through one whereof there is a pin put higher or lower, according to the depth and manner of your Incision; Then the point thereof is thrust lower, according to the change of the edge of the hole into an Enzymynas.

Of the spee
d of the side of an Enzymynas.
But if the Patient shall have a large body, chest and ribs, you may divide and perforate the ribs themselves with a Trepan, howsoever the aperture be made, the pus, or matter, must be evacuated by little and little at several times; and the capacity of the chest cleansed from the purulent matter by a detergent injection of vi. ounces of Barley-water, and § ii. Honey of Roses, and other like things mentioned at large in our cure of Wounds.

CHAP. XI.

Of the Dropfie.

The Dropfie is a Tumor against nature by the abundance of watery humor, of flatulencies, or Phlegm, gathered one while in all the habit of the body, otherwhile in some part and that especially in the capacity of the belly between the Peritoneum and entrails. From this distillation of places and matters, there arise divers kinds of Dropfies. First, that Dropfie which fills that space of the belly, is either moist or dry. The moist is called the Astites, by reason of the similitude it hath with a leather-bottle, or Oporacisc, because the watery humor is contained in that capacity, as it were in such a vessel.

The dry is called the Tympanities, or Tympany, by reason the belly swollen with wind sounds like a Tympanum, that is, a Drum. But when the whole habit of the body is distended with a phlegmatic humor, it is called Anaures or Leucophlegmatia. In this last kind of Dropfie the lower parts first swell, as which by reason of their site are most subject to receive defluxions, and more remote from the fountain of the native heat; therefore if you press them down, the print of your finger will remain sometime after; the Patient’s face will become pale and puffed up, whereby it may be distinguished from the two other kinds of Dropfie. For in them first the belly, then by a certain consequence the thighs and feet do swell. There are besides also particular Dropfies, contained in the strict bounds of certain places, such as are the Hydrocephalus in the head; the Bronchocele in the throat; the Pleuritics in the chest; the Hydrocele in the Scrotum, or testes; and so of the rest. Yet they all arise from the same cause, that is, the weakness or defect of the altering or concording faculties, especially of the liver, which hath been caused by or any kind of great distemper, chiefly cold, whether it happen primarily, or secondarily by reason of some hot distemper dissipating the native and inbred heat, such a Dropfie is incurable, or else it comes by consent of some other higher or lower part; for if in the lungs, midriff, or reins, there be any distemper, or disease bred, it is easily communicated to the gibbous part of the liver, by the branches of the hollow vein, which run thither. But if the mischief proceed from the spleen, stomach, mesenterie, guts, especially the Ileum and Ileum, it creeps into the hollow side of the liver by the mesenteric veins, and other branches of the Vena portae or gate-vein. For thus such as are troubled with the Asthma, Pesteck, Spleen, Jaundice, and also the Phrensic, fall into a Dropfie.

Lastly, All such as have the menstrual or hemorrhoidal blood suppressed or too immoderately flowing contrary to their custom, either overwhelms, diminisheth or extinguisheth the native heat, or otherwise than fire, which is feecuppanied by too great a quantity of wood; or death and is extinguished, or too immoderately; Or by too large quantity of meats too cold and hastily devoured without any order. To conclude, by every default of external causes through which occasion, errors may happen in diet or exercise.

The Astites is distinguished from the two other kinds of Dropfies, both by the magnitude of the efficient cause, as also by the violence of the Symptoms, as the depacted appetite, thirst, and swelling of the Abdomen. And also when the body is moved or turned upon either side, you may hear the sound as of the joggling of water in a vessel half full. Lastly, the humor is divers driven upwards or downwards, according to the turning of the body and compression of the Abdomen. It also causeth various Symptoms by pressure of the parts to which it flows. For it causeth difficulty of breathing and the cough by pressing of the midriff; by sweating through into the capacity of the chest, it causeth like Symptoms as the Empyema. Besides also the Patients pretends, if they be, by the ebbing and flowing of the watery humor, one while to be carried to the skies, and another whiles to be drowned in the water, which I have learn’d not by reading of any author, but by the report of the Patients themselves. But if the watery humors be fallen down to the lower parts, they suppreff the excrements of the guts and bladder by pressing, and flattening the palliages. When the Patient lies
lies on his back, the tumor seems less, because it is spread on both sides; on the contrary, when he stands or sits, it seems greater, for then all the humor is forced or driven into the lower belly, whence he feels a heaving in the Feels or there. 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-down of the feces and watery humor to them. The pilis is light, quick, and hard with tension.

This disease is of the kind of Chronic or long diseases; whereas it is scarce, or never cured, Prognostics especially in those who have it from their Mothers wombs, who have the aften of their stomach deprived, and those who are caduceus, and old, and lathy, all thick, as have the natural faculty fattening and fastly.

On the contrary, young and strong men, especially if they have no fever, and finally all who can endure labour, and those exercises which are fit for curing this disease, easily recover; principally if they use a Physician, before the water which is gathered together do putreScE and infect the bowels by its contagion.

C H A P. XII.

Of the care of the Dropies.

The beginning of the cure must be with gentle and mild medicines: neither must we come to a Paracentesis, unlike we have formerly used and tried therewith. Therefore, it shall be the part of the Physician to prescribe a dreving diet, and fresh medicines as carry away water, both by food and urine. Hippocrates ordains this powder for Hydroptic persons, as Casselar, obtit later. Eapith, & alis $ 3 49 comparator in faram, & fus pulveris, of which admittit two grains in wine, for nature, helped by this, and the like remedies, hath not seldom been seen to have cured the Dropies. But that we may better see, it will be available to fill up the native heat of the part by application of those medicines which have a dissolving force, as lemons, baths, elephants, and Emplasters. Let bags be made of dry and harsh Bran, Oats, Safi, Sulphur, being made her; Be or, for want of them, of Sanders or Alhes often heated.

The more effectual baths are Sal, Nitritus, and Sulphur waters, whether by nature or art, that bath is, prepared by the diffolution of Sal, Nitre, and Sulphur; to which if Rose, Marjoram, the leaves of Fennel, and tops of Dill, of Sazeker, and the like, be added, the benefit will go better forwards. Let Liniments, bags be made of the cloth of Rue, Dill, Bays, and Squills, in which some Exploreplus, Pulblicyty of Spain, Emplasters, or Pepper, have been boilid. Let Platters be made of Frankincense, Myrrh, Turpintine, Cofid, Bays, berones, English Galangall, Honey, the dung of Oxen, Pigeons, Goats, Horses, and the like, which also may be supplied by themselves. If the disease continue, we must come to Sineputias and Phenicums, that is, to rubbing and vesicatory medicines. When the blisters are raised, they must be annealed again, that the water may by little and little flow to long until the humour be exhausted, and the Patient referred to health.

Galen writes, the Husbandmans in Afa, when they carried wheat out of the Country into the City in Cars, when they would steal away and not be taken, hide some stone-jugs full with water in the midst of the Wheat; for that will draw the moisture through the jugs into itself, and increasse both the quantity and weight. When certain prynqueial Physicians had read this, they thought that Wheat had force to draw out the water, so that if any Creek of the Dropishe should be buried in a heap of Wheat, it would draw out all the water.

B ut as the Physician shall point nothing by these means, he must come to the expediency chiefly, that is, to Paracentesis. Of which because the opinions of the ancient Physicians have been diverse, we will produce and explain them.

Those therefore which disallow Paracentesis, conclude it dangerous for these reasons: The first, because by pouring out the contained water, together with it, you disipate and resolve the spirits, and consequently the natural, vital, and animal faculties. Another opinion is, because the liver weighing the water by which formerly it was born up, chance-forward hanging down by its weight, depredeth and draweth downwards the middle and the whole chest, whence a dry cough, and a difficulty of breathing proceed. The third is, because the substance of the Peritoneum, as that which is moved by theses reasons, condemned Paracentesis as deadly: Also, he provieded that it was not probatible, for these following reasons; viz. Because the water poured forth, doth not take away all

| of which administered two grains in white | Petrolieum de sal. | 1. |
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and experience teach, many nervous parts, also the very membranes themselves being far removed from a healthy substance, being wounded admit cure; for once the humor profits nothing, yet it makes way for medicines, which while it was there continued, it hindered. But this feizes, fall, and corrupt humor is so far from being able to mitigate a feaver and thirst, that on the contrary it increaseth them. And also it augmenteth the cold distemper, whilst by its abundance it overcometh and extinguisheth the native heat. But the authority of Celsus Aurelianus that most noble Physicists, though a Methodist, may furnish Astere and Gordianus. They, faith he, which dare avouch that all such as have the water let out by opening their belly have died, do lie; for we have seen many recover by this kind of remedy. But if any died, it hapned either by the default of the flow or negligent administration of the Paracentesis, I will add this one thing which may take away all current or controversy, we unwisely doubt of the remedy when the Patient is brought to that necessity, that we can only help him by that means. Now must we see how the belly ought to be opened. If the Dropleth happen by fault of the liver, the fection must be made upon the left side; if it of the spleen, in the right side; for if the Patient should lie upon the side which is opened, the pain of the wound would continually trouble him; but if he should lie upon his right side, the incision be made in the left, or on the left, if in the right. Then the Chirurgeon both with his own hand, as also with the hand of his servant assisting him, must take up the skin of the belly, with the belly underneath, and after they have separated them from the side then let him divide them so separated with a dexter even to the flesh lying under them, which being done, let him force as much as he can the divided skin upwards towards the stomach, that when the wound, which must be made in the fleth lying thereunder, shall be consolidated, the skin, by its falling thither, may serve for that purpose; then therefore let him divide the muscles and periosteum with a small wound, not hurting the胆 or guts. Then put into the wound a trunk, or golden, or silver crooked pipe, of the thickness of a Goose-quill, and of the length of some half an inch. 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 firing being fastened, it may be bound to the body, that it cannot be moved, unless at the Chirurgeon's pleasure. Let a sponge 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 forced out all together, but by little and little and for the durt of dissemination, the spirits, and resolution of the faculties, which I once saw happen to one sick of the Dropleth. He being impatient of the distemper and cure thereof, thrust a quill into his belly, and did much rejoice at the pouring forth of the water, as if he had been freed from the humor and disease, but died within a few hours, because the force of the water running forth, could by no means be laid, for the incision was not artifically made. But it will not be sufficient to have made way for the humor by the means afore-mentioned, but also the external orifice of the pipe must be stopped and strengthened by double clothes, 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 sufficed forth as we desire, and the tumor requisite for once drawn forth, it cannot easily be put in again, and without force and pain be fitted to the lips of the wound, because the skin and belly partake of it by their falling into the wound of the flesh or muscles. But whilst the water is in evacuation, we must have a diligent care of feeding the Patient, as also of his strength, for if that fail, and he come 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.

Another manner of evacuating the water after the apertion.

Others perform this business after another manner; for, making an Incision, they thrust through the lips of the wound with a needle and thread; but they take up much of the filthy substance with the needle, lest that which is taken up should be vomited, and corrupt the insides, but then the thread itself is wrapped up, and down over both ends of the needle, so that the lips of the wound may so closely cohere, that no drop of water may get out against the Chirurgeon's will. Sometimes such as are cured and healed of the Dropleth, fall into the Jaundice, whom I usually cure after this manner.

A medicine for the Jaundice.

The Figure of a Pipe in form of a Quill, to evacuate the water in Dropleth.
BOOK VIII.
Of particular Tumors against Nature.

CHAP. XIII.
Of the tumor and relaxation of the Navel.

The Exemplum or swelling of the navel, is caused by the Peritoneum, either relaxed or broken, for by this occasion of-times the guts, and of-times the kali, fall into the seat of the navel, and sometimes superficial fluids there generated; otherwise, this tumor is as an Aneurisma by too great a quantity of blood poured forth in that place: Otherwise by a fluent matter, and sometimes by a watery humor. If the tumor be occasioned by the kali, the part will retain its proper colour, that is, the colour of the skin; the tumor will be hot and almost without pain, and which will resolve without noise, either by the preffure of your fingers, or of it itself when the Patient leth on his back; but tumor caused by the guts, is more unequal, and when it is forced in by the preffure of your fingers, there is such a noise heard, as in the Enteroccele; but if the tumor proceed of superficial fluids it will be harder and more fibrous, not easily entering into the body, although the Patient lie upon his back, and you press it with your fingers.

The tumor is fitter which proceeds of wind, but which will not retire into the body, and sounds under your nail like a rattle. If the swelling be caused by a watery humor, it hath all things common with the fluent tumor, except that it is not visible 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 must it be thrust through with a needle, drawing after it a double twined and strong thread; then it must be forced in, than the skin and guts, must with your fingers be forced into their due place: Then the skin with which the tumor is circumfered must be taken up with your fingers, and thrust through with a needle, drawing after it a double twisted and strong thread, then it must be carried along for a time, it may be the easier agglutinated. Then must it be thrust through with a needle three or four times, according to the manner and condition of the distention and tumor. And to twitch it strongly with a thread, that the skin which is bound may at length fall off together with the ligature. But also you may cut off the skin so distended even to the ligature, and then cleanse it, as shall be. A fluent tumor of the navel shall be cured with the fame remedies, as we shall better mention in the cure of a windy rupture, but the watery may be poured forth by making a small incision. And the wound shall be kept open for some time, until all the water be drained forth.

CHAP. XIV.
Of the Tumors of the Greater and Cod called Hernies, that is, Ruptures.

The ancient Physicians have made many kinds of Ruptures, yet indeed there are only three to be called by that name, that is, the Intestibale, or that of the guts; the Zirchole, that of the kali; and, that which is mixed of them both. The other kinds of Ruptures have come into this order, rather by timidity, than any truth of the thing; for in them the guts or kali do not for sake their places.

The Greeks have given to all these several names, both from the seat of the tumor, as also from their matter. For thus they have called an unequal rupture which defends not beyond the preeminence of the navel, down falls into the cox, Bahannes, but the complex which penetrates into the cox, it be called Enteroccele; but if the tumor proceed of a watery humor, it be called Hydronephrocele, if from the guts, Philoccele, if from both. The term Hydronephrocele, if it be from wind, Pneumoccele, if from both. For the fubstance of the guts, seeing it is one, and continued to itself, they do not only mutually succeed each other, but by a certain confluence do, as in a dance, draw each other, so to avoid distraction, which in their membranous body cannot be without pain, by reason of their change of place from that which is natural, into that against nature: None of all which can forbe the kali feeling it is a stupid body, made of flesh without, and heavy, dull, and immovable. The signs that the Peritoneum, as that which is a thick, and extended membrane. The signs of a Bahannes are a round tumor in the groin, which pressed, is easily forced in. The signs of an Enteroccele are a hard tumor in the cox, which forced, returneth back and departeth with a certain manner and pain, but the tumor proceeding of the kali, is lax and feels soft like wool, and which is more difficultly forced in, than that which proceeds from the guts, but yet without muarring and pain; for the fubstance of the guts, seeing it is one, and continued to itself, they do not only mutually success each other, but by a certain confluence do, as in a dance, draw each other, so to avoid distraction, which in their membranous body cannot be without pain, by reason of their change of place from that which is natural, into that against nature: None of all which can forbe the kali feeling it is a stupid body, made of flesh without, and heavy, dull, and immovable. The signs that the Peritoneum, as that which is a thick, and extended membrane. The signs of a Bahannes are a round tumor in the groin, which pressed, is easily forced in. The signs of an Enteroccele are a hard tumor in the cox, which forced, returneth back and departeth with a certain manner and pain, but the tumor proceeding of the kali, is lax and feels soft like wool, and which is more difficultly forced in, than that which proceeds from the guts, but yet without muarring and pain; for the fubstance of the guts, seeing it is one, and continued to itself, they do not only mutually success each other, but by a certain confluence do, as in a dance, draw each other, so to avoid distraction, which in their membranous body cannot be without pain, by reason of their change of place from that which is natural, into that against nature: None of all which can forbe the kali feeling it is a stupid body, made of flesh without, and heavy, dull, and immovable. The signs that the Peritoneum is broken, are the sudden increafe of tumor, and a sharp and cutting pain; for when the Peritoneum is only relaxed, the tumor grows by little and little, and to confiderably with small pain; yet such pain returns so often, as the tumor is renewed by the falling down of the gut, or kali, which appears not to the Peritoneum being broken: for the way being once open, and passable to the falling body, the tumor is renewed without any distraction, and so without any pain to speak of.
The rel of the ligaments shall be handled in their places. Sometimes it happens that the guts and gall, do firmly adhere to the procots of the Peritoneum, that they cannot be driven back into their proper fect. This stubborn adhesion happens by the intervention of the viscid matter, or by means of some excoriation caused by the rude hand of a Chirurgion, in too violently forcing the gut, or gall, into their place. But also, too long stay of the gut in the third, and the neglect of wearing a Trufs, may give occasion to such adhesion. A perfect and inveterate Rupture by the breaking of the procots of the Peritoneum in men of full growth, never, or very seldom admits of cure. But you must note, that by great Ruptures of the Peritoneum, the guts may fall into the cod, to the biggles of a man's head, without much pain and danger of life, because the excorations, as they may easily enter, by reason of the largeness of the place and Rupture, so also they may easily return.

An aftringent Cataplasm.

Myrtill, & Sarcoce. an.

§ ii. Let them be incorporated and made a Cataplasm according to art. For the same purpoe he may apply Employ the cure of Ruptures: but the chief of the cure consists in folded Clothes, and Trufs, and Ligatures artificially made, that the relation testifies. Curio.,

When I had seen the bigness of the Enterocele, I perfwaded him to get another to serve in his Trust, and he followed my direcrions. When I met him fome five or fix years after, I asked him. How he did ? he anfwercd. Very well, for he was wholly freed from the dilafe, with which he was troubled with a grievous pain, efpecially then, when he stretched his voice in the Epiftle. Wherefore feeing he was troubled with the Enterocele,

fing anlEpiftle with aloud voice as often as the folemnity of the day, and the thing required.

The craft and covemences of Gelders,

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An aftringent Cataplasm.

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his cure. But it is most worthy of observation and admiration, that Nature but a little helped by art, healeth diseases which are thought incurable. The chief of the cure consists in this, that we firmly stay the guts in its place, after the same manner as these two Figures show.

The Figure of a man broken on one side, wearing a Trufs; whereto the Bottle must have three Tubers, one on the upper part, and one on the lower part, and there must be a hollow between them in the midst, that they may not fray or break: Another Figure of a Man having a Rupture on both sides, flowing by what means, with what kind of and what sort of Band in must be bound on each groin.

In the mean time we must not omit diet. We must forbid the use of all things, which may either relax, dilate, or break the process of the Peritoneum, of which I have already treated sufficiently. Sometimes, but specially in old men, the guts cannot be restored into their place, by reason of the quantity of the excrements 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 let the following Cataplasm be applied.

\[ \text{R } \text{Rad. alth. & } \text{Seminis lini } \text{ & } \text{Seminar. } \text{& } \text{fam. } \text{& } \text{viti. parvis. } \text{an. m. } \text{s. } \text{A. Cataplasm.} \]

Let them be boiled in fair water, afterwards beaten, and drawn through a sieve, adding thereto of new Butter without Salt, and Oyl of Lilies as much as shall suffice. Make a Cataplasm in the form of a liquid Pulvis. Let it be applied hot to the cod, and bottom of the belly, by the help of this remedy when it had been applied all night, the guts have not seldom been seen of themselves, without the hand of a Chirurgeon, to have returned into their proper place. The windiness being resolved, which hindered the going back of the excrements into another gut, whereby they might be evacuated and expelled. But if the excrements will not go back thus, the flatuencies, yet relifting unevacuated, an emollient and carminative clyster is to be admitted, with a little Chymical Oyl of Turpentine, Dill, Juniper, or Fennel. Clysters of Muscadine, Oyl of Chymical Oyl, Walnuts, and 
\[ \text{Aqua vitæ, } \text{and a small quantity of any the aforesaid Oyls, are good for the same purpose.} \]
It often happens that the guts cannot yet be restored, because the procceds of the Peritoneum is not wide enough. For when the excrements are fallen down with the gut into the cod, they grow hard by little and little, and increase by the excess of flatulent causes by resolution, which cause such a tumor as cannot be put up through that hole, by which a little before it fell down: Whereby it happens that by putrefaction of the matter there contained, come inflammations, and a new ac- cect of pain; and lathy, a vomiting and evacuation of the excrements by the mouth, being hindered from the other paffage of the fundament. They vulgarly call this affae Miferere mit. That you may help this symptom, you must rather aflay extreme remedies, than suffer the Patient to die by fo filthy and loathful a death. And we must cure it by Chirurgery, after this manner following. We will bind the Patient lying on his back, upon a table or bench, then preferably make an Incision in the upper part of the cod, not touching the substance of the gut; then we must have a silver Cane or Pipe, of the thicknefs of a Goose-quill, round and gibbose in one part thereof, but somewhat hollowed in the other, as is fhewn by this following Figure.

The Figure of the Pipe or Cane.

We mufi put it into the place of the Incifion, and put it under the production of the Peritoneum being cut together with the cod, all the length of the production, that fo with a sharp knife we may divide the procceds of the Peritoneum, according to that cavity separated 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 fo much of the cut Peritoneum must be lowed up, as shall seem fufficient, that by that paffage made more ftrait, nothing may fall into the cod after it is cicatrized.

But if there be fuch abundance of excrements hardened, either by the lay or heat of inflammations, that that Incifion is not fufficient to force the procceds into their place, the Incifion must be made looser, your Cane being thrust up towards the belly; So that it may be fufficient for the free recess of the guts into the belly. Then you may put it up as is fit, and the way will be shotted up against the falling down of the gut or kail, the procceds of the Peritoneum being made more ftrait, by reason of the future; for the rents, the wound shall be cured according to Art. But before you undertake this work, consider diligently whether the strength of the Patient be fufficient, neither attempt any thing before you have foretold, and declared the danger to the Patients friends.

CHAP. XVI.

Of the Golden Ligature, or the Pusidus Aureus, as they call it.

If the Rupture will not be cured by all these means, by reafon of the great folation of the contin- uity of the relaxed or broken Peritoneum, and the Patient by the confent of his friends there present, is ready to undergo the danger in hope of recovery, the cure fhall be attempted by that which they call the Pusidus aureus, or Golden tie.

For which purpose a Chirurgeon which hath a skilful and sure hand, is to be impolyed, He fhall make an Incifion about the thole-bone, into which he fhall fhoot a Probe like to the Cane, a little before defcribed, and thrust it long-ways under the procceds of the Peritoneum, and by lifting it up, separate it from the adjoyning-calciou", and nervous-bodies, to which it adheres, then preferential draw aside the fpermatick vessels, with the Cremaster, or hanging muscle of the testicle; which being done, he fhall draw aside the procceds it felf, alone by it felf. And he fhall take as much there-of as is too lax, with small and gentle mullets, perfurated in the midft, and fhall with a needle, having five or fix threds, thrust it through as near as he can to the fpermatick veins, and Cremaster muscles. But the needle alfo muft be drawn again in to midft of the remnant of the procceds, taking up with it the lips of the wound; then the thread muft be tied on a ftrait knot, and fo much thereof muft be left after the Section, as may be fufficient to hang out of the wound. This fhould will of it be difpolo by little and little by putrefadation. Neither muft it be drawn out before that Na- ture fhall regenerate and reforfe thoth into the place of the ligature, otherwise our labour fhall be fpent in vain.

And laftly, Let the wound be cleaned, filled with fpelt, and cicatrized, whole callous hardned- ness may withhould the falling of the gut or kail.

There are some Chirurgi-ans who would perform this Golden Ligature after another manner. They cut the skin above the thole-bone where the falling down commonly is, even to the procceds of the Peritoneum, and they wrap once or twice about it, being uncovered, a fmall Golden Wire, and only fritive the paffage as much as may suffice to amend the loofness of this procceds, lea- ving the fpermatick veins at liberty; then they twit the ends of the wire twice or thrice with small mullets, and cut off the remnant thereof, that which remains after the cutting, they turn in.
left with the sharpness they should prick the fish growing upon it. Then leaving the Golden Wire there, they cure the wound like other simple wounds, and they keep the Patient some fifteen or twenty days in his bed, with his knees something higher, and his head something lower.

Many are healed by this means; others have fallen again into the disafe by reason of the ill twining of the wire.

A shows a crooked needle having an eye not far from the point, through which you may put the Golden Wire.

B B The Golden Wire put through the eye of the needle.

C The Mallet or Pincers, to cut away the waste or superfluous ends of the wire.

D The firing of the Mallet.

E The Mallets to twist the ends of the wire together.

There is also another manner of this Golden tie, which I judge more quick and safe, even for the third that there is no external body left in that part after the cure. Wherefore they wrap a leaden wire instead of the golden, which comes but once about the process of the Peritonism, then twine it as much as need requires; that is, not too loosely, lest it should leave way for the falling down of the body, neither too straitly, lest a Gangrene should come by hindering the passage of the spirits and nourishment. The ends thereof are suffered to hang out, when in the process of time, this contraction of the Peritonism forms callous, then the wire is unwound and gently drawn out. And the rest of the cure performed according to Art. But let not the Chirurgeon thrust himself upon his work rashly, without the advice of the Physician, for it divers times comes to pass, that the vesicles are not as yet fallen down into the cod by the too-great fulness of Nature, in fome of a pretty growth; but remains long in the groins, cutting a tumor with pain, which thing may make a good Chirurgeon believe that it is an Entmecce. Therefore whilst he labours by repelling medicines and trusses to force back this tumor, he increaseth the pain, and hides the falling down of the vesicles into the cod. I observed this not long ago in a Boy, which an unskillful Chirurgion had long, and grievously troubled, as if he had a rupture; For when I had observed that there was but one stone in the cod, and knew the Boy was never gelt, and Trusses, and wished his Parents that they should suffer him to run and leap, that so the idling stone might be drawn into the cod, which thing by little and little, and without pain, had the event as I foretold.

That the reason of this art may be understood, we must know that man differs from a woman, only in efficacy of heat; but it is the nature of strong heat to drive forth, as of cold to keep in. Hence it is that the stones in men hang forth in the cod, but in women they lie hid in the lower belly. Therefore it happens that in some males more cold by Nature, the vesicles are that up some certain time, until at length they are forc'd down into the cod by youthful heat. But that we may return to our former Trafige of the Cod, although that way of curing Ruptures wants not pain and danger, yet is furer than that which is performed by gelding, which by the cruelty thereof exposes the Patient to manifest danger of death. For the Gelders while they fear lest when the cure is finished, the relaxation may remain, pull with violence the process of the Peritonism from the parts to which it adheres, and together with it a nerve of the fifth conjugation which runs to the flowers; they offer the same violence to the spermatick vesicles, by which things ensue great pain, convulsion, efflux of blood, inflammation, putrefaction, and daily death, as I have observed in many whom I have delivered, having died a few days after their gelding. Although some escape these dangers, yet they are deprived of the faculty of generation for all their life after.
**CHAP. XVIII.**

Of the cure of other kinds of Ruptures.

**Pneumatocele.** is, a flatulent tumor in the cod, generated by the imbecility of heat residing in the part of the cod, making an Incision some half fingers breadth long, penetrating even to the bones, where the gas did fall down. Then they pull off the Echar that made with a knife even to the guide, that they apply another cautery in the same place, which may go even to the bone, then procure the falling of this Echar made on the forefoot process. And afterwards they heal the Ulcer which remains, which presently contracting somewhat a thick Callus, &c. keeps up the g surgeons, by a medicine to draw forth the contained matter.

**Pneumatocele.** is, a waterilh tumor in the cod, which is gathered by little and little between the membranes encompassing the testicles, especially the Ductus and Epididymis; &c. It may be called a particular Dropie, for it proceeds from the same caues, but chiefly from the defect of native heat. The figs are a tumor encroaching flowly without much pain, heavy, and aboul of a glasse cleans, which you may perceive by holding a candle on the other side; by pressing the cod above, the water flows down, and by peeling it below, it rises upwards, unless peradventure too great a quantity it fills up the whole capacity of the cod, yet it can never be forced or put up into the belly as the kali or guts may, for oft-times it is contained in a cist or bag. It is distinguished from a Sarcocele, by the membranes encompaffing the testicles, efpecially the Membranous testicle, or guts may, for oft-times it is contained in a cist or bag; it is distinguisht from a Sarcocele, by the thinness and equality thereof. The cure must first be tried with revolving, drying up and caufing medicines, repeated often before, and in the Chapter of the Dropie, this followeth which follows I have often tried and with good success.

**Enterocele.** is the falling down of the cod into the groin or cod; it hath the same cause as an Enterocele. The figs have been explained. It is not fo dangerous, nor infers a consequence of so many evil symptoms, as the Enterocele doth, yet the cure is the same with the other. Enterocele is a waterilh tumor in the cod, which is gathered by little and little between the membranes encompassing the testicles, especially the Ductus and Epididymis; &c. It may be called a particular Dropie, for it proceeds from the same caues, but chiefly from the defect of native heat. The figs are a tumor encroaching flowly without much pain, heavy, and aboul of a glasse cleans, which you may perceive by holding a candle on the other side; by pressing the cod above, the water flows down, and by peeling it below, it rises upwards, unless peradventure too great a quantity it fills up the whole capacity of the cod, yet it can never be forced or put up into the belly as the kali or guts may, for oft-times it is contained in a cist or bag; it is distinguisht from a Sarcocele, by the thinness and equality thereof. The cure must first be tried with revolving, drying up and caufing medicines, repeated often before, and in the Chapter of the Dropie, this followeth which follows I have often tried and with good success.

**Peritonæum.** is, a flatulent tumor in the cod, generated by the imbecility of heat residing in the part. It is known by the roundnefs, levity, renitency and shining. It is cured by preferibing a medicine to draw forth the contained water.

**Erythroïdes.** is, a waterilh tumor in the cod, which is gathered by little and little between the membranes encompassing the testicles, especially the Membranous testicle, or guts may, for oft-times it is contained in a cist or bag; it is distinguisht from a Sarcocele, by the thinness and equality thereof. The cure must first be tried with revolving, drying up and caufing medicines, repeated often before, and in the Chapter of the Dropie, this followeth which follows I have often tried and with good success.

**Callus.** is, a flatulent tumor in the cod, generated by the imbecility of heat residing in the part. It is known by the roundnefs, levity, renitency and shining. It is cured by preferibing a medicine to draw forth the contained water.
BOOK VIII. Of particular Tumors against Nature.

A 

A Sarccele is a Tumor against Nature, which is generated about the flosses by a furitious theft, breathered by the worms. The parts of theummors are of such a kind of flesh, which the part could not overcome and affume in the same, whence this over-abundance of flesh proceeds like a Wart do. What a Sarccele is. The Signs. Prognosticks.

So also with some other tumors of this kind, which often occasion great pain, by the hardness, acrimony, inequality and roughness. It cannot be cured but by amputation, or cutting it away. But you must altho' observe that the death be not too early, and that you have already seen the growth so nothing can be attempted without the danger of life.

But if any man think, that he in such a case may somewhat ease the Patient by the cutting away of some portion of the floss bolt flesh, he is deceived. For a Fungus will grow, if the leaf portion there of be but left, being an evil far worse than the former; but if the tumor be either small or indifferent, the Caruncule taking the whole tumor, that is, the fleshy tumid through the whole substance, with the proofs incomposing itself, and adhering thereto on every side, and making an incision in the cord, even to the tumor, then separate all the solid body, that is, the fleshy from the cord: Then let him thrust a needle with a firm thred in it, through the midst of the proofs, above the region of the fleshy tumor; and then presently let him thrust it the second time through the same part of the proofs; then shall both the ends of the thread be tied on a knot, the outer, the middle portion of the Peritonenum being comprehended in the same knot. This being done, he must cut away the whole proofs with the fleshy tumors comprehended therein. But the end of the thred, with which the upper part of the proofs was bound, must be touched to hang flesh out of the wound, or incision of the cord. Then a repulsive medicine shall be applied to the wound and the surrounding parts with a convenient ligature. And the cure must be performed as we have formerly mentioned.

The Caruncule is a tumor of veins dilated, and woven with a various and mutual implication about the male; and swelling with a grofe and melancholy blood. The Caruncules are the fleshy tumors as those of the Vertex. But the tumors are manifold.

To heal this tumor, you must make an incision in the cord, the breadth of two fingers to the Vertex. Then put under the various veins, a needle having a double thred in it, as high as you can, that you may bind the cords thereof. Then let the needle be again put after the same manner about the lower part of the same veins, leaving the space of two fingers between the ligatures. But before you bind the thred of this lowest ligature, the Vertex must be opened in the midst, almost after the same manner as you open a vein in the arm to let blood: That so this groove blood causing a tumor in the cord, may be evacuated as is usually done in the manner of the Vertex. The wound that remains shall be cured by the rules of Art after the manner of other wounds, leaving the thred in it, which presently fall away of themselves. To conclude then, it being grown callous, especially in the upper part thereof, where the veins was bound, it must be cicatrized, or fo afterwards blood cannot be drained or run that way.

Herina Humanitatis is a tumor generated by the confused mixture of many tumors in the cord, or between the male and the testicles, often alfo in the proper substance of the testicles. It hath like caruncles, signs and cures as other tumors. While the cure is in hand, Rich, Truffles, and in Rowelers to sustaint and bear up the testicles, are to be used.

CHAP. XVIII. Of the falling down of the Fundament.

When a Sarccele is.

When a Caruncule is.

When a Herina is.

W

When a Sarccele is.

When a Herina is.

When a Sarccele is.

The Cure.

The Cure.

The Cure.

The Cure.

The Cure.

The Cure.

The Cure.
he Patient hanging by the heels be flaken, for to the gut by that slaking will return to his place; But the same Hippocrates willed to omit the fundament, because that remedy having a drying faculty, hath also power to dissolve the mullent humors without any ceremony, by reason of which the gut was the less able to be contained in his place.

CHAP. XIX.

Of the Paronychia.

What the Paronychia is.

The Paronychia or Parastis is a tumor in the ends of the fingers, with great inflammation, coming of a mullent and venemous humor, which from the bones by the Periostium is communicated to the tendons and nerves of that part which it affections, whereas cruel symptoms do follow, as pulllick pain, a Fever, reftlesness, so that the affected through impatience of the pain are variously agitated like those tormented with Carbuncles: For which cause Guido and Johannes de Vigo judge this disease to be mortal; wherefore you must provide a skilful Physician for the cure of this disease, which may appoint convenient diet, purging and blood-letting. In the mean time the Chirurgeon shall make way for the virulent and venemous matter, by making incisions in the inner part of the finger, even to the bone along the first joint thereof, for Vigo faith, there is not a pretender 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 affagges pain, which I have oft and happily tried immediately at the beginning, before the perfect impregnation of the virulence.

But the wound being made, you must suffer it to bleed, then pretently let him dip his finger in strong and warm Vinegar, in which some Treadle be dissolved may draw forth the virulence. But to appease the pain, the same remedies must be applied to the affected part as are used in Carbuncles, as the loaves of Scoor, Husk, a Balsam, Mandrake roasted under the Embers, and beef in a Mortar with new Vegetation Petroon, or Oyl of Reftes, or new Butter without Salt: For such like medicines also help forward suppuration; whilft by their coldness, they expel the mullent heat affecting the part, and so strengthen the natural heat, being the author of suppuration: Which reason moved the ancient Physicians to use such medicines in a Carbuncle; but it by reason of the fearfulness of the Patient, or unskilfulness of the Chirurgeon, no incision be made, a Gan- grene and Sphacel doth poffeit the part, which, as much of the part as shall be corrupt, and perform the rest of the cure according to Art. Yet it doth not seldom happen, that there may be no need to cut off fuch a finger, because it is corrupted together with the bone by little and little, diftiles into a purulent, or rather finous or much thinking blifh. But in this affed there is often caufed an Eftchar by the addition of putridinous heat, and superfuous fith induced with most exquisite forts growth underneath it, which muff in like manner be cut off with the Mullets, that the part may receive comfort, the pain being afagges by the copious effufion of blood.

CHAP. XX.

Of the cutting of the Knees.

After long and dangerous diseases there oftentimes arise tumors in the knees, and also in Pleur- thoric bodies, and such as have evil yfuce after labours and exercises. This kind of disease is frequent, because the humor caflly falls into the part which hath been heated by labour. But if such tumors follow long diseases, they are dangerous and difficult to cure, and therefore not to be neglected; for bitter pain accompanieth them, because the humor falling thither, diffuses the membranes, which being many, involve the part; besides that, this humor participateth of a certain violent and mullent quality, whether it be cold or hot, when it hath fettled into those parts, being fuch as we find in the pains of the joints, and in the bitings of venemous Creatures. For the cure, if the tumor be caused by blood, let a fphenic and refrigerating diet be appointed, and Phlebotomy for the revulpion of the antecedent caufe; divers local medicines shall be used, according to the variety of the four times. But for to affagge the pain, Anaesthes, or mitigating me- dicines shall be appointed: Of all which we have sufficiently treated in the Chapter of the cure of a Pilemon. And because these parts are of exact fens, if there be necellity to open the tumor, yet muff we not do it rashly, or unconfiderately, for fear of pain and evil accidents. This kind of tumor is of-times raised by wind contained there, in which case the Chirurgeon must be very provident, that he be not deceived with the show of flowing of the humor, which he seems to perceive by the preflures of his fingers, as if there were matter and humor contained therein, and fo he be brought to open the tumor. For the wind breaking forth instead of the humor, causeth evil symptoms by reason of the Scien rashly made in a part so fensible. But if mullent humors shall tumefie the part, the body shall lin't he purged with medicines pur- ging ftem: And then incising, attenuating, rarifying, difcufsing, and very drying local medicines shall be used. Of which we have abundantly spoken in the Chapter of the Oedema. Yet this humor divers times lieth deep between the whit-fkin and the joint, which causeth it that it cannot be difcussed and relived by reason of the weaknads of the part, and defect of heat, so that the adventitious hum- or often moves and excludes the bones from their fets. As I have obfed this it to have happened to many.

In
Chap. XXI.

Of the Dracunculus.

I cannot chuse but explain in this place those things which may be spoken of that kind of tumour against Nature, which by the Ancients is called Dracunculus. The matter and reason of these has been variously handled by divers Authors, so that hitherto we have nothing written of them, to which we may by right and with good reason adhere as a firm foundation of their efficiency.

For first, for Galen’s opinion, Lib. 6, de Loc. aff. cap. 3. The generation, faith he, of those hairs which are evacuated by the urine is worthy no less admiration than the Dracunculi, which, as they say, in a certain place of Arabia breed in the legs of men, being of a nervous nature, and like Worms in colour and thickness.

Therefore feing I have heard many who have laid they have been seen, but if I myself never saw them, I cannot confude any thing exactly neither of their original nor efficiency.

Paulus Aegineta writes, that the Dracunculi are bred in India, and the higher parts of Egypt, like Worms in the muscular parts of man’s body, that is, the arms, thighs, and legs, and also creep by the intercostal muscles in children with a manifelt motion.

But whether they be creatures indeed, or only have the shape of creatures, they must be cured with a hot fermentation, by which the Dracunculi railed to a cart tumour, may put forth it skin, and be pluck’d away piece-meal with the fingers: Also supporting Cataplasm may be applied, composed of Water, Honey, Wheat and Barley-meal.

Avice being various, having no certainty whereon to rest, inclineth one to this, and another to that opinion: For now he speaketh of the Dracunculi, as of creatures, then pertaineth of a matter and humor that up in a certain place; for the rest, he tightly delivers the cure and effence of this disease, as we shall afterwards shew.

Avice then, the Dracunculi are like Worms, and that they are bound sometimes great, sometimes small, and that their generation is not unlike to that of flat Worms, which are bred in the guts, for they move under the skin, without any trouble, but in process of time, the place becomes suppuration, until the creature may not run back, the arm must be bound with a strong cord, and this must be done every day, that the Dracunculi going forward by little and little, may be intercepted by this binding, but not broken off.

Therefore the place must be bathed with Aqua mulfa, and oil in which Wormwood or Southernwood hath been boiled, or some other of those medicines which are prescribed for the Worms of the belly.

But if the Dracunculi going forward of its one accord, may be easily drawn forth, we must do nothing else: But if it be turned to suppuration, we must not leave off the Cataplasm, the Aqua mulfa, and anointing with oil: It was usual with him after the taking away of the Cataplasm, to apply Emplastrum Recess Late: But when it is come to suppuration, the skin must be opened long-ways, and the Dracunculi to laid open must be taken away, but the skin must be filled with lint, and the rest of the suppurative cure used, so that the creature being suppurated and drawn forth, the wound may be incisedated and cicatriz’d.

Ptolomæus writeth, that when the part is lifted up into a blister, and the vein hath riche its erump, it is praecipue good for the Patient to drink the first day half a dram of Aethes, the next day a whole dram, The cure of third day two drams, and in like manner the place affected must be fomented with Aethes, for of this that which lies hid will break forth: That which shall come forth must be rolled in a pipe of Lead, which may equal the weight of a dram, so that it may hang down, for the vein drawn 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 root, but so that a portion thereof may remain and hang forth, to which the leaden Pipe may be fastened, for otherwise it would withdraw its filled into its skin and its lurking hole, and so cause a padeful and malignant Ulcer.

Therefore we must gently meet with this disease, and the vein must be drawn by little and little out of the Body, until it be all come forth, that no worse thing happen: But by chance it shall happen that as much of the vein as shall be come forth shall be cut out by the roots, then the Ulcer must be opened long-ways with an Indolus-knife, and that so that whatsoever remains thereof may be wholly taken away. Then for some days the part must be anointed with balsam until whatsoever of such a substance adheres, being confinued with punctation shall flow away. Then the Ulcer must be cured with faradick things.

Therefore Ptolomæus thus in the same Text expresseth the same thing by divers names, and armed his opinion of with Iron and Lead, he comes to the cure thereof, as if he meant to encounter with some sticer there.

Beatt. Sarvan the Physician, who lived in the times of Galen, was of a quite contrary opinion, as Paulus Aegineta his Aeginit, in the place being before cited, relates of him; as who denies the Dracunculus to be a opinion.

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Mansonius writes, that the Draemani are generated of evil and unalaudable blood, gros, hot, and melancholick; or of adult phlegm very much dried.

Grrerus a most learned Physician of our time, Lib. de Definitionibus med. denies any of our Physicians to be able to lay any thing of the Draemani, because it is a differ to unferve these in their Regions, that it is scarce ever met withal in practice.

The Author of the Introduction, and Medicinal Definitions, defines the Draemani to be a disease very like the Varies; then causing great pain, when increaing by little and little, it begins to be moved; therefore to be cured after the same manner, and by the same method of Section and Incision, as the Varies are. Which thing seems difeifie to have moved Guido to retir this kind of disease to the Varies in his Tradit of Impofthumies, because it hath the fame cause, and is heal

But seeing that divers names have been impoed upon this disease by several Writers, yet they have all expressed it by the name of a Vein, for it is called by Aetius and Guido, Vena Pudenda, because it is a disease frequent in the City Medina; by Ablusius, Vena Cubitalis; Hafihar hath called it Vena Pannaea; others have called it Vena Coecum, or the Leg-vein. Truly, the contrariety of so many opinions repugnant not only amongst themselves, but also with themselves, easily argue some little certainty they had of the offence of this disease, who have written of it unto us: To which also this may beaddled, that none of the later Physicians have written any thing thereof. For although Jacobus Dusbeckius, a man most covetous in every part of Physt, hath written much of this matter in his Book of the French-Surgery which he set forth fome years ago: Yet he hath left us no simpler testimony of his industry than that he was very diligent in collecting the writings of the Ancients concerning this thing, interposing no judgment of his own, the better to assure us of a thing so controverted.

But my modesty cannot to contain me, but that I shall chufe rather to undergo the cenfur of being thought too daring, than (as much as in me lieth) to suffer this question of the Draemani to remain longer ambiguous and undecided. Therefore for the present, I will thus order it, that referring the opinions of the Ancients, I may strengthen by certain reasons, my opinion of the efficiency and cure of this disease.

For first, that Draemani are no living things, nor like unto Worms, nor of like generation as the flat Worms of the belly, which was the opinion of Aetius, is cate to disprove both by his Writings, as also by Reston it fell. For he writes, that the broad Worm which he calls Tenia, is, as it were, a certain Metamorphosis, or Transmutation, of the inner tunicle of the final guts into a quick living and moveable body.

But no man ever said, neither will he confefs that the Draemani hath the material causes of their beginning from the tunicle of the vein, in which they are chofen, or from the tunicle of a nervous body, to which often they are adjourned; but much les from the skin under which they lie, may they draw the material causes of their original.

Moreover, neither can there be any generation of Worms, nor of any other living Creatures whatsoever, who have their original from putrefaction, unless by the corruption of some matter, of whole better and more benign part. Nature by the force of the vital heat, produceth some animater body, as Artesius teacheth. Wherefore to produce this effect, it is fitter the matter should have fuch a disposition to putrefaction as is required for the generation of fuch a creature as they would make the Draemani to be: It is fit the helping-causes should concur as affiin to the principals in the action. And it is mete the place should be opportune or is.

But there may be many causes found which may give life to the Draemani's for the common concern of all those who have written of them, their generation proceeds from an humor melancholick, territorial and gros, which by its qualities both by the firft coldnefs and drinefs, as alfo by the benefit of infenlible Transpiration, and breathed with the coolnefs of the air, is eafie to difprove both by his Writings, as also by Reason itself. For he writes, that the broad Worm which he calls is, as it were, a certain Metamorphosis, or Transmutation, of the inner tunicle of the final guts into a quick living and moveable body.

Therefore that which exhalles from their bodies who are troubled with the Draemani should be thinking, it is as it happens to the fick of the Phlebosis and Longo-cubital, But none of those who have delivered the accidents or symptoms of the Draemani are found to have made mention heretof, but of the efficient caufe whereby so great heat may be raised in the places next under the skin, by the efficacy whereby such a creature may be formed of a matter melancholick and moist unapte to putrefye, as they make the Draemani to be, who feign our bodies to be fruitful Monfter, as they make the Draemani to be, who seign our bodies to be fruitful Monsters: especially seeing the surface of the body is continually ventilated by the small arteries spread under the skin, as also by the benefit of infenlible Transpiration, and breathed with the coolnefs of the air incomparing us. But now the material and efficient causes being defective, or ceteris very weak, for the generation of so laborious an effect, what concupidous can have of assistance? Can the humidity of meats for fuch bodies which are fed with warm and moist meats, as Milk, Cheefe, Summer-fruits, usuallie breed Worms, as we are taught by experience in children.

But on the contrary Aetius in the place where cited writeth, that meats of a hot and dry temper chiefly breed this kind of disease, and that it is not fo frequent to moist bodys, and fuch as are accustomed to the Bath, moist meats and Wine moderately taken. But whether may the condition of the air of those f号楼s in which it is, as it were, an Endemial difeafe, confer any thing to the generation of fuch creatures? Certainly, for this purpose in a cloudy, warm and thick air, such as useth to be at the beginning of the Spring when all the places refresh with Frogs, Toads, and the like creatures breed of putrefaction.
But on the contrary, *Jacobus Dalechampius* by the opinion of all the Physicians that have written of the *Dracoenculi*, writes, that this disease breeds in the dry and Sun-burnt Regions of India and *Arabia*, but if at the leaf that part of our body which is next under the skin should have any opportunity to ingender and nourish such creatures, they may be judged to have written that the *Dracoenculi* 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 like creatures as in the guts, if that Region of the body be breathed upon with no warmed and stoppering heat, if it be dotted with none of those grofs excrescements, as the guts usually are, but only by the fluider exhalation, which have an exile and infeinate inspiration by the pores of the skin, which may seem to be a just cause of so monstrous and prodigious an effect: but we shall little profits with these engines of reason unless we call down at once all the Bulwarks, with which this old opinion of the *Dracoenculi* may stand 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 *Dracoenculus* or little Serpent? I answer, because in Physick, names are often imposed upon diseases rather by similitude than from the truth of the thing: for the confirmation whereof, the examples of three diseases may suffice, that of *Elephas*. and *Tracunculi*, whereof, the examples of three diseases may suffice, that of *Elephas*, and *Tracunculi*, which by its propagation into the adjacent parts represents the feet and claws of a Crab; the other represents the feat of the *Sea-Polypus* in its substance, and the third, because such as have the *Leprofie*, have their skin wrinkled, rough, and bound with scales and knots, as the skin of a living Elephant. So truly, this disease of which we now enquire seems by why they are called *Tracunculi*. But, whereas 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 fulble and hot, and in runs with violence into the part whence it may seem to move. But when the *Dracoenculi* are separated, why do they put their heads, as it were, out of their holes? We answer, In this the Ancients have been very much deceived, because after the Supputation, the Ulcer being opened, some nervous body being laid bare, thrust forth and subjected itself to the light, which by the convulsive and flaming motion, might express the crooked creeping of a Serpent. But they will say, pain happens not unless to things endowed with sense and life, but this *Tracunculus* when he is drawn too violently, especially if he be broken, thereby will cause extreme pain: We do answer, that the conclusion does not follow, and is no confutation; for these pains happen not, unless when the unprovident Surgeon draws out instead of the *Tracunculus* some nervous or membranous body (worn and repleat with adult humor, whence there cannot but be great pain, that part being pull'd which is the author of sense). But it is childish to say that the *Dracoenculus* feels for that it causeth sharp pains to the living body in which it is. Therefore that at last we may determine something of the nature, offense, and generation of the *Dracoenculi*, I dare boldly affirm, it is nothing else but a tumor and abscess bred from the heat of the blood in a venereal kind. Such blood driven by the expulsive efficacy through the veins to the external parts, especially the limits, that is, the arms and legs, causeth a tumor round and long often stretched from the point of the shoulder even to the wrists or from the groin even to one of the ankles with tension, heat, tenacity, prickling pain, and a fever. But this tumor is done while breath forth thrait, otherwise into oblique and crooked tumors, which hath been the cause that many, taken with this kind of disease, and having their limbs so infolded with the twining of a Serpent, would say, they had a Serpent. I have thus much to say of the *Dracoenculi*, especially of those of our own Country.

For the cure, it is not unlike to the cure of a Phlegmon arising from a Defluxion; for here also in the Cure, 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 Phlegmon. The mention of the *Dracoenculi* calls to my memory another kind of Abscesses, altogether as rare. The *Malum* This our French men name *Grinates*, I think a *Cristatus*, i. e. from hairs: It chiefly troubles children, *pilari* in *filiis* and pricks their back like thorns. They tost up and down being not able to take any rest. This disease ariseth from small hairs which are scarce of a pin's length, but those thick and strong. It is cured with a fomentation of water more than warm, after which you must posteriorly apply an emolient made of honey and wheaten flour; for these hairs lying under the skin are allured and drawn forth, and being thus drawn, they must be plucked out with small needles. I imagine this kind of disease was not known to the ancients Physicians.

The end of the Eighth Book.
BOOK IX.
Of Wounds in general.

CHAP. I.
What a Wound is, what the kinds 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 without resolution and stench. 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 parts, it hath divers names amongst the Greeks. For in the flesh it is called Helos, in the bone Gerasma, in the nerve SPasma, in the ligament Thalagma, in the vessels Apgphasma, in the muscles Regma; and that solution of Continuity, which happens in the vessels, their mouths being open, is termed Anomalmy; that which happens by crotalen, Anuroph, that which is generated by sweating out and transamination, Diaphletic. 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>Or Organical, and theft. Either.</th>
<th>From the proper essence from whence they are called.</th>
<th>From their quantity according to which they are called.</th>
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<td>From the principal, or the</td>
<td>Or forbidding the principal in</td>
<td>Simple wounds. Or compound.</td>
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<td>Or neither, as.</td>
<td>When there is no complication of any other disease or symptom, beside.</td>
<td>From their Figure, according to which they are named,</td>
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<tr>
<td>From the nature of the parts in which they are made or happen.</td>
<td>Or Organical, and theft. Either.</td>
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CHAP. II.
Of the causes of Wounds.

All things which may outwardly affail the body with force and violence, may be counted the causes of wounds, which are called green and properly bloody. These things are either animate, or inanimate, as the bitings and prickings of Beasts. The inanimate, as the stroke of an Arrow, Sword, Club, Gun, 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 prickling things are called Punctures; those caused by cutting things, are called Wounds; or Ghalava, and those which are made by heavy and obsteve things are named Genrations, or wounds with contusions.

Divers appælations of wounds according to the varieties of the parts.
CHAP. III.

Of the Signs of Wounds.

Wounds are first known by sight, and by the signs drawn from thence. The Chirurgeon ought first and chiefly, to consider, what wounds are curable, and what not; what wounds will scarce admit of cure, and what may be easily cured; for it is the part of a prudent Chirurgeon, to promote care in a deadly or dangerous and difficult wound; lest he be forced to have killed him, whom not only the insufficiency of the Art, but the greatness of the wound hath slain.

But when the Wound is dangerous, but yet without defect of recovery, it belongs to him to admonish the Patients friends which are by, of the present danger, and a doubtful state of the Wound, that if Art shall be overcome by the greatness thereof, he shall not be thought ignorant of the Art, neither to have deceived them.

But as this is the part and duty of a good and prudent Chirurgeon, so it is the trick of a cheatini. But it is agreeable to reason, that the Chirurgeon professing the Disease easy to be cured will think himself in credit bound, such promises and his duty, and therefore seek all means for the quick recovery of the Patient; lest which was of its own nature small, may by his negligence come great. Therefore it is expedient he should know what Wounds are to be accounted great.

This (as Galen faith) is three ways to be known: The first is by the magnitude and principality of the part affected; for thus the wounds of the Brain, Heart, and of the greater Vessels, though final of themselves, yet are thought great. Then from the greatness of the solution of continuance 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 those 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-conditioned.

CHAP. IV.

Of Prognostics to be made in Wounds.

There are Wounds thought dangerous, whereby any large Nerve, Vein, 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, and the body is brought to a weak and languid condition. But if any Bone, Griffe, Nerve, or portion of the Cheek, or Prepuce, shall be cut away, they cannot be restored. Contused wounds are more difficult to cure than those which are from a simple solution of continuance; for before you must think to heal 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 under 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 no means thought the greater, by how much their extraneous lips are the further disposed, which happens to round Wounds. Contrary to these are curved Wounds, or such as are made along the fibers, as such may be 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 fruitful, or good blood, by which the life of the flesh may be the better and more readily restored, which is slower done in old bodies, by reason their blood is smaller in quantity and more dry, and the strength of nature more languid.

Wounds received in the Spring, are not altogether so difficult to heal as those taken in Winter or Summer. For all excess of heat and cold is hurtful to them, it is ill for a Convulsion to happen upon a Wound, for it is a sign that some Nervous body is hurt: the Brain suffering together therewith, is that which is the Original of the Nerves. A tumor coming upon great Wounds is good, for it shows the force of nature is able to expel that which is harmful, and to ease the wounded part. The natural parts wholly cut off, cannot again 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 root without which there can be no life. The loosed continuity of the Nerves, Veins, Arteries, and also the Bones, is sometimes restored, not truly, and, as they say, according to the first intention, but by the second, that is, by repetition of the like, but not of the same substance. The first intention takes place in the fibrous parts by converting the Alimentary blood into the proper substance of the wounded part. But the second, in the fomentaries in which the lost substance may be repaired by interposition of some corneageneeous body, which Nature, diligent for its own preservation, substitutes in place of that which is lost: for thus the body, which refires and agglutinates, is no Bone but a Callus, whole original matter is from an humour somewhat grofter than that, from whence the Bones have their original and beginning.

This humour, when it shall come to the place of the fracture, agglutinates the ends of the Bones together, which otherwise could never be knit by reason of their hardness. The Bones of Children are more easily and quickly mended by raision of the plasmatics of their fluid and tender substance. Lastly, We must here admonish the Chirurgeon that frail Wounds, and such as are a beginning wound, will judge distinctly, do divers times fall by reason of a certain occult and ill disposition of the wounds.

A caution for making reports of Wounds.

A judging Chirurgeon.

What wounds are dangerous.

What lead dangerous.

What deadly.

Why round Wounds.

What a callus is.

A callus is a rude growth which it proceeds.
The general
Indication of Wounds.

The Chirurgeon ought for the right cure of Wounds to propone unto himself the common and general indication: that is, the uniting of the divided parts, which indication in such a case is thought upon and known even by the vulgar; for that which is disjointed defins to be united, because Union is contrary to Division. But by what means such Union may be procured, is only known to the skillful Artizan. Therefore we attain unto this chief and principal Indication by the benefit of Nature as it were the chief Agent and the work of the Chirurgeon as the servant of Nature. And unless Nature shall be strong, the Chirurgeon shall never attain to his conceived and withed for end; therefore that he may attain hereto, he must perform free things: the first is, that if there be any strange body, as pieces of Wood, Iron, Bones, bruised Fingers, congealed Blood, or the like, whether they have come from without, or from within the Body, and shall be by accident fallen or stuck in the Wound, he must take them away, for otherwise there is no Union to be expected.

Another is, that he joine together the lips of the Wound, for they cannot otherwise be agglutinated and united. The third is, that he keep close together the joined lips. The fourth, that he prepare the temper of the wounded part, for the distemper remaining, it is impossible to reform it to its unity. The fifth is, that he correct the accidents, if any shall happen, because such injury, the Physician is ordered to change the order of the Cure.

All strange and external Bodies must be taken away, as fecundly as is possible, because they hinder the action of Nature intenting Union, especially if they press or prick any Nervous Body or Tendon, whence pain or an abscess may breed in any principal part, or others leaving the principal.

Yet if by the quick and too hasty taking forth of such like bodies there be fear of cruel pain or great effusion of blood, it will be far better to commit the whole work 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 Past, what strange Body forever shall be contained in the wounded part. But if there shall be danger in delay, it will be fit the Chirurgeon fall to work quickly, safely, and as mildly as the thing will suffer: for effusion of blood, Swooning, Convulsion, and other horrid symptoms, follow upon the too rough and boftrobus handling of Wounds, whereby the Patient shall be brought into greater danger than by the Wound it self.

Therefore he may pull out the strange Bodies, either with his fingers or with instruments fit for that purpose: but they are sometimes more easily and sometimes more hardly pulled forth, according as the Body infused is either hard or soft 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 self, soft, hard, or deep, in which these bodies are fallen more or less, and then for fear of injuring any worst harm, as the breaking of some Vessel: but how we may perform this first intention, and also the expusion of the instruments necessary for this purpose, shall be shown in the particular Treatise of Wounds made by Gun-shot, Arrows, and the like.

But the Chirurgeon shall attain to the second and third course of curing Wounds by two and the same means, that is, by Ligatures and Sutures: which notwithstanding before he use he must well observe whether there be any great flux of Blood present, for he shall stop it if it be too violent, but provoke it if too slow; (unless by chance it shall be poured out into any capacity or belly) that so the part freed from the superfluous quantity of Blood may be left subject to inflammations. Therefore the lips of the Wound shall be put together, and shall be kept so joined by Suture and Ligatures: Not truly of all, but only of those which both by their nature and magnitude, as also by the condition of the parts in which they are, are worthy and capable of both the remedies. For a simple and small solution of continuity, stands only in need of the Ligature which we call Incarnative, especially if it be in the Arrows or Legs, but that which divides the Muscles transversely, stands in need of both Suture and Ligature; that so the lips which are somewhat distant from each other, and as it were, drawn towards their beginning and ends may be conjointed. If any portion of a fithy substance by reason of one great Cut, shall hang down, it must necessarily be adjointed and kept in the place by Suture. The more notable and large Wounds of all the parts, stand in need of Suture, which do not easily admit a Ligature, by reason of the figure and site of the part in which they are, as are the Ears, Nose, Hairy-scalp, Eye-lids, Lips, Belly, and Throat.

There are three sorts of Ligatures, by the joint consent of all the Ancients. They commonly call the first a Glutinative or Incarnative, the second Excipulative, the third Retentive. The Glutinative or Incarnative is fit for simple, green and yet bloody Wounds. This consists of two ends, and must be drawn, that beginning on the contrary part of the Wound, we may go upwards: partly crof sing it, and going downwards again, we may closely join together the lips of the Wound. But let the Ligature be neither too fast, lest it may cause inflammation or pain; nor too loose, lest it be of no use, and may not well contain it.

The Expulsive Ligature is fit for famous and fistulous Ulcers, to press out the flux contained in them. This is performed with one Rowller, having one fimple head: the beginning of binding must be taken from the bottom of the Sina, or before thereof, and there it must be bound more frailly, and so by little and little going higher, you must renit forcing of that rigor over even to the mouth of the Ulcer, that so (as we have said) the fistulous matter may be pressed forth.

The five things necessary for uniting Wounds.

The first a Glutinative or Incarnative, the second Expulsive, the third Retentive.
Belly, as also all parts oppressed with pain, for pain vexed with pain, abhorrerst byfiding. Therefore it is best to hold to local medicines. It is performed with a Rowler, which consists of somewhotes of more heads. All these Rowlers ought to be of Lance, and such as are neither too new, nor too old, neither too coarse nor too fine. Their breadth must be proportionable to the part to which they shall be applied; the indication of their largeness being taken from their Magnitude, Figure, and Sorte. As we shall treat more at large in our Tractates of Fractures and Dislocations.

The Chirurgeon shall perform the first scope of curing Wounds, which is of preserving the tender of the wounded part, by appointing a good order of Diet by the precept of a Physician, by using univerfal and local Medicines. A tender, cold and moist Diet must be observed, until that time be past, wherein the Patient may be free and free from accidents which are usually feared. Therefore let him be fed sparingly, especially if he be plethoric; he shall abstain from Salt and spiced Flesh, and also from Wine: if he shall be of a cholericick or sanguine nature, in stead of Wine he shall use the Deccotion of Barley or Licorice, or Water and Sugar. He shall keep himself quiet, for Rest is (in Cfels's opinion) the very best Medicine. He shall avoid Venery, Contentions, Brawls, Anger, and other perturbations of the mind. When he shall term to be pat danger, it will be time to fall by little and little to his accustomed manner and diet of life. Universal remedies are Phlebotomies and Purgings, which have force to divert and hinder the 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 Bedes, which are neither troubled with ill humour, or Phleborick: But it is only required in great Wounds, where there is fear of Defluxion, Pain, Delirium, Raving and unequities; and lastly, in a Body that is Phleborick, and when the Joints, Tendons, or Nerves are wounded. Gentle purgations must be appointed, because the humour is moved and engag'd by them, whereas there is danger of defluxion and inflammation; wherefore nothing is to be attempted in this without the advice of a Physician. The Topick and particular Medicines are Agglutinative, which ought to be condu'd with a drying and attritious quality, whereby they may hold together the lips of the Wound and drive away defluxion, having always a regard to the nature of the part, and the greatness of the disease. The Simple Medicines are Olibanum, Senna, Sanguis Draconis, Commum, and Venice Turpentine, Gum, Eleonor, Plantane, Horsetail, the greater Comfrey, Farina Volatilis, and many other things of this kind, which we shall speake of hereafter in our Antidotes.

The fifth scope of healing Wounds, is the correction of these Symptoms or Accidents which are accustomed to follow Wounds, which thing verily makes the Chirurgeon have much to do; for he is often forced to omit the proper cure of the Dis ease, so to resist the accidents and symptoms, as Bleeding, Pain, Inflammation, a Fever, Convulsion, Palie, Talking idly, or Distradion, and the like. Of which we shall treat briefly and particularly, after we have first spoken of Sutures as much as we shall think fitting for this place.

CHAP. VI.
Of Sutures.

Wounds are made along the Thighs, Legs, and Arms, they may easily want Sutures, because the Solution of continuity is easily restored by Ligatures, but when they are made overthrowing, they require a Suture, because the flesh and all flesh like parts being cut are drawn towards the found parts, whereby it comes to pass that they part the further each from other: wherefore that they may be joined and so kept, they must be fixed, and if the Wound be deep, you must take up much flesh with your Needle's for if you only take hold of the upper part, the Wound is only superficially healed: but the matter that up, and gathered together in the bottom of the Wound, will cause absceses and hollow Ulcers: Wherefore now we must treat of making of Sutures.

The first called Interpondiculums, leaves the distance of a fingers breadth, and therefore is fit for the great 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 finet Needle with a Thred in it, having a three-square point, that so it may the better enter the flesh, with the head of it somewhat hollowed, that the Thred may lie therein for the Needle will the better go through. You must also have a little Pipe with a hole or window in the end, in which you must hold and thrust against the lip of the Wound, that it be not moved to the one side or other, whilst you thrust through the Needle: And that we may see through that window when the Needle is thrust through, and also draw it together with the thred, and withall hold the lip of the Wound in more firmly, that it follow not at the drawing forth of the Needle and Thred. Having thus placed the lips of the Wound, tie a knot, near to which cut off the Thred, left that if any of it be left below the knot, it may go thick to the Easishels that it cannot be plucked and spared from them without pain, when they are taken off. But you must note the thift thred must be thrust through the midlit of the Wound, and that the second must be in that place which is between the midlit and one of the ends, but when you have made your fitches, the lips of the Wound must not be too closely joined, but a little space must be left open between them, that the matter may have free passage forth, and inflammation and pain may be avoided; otherwise, if they shall be closely joined together without any distance between, a tumor shall come to suppuration, the lips will be too much dittended that they may easily be broken by the th vodka of the Thred. 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 pain and inflammation. And besides, leaves an ill-

The manner whereof we (hall press the Wound and the orifice of the Vessel, left it should thief bleed.

The second kind of Suture is termed Gysajiroraphia, invented for the restoring and uniting the great

The third Suture is made by one or more Needles, having Thread in them, thrust through the

The fourth kind is called the dry Suture, which we use only in the Wounds of the Face, which also

The fifth kind is called the dry Suture, which we use only in the Wounds of the Face, which also

Fe-times great bleeding follows upon Wounds, by reason of some Vessel cut, broken, or torn, which

The first way of stanching bleeding. But if it cannot be thus cloth, 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 had great bleedings, even in the amputation of members, as I shall have in this place. To perform this Work we are often forced to divide the skin which covereth the wounded Vessel. For if the Jugular Vessel or Artery be cut, it will contract and draw itself upwards and downwards. Then the Skin it self must be laid open under which it lieth, and thrusting a Needle and Thread under it, it must be bound as I have often done. But before you loose the knot, it is fit the flesh should be grown up, that it may stop the mouth of the Vessel, lest it should bleed.

An admonition.

The way by cutting off the Vessels.

But if the condition of the part shall be such as may forbid this comprehension, and binding of the Vessels, we must come to Ejcharoticks, such as are the powder of burnt Vitriol, the powder of Mercury, with a small quantity of burnt Allum and Gaouticks which cause an Eftarr. The telling away of

The Figures of Pipes with Pinnels in them, and Needles fit for Sutures.

The second mean of Suture.

The third manner of Suture.

The fourth kind of Suture is termed Gysajiroraphia, invented for the restoring and uniting the great

The fifth kind called the Dry Suture.

Of the Flux of Blood, which usually happens in Wounds.

Of Wounds in general.
C H A P. IX.

Of Wounds in general.

That thus the ends of the cut Veins withdrawing themselves, and shrinking upwards and downwards, being hidden by the quantity of the adjacent and incompanion parts, the flux of the blood, which was before not to be felt, may be stopped with this labour. Yet this is an extreme remedy and not to be used, unless you have in vain attempted the former.

C H A P. VIII.

Of the pain which happens upon Wounds.

The pain which follows upon Wounds ought to be quickly allayed, because nothing so quickly expels the power, and it always causes a defluxion, of how good a fever a habit and temper the body be; for Nature ready to yield affection to the wounded parts, always sends more humour to it than are needful for the nourishment thereof, whereby it comes to pafs that the defluxion is easily increased, either by the quantity, or quality, or both.

Therefore to take away this pain, the author of defluxion, let such medicines be applied to the part as have a repelling and mitigating faculty; as to Oil of Myrrh, or Kadsarnum, or Æ. Coriæ albi, or Farnæus [his], Æ. Belladonna, Æ. Bell. armeni, & tenea. Melt the Wax in the Oils, then incorporate all the rest, and according to Art, make a Medicin to be applied upon the parts; or, if Æ. Empl. Dactarii, Æ. O. Ros., or æ. Æ. gentianæ, and let a Medicin be made for the fore-mentioned use. Irrigations of Oil of Roes and Myrrh, with the white of an Egg, or a whole Egg added thereto, may serve for lattices; if there be great inflammation; whereby double cloth be filled in Oxycrate, will be also convenient for the same purpose: But the force of such Medicins must be often renewed, for when they are dried, they augment the pain. But if the pain yield not to these, we must come to narcotick Medicins, such as are the Oil of Poppy, of Mandrake, a Cataplasme of Henbane and Serrel, adding Theroto Malows and Marsth-malows, of which we spoke formerly in treating of a Plegeon.

Lastly, We must give heed to the caufe of the pain, 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 Medicins must be varied. If Pet Nature intend suppuration, you must help forwards its index and furxFFFFFF Tempereer Medicins.

C H A P. X.

Of Convulsion by reason of a Wound.

Convulsion is an involuntary contraction of the Muscles (as of parts moveable or our pleasure) towards their original, that is, the Brain and Spinal Marrow; for by this the convulsed member or the whole body (if the Convulsion be universal) cannot be moved at our pleasure. Yet motion is not lost in a Convulsion as in a Paralyse, but it is moved at our pleasure: for Convulsion poises the whole body, whereas some part thereof, you must note that there are three kinds of Convulsions in general.

The first is called the Greeks Tetanum, when as the whole body grows stiff like a stake that it cannot be moved any way.

The second is called Spasmodic, which is when the whole body is drawn backwards.

The third is termed Empyæmatous, which is when the whole body is hended or bowed forwards.

A particular Convulsion is, when as the muscles of the Eye, Tongue, or the like parts which is nourished with a Nerve, is taken with a Convulsion, Repletion, or Inagination. Of making a Medicin to it.

Abundance of humour causes Repletion, dulling the body by inordinate eating and drinking, and enervation of Exsuffia, or any accustomed evacuation, as suppression of the Hemorrhoids and Jaunfyes: for hence are such like extermination humour drawn into the Nerves, with which they being repeated and filled are distorced more than is fit, whence necessarily becoming more fluent, they suffer Convulsion. Examples whereof appear in Leather, and Lute or Viol strings, which swollen with moisture in a wet weather are broken by repletion.

Immoderate Vomiting, Theses, or Bleedings, cause Inagination or Empyæmatous; whereas a Convulsion caused by a Wound is deadly: also by learning Fevers, for by these and the like cases, the inward and instrovigious humidity of the Nerves is waited, so that they are contracted like Leather which is shrunk up, by being held too near the fire, or as Fiddle-strings which is dried with Sunner 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 be proportional to the strenght of the convulsed stake, and the Convulsion proceed from Repletion: for the abundant and gross humour causing the Convulsion is digested and waitted by the feverish heat.

The causes of a convulsion by caufes of pain, are either the puncture of a Nerve, whether it be by a thing as animal, as the lathing of a venemous Beast, or by a thing inanimate, as by the prick of a Needle, Thorn, or Pen-knife; or great and piercing cold, which is hurtful to the Wounds, principally of the nervous parts; whereby it comes to pafs, that by causing great and bitter pain in the Nerves they are contracted towards their original, that is, the Brain, as if they would crave favour from their parents in their distressed estate. Besides also, an ill vapour carried to the Brain from some putrefaction to vellicateth it, that contrading it, as it also contracts together with it all the Nerves and Muscles; as we see it happeneth in those which have the Fallowing-Sickness, by which it appears that not only the Brain it felt suffereth together with the Nerves, but also the Nerves with the Brain. The signs of a Convulsion are, difficulty, painfull, and deprived motions.
The cause 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 an inanition; and that which proceeds of Pain, otherwise than either of them. For that which is caused by Repletion is cured by purging, bleeding, digestive local Medicines, Excreta, Frictions, Sulphurous Baths and other things appointed by the prescription of some learned Physician which shall oversee the cure, which may continue the superfluities and excrementitious humors that pollute the substance of the Nerves and habit of the Body. The local remedies are Oils, Unguents, and Liniments, with which the Neck, Back-bone, and all the contracted parts shall be anointed. The Oils are, the Oil of Foxes, Bays, Camomill, Worms, Turpentine, of Cypresse, of Catheroram: The Ointments are, Unguentum Aragon, Argrippe, de Albo, Maximum. This may be the form of a Liniment: R. Olii cam, & Laurie. an. §. Olii Vulpis. §. Oregnum de Albo & Martis. an. §. R. Aromat. Vulpis. §. Aqua viti §. b. Cere quasium fistulis. Make a Liniment for your use. Or, R. Olii Luminari, de Spices, de Coele¬vo an. §. Arom. homi, §. Stribbbourio. §. Cere quasium fistulis. Make a Liniment. Or, R. Ung¬e¬nalis, & Agrippe. an. §. R. Olei de Tertuliano, §. b. Olii Salviae, §. b. Aqua viti §. b. Cere §. b. fistulimum. But this difficult is cured byrender Diet, and Sweating, with the Decotions of Guaiacum, because by these remedies the grubs, tough, and viscous excrements, which are in such, are digested.

A Convulsion proceeding of Inanition is to be cured by the use of such things which do wholly and moderately nourish. And therefore you must prescribe a Diet consisting of Meats full of good nourishment, as Broths, and Collicus of Capons, Pigeons, Veal, and Mutton, boiling therein Violet and Mallow leaves. Conserve must be ordained, which may strengthen the debilitated powers, and nourish the habit of the body; such are as the Converse of Bagpipes, Violets, Borage, and Water Lillies. The following Broth will be profitable, R. Lattnae, Bagpipe, & ponct. an. Mvi. quater feminum frigid, major. an. §. R. feminae Batatis, §. Let them all be boiled with a Chicken, and let him take the Broth every morning. If thirst opprudes him, the following Julep will be good. R. Aqua viti. §. in. aqua viti. §. vegetis. §. in. specere albofinis §. iv. fist Julep, matut in Julas. If the Patient be bound in his body, emollient and humedgating Clysters shall be appointed, made of the decoction of a Sheeps head and feet, Mallows, Marsh Mallows, Pottellary of the Wall, Violet leaves, and other things of the like faculty. But if the remedy may be more ready and quickly made, let the Clysters be of Oil and Milk. Topick remedies shall be Liniments and Baths. Let this be the example of a Liniment, R. Olii Vesl. & Amygdal. dulse. an. §. R. Olii Lioen. & Luminari. an. §. R. Aromat. porri cognitusi. §. b. Core vini quasium fistulis fist. Linimentum, with which let the whole spine and part attacked be anointed. This shall be the form of an emollient and humedgating bath, R. Fiat, Malacie, beneficiative, Paris. an. Mvi. & Filius. Semimi Lin e m i s. §. /a. sin. cappam i. aqua commun. admodi Olii Lioen. b. in. Make a Bath: into which let the Patient enter when it is warm. When he shall come forth of the Bath, let him be dried with warm clothes, or reit in his bed avoiding sweat. But if the Patient be able to undertake the charge, it will be good to ordain a Bath of Milk, or Oil alone, or of them equally mixt together.

Chap. XI.
The Cure of a Convulsion by sympathy and pain.

Convulsion which is caused both by content of pain and communicacion of the affect, is cur¬ed by remedies which are contrary to the doloris punishments: for thus if it proceed from excrud of cold, benedic cold is hurried to the brain, the spinal marrow, and nerves; the Patient shall be placed in a hot air, such as that of a Hot-house or Stove; all the spine of his back and convulst parts shall be anointed with the hot liniments above mentioned: for that is much better than suddenly to expost him from the conceived convulsions caufe to a mort potire or warm bath. In the mean time the conjunct of the convulsion must take diligent heed, that as soon as the steps of the Convulsion to come, or already present, or at hand, do leave themselves, that he put a stick between the Patients teeth, lest they be rank locked up by the putrificious contraction of the Jaws, for many in such a case have bit hit off their Tongue, for which purpose he shall be provided of an instrument named Speculum Ovis, which may be dilated and contracted according to your need of a frame, as the following figures demonstrate: the one præsentit it open and form what revolved up, and the other as it is in its open.
CHAP. XII.

Of the Palsy.

The Palsy is the reftoring or modification 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 Palsy: for otherwise and less properly the resolutions of some one member is also called the Palsy: for when the whole body is resolved, it is an Apoplexy. Therefore the Palsy sometimes takes half the body, otherwhiles the upper parts, which are between the Navel and the Head, otherwhiles 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 convolution, there is a contention and contraction of the part, but in this a resolving and relaxation thereof: besides, it commonly happens that the sense is either abolished or very dull, which usually remains perfect in a Convulsion.

There are some which have a pricking, and as it were great pain in the part. Internal are humours 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 sometimes the joints are dislocated, the spinal marrow writhed aside, and contractions and compressions of the Vertebrae arise, which are causes that the animal spirit cannot come to the Organs in its whole substance. But it is safe by skill in Anatomy perfectly to understand by the resolved part the seat of the morbid cause, for when there you may know that the obstruction is in the brain, or spinal marrow; but if the parts of the head be 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 Diseaseth lies hid in the fifth, sixth, and seventh Vertebra of the neck. But if the lower members languish, we must judge the Paralytic cause to be contained in the Vertebra of the Loins and Holy-bone. Which thing the Chirurgeon must diligently observe that he may always have recourse to the original or the Diseased. The Palsy which proceeds from a nerve cut, or exceedingly bruised, is incureable, because the way to the part by that means is that against the animal spirit. Old men scarce or never recover of the Palsy, because their native heat is languid, and they are oppressed with abundance of excrementitious humours; neither doth an inveterate Palsy which lasts long pollish the part, neither that which succeeds an Apoplexy, yield us any better hope of cure. It is good for a Fever to come upon a Palsy, for it makes the dissipation of the resolving and relaxing humour, to be hoped for. When the member affailed with the Palsy is much wasted, and the opposite, on the contrary, much increased in quantity, heat, and colour, it is ill: for this is a sign of the extreme weakness of the afflicted part, which sufferers it felt to be defrauded of its nourishment, all the provision flowing to the found or opposite side.

CHAP. XIII.

Of the Cure of the Palsy.

In the cure of the Palsy we must not attempt any thing, unless we have first used general remedies, Diet and Purging; all which care lieth upon the learned and prudent Physicians. The Decoction of Guaiacum is very fit for this purpuse, for it procures sweat and attenuates, digests and drieth up all the humidity with which the nerves: but when sweat doth not flow, it shall not be
Things usual¬ly good for to be ap¬plied to par¬tial mem¬bers.

An approved Ointment, which Leonard Faventius much commands: 

R Olii Levandi, Chrysanthemum, Petri, et Ror, 3; Olei Nerudarii et petrolli, 5; Vini malvani, 3; Myrtilli, Piperis, Stevia, Granati, 3; Gummi odorici, ascend. 9. Let them be all put in a Vessel, that may be distilled in the Vessel lately described for use. The Patient shall keep himself in that Bathing-tub, as long as his strength will give him leave, then let him be put into his bed well covered, where he shallawan, be dried, and then. Let him be prepared with the following Ointment in the Vessel mentioned in the Treatise lately described for use. The Patient shall keep himself in that Bathing-tub, as long as his strength will give him leave, then let him be put into his bed well covered.

What Swooning is. Swooning happens by dilatation of the spirits, such as are, ftrong Wines to drink, fweet Perfumes to smell: You muft call them by their own name loud in their ear, and you muft pluck them somewhat hard by the hairs of the temples, the back, and paralytic limbs be anointed with the liquor which comes from thence. I have often tried the force of this following Medicine: 

R Rad. Angel. 2, floren. gentian, cyperi, an. 3; Calaminum, Cinamomum, Caryophylli, Myrrhae, manti, an. 3; Salviae, inc. Carophylli, Myrrhae, Salviae, 3; Myrrhae, 5. Let them be all put in a Vessel, that may be distilled in the Vessel lately described for use. The Patient shall keep himself in that Bathing-tub, as long as his strength will give him leave, then let him be prepared with the following Ointment, which is distill'd by the vapour of the following decoctions: 


Aqua viti. & Vini malvati, an. ij. Make an Ointment in form of a Liniment, adding a little Wax, if need shall require. Or you shall use the following remedy approved by many Physicians: 

An approved Ointment for the Face. 

A distill’d Water, good to wash them outwardly, and to drink inwardly.

Exercises and frictions.

Chemical Oil.

What Swooning is. Swooning is a sudden and pertinacious defed of all the powers, but especially the vital, in this, the Patients lie without motion or fenfe, fo that the Ancients thought that it differed from Swooning. jg Bleeding, which caufeth a dillipation of the fpirits; or Fear, which caufeth a fudden and

The cure of Swooning caused by di¬fipation of fpirits. The cure of Swooning caused by a venereal air. The cure of Swooning caused by op¬position and reflation.

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The cure of Swooning caused by di¬fipation of fpirits. The cure of Swooning caused by a venereal air. The cure of Swooning caused by op¬position and reflation.
BOOK X.

Of the Green and Bloody Wounds of each Part.

CHAP. XIV.

Of Delirium (i.e.) Raving, Talking idly, or Doting.

Doting or Talking idly, here is used for a symptom which commonly happeneth in Fever, what a symptom is, caused by a wound, and inflammation; and it is a perturbation of the finite and function of the mind, or long inducings. Wherefore such a doting happeneth upon Wounds by reason of vicementer pain, and a fever, when at the nervous parts, as the joints, hemath, and midriff, shall be violated.

For the Ancients did therefore call the Midriff Phenos, because when this was hurt, as the mind fell were hurt, a certain phrenetic enfees; that is, a perturbation of the animal faculty, which is employed in ratiocination, by reason of the community which the Dusphageus hath with the Brain, by the Nerves sent from the sixth conjugation, which are carried to the stomach. Therefore Doting happens by too much bleeding, which casteth a diffutation of the spirits, whereby it happeneth that the motion and thoughts of the mind err, as we fe it happeneth to those who have bled much in the amputation of a member. And it happeneth by the puncture of a venemous Beast, or from Seid retained or corrupted in the Worn, or from a Gangrene or Sphacel, from a venemous and putridal carried up to the Brain, or from a sudden tumult and fear. Lastly, What things forever with any distempers especially hot, do hurt and debilitate the mind. These may cause Doting by the influx of humors, especially cholerick, by diffutations or corruption or corruption of the spirits. Therefore if it shall proceed from the inflammation of the Brain, and Meninges or Membranes thereof, after Pauing and Bled-letting by the prescription of a Physician, the hair being shaved or cut off, the head be broomed with Rose Vinegar, and then an Emplastere of Dracatio, diffiled in Oil and Vinegar of Rose, shall be laid thereon. Sceap shall be procured with Barly creams wherein have been boiled, with Broths made of the decoction of the cold seeds of Lettuce, Purilain, Sorel, and such like. Cold things shall be applied to the Midriff, as the seeds of Poppy gently beaten with Rose-water and a little Vinegar. Let him have merry and pleasant Compansions that may divers his mind from all cogitations of sorrowful things, and may cafe and free him of cares, and with their sweet intreaties may bring him to himself, by deposing him. Let the remedy from those things which have been set down in the Chapter of Swooning.

End of the Ninth Book.

BOOK X.

Of the Green and Bloody Wounds of each Part.

CHAP. I.

Of the kind or differences of a broken Skull.

Now that we have briefly treated of Wounds in general, that is, of their differences, signs, prophetic and cure, and also threw 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 diversely performed according to the diversity of the parts. Now we will begin with the Wounds of the Head. Therefore the head hath the hury-leaf lightly bruised without any wound, aswifhethewound, withourAHurtation, and sometimes it is both contused and wounded; but a fracture made in the skull, is sometimes suppuratory, sometimes it is found even to the Diple, sometimes it penetrates through the two Tables, and the Meninges, into the very substance of the Brain; besides the Brain is oft-times moved and shaken with breaking of the internal Veins, and divers symptoms happen when there appears no Wound at all in the head; of all and every of which we will speak in order, and add that some especially according to the opinion of the divine Hippocrates. He in his Book Of the Wounds of the Head, seemeth have made five kinds of accidents of the skull. The first is called a Fracture or Fracture, the second a Contusion or Collusion, the third called Effulacism, the fourth is named Sulas, or a fast; the fifth (if you please to add it) you may call a Countersuffure, or as the Interpreter of Paul use calls it, a bellyfles. As when the skull is left unto the contrary side, to that which received the stroke. There are many differences of these kinds of a broken Skull. For some fractures are great, some small, and others indistinct; some run out to a greater length or breadth, others are more contracted, some reside only in the superficialities, others divide to the Diple, or else pierce through both the Tables of the Skull, some run in a right line, others in an oblique and circular, some are complicated among themselves as a Fracture is necellarity and always accompanied with a Collusion or Contusion; and others are associated with divers accidents as pain, heat, feeling-blooding, and the like. Sometimes the Skull is broken, that the Membrane may be divided under it, asgnifed, with breadth of the Bone, as with pricking Needles. Some are commited above some of the bones after it. All which differences are diligently to be observed, because they force to vary cure, and therefore for the help of memory, I have thought good to describe them in the following Table.

A Table
A Table of the Fractures of the Skull.

Either manifest, or your sight, and apparent, or your feeling, that is, Or if the bone be

Keep their natural figure and size unchangeable, each other, whence proceeds that fracture of the Skull which is called a Fissure, which is

Or obscure and not manifest, when at the part which received the blow is wounded, but the contrary thereof, & that happens either

In divers bones, to wit, in such men as want futures, or have them put cloths, or injured in other ways, then it is, and the opinion is either

Or known both, that is, the obscure and manifest, as that which is termed a Capillary Fissure, and is manifestly by murmuring it over with Oil and Writing Ink,

Or left their sites, and that either

Or by incision of a sharp thing, but that incision is made

Another Table of the differences of a fractured Skull.

Simple, as when they are found solitary and by themselves.

Their Nature, according to which Fractures are called

Mutually with themselves, as a Contusion, or Collision with Incision, a Fissure with an Effacure. Or, With other Symptoms, as Swelling, Pain, Heat, Bleeding, Convulsion, and the like.

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 described followed from

Right, Oblique, Transverse, Round, Triangular.

Their Site, whence they are termed on the face or back, on the right or left, or the upper or lower parts, or superficial and profound.

The Part, whence it is called a Fracture of the Forehead, Nasion, Bregma, and many bones; and hence it is judged, what may be deadly or hopeful of recovery, safe or difficult to cure.
The causes of a broken Skull are external, as a fall, a blow, or stroke with any kind of Weapon, sharp, oblong, heavy, hard, the bittings of Beasts, and many other things of the like kind. But the signs by which we see to know that the Skull is broken, are of two kinds; for some of them are found out by the reasoning and discourse of the mind, others by the senses, at those which lay open the Wound to the Eye and Hand.

The Rational signs flew by these things which have happened upon the thing it self, whether it be or what sort it is. For you may know the Skull is broken, of the Patient shall fall down with the head, or the Skull fall down upon some hard thing. If for some time after the stroke he shall lie without speaking, fight, and hearing; if he shall have felt a sudden and 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, oblong, 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 we must consider whether the Patient received the blow with his Head unarmed and naked, whether he fell into a Swoon presently after the blow; whether when he came to himself, he was in his right senses; whether his eyes were blinded; whether he were 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 out, must necessarily have a Fever and vomiting of Phlegm.

Hippocrates, and Galen confirming in his Commentary, faith that the same happens also when the Wound comes to the Membranes of the Brain.

Also a skull found as from a broken Vessel coming from the Skull, (the Hairy scalp and Periostium being taken off) and it being lightly drawn upon with an Iron Probe, is said to be a sign of a fracture thereof, as it is recorded by Paulus Aegineta. Truly all those signs make a great conjecture, or rather assurance, that the Skull is wounded, and the Brain hurt, as which cannot happen unless the skull be broken, as Gaflin hath written. Yet many have had their Skulls 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 set down by Paulus Aegineta, that the Patient has felt and doth 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, oblong, 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 we must consider whether the Patient received the blow with his Head unarmed and naked, whether he fell into a Swoon presently after the blow; whether when he came to himself, he was in his right senses; whether his eyes were blinded; whether he were 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 out, must necessarily have a Fever and vomiting of Phlegm.

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Moreover we may, before we have cut the skin across, or laid bare the bone, give a guess by our feeling, whether the Skull be broken or no, if we by pressing down our fingers near the Wound shall perceive the bone either to stand up, or be pressed down otherwise than it should naturally be. The skin being cut cross-wise, and the bone laid bare, if the fracture be not obvious to the eye, you must try with your Probe, which must neither be too thin nor too sharp, lest by falling into some natural crannies, it may cause us to falsely take without any sign that the bone is broken, neither let it be too thick, lest the little clits may deceive you. If when your Probe comes to the bone it meets with nothing that which is smooth and slippery, it is a sign that it is whole. But on the contrary, if you find it any thing rough, specially where there is no fracture, it shews the bone is broken. But let the Chirurgeon consider, that the fractures are not found upon the fracture, and that the fractures have not always one and their natural face, as also it often comes to pass that the broken side, or cut bone, can neither be perceived by your sight nor instrument; wherefore if you think there is any such thing, by the rational signs above mentioned, amongst the place with Writing Ink and Oil, and so you shall find the crack or clit, by the means we shall show you hereafter.

When you are certain of the fracture, then you must diligently consider the greatness of the Dispace, and apply Medicines speedily. Verily when a fracture chances to light upon any future, the

Wounds of each Part.
the dissection is hard to be known, unless the fracture be very great, because the fractures by their close and roughness are unmistakable; and therefore Hippocrates, that he was deceived by them. Now having briefly delivered the differences and signs of a broken skull, it is time to come to the several kinds thereof, with a figure.

CHAP. IV.

Of a Figure, being the first kind of a broken skull.

Upon what occasion the hairy scalp must be cut.

If the Chirurgeon by the first-mentioned signs shall know that the skull is broken, or cracked, and the wound made in the muscles of the skull shall not be thought sufficient for ordering the figure, then must he shave off the hair, and cut with a razor or incision-knife, the muscles of the skull with the pericranium lying under it in a triangular or quadrangular figure to a proportionable bigness, always humming as much as in his faces, the figures and temples, neither must he fear any harm to ensue hereof: for it is far better to bare the bone by cutting the skin, than to foment the kind and nature of the fracture to remain unknown by a too religious preservation of the skin; for the skin is cured without any great ado, though plucked off to no purpose.

For it is much more expedient (in Hippocrates opinion) to cure Diseases safely and securely, though not speedily, than to do it in a shorter time with fear of relapse and greater inconveniences. Let this dissection be made with a razor or sharp knife, and if there be any wound made in the skull by the weapon, let one of your incisions be made just agreeable thereto.

A Razor, or Incision-Knife.

The manner how to pull the hairy scalp from the broken skull.

Now therefore the muscular skin together with the pericranium must be divided, and cut with a sharp razor prefixed and guided with a strong and steady hand; then it must be so plucked from the bone or skull lying under it, that none thereof remain upon the bone; for if it should be rent or torn with the trepan, it would cause vehement pain with inflammations. You must begin to pull it back at the corners of the lines crossing each other with right angles, with this chisel whose figure you see here expressed.

A Cheffel or Instrument to pull back, or separate the Pericranium from the Skull.

Then you must fill all the wound with bolsters of fine soft lint, that the lipo may be kept further inward. But you shall apply upon it medicines fit to staunch blood. But if it be come to pass that the blood flows forth so violently, that it can be stayed by no means, the vessel itself must be bound, after this manner.

First thrust through the muscular skin on the outside with a needle and thread, then thrust the needle back again, then tie the thread on a knot on the outside, but first raise some lint rolled up to the bigness of a goose-quill between the thread and the hairy scalp on both sides thereof, lest the slight twitching of the thread which may serve to stay the bleeding, may cut and tear the skin, or cause pain; then must you raise his head somewhat higher.

I have lately tried, and performed this upon a certain coachman, who, thrown from the coach upon his head on a pavement of freestone, exceedingly bruised the hinder part of his head, and oil with tearing instruments made for the purpose, if any part thereof shall break into the bone, or if there be any crack, it will be black: Wherefore you must continue dressing until no sign of the Figure remain, or else until you come even to the.Dura mater. But that he may be more certain whether the figure pierce through both the tables of the skull, he must bid the Patient, that

A way to find a fracture in the skull, when it presents not to the view at the first.

A sign that both the tables are broken.
Boo X.

Wounds of each part.

flopping his Nose and Mouth he strives to breathe with a great inducement. For then bloody matter, or sputum, will pass through the Fissure; for the breath driven forth of the Chest, and prohibited passage forth, twitches and lifts up the fullness of the Brain, and the Meninges, whereupon that frothy humidity and sputum (wets forth). Therefore then the bone must be cut, even to the Diasten Membrane, with a Radula, and other entering Instruments fit for that purpose, yet so as you hurt not the Membrane; but if the Fissure shall be somewhat long, it will not be convenient to follow it all the extent thereof, for Nature will repair and relieve the remnant of the Fissure by generating a Callus; besides also, the Chirurgeon according to Celsus opinion, must take away as little of the bone as he can, because there is nothing so fit to cover the Brain as the Skull. Therefore it shall suffice to make a passage, whereby the blood and sputum may pass and be drawn forth, lest that matter being stopped, may corrupt the bone, and cause inflammation in the Brain. But the broken bone must be taken forth within three days, if it be possible, especially in Summer, for fear of inflammation. Yet I have often taken forth with a Trepan, and with Scrapers the bones of the Skull, after the seventeenth day, both in Winter and Summer, and that with happy success. Which I have the rather noted, lest any should at any time suffer the wounded to be left destitute of remedy, for it is better to try a doubtful remedy than none. Yet the By-standers shall be 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 Scalpers or Radula, of which I have caused divers sorts to be here deciphered, that every one might take his choice according to his mind, and as shall be best for his purpose. But all of them may be served into one handle, the figure whereof I have exhibited.

Radula or Scalpers, (1.) Shavers or Scrapers.

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 pierced through both the Tables. But if it doth not exceed the first Table, you must cut your Scrapers as soon as you come to the second, according to the opinion of Paulus; but if the bone shall be broken and divided into many pieces, they shall be taken forth with fit Instruments, using also a Trepan, if need shall require, after the same manner as we shall shew you hereafter.
CHAP. V.
Of a Contusion, which is the second sort of Fracture.

A

N Ecchymosis, that is, effusion of blood, presently concreting under the mucous Skin, without any Wound, is oft caused by a violent contusion. This Contusion if it shall be great, so that the Skin be divided from the Skull, it is expedient that you may make an Incision, whereby the blood may be evacuated and emptied. For in this case you must wholly desist from suppurative Medicines (which otherwise would be of good use in a febby part) by reason that all the moist things are hurtful to the Bones, as shall be shewn hereafter.

Such like Contusions more frequently happen in Children, being easily perceived by the softness and inundation of the contused part: forth of which oft-times when I have opened them with my Incision-Knife, serous clotted and blackish blood hath issued. The residue of the Cure is perfected by moderate compression of the part, and drying Medicines. Moreover the Skull of a Child may be pressed down by a great Contusion, even as we see it happens in thin Veins of Brass, 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 back of themselves, and again acquire their former plainness and equality, which also happens in the bones of Children, Women, and such as are soft, humid, and phlegmatic.

But if the Bones do not spring back of themselves, you must apply a Cupping-glafs 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 that for thus there will be hope to restore the depressed Bone to its place, by the spirits forced upwards to the Brain and Skull, by the powerful attraction of the Cupping-glafs. But if to be that the Bone cannot by this means be reforted, then you must make an Incision in the Skin, and fallen such a Trepan as you see here delineated, into the depressed or Faculty part of the Bone, and so pull it directly upwards; just as we see Cooperers raise the keels of their Casks, when they are filled too much in.

But if the Bone shall be too strong, thick, and dense, so that this Instrument will not serve to pluck it forth; then you must perforate the Skull in the very center of the depression, and with this threefold Instrument or Levatory, 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 three-footed Levatory.

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 fluid, to divide the Skull with little Saws like these which you 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.
But if by such signs as are present, and shall appear, we perceive or judge that the contusion goes but to the second Table, or scarce so far, the baring or taking away of the bone must go no farther than the contusion reaches, for that will be sufficient to effcwh and divert inflammations and divers other symptoms. And this shall be done with a scaling or Decquamatory Trepan (as they term it) with which you may easily take up as much of the bone as you shall think expedient: And I have here given you the figure thereof.

A Decquamatory, or Scaling Trepan.

A Delineation of other Lewatories.

A A. Shows the point or tongue of the Lewatory, which must be somewhat shal, that it may be the more gently and easily put between the Dura Mater and the Skull, and that 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 Lewatory, which must be four square, lest the point or tongue put thereon should not stand fast, but the end of this body must rest upon the sound bone, as an 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 the depressed bone may be elevated.

C Shows the first Arm of the other Lewatory, which must be gently put under the depressed bone.

D Shows the other Arm, which must rest on the sound bone, that by the firm standing thereof, it may lift up the depressed bone.
Before I come to speak of an Effraiture, I think it not amiss 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 speak of a Contusion, I intermeddled with many things of a Deprefion ; so, also in this Chapter of an Effraiture, I intend to intermix something of a Contusion ; we do not this through any ignorance of the thing it fell for, we know that it is called a Contusion when the bone is depri'd and crush't, but falls not down. But an Effraiture is when the bone falls down, and is broken by a most violent blow. But it can scarce come to pafs, but that the things themselves must be confounded and mixt, both as they are done, and alfo when they are spoken of, so that you shall have a Contusion without an Effraiture, or this without that. Therefore the bones are often broken off and driven down with great and forcible blows, with clubs whether round or square, or by falling from a high place directly down, more or lefs according to the force of the blow, kind of Weapon and condition of the Part receiving the fame. Therefore you must be provided with diversity of remedies and instruments to encounter therewith. Wherefore admit the bone is prefect down, and thivered into many pieces, now for that thefe splinters need not be taken out with a Trepant, you may do the bufinef with Levatories made and neatly fashioned for that purpofe; fuch as thefe, which here are expreff.

A Levatory.

But we muft have fpecial care, left that in pulling and taking out of thefe fcales and splinters we hurt the membranes. Thefe fakes are fometimes very rough and prickly, fo that they cannot touch the Membranes without injury; but formerly the bufinefs is fo intricate, that they cannot be taken out, unlefs by enlarging the fraiture. Wherefore in this cafe, if there be a space fo large, as that the ends of thefe mullets may enter, you may easily thefe off fo much of the bone as fhall be neceffary and requisite for the taking away of thefe fakes without any ailance of the Trepant, which I have done very often, and with good Succes; for the operation performed by thefe Mullets is far more fpeedy and fane than that with the Trepant; and in the performance of every operation, the chief commenda	
tion is given to fafety and celerity.

Cutting Mullets, commonly called Roffini Pittaci, or Parrots Beaks.

Moreover I have thought good here to give you the Figures of Chisels, Scrapers, Pincers, together with a leaden Mallet, because fuch Inuments are not only very neceffary to take forth the fcales of bones which are broken, but alfo to plain and smooth thofe which remain whole.
The Figures of Serapers, Pincers, a leen Mallet, &c.

But here you must note, that a Trepan or Levatory, 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 sound 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 Brain be deprived of its bony cover, take some harm thereby. Neither Effratures, nor yet Effrures, if they be of some length, must be followed to their ends, but think yourself well, if you have made a passage for the issuing forth of the fluids or blood, and have drawn forth that bone which pricked the membranes. For Nature is accustomed by generating a Callor to founder, or unite the bones of the Skull, as it also doth those of the other parts; as we 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 certain alimentary and bloody matter, that with this as with marrow it might repair the loss and defect of the bone.

CHAP. VII.

Of a Seat, being the fourth kind of a broken Skull.

Hippocrates calls a Seat that kind of Fracture of the Skull, when the Weapon so falls upon the Skull that the Fracture retaining the print thereof, is neither stretched forth any further, nor contracted to any less space. And feeling there be many forms hereof, they all (whether they shall be superficially, or shall pierce The Cure, even to the Diploe, or else pass through both the Tables, whether it be with any kind of the bony substance, whether it run long ways, or else be but short, or otherwise be divided to form breadth or else be but narrow; whether they shall be done with a cut, or with a prick with a Dagger, Stilletto, Lance, or other kind of Weapon, whether they shall have this or that accident joined with them, I say all of them, how many and various forever 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 be wholly cut off that it is clean severed from the rest of the Skull, and hang only by the Pericranium and the muscular skin; yet you must not pluck it from the Pericranium, and cast it away as unprofitable, but reserve it to its proper fast and place, by the force of Nature, to be glued by a Callor, as Celfius hath observed.

I have tried the truth of this experiment in Captain Hydron, not very long ago. He had a History, middle part of the Os Coronalis, of the breadth and length of three fingers, so cut with a sharp Sword that it stuck not to the rest of the bone but fearfully adhering to the Pericranium and muscular skin lay turned down over his face, so that the Dura Mater was plainly seen; wherefore I prepared to pluck it from the skin, and cast it away, but that I remembered Hippocrates Precept, where he bids, that the Brain should not be robbed of its cover and left bare. Wherefore half of all I wiped away the blood which was fallen upon the Dura Mater, whose motion you might plainly see, then I reforded the portion of the bone to its place, and fastened it on the upper side with a Nature consisting of three stitches, and that the residue of the matter might have passage forth, I filled the places between each stitch with lint; by this means, be the nature of God recovered, though at the same time he received many other large wounds in his body which is a certain experiment, that we must cast away not part of the Skull nor of the Pericranium, no not of the muscular skin, unless necessity urge, therefore much left to leave the Brain naked and defpoiled of its coverings.
Sometimes the Fracture is made in the part opposite to that which received the blow; as if the right side be struck, the left is drawn; this kind of Fracture is very dangerous, because we cannot find it out by any certain sign, as it is written by Hippocrates, Lib. de Vuln. Capitis. Wherefore it at any time the Patient die of such a Fracture, the Chirurgeon must be pardoned.

And although Panturus Refonitus laugh at this kind of Fracture, and thinks that it cannot happen to a man; as that which is hard and full, as it happens in empty Glass Bottles, yet I have sometimes seen and observed it.

Neither is his reason of any validity, who think Nature therefore to have framed the Head of many bones knit together by futures, and the fractures of the one side, should be stretched to the other. For when a man be abruptly pressed in such a manner that the skin may take place in such as have express futures, feared and framed according to Nature, it takes no 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 a mention of the following History.

A servant of Mastor the Post-major, had a grievous 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 harm, and also that the congealed blood might be perceived forth, the wound was dilated, the skin being opened by Theodore Herius the Chirurgion, who as he was a skilful workman, and an honest man, omitted nothing which Art might do for his care. When he had divided the skin, the bone was found whole, although it was much to be feared that it was broken, because he fell presently to the ground with the blow, vomited, and showed other signs of a fractured skull; so it happened that he died on the one and twentieth day of his sickness. But I being called to learn, and search how he came by his death, dividing the skull with a Saw, found in the part opposite to the blow, a great quantity of fanes, or bloody matter, and an Abscess in the Crocco Meningis, and also in the substance of the very Brain, but no futures but the two Scalely ones. Therefore that it certain which is now confirmed by the authority of Hippocrates, as also by reason and experience, that a blow may be received on the one side, and the bone may be fractured on the opposite, especially in such as have either no futures, or else so firmly united and doped, that they are scarce apparent.

Neither is it absurd, that the part opposite to that which received the first, of the same bone and not of divers bones may be chanced, and in those men who have their skulls well made, and naturally misshapen and complest with futures; and this both was, and is the true meaning of Hippocrates. That this may be the better understood, we must note that the opposite part of the same bone may be understood two manner of ways. First, When the fracture is in the same surface of the smitten bone, as if that part of one of the bones of the Bregma, which is next to the Lambdial future be fractured, and the other part next to the Coronal future be chanced. Secondly, When as not the same futures and table which receives the blow, but that which lies under it is cleft, which kind of fracture I observed in a certain Gentleman, a Horseman of Captain Stempans Troop: He in defending the breach of the Wall of the Castle of Hedin, was struck with a Muzzle bullet upon the Bregma, but had his Helmet on his head, the bullet dented it the Helmet but did not break it, nor from the multiple skin, nor skull, for an inch could be discerned, yet notwithstanding he died appallingly the first day after.

But I being very desirous to know what might be the true cause of his death, dividing his skull, observed that the second Table was broken, and cast off scales and splinters, wherewith as with Nechlis the substance of the Brain was continually ejected, the first and upper table being whole for all this: I afterwards shewed the like example to Copellanus and Cystellanus, the King and Queens chief Physicians, in the expedition of Roane. But Hippocrates prescribes no method of curing this fifth kind of fracture, by reason he thinks it cannot be bound out by any circumstance, where it happens that it is for the most part deadly. Yet must we endeavour to have some knowledge and conjecture of such a fracture, if it should at any time happen. Wherefore having first diligently shaken away the hair, we must apply an Emplaster of Pitch, Tar, Wax, Turpentine, the Powder of Iris, or Flower-de-luce roots and Mastic; now if any place of the head shall appear more nought, soft, and swollen, it is somewhat likely that the bone is cleft in that place, so that the Patient, though thinking of no such thing, is now and then forced to put his hand to that part of the skull. Conformed with theft and other figures formerly mentioned, let him call a Council of learned Physicians; and foretell the danger to the Patient friends which are therein present, that there may no occasion of calamity remain, then let him boldly perforate the skull, for that is far better than for the Patient ready to yield to the greatness of the hidden danger; and so condescending to die within a short while after. There are four sorts or conditions of fractures, by which the Chirurgion may be so deceived, that when the skull is broken indeed, yet he may think there is no fracture. The first is, when the bone is so depressed, that it firmly rises up into its true place and native equality. The second is, when the Fracture is only capillary. The third is, when the bone is shaken on the inside, the outer surface nevertheless remaining whole, for which as can be discerned. The fourth is, when the bone is broken on the one side, and cleft on the other.
B

Blows the mentioned kinds of Fractures by which the Brain also suffers, there is another kind of suddene besides Nature, which also affails by the violent incursion of a cause in like manner external; they call it the commotion or stoning of the Brain, whence Symptoms like those of a broken skull ensue. Falling from aloft upon a solid and hard body, dull and heavy blows as with Stones, Clubs, Staves, the report of a piece of Ordnance, or crack of Thunder, and also a blow with ones hand,

Thomas Hypnerotus tells, that beautiful Damofel the daughter of Neris, when she was twenty years old, was fretted by a Woman, a friend of hers playing with her, with her flat hand upon the for-top of the head, and then she was taken with a giddiness, and lay without breathing, and when she came home, she fell presently into a great Fever, her head ached, and her face grew red. The seventh day after, there came forth some two or three ounces of thin and bloody matter about her right Ear, and the formed something better, and to be at somewhat more ease. The Fever increased again, and she fell into a heavy feebleness, and lost her speech, and the right side of her face was drawn up, and the breathed with difficulty, she also a convulsion and trembling, both her tongue failed her, and her eyes grew dull, on the ninth day she died. But you must note, that though the head be armed with a Helmet, yet by the violence of a blow the Veins and Arteries may be broken, not onely thefe which pass through the Futures, but also those which are differed between the two Tons in the Dura, both that they might bind the Graft Meninges to the skull, so that the Brain might move more freely, as also that they might carry the alimentary juice to the Brain wanting Marron, that is, blood to nourish it, as we have formerly showed in our Anatomy.

Thus the cause of vomiting when the head is wounded.

But from hence proceeds the effect of blood running between the skull and membranes, or elfe between the membranes and brain, the blood concealing three, causeth vehement pain, and the eyes become blind. Vomiting is causd, the mouth of the stomach suffering together with the Brain, by reason of the Nerves of the forth conjunction, which run up from the Brain thither, and from thence are spread over all the capacity of the vessel of the brain, whence becometh a partaker of the offence, it contracts itself, and is presently, as it were, overthrown; whence first those things that are contained there, are expelled, and then such as may flow, or come thither from the neighbouring and common parts, as the Liver and Gall, from all which chothes, by reason of its natural levity and velocity is first expelled, and that in greatest plenty, which from the Brain imparts the power of moving to the Muscles of the Chief, the Instruments of Respiration, and death must necessarily follow.

A great part of these accidents appeared in King Henry of happy memory, a little before he died, a History.

He having set in order the marriage of his Daughter and Siter of the famous and noble excele of Tilting, and be himselfe running in the Till-yard, with a blunt lance received to great a break through his brain, that with the violence of the blow, the viour of his Helmet flew up, and the truncheons of the broken Lance hit him about the left Eye-brow, and the manducous skin of the Fore-head was torn even to the leafe craver of the left Eye, many splinters of the same Lance being stuck into the substance of the aforementioned Eye, the Bones being not touched or broken, but the Brain was moved and taken, that he died the eleventh day after the hurt, His Skull being opened after his death, there was a great deal of blood found between the Dura and Pia Mater, poured forth in the part opposite to the blow, at the middle of the future of the hind-part of the head, and there appeared lights, by the native colours turned yellow, that the substance of the Brain was corrupted, as much as one might cover with one Thumb. Which things caused the death of the most Christian King, and not onely the wounding of the Eye, as many have falsely thought. For we have seen many others, who have not died of far more grievous wounds in the Eye.

What was the necessary cause of the death of King Henry the Second, of France.

The History of the Lord Sainet, first of late memory in the Till-yard made for that time before the Duke of Guisir house, was wounded with a splinter of a broken Lance of a fingers length and thicknesses, through the viser of his helmet, it entered into the Orb under the eye, and piercing three fingers breadth deep into the head, by my help and Gods favour, he recovered, Palsamus and Duncan the Kings Physicians, and Fome the Kings Chirugian assisting me.

What shall I say of that great and very memorable wound of Frasnes or Lorens the Duke of Guisir A History.

He in the field of the City of Bologne had his head to thurth through with a Lance, that the point entering under his right Eye by his Nose, came out at his Neck between his Ear and the Forehead, the Head or Iron being broken and left in by the violence of the stroke, which there so firmly, that it could not be drawn or plucked forth, without a pair of Smiths Pincers. But although the strength and violence of the blow was so great, that it could not be without a fracture of the Brain, a tearing and breaking of the Nerves, Veins, and Arteries, and other parts yet the generous Prince by the labour of God recovered.

By which you may learn, that many die of small wounds, and other recover of great, yea, very large
Of Green and Blody

Why some die of small wounds, and others recover.

large and felperate 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 Bone remains perfectly whole, yet some Veins broken with partiality whole, but those which are lick of of small wounds, and others recover. The Author and Preserver of Mankind, but secondarily to the variety and condition of Temperaments. The wounds which happen to the bones of children, though of themseif and their own Nature they may be more easily healed, because they are more foff, whereby it comes to pafs, that they may become easily agglutinated, neither is there fuch matter wanting for their agglutination by reason of the plenty of blood laudable both in condition and quality than in old men, where bloods are drier and harder, and to erit, union, which comes by mixture, and their blood is fower, and consequently a more unit body of unity and agglutinatio, yet oft-times through occasion of the symptoms which follow upon them, that is, putrefadion and corruption, which foons arife in a hot and molif body, and are more fecibly increased in a folt and tender, they usually are more fubjefted, and difficul to heal. The Patient lives longer of a deadly fracture in the Skull in Winter than in Summer, for that the native heat is more vigorous in that tine than in this; besides, the humours putrefac foener in Summer, because than unnatural heat is eallf inflamed, and more predominant, as many have oberved in Wounds in the Head, no not thofe which cut through the hairy fcalp, but certainly much lefs, thofe which are accompanied by a fracture in the Skull, for oft-times all horrid fymptoms follow upon them, and consequently death it is fancied, especially in bodies full of ill humours, or of an ill-habit, fuch as are thefe which are affed with the Last Venereas, Leprefte, Drophi, Phythick, Confupmado: for in thofe, flmple wounds are hardly or never cured; for union is the cure of wounds but this is not performed unless by the strenue of Na- ture, and fufficient store of laudable blood: but thofe which are lick of of hefie Wounds and Confup- mations want store of blood, and thofe bodies which are repelte with ill humours, and of an ill habit, have no afflux or plenty of laudable blood: but all of them want the strenue of Na- ture the reafon is almoft the fame in thofe alfo which are lately recovered of fome Difeafe.

Whether the wounds of children, or old people are better to heal.

W

E mufl not negleét any Wounds in the Head, no not thofe which cut or bruife but only the hairy scalp, but certainly much lefs, thofe which are accompanied by a fracture in the Skull, for oft-times all horrid symptoms follow upon them, and consequently death it is fancied, especially in bodies full of ill humours, or of an ill-habit, fuch as are thefe which are affed with the Last Venereas, Leprefte, Drophi, Phythick, Confupmado: for in thofe, flmple wounds are hardly or never cured; for union is the cure of wounds but this is not performed unless by the strenue of Na- ture, and fufficient store of laudable blood: but thofe which are lick of of hefie Wounds and Confupmations want store of blood, and thofe bodies which are repelte with ill humours, and of an ill habit, have no afflux or plenty of laudable blood: but all of them want the strenue of Na- ture the reafon is almoft the fame in thofe alfo which are lately recovered of fome Difeafe.

Thefe Wounds which are bruised are more difficult to cure, than thofe which are cut. When the Skull is bruised, then the continuity of the fett lying over it must necessarily be hurt and broken, unlefs it be in a Refolution. The bones of children are more foft, thin, and repelte with a fan- gain humiity than thofe of old men, and therefore more fubjeft to putrefadion. Wherefore the Wounds which happen to the bones of children, though of themselves and their own Nature they may be more easily healed, because they are more foff, whereby it comes to pafs, that they may become easily agglutinated, neither is there fuch matter wanting for their agglutination by reason of the plenty of blood laudable both in condition and quality than in old men, where bloods are drier and harder, and to erit, union, which comes by mixture, and their blood is fower, and consequently a more unit body of unity and agglutinatio, yet oft-times through occasion of the symptoms which follow upon them, that is, putrefadion and corruption, which foons arife in a hot and molif body, and are more fecibly increased in a folt and tender, they usually are more fubjefted, and difficul to heal. The Patient lives longer of a deadly fracture in the Skull in Winter than in Summer, for that the native heat is more vigorous in that tine than in this; besides, the humours putrefac foener in Summer, because than unnatural heat is eallf inflamed, and more predominant, as many have oberved in Wounds in the Head, no not thofe which cut through the hairy fcalp, but certainly much lefs, thofe which are accompanied by a fracture in the Skull, for oft-times all horrid symptoms follow upon them, and consequently death it is fancied, especially in bodies full of ill humours, or of an ill-habit, fuch as are thefe which are affed with the Last Venereas, Leprefte, Drophi, Phythick, Confupmado: for in thofe, flmple wounds are hardly or never cured; for union is the cure of wounds but this is not performed unless by the strenue of Na- ture, and fufficient store of laudable blood: but thofe which are lick of of hefie Wounds and Confupmations want store of blood, and thofe bodies which are repelte with ill humours, and of an ill habit, have no afflux or plenty of laudable blood: but all of them want the strenue of Na- ture the reafon is almoft the fame in thofe alfo which are lately recovered of fome Difeafe.

The Wounds of the Brain and of the Meninge or Membranes thereof are moft commonly deadly, berecause the action of the Muscles of the Cheft, and others ferving for refpiration, is divers times dis- turbed and interpted, whence death enuies. If a feeling happenning upon a Wound of the head prefently vanifh away, it is an ill signal, unlefs there be fome good reafon therefore, as Blood-letting, Purging, or theufe of refolving local Medicins, as may be gathered by Hippocrates in his Aphorisms. If a Fever enuies prefently after the beginning of a wound of the head, then it is upon the fourth or fe- verth day, which ufually happens, you mufl jugue it to be occlamation by the generating of Fevir or Matter, as it is recit by Hippocrates. Neither is fuch a Fever fo much to be feared, as that which hap- pened after the feventh day, in which time it ought to be terminated but if it happen upon the tenth or fourteenth day with cold or feeling, it is dangerous, because it makes us conjecture that there is putrefadion in the Brain, the Meninge or Skull, through which occasion it may arife, chiefly if other figns till alfo concour, which may arife any putrefadion, as if the wound shall be pallid and of a faint yellowifh colour, as feath looks after it is wafted.

As for it is in Hippocrate Aphoriz. 2. Sert. 7. It is an ill signal if the fett look livid, when the bone is affed, for that colour portends the extirpation of the heat, through which occasion the lively or indifferently red colour of the part, faints and dies, and the fett therefore is reduc in a void or whife. Commonly another we fare affed follows hereon, wherein the wound becoming withered and dry, loocks like falted feath, feeds forth no matiers, it livid and black, whence you may conjecture, that the bone is corrupted, especially if it become rough, whereas it were formerly smooth and plain, for it is made rough when Carne or corruption invades it; but as the Carne increafes, it becomes livid and black, furious matter withal sweating out of the Difepe, as I have oberved in many: all which are figns that the native heat is decayed, and therefore death ensues, but if a Fever be occafioned from an Erypalm, which is either prefent or at hand, it is ufually lefs terrible. But you hall know by thefe figns that the Fever is caufed by an Erypalm and confluence of choleric matter if it keep the form of a Terrain, if the fit take them with coldnefs and end in a feaft, if it be not terminated be- fore the whole fett matter is either converted into Fom, or elfe inflad, if the lips of the wound are formerly fowen, as before all the face, if the eyes be red and fiery if the neck and chaps be fo that, that he can fence bend the one, or open the others if there be great excites of biting and pricking pain and heat, and that far greater than in a Phlegmon. For fuch an Erypalm defcription generat- ed of thin and her blood, chiefly affails the face, and that for two caufes.

The
The cure of such an affect must be performed by two means, that is, evacuation, and cooling with humectation. If cholera alone cause this tumor, we must only be induced to let blood; but we must purge him with medicines evacuating cholera. If it be an Erysipelas Phlegmonodes, you must draw blood from the cephalick vein of that side which is most affected, always using advice of a Physician. Having used these general means, you must apply refrigerating and cleansing things, such as are the Juice of Nightshade, Houtteck, Parthenium, Lettuce, Navel-wort, Water-lentil, or Ducks-meat, Grains, a Liniment made of two handfuls of Sorrel boiled in fair water, then beaten or drawn through a muslin, and so measure the Disease. Next we must come to resolving medicines, but it is good when any things must not be used in to the Erysipelas on the face.

Next we must come to resolving medicines; but it is good when any things must not be used in such an Erysipelas on the Face.

Also it is deadly when one becomes dumb and stupid, that is, Apoplexy by a strick or wound on the head; for it is a sign that not only the bone, but also the brain it self is hurt. But oftentimes the hurt of the brain proceeds so far, that from corruption it turns to a Sphacel, in which case they all have not only putrefies on their tongues, but some of them die stupid and mute, others even with a Convulsion of the opposite part; neither as yet I have observed any which have died with either of these symptoms, by reason of a wound in the head, who have not had the habit of their brain tainted with a Sphacel, as it hath appeared when their Skulls have been opened after their death.

CHAP. XI.

Why, when the Brain is hurt by a Wound of the Head, there may follow a Convulsion of the opposite part.

Any have to this day required, but as yet as far as I know it hath not been sufficiently explained, Why a Convulsion in wounds of the Head feizes on the part opposite to the blow, is therefore I have thought good to end that Controversie in this place. My reason is this, that kind of symptoms happens in the found part by reason of emptiness and dryness; but there is a twofold cause, and that wholly in the wounded part, of this emptiness and dryness of the found or opposite part, to wit, pain, and the concourse of the spirits and humours thither by the occasion of the wound, and by reason of the Pains drawing, and Natures violently sending help to the affeded part.

The found part exhaufted by this means both of the spirits and humours, easily falls into a Convulsion. For that Galen writes: God the Creator of Nature hath so knit together the triple substance of our bodies, with that tie and league of concord, by the production of the passages, to wit, of Nerves, Veins, and Arteries, that if one of these forfake any part, the rest presently neglect it, whereby it languishes, and by little and little dies 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 retaining safe and sound, might suffice for life and necessity: but I say this Axiom hath no truth in the vessel, for otherwise it should follow, by mollification, or obstruction, residing in either part of the Brain, shou'd infect together with it a Convulsion of the opposite part. Which notwithstanding, daily experiences convinceth us: Wherefore we must certainly think, that in Wounds of the Head wherein the Brain is hurt, that Ignation and want of nourishment are the caues that the found and opposite part suffer a Convulsion.

Francis Ddollachanthin in his French Chirurgery renders another reason of this question: That faith be the truth of this proposition may find him and ratified, we must first that the Convulsion of the opposite part mentioned by Hippocrates, doth then only happen, when by reason of the greatnes of the inflammation in the hurt part of the Brain, which hath already infected corruption, and a Gangrene to the Brain and Membranes thereof, and within a short time is ready to cause a Sphacel in the skull, that the Difcase must be terminated by death; for in this defined state of the Difcase, and these conditions, the fene and motion must necessarily perish in the afflicted part, as we do it happens in other Gangrene, through the extiction of the native heat. Besides, the putrefies of the animal spirit must necessarily be obstructed by the greatnes of such an inflammation or phlegmon, that it can no longer flow from the parts of the same side lying thereunder, and to the neighbouring parts of the Brain; and if it should flow thickly, it will be unprofitable to carry the strength and faculty of fene and motion, as that which is infected and changed by admixture of putrid and Gangrenous vapours. Whereby it cometh to pass, that the wounded part deforme of fene, is not thinned up to expel that which would be troublesome to it, if it had fene; wherefore neither are the Nerves there disturbed or fired upon, or connexed by a Convulsion.

The cure of Convulsion caused by Dryness.

A two-fold cause of Convulsion caused by Dryness.

A Convulsion caused by Dryness.
It furthermore comes to pass, that because the fame Nerves are deprived of the presence and comfort of the animal spirit, and in like manner the parts of the same aide, drawing from thence their senses and motion, are poffeffed with a Palfie; for a Palfie is caufed either by the cutting or obtuflion of a Nerve, or the madefaction, or mollification thereof, by a thin and watery humour, or fo affected by some vehement diftempers, that it cannot receive the animal spirit.

But for the opposite part and the Convulfion thereof, it is known and granted by all, that a Convulfion is caufed either by Repletion, which fcorches the Nerves by diffifting them into breadth; or by Inanition, when as the native and primitive heat of the Nerves being wanton, their proper fabflance becoming dry, is wrinkled up and contracted; or elfe it proceeds from the vellification and acrimony of some vapour, or fanguine and biting humour, or from vextation of pain. So we have known the Falling-dickes to be caufed by a vextate exhalation carried from the Foot to the Brain. Also we know that a Convulfion is caufed in the puncture of the Nerve, when as any acrid and fanguine humour is that up therein, the orifice thereof being clofed; but in Wounds of the Nerves, when any Nerve is half cut, there happens a Convulfion by the bitterness of the pain.

But verily in the opposite part, there are manifeftly two of thefe caufes of a Convulfion: that is to fay, a putrid and carnion-like vapour, exhaling from the hurt and gangrene part of the Brain; and alfo a virulent, acrid, and biting fanguine or falt sweatinf into the oppofite found part, from the affected and gangrenous, the malignity of which fanguine, Hippocrates defirous to declarife, reckoning up the defcription of a wounded head, hath expreffed it by the word labes; and in his Book of Fractures he hath called this humour Descrups et non Pyan, [that is, Weeping, and not digested.] Therefore it is no invariall, if the oppofite and found part endued with exquifite and perfecf fenfe, and offended by the flowing thereo might of the two virulent and fanguine mattering its own force, content and labour as much as it can, for the expellation that which is troubledthereo. This labouring or convulfion is followed as we fee in the Falling-dickes by a Convulfion, as that which is undertaken in vain, Death being now at hand, and Nature over-sued by the Difafe. Thus (faith Delews triumphis) must we in my judgment determine of that proportion of Hippocrates et Avicen.

But he adds further, in Wounds of the Head which are not deadly, Praditioners obferve that fome-times the hurt part is taken with a Palfie, and the found with a Convulfion; otherwailes on the contrary, the wounded part is feized by a Convulfion, and the found by a Palfie; otherwailes both of them by a Convulfion or Palfie, and fome-times the one of them by a Convulfion or Palfie, the other being fee from both affeets; the caufes of all which belong not to this place to explain. Thus much Deleus triumphs.

CHAP. XII.
A Conclusion of the deadly figns in the Wounds of the Head.

Now that we may return to our former Difcourfe, you may certainly fore-tell the Patient will die, when his reafon and judgment being perverted, he will tafk idly, when his memory fails him, when he cannot govern his tongue, when his fight grows dark and dim, or elfe he would caft himfelf headlong from his Bed, or elfe lies therein without any motion; when he hath a continual Fever with a Delirium, when the Tongue breafls out in Puflules, when it is chopt and become black by reafon of too much drinefs, when the Wound grows dry and the flowing thereto of both the vaporous and fanguine matter, using its own force, contend and labour as much as it can, for the expellation that which is troubled thereo. This labouring or convulfion is followed, as we fee in the Falling-dickes by a Convulfion, as that which is undertaken in vain, Death being now at hand, and Nature over-sued by the Difafe. Thus (faith Delews triumphis) must we in my judgment determine of that proportion of Hippocrates et Avicen.

The figns of a deadly wound from the depraved facufies of the mind.
From the habit of the body.
From the time that fuch figns appeare.

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Of the External Signs in Wounds of the Head.

When the Patient hath no Fever, is in his right mind, is well at the application or tacking of any things; sleeps well, hath his Belly soluble, the Wound looks with a fresh and lively colour, calls forth digested and laudable matter, the Crump-Masses hath its motion free and no way hindered. Yet we must note, which also is objected by the Ancients, and confirmed by experience, that we must think none pail danger, and free from all chance, until the hundredth day be past. Wherefore the Physician ought so long to have a care of his Patient, that is, to consider how he behaves and governs himself in meat, drink, sleep, venery, and other things.

But let the Patient diligently avoid to be made cold, for many when they have been cured of Wounds in the head, by carelesly taking cold have been brought into danger of their lives. Also you must know that the Galen, whereby the bones of the Skull are knit together, requires almost the space of forty or fifty days to its perfect conglutination and concretion. Though in very deed one cannot set down a certain number of days, by reason of the variety of bodies or temperaments: for it is easier trusted in young men, and more slowly in old: and thus much may serve for prognosticks. Now will we treat as briefly and perspicuously as we can of the cure both in general and particular; wherefore begin with the general, we will first prescribe a convenient Diet, by the moderate use of the six

The first cure must be to keep the Patient in a temperate air, and so be that he not feel of it self and its own proper nature, it must be corrected by Art. As in Winter he must have a clear fire made in his chamber, left the breath cause freezing and other accidents; and the windows and doors must be kept shut to hinder the approach of the cold air and wind. All the time the wound is kept open to be dress’d, some body banding by shall hold a Chasting-dish full of Coals, or a heated Iron bar over the wound, at such a distance, that a moderate heat may pass thence to the Wound; and the frigidity of the encompassing air may be corrected by the breathing of the stifled heat. For cold, according to the opinion of Hippocrates, is an Enemy to the Brain, Bones, Nerves, and spinal Marrows; it is also hurtful to Ulcers, by suppurating their excrements, which suppros them not only hinder suppuration, but also by corrobation makes them furious. Therefore Galen rightly admoniseth us, to keep cold from the Brain, not only in the time of trepaning, but also afterwards. For there can be no greater, nor more certain harm befall the fractured skull, than by letting the air be refrigerated, but if the Brain should be laid open to the air in the midst of Summer, when it is at the hottest, yet would it be refrigerated, and ulcers were relieved with hot things, take harm. This is the opinion of Galen, whereby you may understand that many who have their Skulls broken, die more through default of skill in the curing, than by the greatness of the fracture. When the Wound is bound up with the Pledgets, Cloth, and Rowlers, as is so, the air chance to be more hot than the Patient can well endure, let it be attended by sprinkling, and drawing the chamber with cold Waters, Oxycrate, the branches of Willows and Vine. Neither is it sufficient to keep the patient to use common Drug Powder, or Anniseed, Fennel-seed, or Coriander-comfits; alfo Conserve of Roles, or Marmalate of Quinces to shut up the orifice of the Ventricle, lest the head should be of the worse.

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When the fourteenth day is past, if neither a Fever, nor any thing else forbids, he may drink Wine moderately, and by little and little insinuate his diet, but that respectively to each one's nature, strength, and stature. He shall then, as much as is in him lies, sleep on the day time, unless it happens that a Pulse that feizes upon the Brain or the Meninges. For in this case it will be expedient to keep on the day time; especially from morning till noon, for in this season of the day, as also in the Spring, blood is predominant in the body, according to the opinion of Hippocrates. For it is so vaguely known, that it need not be spoken, that it is hot bloud, but on the contrary, by sleep it is called into the noble parts, the Heart and Liver.

Wherefore if that the blood by the force of the Sun, setting his beams upon the Earth at his rising is carried into the habit of the body, it should again be more and more diffused by the strength and motion of watching, the inflammation in the Brain and Meninges would be much excrescens. Wherefore it will be better, especially then to stay by sleep the violence of the blood running into the habit of the body, when it shall seem to rage and more violently to affect that way. Watching much in like manner be moderate, for too much depraves the temper of the Brain and of the habit of the whole body, it causes crudities, pains, and heavines of the head, and makes the wounds dry and malignant.

The diurnal watch curing deep time, especially from morning till noon, for in this season of the day, as also in the Spring, blood is predominant in the body, according to the opinion of Hippocrates. For it is so vaguely known, that it need not be spoken, that it is hot blood, but on the contrary, by sleep it is called into the noble parts, the Heart and Liver.

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Why deep upon the day time is good for the brain being inflamed.

The difcommodies en¬
fering from pro¬
tracted watch¬

Medicine pre¬
paring for deep sleep.

The com¬
modities of sleep.

Lib. 4, Mith.

Lib. de cur. per
fanguinis vel.

The ufe of
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A History.

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the same Subsitus yet considering the integrity and constancy of the strength of the Patient: I thought good to bleed him again, wherefore I drew from him fourteen Saucers at that one time, when I came to him the day after, and saw that neither the Fever nor any of the fore-mentioned symptoms were any whit remitted, or allaged, I forthwith took from him four Saucers more, which in all made two and twenty; the day following, when I had observed that the symptoms were any whit suffered, I durst not presume, by my own only advice, to let him the fourth time blood, as I desired. Wherefore I brought unto him that most famous Physician Doctor Methods, who as soon as he felt his pulse, knowing by the vehemency thereof, the strength of the Patient, and moreover considering the greatness of the inflammation and tumor, which it offered it to his sight, he bid me presently take out my Lancet and open a Vein. But I lingered on for purposes, and told him that he had already twenty-two Saucers of blood taken from him; then said he, grant it be so, and though more have been drawn yet must we not therefore desist from our enterprise, especially noting the two chief Indications of blood-letting: yet remaineth that is the greatness of the Diced, and the constant strength of the Patient. I being glad of this, took three Saucers more of blood, he bleeding by, and was ready to take more, but that he wished me to defer until the afternoon, wherefore returning after dinner I filled two Saucers more, so that in all, this young man to his great benefit, lost twenty-seven Saucers of blood at five times, within the space of 4 days. Now the ensuing night was very pleasant to him, the Fever let him about no more, the tumor grew much less, the heat of the inflammation was alleviated in all parts, except in his eye-lids, and the lips of his ears, which being ulcerated call forth a great quantity of Pus or matter. I have received this history purposely to take away the childish fear which many have to draw blood in the constant strength of the Patient, and that it might appear how speedily and certain a remedy it is, in inflammations of the head and brain.

Now to return from whence we digressed, you must note that nothing is so fruitful or in fractures and wounds of the head, as Venetry not only on that time the diced is present, but also long after the cure thereof. For great plenty of spirits are contained in a small quantity of feed, and the greatest part thereof flows from the Brain; hence therefore all the faculties, but chiefly the Animal, are resolved, whence I have divers times observed death to ensue in small wounds of the head, yea when they have been agglutinated and united. All passions of the mind must in like form be avoided, because by contraction and dilution of the spirits cause great trouble in the body and mind. Let a place be chosen for the performance of this act from such 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 nole increas pain, causes a Fever, and brings many other symptoms.

I remember when I was at Hifdin in the time that it was besieged by the forces of Charles the 5th, a History. that when the Wall was beaten with the Cannon, the noise of the Ordinance caused grievous torment to all the where which were sick, but especially those that were wounded on their heads, so that they would fay, that they thought at the discharging of every Cannon that they were cruelly struck with flaves on that part which was wounded, and verily their wounds were so angred herewith, that they blod much, and by their pain and Fevers increased, were forced with much fighting to breathe their life. Thus much may ferve to be spoken of the cure in general: now we will out of the monuments of Ancients, treat of the particular.

CHAP. XV.

Of the particular care of wounds of the head, and of the musculo Sign.

Let us begin with a simple wound, for whose cure the Chirurgeon must propose one only course, to wit, Muscle without on the wound piece the skull: but if it be compound, as many ways as it is complicated, so many indications dew themselves. In thieve, the chief care must be had of the more urgent order and cause.

Therefore if the wound shall be simple and superficial, then the hair must first be shaved away above a Plaftir applied made of the white of an Egg, Bole Armeniaca, and Aloes. The following day you must apply Espervas de Tana, or cilia de gentis Dr, until the wound be perfectly healed. But if it be deeper and penetrate even to the Pericornium, the Chirurgeon shall not do amiss, at the faced dressing he apply a digestive Medicin (as they call it) which may be made of Venice Turpentine, the yolks of Eggs, Oil of Roses, and a little Saffron, and that shall be used for long, until the wound come to maturation for then you must add Honey of Roses and Barley flour to the digestive. Hence must we pass to their Medicins, into whose composition no oily or unctious body enters, such as this: & Terebinths venes 3 j., frangula 5, pum. Aloes, Myrrh & Mathaba. an. 5 l. Let them all be incorporated and made into an unguent, which shall be perfectly regrown, then it must be cicatrized with this following Powder. & Aluminitis combustis, curantis granatum combustis. an. 3 l. Missescentia famil An. Eupatrichus. & fat arbicris: but if the Wound be so large that it require a future, it shall have so many fitches with Needles as need shall seem to require. Whereby I was at Hifdin, a certain Soldier, by falling of the Earth whilst he underminded, had the body.

Hairy Scalp so prefured down even to the Pericornium, and so wholly separated from the beginning of the hind-part of his head, even to his fore-head, 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 I might wash away the congealed blood mixed with the Earth, then I dried it with a wet linen cloth, and laid upon it Venice Turpentine mixed with a little Aqua Vitae, where I had dissolved force Sanguis Dracor- ris, Mathi and Aloes; then I restored the hanging skin to its former place, and there laid it with some fitches, being neither too thin, nor too close together, for fear of pain and inflammation, (which two chiefly happen whilst the Wound comes to suppuration) but only as much as should serve.
When we must not let blood in wounds.

A History.

The bittings of Beasts are very tormenting.

Syrupi rosaci.

A Cordial Epithema.

For which purpose allow this following Epithema to be applied to the region of her heart.

A soothing Footnotum.

The cure of the hairy scalp when it is inflamed.

A repelling Medicin.

A delicious Footnotum.

Cure of Ulcers.

Detective or cleaning Medicins.
Wounds of each part.

CHAP. XVI.

Of the particular care of a Fracture or broken Skull.

If the Skull be broken, so that it be needful to repain it, or to elevate and lift it up, or to deprive it away, the mucous skin being cut, as we formerly noted, the Periostium shall be plucked from the skull, as we said before; which because it can hardly be done without great pain, by reason of its exquisite fenfe, and connection with the Membranes of the Brain, we must labour to mitigate the pain for fear of inflammation and other accidents. Therefore the first dressing ended, and the corners of the Wound drawn each from others, at the second dressing put to the Wound a Digestive powder (as they term it) made of the Yolk of an Egg and Oil of Roses, but you must apply no humid thing to the bone, because we desire to keep it found and whole. For Galen opinion is, that bared bones must not be touched with unchoos'd things; but rather on the contrary, all dry things must be applied to them, which may confume the Superfluities humed. Therefore, we must by some lint and cephalick powders which hereafter describe, upon the bone we intend to preferve, and must have diligent care that it be not offended either by the air, or touch of humid Medicins. You must in Trepanning have a special care of the Crafts Mens. For I have often observed a great quantity of blood to have flowed from some broken Vessell which adhered to the second Table: whence must we presently and forthwith stay fuch bleeding, but suffer it to flow according to the plenitude and of blood to have flowed from some broken Vessel which adhered to the second Table: neither must things, for by their drinfe they confume the superfluous humidity. Therefore we must lay some lint and

Why the periostium hath such exquisite fenfe.

Gel. 6. n. ch. 6. The bones are offended with the application of humid things.

...
CHAP. XVII.

Why we use Trepanning in the Fractures of the Skull.

There are four causes of this remedy: The first is to raise up the depressed Bones, and take forth their fragments which press upon the Membranes, or also upon the substance of the Brain. The second is, that the time or matter may be evacuated, cleansed, waited, and dried up, which by the breaking of any vessel is poured forth upon the Membranes, whereby they, and not they only, but the Brain also is in a great danger of corruption. The third is, for the inter application of Medicines, convenient for the wound and fracture. The fourth is, that so we may have something whereby we may supply the defect of a repelling Ligature, and such a one as may hinder defluxions; for such a Ligature cannot take place here as it may in the other parts of the body, by reason of the sphericall or round figure of the head, which doth not easily admit binding; and that the dense and hard parts of the interposed Skull is a means that the vessels lying under it (by which usually the defluxion comes) cannot easily be bound with a rowler sufficiently to repel the running blood. And the external Vessels (to whom the force of the Ligature may come) cannot be bound without great pain, and danger of inflammation. For by such a compreッション the pulsation of the Arteries would be intercepted, and the efflux of the fuliginous excrements which seek to pass through the futures of the Skull, would be suppressed, by reason of the contraction of these futures.

Besides also, the blood would thus be forced from the wounded part without, to within into the Membranes and Brain, when pain, inflammation, a Fever, Abscess, Convulstion, Apoplexy, and lastly Death itself would ensue.

And these are the chief causes that Trepanning is necessary in fractures of the Skull, and not so in the fractures of other Bones.

But before you apply or put to your Trepan, the Patient must be fitly placed or seated, and a double cloth must be many times wrapped about his head, and then his head must be so laid, or pressèd upon a Cushion or Pillow, that when you come to your operation, it may not sink down any further, but remain firm and steady. Then you must stop the Patient's Ears with Cotton-wool, that so he may not hear the noise made by the Trepan, or any other Instrument.

But before you put to your Trepan, the bone must be pierced with an Instrument, having a tres-square point, that so it may be the more speedily and certainly perforated. The point thereof must be no bigger than the pin of a Trepan, that so the Trepan which is forthwith to be applied may stand the more firm, and not to play to and again in too wide a hole.

The shape of this Instrument is not much different from a Gimblet, but that the point is tres-square, and not twined like a screw, as you may perceive by this following figure.

A Gimblet or Piercer to perforate the Skull before the setting of the Trepan.
CHAP. XVIII.

A Description of Trepans.

Trepans are round Saws which cut the bone circularly, more or less according to their greatness; they must have a pin standing in the middle a little further out than their breadth to stay and hold fast the Trepans that it fix, neither to this side nor that, until it be cut, and you have cut through the first table at the least: then you must take forth the pin, left you prick or hurt the Crania Meninges. Wherefore when you have taken forth the pin, you may freely turn it about until you have cut through both the tables. Your Trepans must also have a cap, or somewhat to engirt or encompass them, lest no way hindered they cut more of the bone than we would; and in conclusion run into the Meninx. They must also be anointed with oil, that so they may cut more readily and gently; for thus Carpenters use to grease their Saws. But you must, during the time of the operation, often dip them in cold water, lest the bone by attrition become too hot: for all hard solid bodies by quick and often turning about, become hot, and the bone made more hot and dry, is altered and changeth its nature, so that after it is cut more off, its scales and falls away. Now you must know that the bone which is touched with the Trepans or the Air, always cuts off scales: for the frender helping forwards wherein, you must throw upon it powders made of Rocket, Briony, wild Cucumber, and Aristolochia-roots. When the bone is sufficiently scaled, let this following powder be put upon it, which hath a faculty to cover the bone with flesh, and to harden it with driness convenient to its kind. Re Pulsor, Iros Hyrica, Alces Man- nea sheva, Myrrha Aristolochia-an, 1. Flesh being by this means generated, let it be cicatrized by tying upon it the rinds of Pomegranates and Alum burnt.

Neither shall the Chirurgeon forcibly take away these scales, but commit that whole work to Nature, which often not to cut them off before that it hath generated flesh under them. For otherwise if he do any thing rashly, he brings new corruption to the bone; and therefore you must consider this, that the head is of a round figure, and also the Trepans cuts circularly, and therefore it is impossible to cut the bone so equally on every side, as if it were Trepaning performed upon a plain body. Furthermore the thicknes of the skull is not alike in all places, wherefore you must mark whether the Trepans go not more deep on one side than on the other which you may do by measuring it now and then with a Pin or Needle, and if you find that it is cut deeper on one side than on the other, you must press down the Trepans more powerfully upon the opposite part.

But seeing there are many sorts of Trepans invented and exprest by many men, yet if you weigh and rightly consider them all, you shall find none more safe, than that I invented and have here delineated. For it cannot pierce one jot further into the skull, than he pleases that uses it, and therefore it cannot hurt either the Meninges or the Brain. An iron head or cover, stays it a bar, that it can penetrate no further than you shall think it requisite. This head or cover is to be drawn up and down, and let higher and lower, as he which uses it shall think good, and so it will stay the Trepans that it shall not go a hair breadth beyond your intended depth. So that henceforthwards there shall be no Chirurgeon, howsoever ignorant in the performance of his Art, which by the benefit of such a Trepans may not perform this operation without any danger, or fear of danger, of touching the Vena Man- ten, the hurting whereof, puts the life in jeopardy.

The figure of one Trepans opened and taken in pieces.

A Shows the whole handle or Brace of the Trepans.
B The Cover or Cap of the Trepans.
C The ferrule.
D D The Screw-pins which hold and stay the ferrule and Trepans.
E The Trepans without its pin.
F The Trepans furnished with its pin.
G Another screw-pin which fastens the ferrule closer to the Trepans.
H The three-square point.

The figure of the same Trepans fitted and put together.

A Shows the whole handle or Brace of the Trepans.
B The Cover or Cap of the Trepans.
C The ferrule.
D D The Screw-pins which hold and stay the ferrule and Trepans.
E The Trepans without its pin.
F The Trepans furnished with its pin.
G Another screw-pin which fastens the ferrule closer to the Trepans.
H The three-square point.
Of Green and Bloudy

Book X.

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 Dr. Crook.

A Terebellum or Gimblet consisting of thee branches.

All these particulars of the Trepan taken together, 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 express, that is, by turning the point thereof into the hole made by the three-square pin, the handle of this instrument may also serve in stead of a Leveratory. When with the Gimblet you have drawn or taken forth part of the Skull which was cut away by the Trepan; if there shall be any sharp splinters in the second Table which may hurt and prick the Membrana when it is heaved up by the motion of the brain, they must be thaved away and planted with this Lentil-fashioned Scraper, being so called, because it hath the head thereof fannelled and smooth like a Lentil, lest being sharp it should hurt and prick the membrane in the smoothing thereof.

But if by reason of the thickness the Skull cannot be cut with the Lentil-like Scraper, you may use the cutting Scrapers and a Mallet. The Mallet must be of Lead, that to it may flake the Brain as little as may be. But you must diligently with your Mallets take forth the sharp splinters, and pieces of the Bone. But if the fractured part of the Skull be fuch, that it will not admit that Section which is requisite for the bared bone, as when the fracture is upon the temporal muscle, or at the futures, then in the head of one Trepan, two or three must be applied, if the necessity of the present cafe so require, and that within a very small compass; but they must not be applied to the fractured part, but nigh thereto, as we shall shew more at large in the following Chapter. But the Trepans shall be applied fo near to each other, that the ring of the second may be joined 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 three or each side; he that shall do otherwife shall tear in funder the nervous and membraneous fiders, and also the Veins and Arteries by which the Dura Mater is fastned to the Skull, and yields matter to the Pericranium. He which shall apply one Trepan, that is, but upon one side of the future, he shall not be able to get forth all the fanies which is fallen down on both sides by reason of the partition of the Crassa Meninx, which lies between and rises up by the future of the skull.

To conclude, when for what caufe soever we cannot make use of a Trepan, we may imploy this Instrument, if so be as much of the bone be bared as is needful. It is made in form of a pair of Compasses, and by means of a Screw may be opened, more or lefs, as you please. You as need shall square may change the points, and put other into their places, for they may be inserted to one side of the Compasses with a Screw.

A pair of cutting Compasses to cut forth the Skull.

A. Shows the one leg of the cutting Compasses, which as you carry is about, cuts the Scal.

B. The Screw, which fastens the point to the leg of the Compasses.

C. Two different points which may be screwed to the leg of the compass, as need shall require.

D. A great screw which fastens upon an Engraving, all which the one of the legs of the Compass running may be widened and fastened as you please.
Book X.

Wounds of each part.

A crooked iron plate fit to sustain and hold firmly one leg of the Compass upon the head.

Another pair of Compasses of the like nature and use, which may be widened and strained by a Screw.

Moreover it is fit that the one leg of such cutting Compasses should stand firm and steadily, whilst the other is drawn circularly to cut. Wherefore it is fit you have an iron plate made full of little holes, wherein you may firmly fasten that leg of the Compass, lest it waver 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.

CHAP. XIX.

Of the places of the Skull whereunto 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, lest by your weight severed from and pressing of the Trepan, you force it down upon the membrane. Secondly, you must not apply one to the fractured futures, for the reasons mentioned in the former Chapters. Thirdly, nor to that part of the forehead which is a little above the eye-brows, for those reasons we gave you before in the twelfth Chapter. For there is in that place under the first Table of the Skull it fell, a large cavity replenished with a certain white and tough humour, as also with a certain spirituous and airy substance, placed there by Nature, to prepare the air which ascends to the Brain by the Nostrils: unless the Chirurgeon observe and be mindful hereof, he may be deceived, supposing this cavity to be an Effulure of the Bone, and a depression thereof. Fourthly, neither in the lowest parts of the Skull, lest the marrowy substance of the Brain, by reason of its weight, should 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 solidity, to endure the impression of a Trepan. Sixthly, nor to the temples for reasons of the temporal muscle, the cutting whereof, in the opinion of Hippocrates, causes convulsion of the opposite part. For being cut awhirl it looses its proper action, that is, to move and lift up the lower Jaw; but then the opposite temporal muscle being whole and perfect, using its strength, (this Autognath suffering it, and not retaining 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 found part, the other being relieved according to Hippocrates his rule. For as often as the Muscles of one kind are equal in number, magnitude, and strength on each side, the resolution of Hippocr. the one part, causes the convulsion of the other.

Neither doth this danger alone arise from the cutting of the temporal muscle, but also another, which is, that this muscle when we eat and speak, as is to perpetual motion, whereby it comes to pass, that being once cut, it is scarce ever united again, besides the commissure or joining together of the thin bones, he under it. But by the second caution we are forbid to trepan upon the future, moreover, all the veins, arteries, and nerves are spread over the substance thereof; so that by cutting of them, there is danger of many and malign symptoms, as pain, inflammation, a Fever, a Convulsion not only of the part it fell, but also of the whole body, whence last death ensues. Wherefore let no Chirurgeon be so fool-hardy, as to attempt the cutting of this muscle, so to trepan upon the bone which lies under it; rather let him apply his trepan above it, or on the side thereof, or as near to the affected part as I can, as I did in a Gentleman called Monsieur de la Brevigné, He in the triumphant entrance of King Henry the second into the City of Paris, was so hurt with a stone, that the Os Petrosum, or sacle bone, was broken with the violence of the blow, and the temporal muscle was vehemently contused, yet without any wound. I being called the next day (viewing the manner of the hurt, and the
Of Green and Bloody

BOOK X.

Of the corruption and Caitsies, or rents and clefts of the Bones of the Head.

T

Here sometimes follows a corruption and Sphaeol of the fractured bones of the Skull upon wounds of the Head; which happens, either because they are touched by the air, which they are not fit for, or for that the sinews perceiving, and detained under them, both infected them with the putrefection, or by the cure unskillfully handled, they by the rath application of suppurring and oily Medicines becoming more moist, and so undergoing an unnatural change of their proper constitution and native temper, as we shall hereafter more at large when we shall treat of the nature of the Caitsies in the last course. We shall know this unnatural change and corruption, partly by the thicke, thick and slender, partly partly by putting down a Probe, when it meets with nothing smooth and slippery, but feels rough in many places, and besides also when it enters and easily penetrates with a small thrusting down into their substance, as if it were fanguineous. Yet this last sign may often deceive you, for I have divers times observed the thicke bone being bare and long fuddled the back of the air, so to become fo hard, that a Trepan would scarce pierce them; for it is putrid humidity which makes the bones falt and fanguineous, but

the condition of the wounded part, thought good to bring, some Physicians and Chirurgions with me to confer withal, of whom, when some thought it expedient presently to divide the temporal muscle, that turning the bone we might apply a Trepan, and to take forth the broken bones: I, on the contrary, began seriously till wideth that opinion, that since it depending upon Hippocrates, et libros de vulneribus Capitis, wherein Chirurgiums are forbidden to cut such muscles, for fear of the more mentioned symptoms; also I tried experience, then, how that I had often observed all this, the temporal muscle cut with a Convulsion, but that it should be best better, that near above the fracture the bone should be prepared, not touching the temporal muscle at all, if it could. While all of them at the last had it slashed, in my opinion, I distinctly divided the mucous skin which was over the upper part of the fracture a three-scored fathom: the day following, which was the third of his Diseases, I requested him, and after I had done, some few days after, I took out four fplinters of the broken bone; and I put in a plain leaden pipe, by which (I wishing the Patient ever when I drew him to hold down his head, to stop his mouth and his nose, and then drive as much as in him lay to put forth his breath) much fanguineous matter came forth, which was gathered between the Skull and Crania Meninx. Other fplinters which stuck more fast, I washed out with a detergent decoction, injected with such a Syringe as is here exprest; and I did so much, God blessing my endeavours, that at length he recovered.

A plain leaden pipe for to carry forth the Saries gathered under the Skull.

A little Syringe fit to make injections without.

The like chance and fortune befell Miguel de Pinot at the siege of Metz. For he, as he fought at the breach of the Wall, had his bone of his temples broken with a stone struck out of the adjacent Wall by a piece of Ordinance that from the Emperours camp, he presently fell down with the blow, and cast blood out of his mouth, nose, and ears, with much vomiting, and remaining dumb, and as it were, feareful almost fourteen days, so that he knew none of the by-standers. He had often palpitations, and convulsive twitchings, and his face was feareful. His first-head bone was trepanned at the hole of the temporal muscle by the hand of Peter Aubert the Kings Chirurgion: and although on the 25. day after first ensued with exquisite fainth grew out of the hole made with the Trepan, whole growth could not be hindered by Catharticke Powders, yet at the length he recovered. The Ancients called this kind of growing fainth, a Fungit [i.e. a Mulhrome] for that it is falt, and grows with a small root and broad top like a Mulhrome; but it increaseth and decreaseth, according to the plenty of the flowing matter, and indurity of the Chirurgion hindering by art the growth thereof. This fainth thinkes exceedingly, they commonly call it Ficus sani ties Fiacri [i.e. the Fig of S. Fiacri.]. This diseste commonly hath its original after this manner. Even as in the bodies of trees from the excrements of nourishment, a certain balf malart, gods and vicious humour flows through the bark, and gathered together by little and little grows into a Mulhrome: so blood melancholy both in temper and condition, springs from the broken veffels of the skull and Crania Meninx, which also is first sometimes by Nature for the necessary repairing the fainth in these parts, wherein a certain Fungit breeds, which in Galen opinion favours or partakes of the nature and condition of the parts to which it growth, though to general it be of the nature of malign Warts or Excrecence. But for to take away such Fungit, you must apply medicines which have a specifick faculty to waste fuperfluous flesh; such are thole which strongly dry, and gently waste and eat, such as this which follows. R Sabina 5.19. 3a. 3.1. pulvri tissete fluid folid, apergatur caro, excrefsentis. Oratile: R Hornsoul avoos cumhatoformis 5. 1. make a powder for the same. But if to be that this fanguineous flesh come to such growth, (as it often happens) as to equal the bigness of an Egg, it must be tied and strait twitched close to the root with a silken thread; and when it shall fall away by reason of this binding, the place must be fintered with the fore-mentioned Powders, for fo it will be more certainly cured than with more acrid Catharticke.
but the air by drying them exhausts this humidity, and bitterly dries it, whence follows such consumptive hardships. This sign will be far more certain, if the flesh which is grown upon the bone be more felt than in it, loose, and have little or no form of feeling. You may correct and amend this consumption of the bone with cauteries as well external as potential, or with powders of Alum, Gentian, Aristaudios, Centauries, Caro pia: as is Rueda's. Flor. Aristaudios. 3. 5. cent. or catozios 5. for Miles et fasti patis sedidentum exsurgundum. But if it be much corrupted, it must be scraped forth with your Scapone. And you must expect the falling or scaling of the corrupt bone from the flesh, and not forcibly procure it: for otherwise the found bone, which lies under it, being as yet covered with no flesh growing over it, would be corrupted by the appulse or touch of the air. Yet shall by little and little gently move and flake rotten bones with your Probe, that so they may more easily scale, and with less trouble to Nature. But note by the way, that the scaling of the bone which hath environed the Trepan, is commonly performed in the space of forty or fifty days. So long also will that caused by the sensual appulse or touch of the air, or application of a cautery, or the attrition of the Cephalick Powders besides also, in the same number of days broken bones may be united and joined together by a Collum, which is to them as a fast, yet sometimes sooner, somewhile later, according to the variety of the ages, tempers, and habits of the persons. But if the Carets or innermentioned either by those fore-mentioned remedies be overcome and amended, neither the lengthened continuance agglutinated or united, you must give the Patient a vulnerary Potion. The benefits of for bone I have found happy successes in many. But sometimes not only a certain portion of the bone is taken, but also the whole is often seated upon with a phial, and all falls out.

In Hippocrates opinion, Lib. de Patassium Corp. the bone of the Skull being broken, falls from the skull more loose, according to the violence of the blows which also is continued by experience. For which purpose I think good in this place to recite a History, whereof I was an eye-witness, whilst I served as a Chirurgeon in Piccardia, under the Marshal of Montaigne (who was the King's Lieutenant there). It happened that a Lacquey of Monsieur de Conti came to me to be cured, he had the left side of his head broken with a Stone, 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 pass that a company of Gascon Soldiers (his Country-men) came to thrive, with whom one morning he eat plentifully Tripe fried with Onions and Spices, and drank a great quantity of Stewing Wines. Whereupon he presently fell into a continual Fever and lost his Speech and understanding: his head swelled, his eyes looked red and fiery, and as though they would have flamed out of his head. Things being considered, I let him bleed, having with (by the Physicians advice) give him a Clyster, and applied to his head such things as were fit; and also I laboured with Friotions and Ligatures of the extreme parts, to draw the humours downwards, yet for all this the part of the head which was formerly affected began to appurten, which being opened, there came forth a great quantity of matter, and at the length the putrid skin and Pericranium linking down, both the Tables of the Scalp became putrid and rotten, as you might know by their blackness and stench. Now to take away this corruption, I applied at certain times afoe cauteries, both to amend the corruption and separate that which was altered: but mark, after some minutes space, a great number of Wounds came forth by the holes of the rotten bones from underneath the putrid Scalp, which moved me to hasten the separation and falling away of the putrid bones. Which being done, upon the very proper occasion, I cut a Grid of Movable, which is more strange, in that place which Nature had covered with flesh, I observed thereon cavities of the largeness of four thumbs filled with Wounds about the bigness of a points tag, with black heads, dully wrapped among themselves. The bone which Nature separated was of the bigness of the Palm of one hand, so that it was strange that so large a portion of the skull should be cut off by Nature, and yet the Patient not die thereof: for he recovered yet beyond all mens expectation, but after the agglutination of the wound the fear remained very hollow according to the decree of Hippocrates. For flesh doth not easily grow upon a Collum, because it is a thing strange and superfluous by Nature: besides, at a scare a thing more denser than the skin, so a Collum than the bone, that through the more compact substance thereof, the blood can neither freely nor plentifully force through for matter to regenerate flesh. Hence it is that wherefoever any portion of the skull is wanting, you may thereby, putting to of your hand perceive and feel the beating of the brain, wherefore the Skull must needs be much weaker in that place. Now to help this insufficiency, I wished this Lacquey to wear a Cap made of thick Leather, so more easily to withstand external injuries; and verify thereby he grew much better. Now I think good in this place to lay open the deceit and craft of some Impostors falsely filling themselves Chirurgues, when who are called to cure Wounds of the head, wherein any part of the skull is lost, persuade the Patient and his Friends that they must put a plate of Gold in the place of the skull which is wanting. Wherefore they hammer it in the presence of the Patient, and turn it divers ways and apply it to the part, the better to fix it; but presently after they forcibly carry it into their purses, and to leave the Patient thus coursed. Others brag that they are able to put the dried nidal of a Ground in the place of a lost bone, and fallen on to defend the part: and thus they greatly abusealso which are ignorant in the Art. For this is so far from being done, that Nature will not suffer nor endure so much as a hair, or any other small body, to be that up in a Wound when it is castreated y neither is the seaxon alike of a leaden plate which falls into the body there lies there for many years without any harm to the Patient: for although lead have a certain familiarity with Mans Body, yet it is an anchor (unlike the density of the opposed fish, ligament, tendon, or some other flesh like substance hinder) shall forth with Nature, impatient of all strange bodies. And thus much of the rottenness and corruption of fractured bones, now we speak of the discommodities which betake the Muscles by Wounds whereby the Skull is broken.

CHAP.
Any discomforts chiefly happen to the Crassa Mentis by a fracture of the skull, and rach
travailing thereof, for it sometimes chances to be cut and torn. Agglutination is a re-
medy for this disease, which Hippocrates would have to be procured with the juice of Nephae,
[that is, of that Calaminth, which finnels like Penny-royal] mixed with Barley-flour. In lead where-
of this following Powder having the like faculty, may take place.

Re Calaminth 3 jii. Myrrhis, Aloe, Mattiches, Sanguis Dracon. an. 3. fi. eris, sinsecolla, an. 3. fi. myr-
& flat patta salutit. But to purge the blood and matter which is gathered and lies between the
Crassa Mentis and skull, you shall put in a Tent made of a rag twined up some five or four double, and
fleree'd in Syrup of Rofes or Wormwood, and a little Aqua Vitae: for thus you shall presse down both
the Crassa Mentis, left lifted up by the accustomed and native pulsation of the Brain, it should be
burt by the edges of the Skull, yet rough by reason of the sharp Splinters of the bone lately trepaned,
and give free passage forth for the matter there contained. But as off as you shall des the Patient,
you shall renew the fore-mentioned Tent, until all the matter be purged forth. And so often also you
shall presse down with this following Infrument the Dura Mater, and bid the Patient to strive to put
forth his breath, flipping his mouth and nofe, that fo the matter may more easily be evacuated. This
Infrument wherein you shall hold down the Dura Mater, must have the end round, pollufa, and
smooth, as it is here express.

A fit Infrument to presse and hold down the Dura Mater, to make way for the passage forth
of the Saniies or Matter.

And let there be laid upon the Dura Mater-tissued, over with the for-
merly fore-mentioned Powder, a
sponge moistened and wrung forth of a
drying decoction made of ar-
matick and cephalick things, such as
this which follows. Re Fel, saltie, majo-rum, betonica, rof. rub. aloes. Myrillis, fumum chamum, melis,
fraxad, utrinque an. Mijii. rad. syphi, calami, aromat. tros, caraphyllates, angelica, an. 5. b. bullant
anama secondun artes cono aqua faucium & vino rubro, fiat die clai ad onam duflum. An in lead hereof
you may use Chlaret with a little Aqua Vitae, that fo the contained matter may be evacuated and died
up. A Sponge is fitter for this purpose to draw than a linen rag, or any other thing, both becaufe
it is good of it fell to draw forth the humidity, as also for that by its floffen it yields to the pulsation
of the Brain. Then apply to the Wound and all the adjoining parts, an Emplaifter
For, in
Hippocrates opinion, nothing which is any thing heavy or hard muft be applied to the wounds
of the head, neither muft be boud with too frail or hard a ligature, for fear of pain and infiam-
mation.

For Colon tolds (as he had it from Mantin) that a certain man had lost his eyes by infiamation
and impothenation, acting for that an Apothecary had used too fritile a ligature to his face and
for this fritile ligature fo preffed the futures, that the fuliginous vapours, which ufed to pass through
the was intercepted and hindered, by which means the pain and inflammation foincreafed, that
his eyes were rent and broke in funder and fell forth of their orbs. Wherefore Hippocrates tightly com-
news an indifferent ligature: also he fiftily with us to let the Empiocrates be fift which are ap-
plied, as also the cloaths wherewith it is bound up to be of fold or thin Linnen, or of Cot-
ton or Wool. When the Patient is in drifling, if there come much matter out of the Wound, you
shall pull him if he can, to lie upon the wound, and now and then by his to ftrive to (top
troublefom to him. You may with good fuccefs put upon the
Crassa Mentis Oil of Turpentine
with a small quantity of Aqua Vitae and a little Aloe and Saffron finely powdered, to cleanse or draw
forth the Sanies or Matter. Or if, Re Multis fojas, 5. fi. puree, branz, aloes, melis, &froes flou-
rentes, an. 3. fi. Aqua Vitae, purim; let them be incorporated together and make a delinient Medicin for
the aforesaid use.

Sometimes alfo the Crassa Mentis is infyled after Trepaning, and sotlven by a Phlegmus, that, im-
pairment of its place, it rifes out of the hole made by the Trepan, and lifteth felf much higher than the
skull, whence grievous symptoms follow. Wherefore to prevent death, of which then we ought to
be afraid, we must enlarge the former hole with our cutting Mullets, that the matter contained under
the Skull, by reason of whole quantity the membrane fwellis, may the more freely breathe and forth,
and then we must go about to be the percep, of the PHYSICIAN to lechim bleed again, to purge
and diet him. The infiamation fhall be ref tent by the application of contrary remedies, as this
following concoction. Re Sem. litt, altua, fyn. foful, refubr. an. 3. fi. lommi, plantag. an. Melilotus
in aqua sepolda communis, ex aqua fojas rcf. Antodyne and repelling Medicines fhall be dropped into his cars,
when it is exceedingly sotlven, that the tumor may fadifie, you shall call upon it the meal or flour
Dura Mater, or Vine leaves beaten with Goofe greafe. With all which remedies, if the tumor do not
vanish, and withall you conjecture that there is Pau or Matter contained therein, then you must open
through the Dura Mater with your inciſion-needles, holding the point upwards and outwards, for to the matter
will be poured forth and the substance of the Brain of that part not touched. Many other Chirurgians,
and I myfelf have done this in many Patients with various fuccefs. For it is better in deprecate cæfe

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G H A P. XXI.

Of the discomforts which happen to the Crassa Mentis by flrazions of the Skull.

Remedies for the lacerated Skull.

Lib. de fojas.

The discomforts of this ftrait bind-
ing of the head, what cloaths we must use. How the Patient muft lie in his bed.

Lib. de fojas.

Patches lib. 6.

Re Multis fojas, 5. fi. puree, branz, aloes, melis, &froes flou-
rentes, an. 3. fi. Aqua Vitae, purim; let them be incorporated together and make a delinient Medicin for
the aforesaid use.

Remedies for the inflam-
mation of the Crassa mentis.

How we must open the Crassa mentis, when it is im-
flammate.
Book X.

Wounds of each part.

to try a doubtful remedy when none at all, ito oft-times happens, whether by the violence of the contusion and blow, or concretion, or clotting of the blood which is cribed, or the appulse of the cold air, or the rash application of Medicines agreeing neither in temper nor complexion with the Crassa Mennae, or also by the putrefaction of the proper substance, that the Dura Mater it feI becomes black.

Of which symptom the Chirurgeon must have a great and special care.

Therefore that the may be taken away, caused by the vemey of the contusion, you shall put upon it oil of Eggs with a little Aqua Vitæ, and a small quantity of Saffron and Coral root in nice powders, and Vigo's Ceris formerly deftiled shall be applied. But if the harm come from congealed blood, you shall withhold it with this following remedy. R Aqua vitæ s iij. granum, sin-


tomum in tacemum pultorum tritum s ii. f. cerei s iii. Mælis refit s iij. f. feroceol, s iii. Leuiter & fumul bullant unnae, & de colatura infundatur, quamjunque nigritias furior delectentur. If this affect come by the mouch of the air, it shall be helped with this following remedy. R Turoh, sii. Mælis refit s iiij. Viætæm ex tumori, farina, boredi s iiij. cerei s ii. feroceol, s iii. ag. vij. s ii. incorporante manus, & bullantes bullium.

This remedy shall be used until the blackness be taken away, and the Membrane recover its proper colour.

But if this affect proceed from the rash use of Medicines, it must be helped by application of things contrary. For thus the offence caused by the too long use of morit and oily Medicines may be amended by using catarragmatic and cephalick powders, but the heat and biting of acrid Medicines shall be mitigated by the contrary use of gentle things: for both humid and acrid things somewhat long used, make the part look black: that truly, by generating and heating, up fifth: but this by the burning and hardening heat. But when such blackness proceeds from putrefaction, John de Vigo commends the following remedy. R Aqua Vitæ s iii. mælis refit s ii. pulvere, Mærum, s iii. ræne flagitantem bullant unna ad vnum diallum. Or, Aq. s ii. ol. cæliun am, s iii. augentem Ægyptiam, s iiij. feroceol, mælitum. ut in aliis bovt & aedifcri, s iiij bullant lecuter unnae manus, colatura ad vnum diallum. But the force of the putrefaction be so stubborn that it will not yield to these remedies, it will be helped with Ægyptians (made with Plantain Water in ftead of Vinegar) used alone by it self, or with the powder of Mercury made with Plantain Water in stead of Vinegar, used alone by itself, or mixt with the powder of Alum. Neither must we be afraid to use such remedies, especially in this extreme disease of the Dura Mater, for in Galen's opinion the Crassa Mænae, after the skull is prepared, delights in Medicines that are acrid, and their action is strong and very drying, especially if it have no Phelegum: and this for two reasons; the first is, for that hard and dry bodies, such as membranous bodies, are not easily affected, unless by strong Medicines: the other is, which must be the chief and prime care of the Physician, to preserve and reforme the native temper of the part by means of like temper to it. But if the auditory passage not only reach into the hard membranes of the Brain, but also touch the Nerve which descends into it from the Brain, suffer most vehement Medicines, though it be placed so near; certainly the Crassa Mænae will endure them far more easily and without harm. But if by these means the putrefaction be not restrained, and the tumor be increased so much, that the Dura Mater riling, far above the skull, remains unmovable, black and dry, and the Patient's eyes look fiery, and th' hole of his head and rowl up and down with unquietness and fill'd, then you must be afraid of the congealed blood, and membranes, of which if there be any great quantity, the case is almost desolate, unless Nature assisted with strong force, call it forth turned into Pus. But after a few days the Pus frons ex fora ond Vei may be opened, as also the Temporal Arteries, and Veins under the Tongue, that
A difficult foundation.

A caution in understanding the heads.

A description of Vigo's Com.

A History.


A History.

A History.

Vigo faith that one of the Duke of Urbain Gentlemen found the Urine here to his great good, he fell from his Horse with his head downwards upon hard Marble, he lay as if he had been dead, the blood goutt out of his nose, mouth, and ears, and all his face was swollen, and of a livid colour, in the Town of

nofe, mouth, or ears, I have obferved many who had the like happen to them.

but not fo in the Head, or Skull.

with a frafrure, and fo great an effracture of the bone, that the quantity of half a hafel Nut of the Brain came forth thereat. Which I obierving, pre-

myelfeantur fmul & fiat mixtura, qu£ erit inter formam emplajiri & ceroti.

with Sapari yet he recovered, but loft his memory, and faltered in his fpeach all his life after.

with Sugeris yet he recovered, but loft his memory, and faltered in his fpeech all his life after.

for fear of pain and inflammation. Then you fhall apply the Cerate of

certain fatty body. But I with ra-

of Green and Bloudy

Book X.

H

The conjunct matter may be drawn forth by fo many open paffages. In the mean fpace the Patient must keep a fpase diet, and abtain from Wine, especially until the 14. day, for that until that time the fatal symptoms commonly reigne.

when we muft come to difcoursing Medicines, beginning with the more mild, fuch as is this following decoction. R. Fad. Ath. 3. vil. fritis, cycuris, calamine, vin. 3. f. folfates, mayeron, fures, vin. 3. f., falici, an. 3. f. refuros, floridex, vin. 3. f. folfates, fatis, an. 3. f. fatis, an. 3. c. rem cures vin. rub. & aqua, fatis, an. 3. f. fatis, an. 3. c. rem cure in caps.

Let the head be wafted therewith twice a day with a Sponge. But yet when you do this, fee that the head be not too much heated by fuch a fomentation, or any fuch like thing, for fear of pain and inflammation. Then you fhall apply the Cerate of Vigo which hath power to difcours indifferently, to day, and draw forth the humour which are under the skull, and he by his aromatic force and power to confirm and strengthen the Brain it's thus described. R. Fau.fius bone

Lett the head be wafted therewith twice a day with a Sponge. But yet when you do this, fee that the head be not too much heated by fuch a fomentation, or any fuch like thing, for fear of pain and inflammation. Then you fhall apply the Cerate of Vigo which hath power to difcours indifferently, to day, and draw forth the humour which are under the skull, and he by his aromatic force and power to confirm and strengthen the Brain it's thus described. R. Fau.fius bone

there are the fame which are incident to the skull, that is, external. But this may be added to the kinds

in the opinion of Hippocrates, Thofe that have their Brain fliaken by wh^ which purp^ is that Aphorifm in

for the fecond, Galen affirms that he faw a Boy in Smyrna, that recovered a great wound of the Brain, but fuch an one as did not penetrate to any of the ventricles. But Guide of Che-

for all thofe which were prefent cried out, that my judgment was right of that fubftaiice that came forth of the skull. Yet though it was cut away, the Page recovered perfedly, but that he continued
treated of the Wounds of the Head by their caufes, figns, and cure, it follows that we

Vigea treated of the Wounds of the Head by their caufes, figns, and cure, it follows that we

Why can not be gener-

Why can not be gener-

Why can not be gener-

in particular of wounds of the Face.

the conjunct matter may be drawn forth by fo many open paffages. In the mean fpace the Patient must keep a fpase diet, and abtain from Wine, especially until the 14. day, for that until that time the fatal symptoms commonly reigne. But repelling Medicins muft be ufed until the 14-day be palt,

in the opinion of Hippocrates, Thofe that have their Brain fliaken by wh^ which purp^ is that Aphorifm in

for fear of pain and inflammation. Then you fhall apply the Cerate of Vigo which hath power to difcours indifferently, to day, and draw forth the humour which are under the skull, and he by his aromatic force and power to confirm and strengthen the Brain it's thus described. R. Fau.fius bone

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There appear no fign of frafrure in the skull: on the feventh day he fell into a great fweat with often

in the opinion of Hippocrates, Thofe that have their Brain fliaken by wh^ which purp^ is that Aphorifm in

in the opinion of Hippocrates, Thofe that have their Brain fliaken by wh^ which purp^ is that Aphorifm in

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for the fecond, Galen affirms that he faw a Boy in Smyrna of Toxias, that recovered a great
Wounds of each part.

Wounds of the Eye-brows.

Wherefore beginning at the Wounds of the Eye-brows, we will prosecute in order the Wounds of the other parts of the face.

This is chiefly to be observed in wounds of the Eyebrows, that they are oftimes cut over-throws, that the muscles, and fleshy pannicle which move and lift them up, are wholly rent and torn. In which case the eye-lids cannot be opened, and the eyes remain covered, and, as it were, that the hair and eyebrows grow up in the cases of their lids; fo that even after the agglutination of the Wound, if the Patient would look upon any thing, he is forced to hold up the eye-lids with his hands; with which incontinuity I have seen many troubled, yet oftimes not so much by the violence of the Wound, as the unskillfulness of the Chirurgeon who cured them, that is, by the negligent application of the boulders, an unskilful operation, and more unskillful future. In this case the skillful Chirurgeon, which is called to the Patient, shall cut off as much of the skin and fleshy pannicle as shall serve the eye-lids, that to them they may by their own strength hold and keep open, without the help of the hand: then shall few the Wound as it is fit, with fuch a baffle as the Furriers and Glovers have; and then he shall pour thereon some of the solemn of the description, and shall lay such a Medicin to the neighbouring parts. R: Olearifor. 3 i. aloetis comn. mix. i, bols acm. foyni. Dione, Majicb.ans. 5 j. aginuntur fummi, fum. medici. Then let the part be bound with a string ligature. Afterwards you shall use Empl. de gratia Dei, Empl. de Remis, Discalitio, or some other like, until the Wound be cicatriz'd. But fuch like, and all other Wounds of the Face may be easily healed, unless they either be associated with some malignant symptoms, or the Patients body be replie with ill humours.

There sometimes happen a quite contrary accident in Wounds of the Eye-brows, that is, when the eye-lids stick fud to open that the Patient is forced to keep eyes open; wherefore those which are too affected, are called by the Greek Lagophthalmi. The cause of this afflict is often internal, a cutaneous affections, or other kind of abfced, as a blow or frieze. It shall be cured by a crooked or fummer cutting up the eye-lids, but fuch, that the extremities of the fummer' body lie towards the inner part of the eye-lids, the further, putting it between them and the eye, and also keeping the Eye fuddly by gently pressing it, fo that with our fummer we may pull out the excreaneous body; this is the figure of fuch an Instrument.

The delineation of a Speculum Oculi, fit to dilate and hold afunder the Eye-lids, and keep the Eye fuddly: it is fo made, that it may be dilated and contrabald according to the greatnefs of the Eye.

All fummer bodies taken out, let this medicin be put into the Eye. Take the ftrains of a dozen Eggs, let them be beaten with a leaden Mortar, with a little Rose-water, and fo put into the Eye; but let this repercufive be laid upon the Eye, and then of a Woman which suckles a Girl (for that is reputed the cooleft) mitigates pain and troublesome to be put into the Eye. Take the ftrains of a dozen Eggs, let them be beaten with a leaden Mortar, with a little Rose-water, and fo put into the Eye.

Eye and the neighboring parts. R: Albumin. ovii. mix. iv. pulvere, albuminur acerbe combusf. j. j. aginuntur fummi, make a repercufive, which you may frequently apply. Or else apply Choffe-cards well wrung, mixed with Rose-water, the white of an Egg, and as much acini as shall suffice. This which followeth doth more powerfully than the flowing humour.

Divers repercufives to be applied to the Eye. Take the ftrains of a dozen Eggs, let them be beaten with a leaden Mortar, with a little Rose-water, and fo put into the Eye; but let this repercufive be laid upon the Eye, and then of a Woman which suckles a Girl (for that is reputed the cooleft) mitigates pain and troublesome to be put into the Eye. Take the ftrains of a dozen Eggs, let them be beaten with a leaden Mortar, with a little Rose-water, and so put into the Eye.

Eye. Things afflicting the Eye, have been collected, as also for that all actual cold things are hurtful to the eyes and finge, because they dull the light by incrustating the visible fpirits. For I have known many who have become blind by the frequent uing of Medicines actually cold to the eyes. I have on the contrary feen not a few, who have recovered with the uie of fuch like Medicins, who have had any part of their eye (fo it were not the pupilla or apple of the eye) so prick'd with a Needle or Bodkin, that much of the watery humour ran forth therefrom.

The milk of a Woman which suckles a Girl (fo that is reputed the cooleft) mitigates pain and troublesome to be put into the Eye, to which purpose also the blood of Turkes, or Clary, or Apple is useful.
A young Surgeon being deceived, determined to cut away this protruberance of the Adnata, as though it had been some superfluous flesh, and then to wafte it with cathartic Powders, had I not forbidden him, telling him of the certain danger of blindness which would thereupon befall the Patient. Wherefore I prescribed a Fomentation of Chamomill, Myrrhe, and Rose-leaves, Wormwood, Rose, Fennel and Anniseeds, boiled in Milk with the roots of Oris and Marigolds. Then I presently added this following Fomentation, being more powerful and dryning.

A dryning Fomentation.

Mix them for the forefaid ufe. The galls of Scates, Hares, and Partridges, dissolved in Eye-water, and Fennel Water, are fit for cleaning such Wounds as would this following Collyrium.  

Roast a new laid Egg in Embroc, until it be hard, then cut it open, take out the Yolk, and in place thereof put a temper of Roman Vitriol in fine Powder, then put vitel, ovorurft Carnis pomorum fub cinere calido deco&orum in aq. hordei extraS. an.  

A Medicine to confume a Flythy exceffion within without biting.

A young Surgeon being deceived, determined to cut away this protruberance of the Adnata, as though it had been some superfluous flesh, and then to wafte it with cathartic Powders, had I not forbidden him, telling him of the certain danger of blindness which would thereupon befall the Patient. Wherefore I prescribed a Fomentation of Chamomill, Myrrhe, and Rose-leaves, Wormwood, Rose, Fennel and Anniseeds, boiled in Milk with the roots of Oris and Marigolds. Then I presently added this following Fomentation, being more powerful and dryning.

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A Medicine to consume a Flythy excrescence within without biting.

A young Surgeon being deceived, determined to cut away this protruberance of the Adnata, as though it had been some superfluous flesh, and then to wafte it with cathartic Powders, had I not forbidden him, telling him of the certain danger of blindness which would thereupon befall the Patient. Wherefore I prescribed a Fomentation of Chamomill, Myrrhe, and Rose-leaves, Wormwood, Rose, Fennel and Anniseeds, boiled in Milk with the roots of Oris and Marigolds. Then I presently added this following Fomentation, being more powerful and dryning.

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A Figure of the Pincers, actual Country, and Needle, used in making a Seton.

holes made in the midst of them, that also the nerves being so twitched, the dolorish fins may the
left come to the part. The wound must be made or burnt in long-ways, and not thwarting that to
the matters may be the better evacuated by the fraught fibers. But the Cautery or hot Iron must have a
three or else a four-square point, and that sharp that so it may the more cally and speedily enter. Then
keeping the Pincers immovable, let him draw through the paffle made by the Cautery a needle
and thred with a three or four-doubled thred of Cotton (or rather a skean of Silk) moisted in the
white of an Egg and Oil of Roifes; then after you have applied pledgets dipped in the same Medicin,
bind up the part with a convenient ligature. The day following the neck must be anointed with
Oil of Roifes, and the pledgets dipped in the former Medicin applied for some days after. But it will
be convenient to moisten the Seton with a digestive made of the yolk of an Egg and oil of Roifes until
the Ucker calls forth much matters; then you shall anoint the Ucker thred with this following re¬
medy, &c. Terbiniates, ψ ψ, frons refa, & adhesīun an. ψ ψ, ἐστε, ἄσπρη, αγας τοιούτων, ψ ψ. An. ψ ψ, inrippetor omnia sūndum & flat medic. Which you shall use jo long as you intend to keep open
the Ucker. For it hath a faculty to draw the humors from the face, and cleanse without biting.

I have found not long since by experience, that the spation made with a long thick Triangular nec¬

CHAP. XXV.

Of Wounds of the Cheek:

Cheek seems to require a Suture, it must have a dry future (as they term the use of a
th t) left that the fear should become deformed. For that deformity is very grievous to many, dry future.

as to Women who are highly pleased with their beauties. Therefore you shall spread two piece
of new cloth of an indifferent fineness, and proportionable bigness with this ensuing Medicin.

R Palmaris Malachita, Sanguinis Draconis, Theoria, furce volatile, ἱπποκάτα τοπία, ὕππα, πίθος, ἔφημ. How to make
colla, α. α. τίοι νικρα, τί. ι. αλομίνα αυτόμα μεσα σίοις σύστασις, σίλια μισέοντιον. Apply the pieces of a dry future,

cloth spread with this, on each side of the Wound one, some fingers breadth allender, and let it alone
till it be hard dried to the skin. Then you shall draw them together with your Needle and thred,
that the fleam by their sticking may also follow, and be mutually adjointed, as you may fee it here ex¬
preft. The Wound shall be assimilated by this means, together with the use of it Medicins, Pled¬
gea, Ligatures. But all the Ligatures and days which shall be used for that purpofe, must be fastned
to the Patients night-lap.

But when the Wound is great and deep, and the lips thereof are much distant the one from the

other, there can be no use of such a dry future. Wherefore you must use a three or four-square Needle for bare-lips.
die (that so it may the more readily and cally enter into the feth) 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 wear the thred to and again over the ends thereof eight or ten times, just after
that manner which Women use to fasten a Needle with thred in it upon their sleeves, or Tailors to
their hats or caps, that they may not loses them.

The Needle thus fastned shall be there until the perfect assimilation of the Wound; this kind of
future is used in the wounds of the lips, as also in bare-lips, for so we commonly call lips which are
what bare¬
cleft from the first conformation in the Womb by the error of the forming faculty. But such a few
lips are.
A description of a small hole remaining after the cure of great wounds.

To this purpose I will recite a history, to the end, that if any such thing happen to come to your hands, you may do the like. A certain Gafcoign in the battle of Saint Lawrence had his upper jaw cut overhurt even to his mouth, to the great disfiguring of his face. The wound had many worms in it, and stank exceedingly, because he could get no Chirurgeon until three days after he was hurt. Wherefore I washed it with a decoction of Wormwood, Aloes, and a little Egyptianum.

The Figure of the future fit for cloven or hare-lips, as also the description of the needle about whose ends the thread is wrapped over and under, to and again, both to kill the Worms, and to fetch away all the putrid matter. I diffcurred the tumor with a dissolving fomentation and cataplasm, I joined together the lips of the Wound with the last described future. But I applied this following Medicin to the whole part: Re Terebinth, veneta 3 viij, gummi elemi 2 vij, pulvis belli armenii, fan. drac. Myrrhae, Aloes, m. 2 & incorporasse fumulato, fatis medicamentum. The wound was agglutinated within a few days, but that there remained a certain little hole at the joining of the lower Jaw with the upper, wherein you could scarce put the head of a pin, out whereof Nevertheless much fecrns and thin moisture flowed, especially when he either eat or spake, which I have also observed in many others. But for staying of this watery humidity I dropped Aqua fortis into the bottom of the ulcer, and divers times put therein a little of the powder of burnt Vitriol. Thus by God's grace he recovered and became whole.
Book X. Wounds of each Part.

Wounds of each Part.

Now, in the lower part of the Nofe, it may be faken, deprived and wattered alike, being it is gritty, but it cannot be broken, as the other which is of a bony Nature.

CHAP. XXVII. Of the Wounds of the Tongue.

The Tongue may be so wounded, that either it may be wholly cut off and deprived of some portion of the substance, or only cut long-ways, or athwart. The loss of the substance cannot be repaired, because every part separated and placed from the living body, from whence it had life, spirit, and blood, presents dies. For, as Philosophers say, a *præteritum ad habitationem nulli ratione incomprehensibile*.

But when it is cut or slit long-ways or side-ways, it is easily restored by future, if so be the claven part yet adhere to the living body from whence it may draw both matter and form of life. Therefore a careful surgeon shall firmly hold with a fott and clean linen cloth the body of the Tongue, lest it should slip away by reason of its slippery parts, whilst the Chirurgery flitches it above and below; when he thinks he hath sufficiently fewed it, let him cut off the third as near to the knot as he can, lett being left too long t might be tanged with the teeth as he eats, and cause a painful lancion or rending of the fewed parts. In the mean time let the Patient eat Barley-Creams, Almond-Milks, Gellies, Custardes, and Booths, and the yolks of Eggs, and let him often hold in his mouth Sugar of Rofes and Syrup of Quinces; for such things besides their nourishing Quality, perform the part of an agglutinating and detergent Medicin.

I have here set down, neither from my Masters whom I have heard with attention nor by reading of Books, but they have been such as I have tried with happy success in many,

CHAP. XXVIII. Of the Wounds of the Ears.

The Ears are sometimes wholly cut off, sometimes but in part, otherwise they are only slit, so that the most portion as yet adhering to the reft, is joined with it in communion of Life. In this last cafe it is fit to use a future, but yet so that you touch not the Griffe with your Needle, for thence there would be danger of a Gangrene, which happens to many by foolish curing, therefore you shall take up and comprehend with your Needle only the Skin, and that little flesh which encompasses the Griffe. You shall perform the reft of the cure with Pledges and Lignatures artificially fitted, and shall refift inflammation and other symptoms with fit Medicin. But you must take particular care that no fuperfluous flesh grow in the auditory passage, which may hinder the hearing, wherefore you shall keep that passage free by stopping it with a piece of fponge. But you shall procure agglutination and confolidation of the griffy part (and therefore use a bone moist dry) with dry Medicins. But thofe who have their Ears quite cut off, can do nothing but hide the deformity of their miftiap with a cap, stuffed with Cotton on that side.

CHAP. XXIX. Of the Wounds of the Neck and Throat.

The Wounds of the Neck and Throat are somewhat fimple, as tho’ which only ute the continuity of the Medicator otherwise compound, fuch as tho’ which have conjoint with them a fracture of the Bones, as of the *Verdace*, or hurt of the internal and external jugular Veins or fleepy Arteries; fometime the *Trachea Arteria*, or Weapon, and the *Ophipho-gus* or Gullet are wounded; fometime wholly cut off, whence offered death ensues. Wherefore lett not the Chirurgery mistake fuch Wounds, unlefs it be fure the danger of death, or the losf of fome moft of fuch Wound made to be fure. For it often happens that fome notable nerve or tendon is violated by a wound in the neck, whereby a fuch ensues, and that absolutely incurable, if the wound fhall penetrate to the spinal marrow, and hurt therewith. Wounds of the Gullet and Weapon are difficultly cured, because they are in perpetual motion; and chiefly of the latter, by reason it is gritty and without blood. The wound of the Gullet is known, by spitting of blood, by

By

The differenc of Wounds of the Neck and Threat.

The Parfle fay that upon Wounds of the Neck,
Signs that the Gullet is wounded.

The Wounds of the jugular Veins and sphyg Arteries are dead—by accident. 

The faculty of the wounded & Gullet may apply 

But if the Jugular Veins and Gullet are wounded, the Chimurgen shall few them up as neatly as he can; and the Patient be cut, let the bleeding be stayed, as we have shewed in a Chapter treating thereof. When the Wazon or Gullet are wounded, the Chimurgen shall few them up as neatly as he can; and the Patient shall not endeavour to swallow any hard thing, but be content to be fed with Gullies and Broths, 

If the wound be small, and not associated with the hurt of any notable vessel, or of the Wazon and Jugular Vein as also for that the rough Artery is obnoxious to the coat of the Gullet, because it was fallen down into the Stomach, then I bound up the Wound with Venice Turpentine mixed with Bole-Armenick, or else some of my Balsam, of which this the Receipt. 


Another History.

It is equally admirable is this History following. Two Englishmen walked out of the City of Paris for their Recreation to the Wood of Pincion, but one of them lying in wait to rob the other of his money, and a ruffian chain of Gold which he wore, set upon him at unawares, cut his throat and robbed him, and so left him amongst the Vines which were in the way supposing he had killed him, having with his Dagger cut the Wazon and Gullet. This Murderer came back to the City, the other half dead, crawled with much ado to a certain Perfons house, and being dragged with such Medicins as were prefect, and at hand, he was brought to the City, and by his acquaintance committed to my care to be cured. I at the first, as diligently as I could, fewed up the Wound with Medicins, Pleddges, and fr Ligatures. After he was thus freed, he began to speak, and tell the name of the Villain the author of this fact, so that he was taken and fined to the Wheel, and having his limbs broken, lost his wretched life, for the life of the innocent wounded man, which he had lost, which is, as it were, the Treasure of Nature; I told those who were prefect, that death was near and certainly at hand. And yet beyond expectation, rather by Divine Favour than our Art, he recovered his health.

The like hurt befell a certain German who lay at the house of one Penn, in the street of Notte, he being drunk and in the night cut his throat with a Sword: I being called in the Morning by his friends who went to see him, dress him just after the same manner as I diddress the Englishman. Wherefore he presently recovered his speech, which before could not utter one syllable, freed from suspicion of the crime and pricked the servant, who lying in the same Chamber with him, was upon suspicion committed to prison, and confessing the thing as it was done, lived four days after the Wound, being nourished with Broths put into his Fundament like Clysters, and with the grateful vapors of comfortable things, was nearly drawn out of the Oven and fford in strong Wine, I having thus by Art of Chimurgery made the dumb speak for the space of four days.
Book X.
Wounds of each Part.

Of the Wounds of the Chefs.

Some Wounds of the Chefs are on the front-side, some behind, some penetrate more deep, others enter not into the capacity thereof, others pierce even to the parts contained therein.

The different sorts of wounds in the Mediastinum, Lungs, Heart, Midriff, hollow Vein, and ascendant Artery. Othertome the Chief, puts quite through the body, whereby it happens that some are deadly, some not.

If you shall thus know that the wound penetrates into the capacity of the Chief, if that, when the Patient mouth and nose be shut, the breath or wind break through the wound with a noise, so that it may dissipate, or blow out a lighted Candle being held near it. If the Patient can scarce either draw, or put forth his breath, this also is a sign that there is some blood fallen down upon the Diaphragma.

By these signs you may know that the heart is wounded: If a great quantity of blood goeth out, if the pulse be little and faint, if the colour become pale, if cold sweat and frequent swooning affail him, and the extreme parts become cold, then death is at hand.

Yet when I was at Turia, I saw a certain Gentleman, who fighting a Duel with another, received a history, a wound under his left breast which pierced into the substance of his heart, yet for all that he struck some blows afterward, and followed his flying enemy some two hundred paces until he fell down dead upon the ground; having opened his body I found a wound in the substance of the heart, so large as would contain ones finger; there was only much blood poured forth upon the Midriff.

These are the signs that the Lungs are wounded, if the blood comes foamy or frothy out of the wounds, the Patient is troubled with a cough, he is also troubled with a great difficulty of breathing, and a pain in his side, which he formerly had not; he lies most at ease when he lies upon the wound, and sometimes it comes fo to pass, that lying so, he speaks more freely and easily, but turned on the contrary side, he presentely cannot speak.

When the Diaphragma or Midriff is wounded, the party afflicted is troubled with a weight or heaviness in that place, he is taken with a Delirium, or Raving, by reason of the sympathy of the Nerves of the sixth conjunction which are spread over the Midriff, difficulty of breathing, a cough and sharp pain troubles the Patient, the Guts are drawn upwards so that it sometimes happens by the vehemency of breathing, that the Stomach and Guts are drawn through the wound into the capacity of the Chefs, which thing I observed in two.

The one of these was a Mason, who was thrust through the midst of the Midriff, where it is necessary, and died the third day following. I opening his holler belly, and not finding his thorax, I found that a wound in the chest which was scarce an inch broad. But the thorax was full of wind, but little humidity in it.

The other was called Captain Francis d' Alou Native of Nuits-af, who before Relob was shot with a Musket Bullet, entering by the breast bone near to the sword-like Grille, and passing through the fifth part of the Midriff, went out at the place between the fifth and sixth bastard ribs. The wound was healed up on the outside, yet for all that there remained a weakness of the Stomach, whereupon a pain of the Guts like the Colick took him, especially in the Evening, and on the Night, for which cause he durst not lie but very sparingly. But on the eighth month after, the pain raging more violently in his belly than it was accustomed, he died, though for the mitigating thereof, Simon Medinon and Anthony du Vail, both learned Physicians, omitted no kind of remedy. The body of the deceased was opened by the skillful Chirurgeon James Guillemeau, who found a great portion of the Colick-gut swelled with much wind gotten into the Chefs through the wound of the Diaphragma, for all it was so small that you could scarce put your little finger in thereat. But now let us return from whence we digressed.

We understand that there is blood poured forth into the capacity of the Chefs by the difficulty of breathing, the vehemency of the increasing Fever, the finding of the breath, the ebbing up of blood at the mouth, and other symptoms which ordinarily happen to those who have putrefied and clotted blood poured out of the Veins into the Belly, infifting with the thirty vapors of the soul. But also, unless the Patient cannot lie upon his back, he is troubled with a desire to vomit, and covets now and then to rise, whence he often falls into a swoon, the vital faculty which suffilates the body being demolished and disintegrated both by reason of the wound, and concrete or clotted blood; for so putting on the quality of poison, it greatly dissipates and disolves the strength of the heart.

It is a sign, the spinal marrow is hurt, when a Convulsion or Pallie, that is, a sudden loss of sense and motion in the parts thereunder, an involuntary excretion of the Urine and other excretions, or a total suspension of them, free upon the Patient. When the yellow Veins and great Artery are wounded, the Patient will die in a little time, by reason of the sudden and abundant effusion of the blood and spirits, which intercepts the motion of the Lungs and Heart, whence the party dies suffocated.

Of the Cure of the Wounds of the Chefs.

We have read in John de Vigo, that it is disputed amongst Chirurgeons concerning the confection of wounds of the Chefs. For some think that such wounds must be closed up, and disinfected with all possible speed, lest the cold air come to the heart, and the vital spirits fly away and be dissipated. Others on the contrary think that such Wounds ought to be long kept open.
open; and sof if they be not sufficiently large of themselves that then they must be enlarged by Chirurgery, that so the blood poured forth into the capacity of the Cheft may have passage forth, which otherwise by delay would putrefy, whose would otherwise undergo the effects of the Fever, a Fistula, Ulcers, and other pæmorbid accidents. The first opinion is grounded upon Reason and Truth, if so be that there is little or no blood poured forth into the capacity of the Cheft. But the latter takes place when there is much more blood contained in the empty spaces of the Cheft. Which will kei. mself readily to determin,"think it not unfit to ratife each opinion with a flibole thereto agreeable.

Whilst I was at Tarin, Chirurgeon to the Marfhalf of Moghun, the King of Pranes his General, I had in cure a Soldier of Prance, whose name was Lawfum, he served under Captain Renouart. He had three wounds, but one more grievous than the reft, went under the right bref, somewhat deep into the capacity of the Cheft, whose much blood was poured forth upon the Midriaf, which caufed fuch difficulty of breathing, that it even took away the liberty of his fpeech; besides through this occafion he had a vehement Fever, coughed up blood, and a sharp pain on the wounded side. The Chirurgeon which firft dress’d him, had hid boun of the wound with a fraid and thick future, that nothing could flow thereat. But I being cal’d the day after, and weighing the prefent symptoms which threatned speedy death, judged that the fowing of the Wound muft right be loofed, which being done, there instantly appeared a clot of blood at the orifice thereof, which made me to caufe the Patient to lie half out of his bed, with his head downwards, and to fay his hands on a Seltte which was lower than the Bed, and keeping himself in this poffure, to that his mouth and nofe to fio his lungs shouldcfwell, the Midriaf be stretched forth, and the intercostal Mufcles and thfe of the Adomembe comprefled, that the blood poured into the Cheft might be evacuated by the wound: but alfo that this exercifion might fucced more happily, I thuff my finger more deeply into the wound, that I might open the orifice thereof being flipped up with the congealed blood; and certainly I drew out some felves or eight ounces of putrefayed and thinking blood by this means. When he was laid in his Bed, I caufed frequent infegraions to be made into the Wound of a decoction of Bittern, with Honey of Refes and red Sugar; which being injected, I thuff him to turn fiii firn on the one, and then on the other, and again to lie out of his bed as before: for thus he evacuated fo small, but very clofe clots ofbloud, 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 deferfion infegution, adding thereto Wormwood, Centaury, and Aloe; but fuch a balmef took fiae up to his mouth, together with a defire to defume it, that he could no longer endure it. Then it came into my mind that formerly I had obferved the like effect of the like remedy in the Hofpital of Prance, in one who had a hiftorius ulcer in his Cheft. Therefore when I had confidered with my fel that fuch bitter things may easfly pas into the Lungs, and fo may from thence rife into the Weazon and Mouth, I determined that thenceforwards I would never use fuch bitter things to my Patients, for the ufe of them is much more troublesome than any way good and advantagious. But at the length this Patient by this and the like means recovered his health beyond my expecation.

But on the contrary, I was cal’d on a time to a certain German Gentleman who was run with a Sword into the capacity of his Cheft: the neighbouring Chirurgeon had put a great tent into the Wound at the firft fielting, which I made to be taken forth, for that I certainly underftood there was no blood poured forth into the capacity of the Cheft, because the Patient had no Fever, no weight upon the Diaphragm, nor pufhed forth any bloud. Wherefore I cured him in few days by taking out fome feu or eight ounces of putrefayed bloud, which was inftantly appeared a clot of blood at the orifice thereof, which made me to caufe the Patient to lie half out of his bed, with his head downwards, and to fay his hands on a Seltte which was lower than the Bed, and keeping himself in this poffure, to that his mouth and nofe to fio his lungs should swell, the Midriaf be stretched forth, and the intercostal Mufcles and thfe of the Adomembe comprefled, that the blood poured into the Cheft might be evacuated by the wound: but alfo that this exercifion might fucced more happily, I thuff my finger more deeply into the wound, that I might open the orifice thereof being flipped up with the congealed blood; and certainly I drew out some felves or eight ounces of putrefayed and thinking blood by this means. When he was laid in his Bed, I caufed frequent infegraions to be made into the Wound of a decoction of Bittern, with Honey of Refes and red Sugar; which being injected, I thuff him to turn fiii firn on the one, and then on the other, and again to lie out of his bed as before: for thus he evacuated fo small, but very clofe clots of bloud, 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 deferfion infegution, adding thereto Wormwood, Centaury, and Aloe; but fuch a balmef took fiae up to his mouth, together with a defire to desume it, that he could no longer endure it. Then it came into my mind that formerly I had obferved the like effect of the like remedy in the Hofpital of Prance, in one who had a hiftorius ulcer in his Cheft. Therefore when I had confidered with my fel that fuch bitter things may easfly pas into the Lungs, and so may from thence rife into the Weazon and Mouth, I determined that thenceforwards I would never use fuch bitter things to my Patients, for the ufe of them is much more troublesome than any way good and advantagious. But at the length this Patient by this and the like means recovered his health beyond my expecation.

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blood defiled by the malignity and filth of the wound, is speedily corrupted: whereas it is that from the perpetual efflux of blood, there is a continual efflux of matter or filth, which at the hit brings a man to a consumptive, because the ulcerated part like a ravenous Wolf consumes more blood by the pain, heat, and motion than can be minimized thereto by the heart. Yet if there be any hope to cure and heal the Filitula, it shall be performed (after the use of diet and phlebotomy, according to the prescription of the Physician) by a vulnerary potion, which you shall find described when we treat of the Curae or rottenness of the bones. Wherefore you shall make frequent injections therewith into the Filitula, adding and mixing with it Syrup, de rose, fines, and mel rofanum. Neither do I, if the purgation be great, fear to mix therewith Aegyptiam. 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 again after it hath performed its detergent office. For if any thereof remain behind in the corners and crooked passages, it hurts the part, as corrupted with the contagion thereof.

After the injected liquor 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 to the filth may pass forth at them; it must be filled with brine, that it may not fall into the capacity of the Chefs. A great Sponge steeped in Aqua Vitæ and wrung forth again, shall be laid hot to the end or orifice thereof, both to hinder the entrance of the Air into the fistulous ulcer, as also to draw forth the filth there by its gentle heat. The thing the Patient shall much farther, if often-times both day and night be told his breaths, flopping his mouth and nose, and lying upon the diseased side, that so the pus may be the more forcibly ejected; neither must we leave the 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.

What wounds of the Lungs are curable.

The harm that ensues upon coughing, in Wounds of the Lungs.

The utility of Sugar of Roses in decorated or wounded Lungs.
The reason of the name.

A hectic Fever is so called, either for that it is flituous and hard to cure and bores, as things which have contrived a habit, for hecat in Greek signifies a habit; or else that it feizes upon the focal parts of our bodies called by the Greeks 

Habitus doth signify.

There are three kinds, or rather degrees of this Fever. The first is when the hecticke heat consumes the humidity of the focal parts. The second is, when it feizes upon the flitty fulminence. The third and most heinous is, when it destroys the focal parts themselves. For thus the flame of a Lampe ift waifes the Oil, then the proper moisture of the Wick. Which being done, there is no hope of light- ing it again, what there of Oil forever you pour upon it. This Fever very seldom breeds of it fell, but commonly follows after some other.

Whereas the cause of a Hective Fever, are steep and burning Fevers not well cured, especially if their heat were not reprefled with cooling Ephemerides applied to the heart and Hypochondria. If cold Water was not fitly drank. It may also alio occur a Diary Fever which hath been caufed and begun by some long great and vehement grief or anger, or some violent labour, which any of a tender and dry body hath performed in the hot Sun. It is also oft-times caufed by an ulcer or inflammation of the Lungs, an Entoptomy of the Cheft, by any great and long continuing Phthisem of the Liver, Stomach, Meansterny, Womb, Kidneys, Bladder, of the Guts Tympanum and Colon, and alio of the other Guts, if the Phthisem succede some long Diarrhoea, Leucorrhoea, or Bloody-flux, whence a Con- fumption of the whole body, and at hit a Hectick Fever, the heat becoming more acute, the moisture of the body being consumed.

This kind of Fever, as it is most easily to be known, is it most diftling to cure: the pulse in this Fever is hard, by reafon of the drinof of the Artery which is a focal part; and it is weak by reafon of the deblity of the vital faculty, the fulminence of the heart being affafted. But it is little and frequent because of the difflemper and heat of the heart, which for that it cannot by reafon of its weakness cause a great pulse to cool it self; it labours by the oftneffes to supply that deffict.

But for the pulse, it is a proper sign of this Fever, that one or two hours after meat the pulse feels stronger than iall: and then also there is a more acid heat over all the Patients body. The heat of this Fever is long, lastes until the nourifhenent be distributed over all the Patients body; in which is the drinof of the heart in some fort comtented and recrement by the appallfe of moift nourifhenent, the heat increafe nearly nowifi than Lime which a little before formed cold to the touch, but fpinkled and moified with water grows hot, as it fnows and boils up. At other times there is a perpetual exhalation of the heat, and palpable hands, troubled, obfcuritie, frequent vomiting, and defegregation, fo that the Patient cannot think himfelf to have a Fever, yea, he cannot complain of any thing, he feels no pain, which is another proper sign of an hecticke Fever. The cafe that the heat doth not flow it self is, it doth not poffefs the surface of the body, that is the spirits and hufmans, but lies as basted in the earthy gruufnes of the focal parts. Yet if you hold your hand somewhat long, you shall at hit perceive the heat more acid and biting, the way being opened thereto by the skin, rarified by the gentle touch of the warm and temperate hand. Wherefore if at any time in thefe kind of Fevers the Patient feel any pain, and perceive himself troubled with an inequality and excefs of heat, it is a sign that the hecticke Fever is not buft, and companied with a pufted Fever, which cen- feth fluch inequality, as the heat doth more or lefs feize upon matter fubjeft to putrefafion: fora therof actual equality, as the heat doth more or lefs feize upon matter fubjeft to putrefafion, for a hecticke Fever of it fell is void of all equality, unlefs it proceed from some external caufe, as from meat. Certainly if an Hippocrateke may be found in any difafe, it may in this, by reafon of the colliquation or wafting away the triple fulminence. In the cure of this Difeafe, you muff diligent- ly obferve with what affedts it is entangled, and whence it was caufed. Wherefore hee must know whether this Fever be a Difeafe, or a focal Symptom. For if it be fymptomatical, it cannot be cared as long as the Difeafe, the caufe thereof, remains uncured; as if an ulcer of the Guts occafioned by a Bloody-flux haile have caufed it, or a fefitious ulcer in the Cheft, caufed by some wound receiv'd on that part, it will never admit of cure, unless the ftitious or dyfenterick ulcer shall be cured, because the Difeafe feeds the Symptom, as the Caufe the Effect. But if it be a fimple and ef- fential hecticke, Fever, for that it hath its ellenfe confifing in an hot and dry diftemper, which is not fixed in the hufmans, but in the focal parts, all the counfel of the Phyfician muft be to renew the body, but not to purge it; for only the hufmans require purging, and not the defeufs of the focal parts. Therefore the focal parts muft be refrigerated and humeded, which we may do by Medicins taken inwardly and applied outwardly.

The things which may with good fuccefs be taken inwardly into the body for this purpofe, are Medicinal nourifhenements. For hence we shall find more certain and manifeft good, than from alter¬ ment Medicines, that is, wholly refrigerating and humeting without any manner of nourifhenent. For by reafon of that portion fit for nutriment which is therewith mixed, they are drawn and car- rid more powerfully to the parts; and alfo converted into their fubftance: whereby it comes to pafs that they do not burnnet and cool them lightly and superficially, like the Medicines which have onely power to alter and change the body, but they carry their qualities more throughly even into the innermost fulminence. Of thefe things some are Herbs, as Violets, Puris, Buglos, Endive, Ducks-meat, or Water-lentil, Mallows, efpecially when the belly haile be bound. Some are Fruits, as Gourds, Cucu- mers, Poppies, Berberies, Quinces. The Flowers of Buglos, Violets, Water-lillies, are alfo convenient for fecondion. For after the firft Codconion. For
For most in the beginning of the Disease, when the faculties are not too much debilitated, he shall use such as nourish much and long, though of hard digestion; such as the extreme parts of Beasts, as the feet of Calves, Hogs-feet not salted, the flesh of a Tortoise which hath lived so long in a Garden, as may suffice to digest the excremenitious humidity; such as the flesh of white Smalls, and such as have been garnished in a Vineyard, of Frogs, River-Cats, which are taken in clear Water, and well cooked, hard Eggs eaten with the juice of Sorrel without Spices, Whippings and Stock-sticks of meats, when they have a tough and glutinous juice, are easily put and gratified to the parts of our body, neither are they so easily disintegrated by the Feverish heat. But when the Patient languishes a long while, he must feed upon meats of ease digestion, and these boiled rather than roasted, for boiled means humect more, and roasted more easily turn into chyle. Wherefore he may use to eat Ven, Kid, Capon, Pullet, boiled with refrigerating and humecting herbs; he may also use Barley-corns, Almond-nuts, as also Bread crummed and moistened with Rose-water, and boiled in a decoction of the four cold Seeds with Sugar of Roses; for such a Panada cools the Liver, and the habit of the whole body, and nourisheth within. The Truffles, Wings, and Lives of young Cocks, as also Figs and Raisins. But if the Patient at length begin to grow and weary of boiled meats, then let him use roast, but so that he eat away the burnt and dried part thereof; and feed only on the in- part thereof, and that moistened in Rose-water, the juice of Citrons, Oranges, or Pomegranates. Let him abstinence from Salt and dry Fusties, and chose soft Fussels as live in many Waters for the exercise, they are forced to undergo in shaming the Rocks beaten upon by the Waters. After milk newly milked and feamos with a little Salt, Sugar, Honey or Fennel, that it may not corrupt nor grow fower, if in the stomach or Womans milk fucked from the Dog by the Patient, to the quantity of half a pint, is much commended; verify Woma's milk is the more wholesome, as that which is more sweet and familiar to our substance, if he be not the Nurse of a good temper and habit of body. For it is very good against the gravings of the Stomach, and ulcers of the Lungs, from whence a Cough is occasion oft proceeds. Let your Milk Afi be fed with Barley, Oats, Oafs-leaves; but if the Patient chance to be troubled with the Flux of the Belly, you shall make the milk somewhat affluent by glydying bolting it, and quenching therein Pebble-stones heated red hot. But for that all Natures cannot away with Afs milk, such as it abstinence from it, as it makes to have acid hickings in the breast; or breathing, a heat and rumbling in the Hypochondria and pains of the Head. Let the Patient temper his Wine with a little of the Waters of Lettuce, Purflan, and Water-LLies, but with much Bay.-Waters, both for that it renders it very much, as also for that it hath a speciick power to recreate the Heart, whole foldubstance in this kind of Disease is greatly affected. And thus much of things to be taken inwardly.

These things which are to be outwardly applied, are innumerous Baths, Epithems, Clysters. Incr- ements are divers, according to the various indications of the parts whereunto they are applied. For Guaiac annuls all the pain with cooling and moderate astringent things, as which may suffice to strengthen the parts and hinder their Waltering, and not let the transformation on it, for if it should be- ted, the heat would become more acrid by suppreffing the vapours. Oil of Rosens, Water-Lilies, Quinines, the meadles of Gum-tragacanth and Aralck extracted into Water of Night-charge, with some small quantity of Camphir, and a little Water it need require: but on the contrary, the parts of the Breft must be anointed with refrigerating and relaxing things by refrigerating. I mean things which moderately cool, is well hurtful to the Breast. But astringent things would hinder the motions of the Muscles of the Chief, and cause a difficulty of breathing. Such inundions may be made of Oil of Violets, Willows, of the Seeds of Almonds, and Flowers of Violets, and Night-charge Water. The use of fuch inundions, is to cool, humid and comfort the parts whereunto they are applied; they must be used in the Morning, and chiefly after a Bath. Now for Baths, we prescribe them either only to moisten, and then plain warm Water wherein the Flowers of Violets and Water-Lilies, Willow-leaves and Barly have been boiled, will be sufficient; or else not overly to moisten, but also to acquire them a fater and fuller bithness, and then you may add to your Bath the decoction of a Sheep's-head and Gather, with some Barley. But the Patient shall not enter into the Bath tatting, but after the first concodion of the Stomach, that to the next shall be drawn by the warmnes of the Bath into the whole habit of the Body. For otherwise he which is fick of a Coramation, and shall enter the Bath with his Stomach empty, shall suffer a greater dissipation of the triple fubftance, by the heat of the Bath, than his ftrengt 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 enollient Clyster, to evacuate the excremenitious bled in the guts by the he- click driers, then let him eat to his dinner some foldub substance about nine of the Clock, and let him drink about four of the Clock eat somewhat formerly, meats of ease digestion to his fitter. A little after midnight let him flipp off some Chicken-throath, or Barly-cream, or else two rich Eggs tempered with some Rose-water and Sugar of Roses in feed of Salte. Some four or five hours after, let him enter into the Bath, those things which I have set down being obwerved. When he comes out of the Bath, let him be dried and gently rubbed with fift fritten cloths, and anointed, as formerly prescrib'd, then let him sleep, if he can, for two or three hours in his bed: when he wakes, let him take some Pflan or fome fick like thing, and then repeat his Bath after the aforesaid manner. He shall often this Bath there in ten days. But if the Patient be fubject to cruditie of the stomach, or that he cannot fit in the Bath without fear of fwooning, and such symptoms, his Bath must he frengthened with Oil of Quinones, Wormwood and Matfich, or else with a crust of Bred toasted and steeped in Mainiaine, and Drewed over with the Powders of Roses, Sanders, and so laid to the formich, or behind near to

How Afs milk must be used in a he- 

A caution in the choice of Oil.

How to prepare the body for the Bath, Things to be outwardly ap- 

The differentiaes of Baths.
Ephemeris.

Of Green and Cloudy Epithems. - Which place Anatomy teaches that the mouth of the stomach lies, the Liver and Heart, to temper the too acrid heat of these parts and considerate without humecting things, but chiefly humecting; for too great coldness would hinder the penetration of the humidity into the part lying within. The Waters of Begonias and Violets, of each a quarter of a pound, with a little white Wine, is convenient for this purpose. But that which is made of French Early, the seeds of Grains, Tomatoes, or Cucumber, of each three drams in the decoction, and mixed with some with much tempering, with Oil of Ovles, or of Sweet Almonds, is most excellent of all other. Let cloths be dipped and dipped in such Ephemeris, and laid upon the part and renewed as oft as they become hot by the heat of the part. And because in hectic bodies, by reason of the weakness of the digestive faculty, many excrements are usually heaped up, and dried in the guts, it will be convenient all the time of the Diurese to use frequently Cythieris made of the decoction of cooling and humecting Herbs, Flowers and Seeds, wherein you shall dissolve Cafse, with Sugar and Oil of Ovles or Water-Lilies. But because there often happens very dangerous fluxes in a continued hectic Fever, which blow the decay of all the faculties of the body, and wasting of the corporal substance, you shall refresh them with refrigerating and allisting Medicines, and Meats of greater nourishment, as Rice, and Cereis, and application of astringent and strengthening remedies, and using the decoction of Oats or parched Bully, for drinks. Let the Patient be kept quiet and sleeping as much as may be, especially if he be a child. For this Fever frequently invades children by agues, great and long fit, or the too hot milk of the Nerves, over-heating in the Sun, the use of Wine, and other such like causes; they shall be kept in a hot and moist air, have another Nurse, and be anointed with Oil of Ovles; to conclude, you shall apply Medicines which are contrary to the morbid hectic caufe.

CHAP. XXXIII.

Of the Wounds of the Epigastrium and of the lower Belly.

T

The Wounds of the lower Belly are sometimes before, sometimes behind, some quite touch the surface thereof, others enter in; some palls quite through the Body, so that they often leave the Weapon therein; some happen without hurting the contained parts, others grievously offend these parts, the Liver, Splen, Stomach, Guts, Kidneys, Womb, Bladder, Lieters, and great offends these parts, the Liver, Splen, Stomach, Guts, Kidneys, Womb, Bladder, Lieters, and great offends these parts, the Liver, Splen, Stomach, Guts, Kidneys, Womb, Bladder, Lieters, and great offends these parts, the Liver, Splen, Stomach, Guts, Kidneys, Womb, Bladder, Lieters, and great offends these parts, the Liver, Splen, Stomach, Guts, Kidneys, Womb, Bladder, Lieters, and great offends these parts, the Liver, Splen, Stomach, Guts, Kidneys, Womb, Bladder, Lieters, and great wond of the Guts shall be hurt, the excrements come forth at the Wound: When the Splen is wounded there flows out thick and black blood, the Patient is oppressed with thirst, and the water troubles the Patient whostate wounds are wounded, blood is piped forth with the Urin, and he hath a pain stretched to his groins and the regions of the Bladder and Testicles.

The Bladder or Uterus being wounded, the flanks are pained, and there is a Tension of the Pileus, or Ovles, Blood is made in lieu of Urin, or else the Urin 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 sympotms are like those of the Bladder.

The Wounds of the Liver are deadly, for this part is the Work-houfe of the Blood, wherefore necessary for life; besides, by Wounds of the Liver the branches of the Gate or hollow Vains are cut, whence enters a great flux of blood not only inwardly, but also outwardly, and consequentlly a distillation of the spirits and strength.

But the blood which is fled inwardly among the Bowels putrides and corrupts, whence follows Pain, a Fever, Inflammation, and Iaft Death. Yet Panta Legeta writes that the lofe of the Liver may be cut away without necessary consequence of death. Alto the Wounds of the Ventricle and of the small Guts, but chiefly of the Jejunum, are deadly; for many Veilis run to the Jejunum or empty the bladder of the Galt. So also the Wounds of the Splen, Kidneys, Uterus, Bladder, Womb, and Gall, are commonly deadly, but always ill, for that the actions of such parts are necessary for life, besides devours of the, are without blood and nervous, others of them receive the most 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, for the ecompassing, and new air entering in amongst the Bowels, greatly hurts them, as never used to the feeling thereof; add herein that all the wounds of the organ of the spirits which much weakens the strength. Neither can the fifth of such Wounds be waited away according to the mind of the Chirurgeon, whereby it happens they divers times turn into Fistulæ, as we saw in Wounds of the Chest, and so by length by collection of matter causeth death. Yet I have dreed many, who by Gods assistance and favour have recovered of Wounds putting quite through their bodies.

I can bring to a witness the Steward of the Portugue Embassador, whom I cured at Melos of a Wound made with a Sword; running through the body, that a great quantity of excrements came forth of the wounded Guts as he was a drifling, yet he recovered.
Not long ago Giles le Maijire, a Gentleman of Paris was run over through the body with a Rapi-
ner, so that he bled much blood at his mouth and fundament divers days together, whereby you know the guts were wounded; and yet he was healed in twenty days. In like fort the wounds of the greater vehicles are mortal, by reason of the great effusion of blood and spirits which issues thereupon.

CHAP. XXXIV.

The care of Wounds of the lower Belly.

The first cogitation in cureing of these wounds ought to be, whether they pierce into the cap-

The cure of a wounded gut.

acity of the belly, so that what passes no further than the Peritoneum shall be cured like

improper fimple wounds which only require union. But those which enter into the capacity

must be cured after another manner. For oft-times the kall, or guts, or both, fall forth at

them.

A gut which is wounded must be fowed up with such a tear as Furriers or Glorvers use, as we

formerly told you; and then you must put upon it a powder made of Mytzch, Myrrh, Aces and

Belle. Being lowered up, it must not be put up boisterously 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 returning of the fall-down gut, and so on the contrary. If the lower part of the

guts being wounded slide through the wound, then the Patient shall lie with his head 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 downwards, by such a fite, may give way to those which are

take out through the wound. But often in this case, the guts: having taken cold by the excom-

purging air, swell up and are assisted with wind, which you must dismoft before you put them

into their place, with a Fomentation of the decoction of Camomill, Mellott, Aniseed, and Fennel,

applied with a sponge, or contained in a bladder; or else with Chickens, or Whelps cut alive in the

mutil and laid upon the swelling; for thus, they do not only diffuse the flatulence, but also con-

fort the afflicted part. But if the inflation cannot thus be diffus’d, the wound shall be dilated, that

so the guts may return the more freely to their place.

If the kall fall out, it must be speedily restored to its place, for it is very subjeft to putrefaction

for the flat, whereas for the most part it consists, being exposed to the air, easily loses its native

heat, which is small and weak, whereas a mortification ensues. Hence is that of Hippocrates? If the

gut fall out, it necessarily putrefies. The Chirurgeon shall know whether it putrefies, or not, by the

blackness and the coldness you may perceive by touching it; neither must you when it putrefies, pre-

ferly remove it to its place, tor to the contagion of the putrefaction would spread to the rest of the

parts: But whatsoever thereof is putrefied shall be fetched and bound hard with a string; and so

cut off, and the rest restored to its proper place: but its good after cutting of it away, to leave

the string hanging thereat, that so you may pluck and draw forth whatsoever thereof stay

by being too taut bound, fall away into the capacity of the belly. Some think it better to let

the kall that hung bhang forth until that portion thereof which is putrefied fall away of itself, and

not to cut it off. But they are much deceived; for it hanging thus would not cover the guts;

which is the proper place. The guts and kall being put up, if the wound be great and worth-

speaking of, it must be fowed with that future which is termed Gastropharia; but this kind of fature

is thus made. The needle with the ftit in mutl only take hold of the Peritoneum, and

then on the opposite fade only of the flat, letting the Peritoneum alone, and go along putting

the needle from without inwards, and from within outwards, but so that you only take the mullo-

rous fhell and skin over it, and then only the Peritoneum, until you have fowed up all the wound.

He which doth otherwise will undergo this danger, that whereas the coat Peritoneum is of it felt

without blood, it being divided, or wounded, cannot of it felt be united to it felt, therefore it re-

quires an interfut of fhell: Otherwise unless it be thus united by the benefit of the fhell inter-

mixed thewherewith, there would remain an incurable tumor after this is cafed on the om'

the wound. But that which we said before, according to Caelus’s mind, that all the wounds must be fowed, it is Ueb. 6. f. That

is not to be taken, as if that the wound must be fowed up to the very end for in the lower part of

the wound there must be left a certain fhell veft by which the quittance may pass forth, which be-

being wholly cleaned and exhausted, the wound must be quite healed up. But the wounds which

shall penetrate into the substance of the liver, spleen, ventricles, and other bowels, the Chirurge-

on shall not fuffer them to be without medicines, as if they were desperate, but he shall fpare neither

labour nor care to dress them diligently. For doubtful hope is better than certain despair. The blad-

der, womb and right gut being wounded, detergent and astringent injections shall be put up by

their proper passages. I have read nothing as yet in any Author of the wounds of the flat for all

of them refer the cure thereof to the wounds of the mufcles. Yet I will fay this by the way, that

The care of wounds of the flat, how deep heer they be, if they be onlyimple, may be dress’d without put the wound

then in of any tent, but only dropping in some of my Balm, and then laying upon it plaister of

Grana, or some fuch like: for so they will heal in a short time.
Of the Wounds of the Groins, Tard, and Testicles.

When the groins and neighbouring parts are wounded, we must first consider whether they pierce to within: And if they do penetrate, to what inward parts they come, whether to the bladder, the womb, or right galls: for these parts are such near neighbours that oft-times they are all wounded with one blow. But for the wounds of the tafcles and genital parts, because they are necessary instruments for the preserving the Sperme by generation of a descendance of Individuals, and to keep all things quiet at home, therefore the Chirurgen ought to be very diligent and careful for their preservation. Wherefore if they should chance at any time to be wounded, they shall be dressed, as we have formerly delivered, the medicines being varied according to the date of the wound, and the appearing and happening symptoms: For it would be a thing of immense labour to handle all things in particular.

Of the Wounds of the Thighs and Legs.

Wounds which have been received on the inside of the thighs, have often caused sudden death, if they have come to the vein Saphena, or the great artery, or the nerves, the affocations of these vessels. But when they are simple, there is nothing which may alter the usual manner of cure. Yet the Patient must be careful to lie in 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 leg on the bed.] But when they penetrate more deeply into the substance of the part, they bring horrible and loathing symptoms, as inflammation, to abscesses, from whence oft-times such abundance of matter issues forth, that the Patient falls into an Atrophia and Consumption. Wherefore such wounds and ulcers require a careful and industrious Chirurgen, who may make Incisions necessary for the corrupt parts, and callancy of the fudorous ulcer. Some Chirurgians have been so bold as to draw together the end of the tendons of the ham, and of other joints, when they have been quite cut atunder. But I durst never attempt it for fear of pain, convulsions, and the like symptoms arising. For the wounds of that large tendon which is composed in the calf of the leg by the concourse of the three muscles, and goes to the heel, I have observed that when it hath been cut with a Sword, that the wounds have been long and hard to cure and besides, when at the least they have been healed, as soon as the Patient hath got out of his bed, and endeavoured to go, they have grown ill and broke open again. Wherefore in such like wounds let the Patient have a care, that he begin not to go, or too boldly to use his hurt leg before it be perfectly healed up.

Of the Wounds of the Nerves and nervous parts.

The continuity of the nervous parts is divers ways loosed by the violent incurion of external things: as by things which confute, batter, and grind in funder, as by the blow of a stone, cudgel, hammer, lance, bullet out of a Gun or Cross-bow: by the biting of greater teeth than the pricking of some thorp thiny thing, as a needle, bedkin, pen-knife, arrow, splinter, or the puncture of some venemous 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 atunder the nervous bodies. Hence therefore it is, that of such wounds some are simple, others compound, and the compound, some more compound than other. Some of these are superficial, and there, others deep and longs, some run along the nervous body, others run broad-ways, some cut the part atunder, others only a portion thereof. The symptoms which follow upon such wounds are, velematic pain, and defquamation, inflammation, abscesses, fever, dizziness, swooning, convulsion, gangrene, afeblentia, whereby the nervous parts have with the brain: Amongst all the wounds of the nervous parts, there is none more to be feared than a puncture, or prick, now any which caueth more cruel and dangerous symptoms. For by reason of the situation of the wound, medicines can neither be put in, nor the famous matter pass forth, now the fudious matter being long lay retains its virundity, whereby the nervous parts are tainted and caueth great pain and convulsion by sympathetic. The truth hereof is evident in wounds of the head, as when the Pericranium is cut atunder, or when it is cut to apply a Tegnap. For the cutting thereof injures for greater pains, than when it is cut quite atunder. Wherefore if it is fter to have the nervous body quite cut off, for to let it have no community, nor conference with the upper parts, neither doth it labour, or strive, to retell the contraction of its felf, now this constancy, and as it were rих, is the caufe of pain, yet these affires another misfery from such a wound, for the part whereunto the nerve which is thus cut inferius falls, thence forwards keers its action.
Book X.

Wounds of each Part.

CHAP. XXXVIII.

Of the cure of Wounds of the nervous parts.

To the ancient Doctrine of the ancient Physicians, that the wounds of the nervous parts should not pretend to be agglutinated (which notwithstanding the general and suit indication, usually taken from the solution of continuity, requires) but rather, directly if they be too great, that the punctures should be dilated, by cutting the parts which are above them, and let them be kept long open, that the film may put itself fresh, and the medicine canst well in. Yet I in many cases have not followed this counsel, but rather that which the common indication requires.

That cure in dry flux that I performed upon Moniteur le Coq, a Preceptor of the Spiritual Court, who dwelt in our Latines-forest; he gathering and binding up some bole Paperis, ran a Pip-sword which was hid amongst them, through his hand. Alto one of his neighbours who went to epica piece of Beef, thrust the dart through the midst of his hand; But I prefiguously agglutinated both their wounds, without any danger, dropping presently in at the first draught of a little of that warm, and putting about it a repelling and alluring medicine and by them these were both of them healed in a short time, no symptom thereupon happening. Yet I would not have the young Chirurgeon to run this hazard; For first, he must be well practiced and accustomed to know the temper and habit of men; for this manner of curing will not do well in a plebechon body, or in a body replete with ill humors, or imbued with exquisite fevers. Therefore in such a case it will be false to follow the course hither down. For wounds of the nerves do not only differ from other wounds, but also among themselves in manner of curing. For although all medicines which draw from, and waste fainious humors, may be expected good for the wounds of the nerves, yet those which must be applied to punctures, and to those nerves which are not wholly laid open, ought to be far more powerful, sharp and dry, yet so that they be not without bitings, that do penetrating more deep, they may draw forth the matter, or else consume and dissolve that which comes not forth. For first, you must familiar your swords with sufficient force of medicines good for the nerves howsoever pricked. As & Terebenth. vin. & olei etri an. 2. Aqua vite proprium. Or & olei Terebenth. 3. & aqua vitae. 3. & expor. 3. & Or. & radice Dramatica, Bronte, Fadica & Gentiane, capharica, & in pellucem redditis, mifta cito desinunt, an oleosum acqua aestri: drop hereof warm into the wound as much as shall suffice. Let the put some Hogs, Gojes, Capons, or Bears Grease, old Oyl, Oyl of Lilies, or the like, to Calamine, pure Oleum, equinoctial dellecementum, followed in Aqua vitea & strong Vinegar. Or, & olei hypericam, Jambas, & de acido bohio an. 3. Sulphuris nitri fudatorium, & c. A. tinct. 5. & b. & g. gumminum, oblitell, an. 3. & A. tinct. h. 2. & c. Penetrum tereb. preparat. 3. b. distillatum omnium ad conflumansez acetis. Let as much hereof as shall suffice be dropped into the wound; then apply this following Cerate, which draws very powerfully. & Olei fipis-secus an. 4. Terebenth. secet. 3. & exsolutis alli cum gummi, 3. & ammonium, belletii in aces effigientia, an. 3. & expor. pena guma, penis novellat. an. 3. & rev. quad suffus, fat ceratun suis. We must use some whiles one, some whiles another of these medicines in punctures of the nerves with choice and judgment, according to their conditions, matter, depth, and that which draws very powerful. So in the most grievous pains of rotten teeth, the tragedy of an hot iron into their roots, or dropping them with cotton dipped in Oyl of Viridif, or aqua vitae, gives most certain ease; for by burning the nerve which is infected into their roots, the end, and consequently, the pain it takes away. So in malignancy, growing, eating and spreading ulcers, which are always associated with much pain, the pain ceases by applying an Elcharum, or the powder of Alum or Mercury, or Hygromias made some what more strong than usual. That the young Chirurgeon may be more ready for this practice and the use of the former medicines, I have thought good to infer the following History, both for the laceriments of the things, and pleasing memory of the most laudable Prince. Clarke the mind's, the French King, being sick of a Fever, Moniteur Choupinet and Califfian his Physicians thought it fit he should be luted; for the performance whereby, there was called a Chirurgeon wondrous famous for this, he were led, but when he by chance had picked a nerve instead of a vein, the King cried out, that he felt a mighty pain in that place. Then I bid, that the ligature should straight-ways be loosened, otherwise the arm would presently be much fwell. But he going slowly about it, behold the arm began to swell with such contradiction, that he could not bend it; nor put it forth, and cruel pain molest not only the picked particle, but all the whole membrane besides. I forthwith had upon the wound a plaster of Balsam, to hinder the agglutination thereof, and then I wrapped all the arm in a double linen cloth dipped in Oxyxate, putting upon it an expulsive ligature, which beginning at the wrist and ending at the top of the thumb, might keep the blood and spirits from fear of delusion and inflammation. This being thus performed, we went aside to consult what was necessary to be done, both to sove the pain, as to divert the other symptoms, which usually happen upon punctures of the nerves. I being desired, that delivered my opinion, that in my mind, there were nothing better, then presently to drop into the wound some Oyl of Terebenthine warmed and mixed with a little aqua vitae. And then all the arm thridle be covered with a plaster of Distilatior dissolvit in Vinegar and

A a 2

Or.
Oyl of Roses, bound over and before with the expulsive ligature, which we formerly mentioned. For the Oyl and Aqua tuae have a faculty to penetrate into the bottom of the wound, and to exhaust and dry up the frous and vitulent humor, which sweats from the substance of the pricked nerve; and all to mitigate the pain by its actual heat. Furthermore, emplastic Desiccatio hath a faculty to dissolve the humor which hath already fallen down into the arm, and to hinder the exsudation of fluids of any new matter. And the ligature is such as by its moderate attrition would serve to strengthen the muscles, and to preservet and repel the humors, which were fallen down into the upper part, and to prohibit that which is ready to fall down. Mine advice being approved of the Physicians both in word and deed, the pain was mitigated. But the humor fluid in the part, for the dissolving and drying whereof, this following remedy was used: &c. &c.

A dilluting and drying ca.

As Anodyne and Saladic Eflion.

A History.

A general rule for all wounds of all nervous parts.

Why wounds of the Joyns are malignant.

The cure.

Be cause the wounds of the Joyns 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 whereby they are bound and inart, and into which the nerves are infected: Whereby it comes to pass that the exquisite force of such like parts will easily bring malignant symptoms, especially if the wound poises an interval, or, as they term it, a demelieck part of them; as for example, the arm-pits, the bending of the arm, the inner part of the wrist, and hand, by reason of the notable veins, arteries, and nerves of these parts, the loosed continence of all which brings a great flux of blood, sharp pain, and other malignant symptoms; all which are must redit according to their nature and condition, as a flux of blood with things fluxing, bleeding, pain with anodynes. If the wound be large and wide, the fevered parts shall be joyned with a future, leaving an orifice in the lower part, by which the quittance may pass forth. This following powder of Ysps description must be frieded upon the future. &c.

Of the Wounds of the Joyns.
thick, let it cause pain, and moreover let it be anointed with the yolk of an Egg, oil of Roses, turpentine and a little Saffron. But if the wound be more short and narrow, it shall be dilated, and this following Cataplasm. An astringent and drying Cataplasm.

Of the Wounds of the Ligaments.

The wounds of the Ligaments, besides the common manner of curing those of the Nerves, have nothing peculiar, but that they require more powerful medicines, for their agglutination, deciation and consolidating; both because the ligamental parts are harder and drier, and also because, if they were void of fascis, therefore the forcible cure of nerves should also be used for these wounds. For the medicines in both are of the same kind, but here they ought to be used for the former in a more powerful manner, and for the latter in a more weaker manner, for other otherwise, they would not be able to go. To conclude, the site of the foot and leg, is quite contrary to that of the arm and hand.

Ligaments more dry than nerves, and without feve.
Have thought good here to premise my opinion of the original, increase, and hurt of fiery Engines; for that I hope it will be an ornament and grace to this my whole Treatise; at last to intreat my Reader, as it were with these words, in our following Banquet so much favouring of Gunpowder. For this it shall be known to all whereas Guns had their original, and how many books and tales they have acquired from poor and obscure beginnings; and left, by careful management, the use of them is.

Polydore Virgil writes, that a German of obscure birth and condition was the Inventor of this new Engine which we term a Gun; being induced thereby to this invention. He kept a Mortar covered with a tile or flate, for some certain uses, a powder (which firft time for its chief and new-knd faculty, it named Gunpowder.) Now it chanced at the stroke fire with a fixed and flate, a flark thereof, by accident fell into the Mortar, wherein the powder suddenly catching fire, set the flate or tile which covered the Mortar up on high; he stood amazed at the novelty and strange effect of the thing, and without observing the formerly unknown faculty of the powder, so that he thought good to make experiment thereof in a small Iron Stock, framed for that purpose according to the invention of his mind. When all things were correspondent to his expectation, he first threwed the use of his Engines to the Frenchmen, when they were warred with the Genoese about Pisa. In the year of our Lord, 1380. Yet in the opinion of Peter Metius, this Invention must have been of greater antiquity, for it is read in the Chronicles of Alphonfus XI. King of Castile, who published the Heresurgiae, then when he besieged the chief Town, in the year of our Lord, 1343, the besieged made as fast as it were, than¬der against the Assailants, out of Iron Mortars. But we have read in the Chronicles written by Peter Bis¬trop of Leoni of that Alphonfus who conquered Toledo, that in a certain Sea-fight fought by the King of Turins, against the Moorish King of Sivil, whose part King Alphonfus favoured, the Turkish cal¬Sample text from a book written in English, discussing the invention and development of firearms, specifically gunpowder. The text traces the origin of firearms back to a German inventor, who accidentally discovered the explosive properties of gunpowder. The author notes the historical significance of firearms and their evolution from simple mortars to more sophisticated guns. The text also mentions the early use of firearms in warfare, highlighting their impact on military strategies and tactics. The passage explores the names given to different types of firearms and their applications, such as the use of gunpowder in mortars and the development of field guns. The author reflects on the impact of firearms on society, discussing their role in shaping military practices and their cultural significance.
Of Wounds made by Gun-shot, &c.

and as the Archers formerly, so at this day the Musketeers are placed in front. From the same Reviewed,
Shop, and Magazine of Cruelty, are all sorts of Muscis, Consternators, Ports of fire, Teresa, Fire Armies,
Latons, Piles, Treasons, of Fire, printing Paper, Grenades, and all sorts of Fiery Engines and Inven-
tions, which swiftly flipp'd with fuel and matter for fire, and cak'd by the Daughters upon the Boulders and
the Fountains of the Altairtants, swiftly take fire by the violence of their motion. Certainly a most unferable and
pernicious kind of Invention, whereby oftenest fire of a thousand of bloody men blow up with a Mine by the force of
Countermines, otherwise in the very heart of the Civill, thou mayst for the same Souldiers, follow'd upon with some
sort of these Fiery Engines, to burn in their burnings, no man being sufficiently powerful to repel, and quench
the raging and working violence of such fire cruelly spreading over the body and bowels. So it was not suffi-
cient to have Arms, Iron, and Fire to many description, unless also that the fire might be more freely, we
had furnished them, as it were more wings, so to fly more lustly to our own perdition, surpassing Sublim-
earthly Death with wings so more readily to oppress man, for whose preservation, all things contained
in the World were created by God. Very well when I consider with my self all the sorts of military Engines, which
the Ancients used, whether in the field in set Battells, as Bows, Darts, Croft-bowes, Slings, or in the assault
of Cities, and flushing or overcoming their Walls, as Rams, Horse, Wooden-towers, Slings, and such like
they furn to me certain childlike forces and garments made only in imitation of the former. For the most
Inventions are such as easily exceed all the bell appointed and cruel Engines which can be mentioned or thought
upon, in the shape, cruelty and appearance of their operations. For when in the World a thought more horrid
or fearful than Thunder or Lightning, and yet the bestfdff of Thunder is almost nothing to the cruelty of
the inferior Engines, which may easily appear by comparing together both their effects. Man alone of
all Creatures is not always killed by being touched with Thunder; but it immediately both all other things
which are subject to be tormentible thereof. Nature being this humane upon him, fixing so many Cruel-
ities exceed him in strength: For all things he contrary to man, and, man, unless be be overthrown with
it, doth not die thereof. But those fire-firing Engines do more spare man, than they do other Creatures
with such violence either they come, whether further they are carried, and home
thereby the ancients made use of. Thundermen, which they might be driven away, they never penetrate deeper
into the ground than five feet, therefore such as was most thought the deepest Cover the most life.
Of the thunder, which grows out of the earth, it doth not touch the dry-tree, and that was the cause that tin,
was counted a sign of Victory both in ancient and modern times. Whereas, Vulcanus Caesar, otherwise a
contemner of God and Religion, as he who indued with the Mathematical Sciences, thought all things go-
ne with fate, and that commonly striketh but one man of a multitude: But one great Canon at one time
may spoil and kill all times found again with their report, the Thunder and Lightning commonly gives but one blow or
strike, and yet the fiery oil is spread over the only the ears of the hearer. This is the wav, and that commonly
stricken with a thick cloud of smoke, and the fiery heat and cold completion of the earth exting-
ishing what they oppose sooner it receives; this which keeps Scythia, and the cold Countries about is free
from Thunder. For hot and dry exhalations of the

The winds being thicker, and these

\(\text{\textsuperscript{1}st}\)
Of Wounds made by Gunshot.

Book XI.

The first Diuisio wherein Wounds made by Gunshot, are freed from being burnt, or cauterized, according to Vigo's method.

In the year of our Lord, 1536. Francis the French King, for his acts in War and Peace filled the Great, first a guilliam Army beyond the Alps, under the Government and Leading of Armata of Memmonmary. High Constable of France, both that he might relieve Turin with Victu- als, Souldiers, and all things needfull, as also to recover the Cities of that Province taken by the Marquis of Guip General of the Emperors Forces. I was in the Kings Army the Chirurgeon of Mouleour of Monsieur General of the Foot. The Imperials had taken the Straits of Savoy, the Castle of Villain, and all the other paffagges; so that the Kings Army was not able to drive them from their Fortifications but by flight. 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 able to dress wounds made by Gunshot. Now I had read in John de Vigo, that wounds made by Gunshot were vexeose or poifonous, and that by reason of the Gunpowder; wherefore for their cure, it was expedient to burn or cauterize them with oyl of Elders boiling hot, with a little Treacle mixed therein. But, for that I gave no great credit neither to the Author, nor remedy, because I know that caufick could not be poured into wounds, without execefee pain; I, before I would run a hazard, determined to fee whether the Chirurgi- ons, who went with me in the Army, used any other manner of dreffing to their wounds. I ob- ferved and saw that all of them ufed that method of dreffing which Vigo preferibes; and that they filled, as full as they could, the wounds made by Gunshot with Tears and Pledge; which, as thofe things whereof it is compounded are poifonous, which rea fon ought to free the whole coro-

What chance may do in finding out of remedies.

The description of Oyl of Whelp.

Gunpowder not poifonous.

Bullets do not burn.

A History.
that I should lay two raw Onions beaten with a little Salt, for so I should hinder the breaking out of blisters or pustules, as the had found by certain and frequent experience. Wherefore I thought good to try the force of her medicine upon this greaite Stullion. I the next day found those places of his body whereas the Onions lay, to be free from blisters, but the other parts which they had not Touch'd, to be all blistered.

It fell out a while after, that a German of Montfjeter His Guard had his Elasque full of Gunpowder. A history. He being called to dress him, went to the next Apothecaries to fetch medicines commonly used in this case: There was present by chance a certain old German woman, who hearing that I desired medicines for a Burn, perceiving me at the midst of dressing that I should lay two raw Onions beaten with a little Salt, for so I should hinder the breaking out of blisters or pustules, as the had found by certain and frequent experience. Wherefore I thought good to try the force of her medicine upon this greaite Stullion. I the next day found those places of his body whereas the Onions lay, to be free from blisters, but the other parts which they had not Touch'd, to be all blistered.

Another Discourse of these things, which King Charles the Ninth, returning from the Expedition and Taking of Rouen, inquired of me concerning Wounds made by Gunflhot. For that it pleased your Majesty one day, together with the Queen-Mother, the Prince of the East upon Tou, and many other Noblemen and Gentlemen, to inquire of me, What was the cause that the far greater part of the Gentlemen and common Soldiers which were wounded with Guns, and other warlike Engines, all remedies used in vain, either died, or scarce, and that with much difficulty recovered of their hurts, though in appearance they were not very great, and though the Chirurgians 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.
Wounds made by Gunshot; both to satisfy the desires of the Princes and of many Gentlemen, as also
the expectation they have of me, as being the King's chief Chirurgeon (which place being given me
by Henry II. Charles IX. a Son most worthy of such a Father, had confirmed.) Neither make I any
question, but that many who too much insist upon their own judgment, and not thoroughly consider
the things themselves, will marvell, and think it far from reasonable, that I, conceiving and thinking it far from rea
onable, and not throughly consider
Charles

The argument by Hervin II.

Of what it is

made.

Gunpowder is not poysonous.

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by such an accident, we 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 opposes or meets therewith, whence flames of fire proceed. For this reason, the powder is kindled in a piece of flint, and by the collision of the bullet with a piece of flint, or any other that opposes it, it becomes ignited and kindles, as is shown in the following proof. If we have a flint, and observing the collision of the bullet with it, we see that there is a flame kindled, and that whenever the bullet meets any other thing that opposes or meets it, it becomes kindled and ignited, as is shown not only by the fire which it kindles, but even from the violence of the collision. This is true, but it is not from the heat brought therewith by the bullet, but from the violence of the collision. The collision is exceeding great, both because the bullet is hastened and enters the body with incredible violence. Of which things that are wounded will give you sufficient testimony, for there is none of them, which thinks not presently upon the blow, that as it were some poll, or thing of the like weight, falls upon the affected member, whence great pain and fulness proceeds the part, whereby the native heat and spirits are so much disturbed, that a Gangrene may follow. But for the Elether which they affirm is made by the blow, and falls away afterward, they are much mistaken. For certain particles of the membranes are both contused and torn by the violence of the bullet begates them; which presently purifying, and covered from the found part by the power of nature and the separating 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 the idea of breaking the body, or whatever is from all thoughts of burning; yet there are many who insisting upon Philosophical Arguments raise new fires. For (say they) the discharging a piece of Ordnance is absolutely like Thunder and Lightning, which the rent and torn clouds east from the middle region upon the earth, whereas the iron bullet which is shot out of the Canon must needs have a venereal and burning faculty. Fam not ignorant that Lightning, generated of a gross and viseous exhalation, breaking the cloud where it is incomparable, is not fallen upon the earth, but brings fire with it, one while more subtle, another while more gross, according to the various condition of the matter whence the exhalation hath arisen. For some writes that there are three several kinds of Lightning differing in burning, condition and quantity. One of them penetrates in no other manner, or other places, or other substances, than the violence of the bullet which it touches. The other with a violent impetuously breaks in furious, and disparts 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 terrible matter, burns what it touches, leaving behind in the impression of the burning. Also I know that Lightning is of a politant and spreading nature, occasioned by the groves and viseousness of the matter whereof it is, which matter taking fire, sends forth so leathern and odious a smell, that the very winds, cannot sustain it, but leave their dens, if they chance to be touched with such a Lightning. Besides we have read in the Northern History of Olaf Magnus, that in some places after a Lightning, you shall find a whole plain spread over with Grass and the rest of the places, which Lightning notwithstanding is extinguished, unequal, and of no efficacy. But grant these things to be thus, yet must we not therefore conclude, that the bullets of the great Ordnance carry poison and fire with them into the wounds. For though there be many things alike in Lightning and discharging great Ordnance, yet they have no similitude either in matter or substance, but only in effects, whereby they bite, break in furious, and dispart the bodies which withstand them. For Lightning and Thunder do it by means of fire, and oft-times of a flame generated in them, which is therefore termed, a Thunderbolt but Ordnance 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 yield that the matter of Lightning and discharging of Ordnance are alike, yet will I not therefore conclude that wounds made by Gunshot are by the violence of the bullet begates them, which consisting of a most dry matter, do shatter in furious all that withstand them, but do not burn at all; whereas which are of somewhat more humid nature, burn not more than the former, but only black such things as they touch last; otherwhose of a more subtle and concise matter, whereby the violence of the bullet begates them, we must not doubt to be divine, if for this reason, that they will melt gold and silver, not burning the purgy a sword, not burning the faithful; the head of a lance, not burning the wood, and fhide wine, not breaking the vessel. According to which decrees I can grant, that thefe Lightnings which break in furious, melt, and dispart, and perform other effects to foolish admiration, are like in substance to the shot of great Ordnance, but not those which carry with them fire and flame.

In proof whereof there comes into my mind a History of a certain Soldier, out of whose thigh
I remember I drew forth a bullet wrapped in the safety of his breeches, which had not any sign of tearing or burning. Besides, I have seen many who not wounded, new much as touched, yet
withstanding have with the very report and wind of a Canon bullet, falling close by their ears, fallen down for dead, so that their members becoming livid and black, they have died by a Gangrene ensuing thereupon. These and such effects are like the effects of Lightning which we lately mentioned, and yet they bear no sign nor mark of poverty. From whence I dare now boldly conclude, that wounds made by Gunshot are neither painful, nor burns. But feeling the danger of such wounds in their last Civil-wars hath been so great, universal, and deadly to so many worthy per- sonages and valiant men, that then may have been the cause thereof, if it were neither embalmed, nor the veneration of the wound? This must we therefore now insist upon and form a hardy explanation. Those who have feen all their time in the burning and fanning of wounds, the mystery of natural Pkftody make, would have all men think and believe; that the four Elements have such natural sympathy, that they may be changed each into other; so that they not only undergo the modification of the hot qualities which are heat, cold, dryness and moisture, but also the matter of the fire and flame. The reason why wounds made by Gunshot fall away. A Hiftory.

The cause of the termination of the Elements.
of Wounds made by Gun-shot,

\textbf{Book XI.}

\noindent on of their proper substances by rarefaction and condensation. For thus the fire is frequently changed into air, the air into water, the water into air, and the water into earth; and on the contrary, the earth into water, the water into air, the air into fire, because these four bodies have in their common matter enjoyed the privilege we have an example in the bellows brought out of Germany, which are made of brass, hollow and round, and have a very small hole in them, whereby the water is put in, and so put to the fire; the water by the action thereof is raised into air, and so they send forth wind with a great noise, and blow strongly asso as they grow thoroughly hot. You may try the fame with chestnuts; which, cut whole and undivided into the fire, presently fly asunder with a great crack, because the waxy and innate humidity turned into wind by the force of the fire, forthwith breaks his pappage forth. For the air or wind raised from the water by rarefaction, requires a large place, neither can it now be contained in the narrow limbs, or skins of the chestnut, wherein it was formerly kept. Just after the same manner Gunpowder being fired, takes unto a far greater proportion of air according to the truth of that Philosophical Proposition, which faith, Of one part of earth, there are made ten of waters, ten of air; and of one air, are made ten of fire. Now this fire, not possible to be pent in the narrow space of the Piece, wherein the powder was formerly contained, endeavours to force its passage with violence, and so calls forth the bullet lying in the way, yet so that it presently vanishes into air, and doth not accompany the bullet to the mark, or object, which it butters, spoils and breaks asunder. Yet the bullet may drive the obvious air with such violence, that men are often sooner touched therewith than with the bullet, and die by having their bones shatter and broken without any hurt on the flesh which covers them, as we formerly noted, it hath common with lightning. We find the like in MINUTES, when the powder is once fired, it removes and shakes even Mountains of earth, in and breath it out. Through which occasion, it is then prevail to fee the things necessarie for life, there is no cause greater changes in us than the air, which is continually drawn into the bowels appointed by nature, and whether we sleep, wake, or what else so ever we do, we continual draw into and breath it out. Through which occasion, 

\textbf{A History.}

In the year of our Lord, 1552. a quantity of this powder which was not very great, taking fire by accident in the Arsenal of Paris, caufed such a tempest that the whole City shook therewith, but it quite overturned divers of the neighbouring houses, and broke off the tiles and broke the windows of those which were further off; and to conclude, like a fume of Lighting, it had many hills and there for dead, some left their height, others their heads, as friends had from a funder, as if they had been sent with wildHorfs; and all this was done by the only agitation of the air into which the fired Gunpowder was turned. Just after the fame manner as winds pent up in hollow places of the earth which want vents: For in fending pappage forth, they vehemently shake the fides of the earth, and raging with a great noise about the cavities, they make all the surface thereof to tremble; for that, by the various agitation one while up, another down, it overtops or carries it to another place. For thus we have read that Jepa e and Egypt, anciently most famous Cities of Greece, were swallow'd up and quite over-turned by an Earthquake. I omit the great fuddening of the winds fwear in the cavities of the earth, which repreffed to such as bear them at some depth, the fierce affailing of Cities, the bellowing of bullets, the horrid roarings of Lions, neither are they much unlike to the roaring reports of Cannons. These things being thus perrified, let us come to the thing we have in hand. Amongst things necessarie for life, there is no cause greater changes in us than the air, which is continually drawn into the bowels appointed by nature, and whether we sleep, wake, or what else we do, we continual draw into and breath it out. Through which occasion, 

\textbf{The cause of Earthquake.}

From whence if they happen to degre, they raise and stir up great perturbations both in our bodies and minds; whole malice we can ferue them, because they encompass us on every hand, and by the Law of Nature enter together with the air into the secret Cabins of our Bodies both by occult and manifeft pappage. For who is he, that doth not by exception find both for the commodity and commody of his health, the various effects of the winds, (wherewith the air is common) 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 retir'd the West-wind cold and moist, it is no doubt but that the air which we breathe in our nostrils, the waters of the bowels, the qualities of the air, which is then prevalent. Whiche we read in Hortoparos, that changes of times, whether they happen by different winds, or vicissitude of Seasons, chiefly bring diseases; for northern winds do condense, and strengthen our bodies, and make them active, well coloured and during, by refpirating and quickening the native heat. But southerly winds deprive and pant our bodies, make us heavy-headed, dull the hearing, cause giddinefs, and make the eyes and body less agile, as the Inhabitants of Slarbon and the genera of the Sonien are ranked among the most active people of Europe. But if we would make a comparison of the Seasons, and Constitutions of the year by
Book XL  and other fiery Engines, and all sorts of Weapons.

by Hippocrates Decree, Draughts are more wholesome and less deadly than rains; I judge, for that too much humidity is the mother of putrefaction, as you may learn by those Countries which are blown upon by a wind from Sea. For in those parts which is kept for food, putrefies in the space of an hour; and such Ulcers as in other places are early and quickly healed, do there by the contexture and collection of matter become laventures and contumacious. Therefore as when the features of the year successively fall out agreeable to their nature, and when each season is favourable, then either we are not sick at all, or assuredly with less danger. So on the contrary, the perfect constitution and health of our bodies becomes worse and perverted in time and temper. Now feeling that these many years, the four features of the year have wanted their feasonableness, the Summer wanting his usual heat, and the Winter its cold, and all things by moisture and the dominion of the southern winds have been humid and languid, I think there is none so ignorant in natural Philosophy and Astrony, who will not think but that the cause of the malignity and contumacy of those diseases which have so long afflicted all France, are to be attributed to the Air and Heavens. For otherwize, whence have so many pestilens and contagious diseases tyrannized over so many people of every age, sex and condition? Whence have so many Catarrhs, Coughs, and heaviness of the head? So many Pleurises, Typhus, Small-poxes, Measles and Itches, not admitting of digestion and remedies prescribed by Art? Whence have we had so many venomous Creatures, as Toads, Gnat-Hoppers, Caterpillars, Spiders, Wasps, Hornets, Bees, Wasps, Vipers, Snakes, Lizards, Scorpions, and Efts or Nuts, unless from excessive putrefaction which the humidity of the air, our native heat being liquid and dull, hath caused in us, and the whole Kingdom of France? Hence also proceeds the inanity of our native heat, and the corruption of the blood and humors whereof we confid, which the many Southwind hath caused with its sultry heat. Whereas in the late years I have drawn little blood, which hath not presently shewed the corruption of its substance by the black or greenish colour, as I have diligently observed in all such as I have had by the direction of the Physicians, either for prevention of future, or cure of present diseases. Whence it comes to pass that the filthy substance of our bodies could not be freely both in temper and constitution; I seeing that the blood whence it is generated could not be rendered into the body, and deprived of the feaft of corruption from the defiled air. Whence it fell out, that the wounds which bapished with lots of sabulence could be scarce healed or cured, because of the depravity of the nature of the blood. For, so the wounds and ulcers of those which are troubled with the Putrefaction, whose blood is more cold or wholly waterish, so of leprous persons, whole blood is corrupt and liable, of all such as I have their bodies repel with ill joyce, or else are Cacochetic, will not easily admit of cures. Yes affuredly, if but the very part which is hurt free from its native temper, the wound will not easily be cured. Therefore feeling all these things, both the putrefaction of the air, as also the corruption of the wound, and deprived humors of the body, and the diminution of the afflicted parts confined together to the destruction of the wounded; what marred it was, if in those late Civil Wars, the wounds which were for their quantity small, for the condition of the wounded part but little, had cause of many and grievous accidents, and lastly death itself? Exceeding, seeing that the air which contains the corruption is not confined to those only with whom it is most applicable, but, tainted with putrefaction, corrupts and denies the wounds by infection and expiration, the body and humors being already disposed to putrefaction. Now there came such a little, which is a most affiduous fign of putrefaction, from these wounds, that we were dashed, that such as blood could scarce endure it: Neither could this thine be attributed to the want of dressing, or fault of the Chirurgeon; for the wounds of the Princes and Nobility that are ill as shot of the common Soldiers. And the corruption was such, that if any chance to be unequal for one day, which sometimes happened amongst a multitude of wounded persons, the next day the wound would be full of Worms. Besides also, which furthermore argues a great putrefaction of humors, many had abscesses in parts opposite to their wounds, as in their left knee, when the right shoulder was wounded in the left arm, when as the right leg was hurt, Which I remember befand the King of Navarre, the Duke of Nevers, the Lord Reman, and divers others. For all men had Nature forever-charged with abundance of vicious humors, that if it expelled not part thereof by Impurities to the habit of the body, it certainly otherwise dispossessed of it amongst the inferior parts of the body's for in differing dead bodies, we observed that the Spleen, Liver, Lungs, and other Bows were pendent, and hence it was that the Patients by reason of vapours sent from them to the heart, were troubled with continual Feavers. But the Misses, and all the venomous parts being polluted, and fo the generation of the laudable blood hindered, they languished for want of fitting nutrition. But when the brain by vapours was drawn in to sympathize with the rest, they were not afflicted with Ravingnes and Convulsions. Wherefore if any thing proceeded unproperly in so great malignity of wounds, the Chirurgeon was not to be blamed, for that it were a crime to fight against God and the Air, wherein the hidden forces of the divine Justice lie hid. Therefore according to the mind of the great Hippocrates, who commands to bring all cutted wounds to suppuration, that so they may be healed, we endeavoured to cure with such medicines wounds made with Gun-shot, and therefore cutted; who can rightly be angry with us, if we performed it not to well by reason of those Putrefactions, Gangrene and Mortifications which proceeded from the corrupt Air: For that we, used not only suppurations, but were oft-times forced to use other medicines so long turning aside from the cure of the disease, until we had overcome the symptoms which much indisposed the Patients, 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 appear in the following Treatise, to which it now seems high time that we betake our selves.
A division of wounds made by Gunshot, whether simple or compound, are accompanied with contusion, dilaceration, distemper and swelling. I say, all these poiffe either the noble parts, or ignoble, the filthy, nervous, or bony: some while with rending and tearing sunder the larger vessels, sometimes without harming them. Now these wounds are only superficial, or else pierce deep and pass 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 less, some between both; they are usually made of Lead, yet sometimes of Steel, Iron, Brass, Tin, scarce any of Silver, much less 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 do, and what medicines to apply. The first care must be, that he think not these horrid and malign symptoms, which usually happen upon these kinds of wounds, to arise from combustion, or poyfon carried with the bullet into the wounded part, and that for those reasons we have formerly handled at large. But rather let him judge they proceed from the vehement force of the contusion, dilaceration and fracture, caused by the bullets, too violent entry into the nervous and bony bodies. For, if at any time the bullet shall only light upon the filthy parts, the wounds will be as easily cured, as any other wound usually is, which is made with a con¬tingent and round kind of weapon, as I have often found by frequent experience, whilst I have followed the Wars, and performed the part of a Chirurgeon to many Noblemen and common Soldiers, according to the counsel of such Physicians as were these overers of the cure.

CHAP. II.
Of the signs of Wounds made by Gunshot.

Wounds made by Gunshot are known by their figure, which is usually round; by their colour, as when the native colour of the part decays, and instead thereof a livid, greenish, violet, or other colour succeeds; by the feeling or sense of the stroke, when in the very instant of the receiving thereof, he feels a weighty force, as if some great stone, or piece of timber, or some other weighty thing had fallen upon it; by the final quantity of blood which flows 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 for the release of the wound; by heat, which happens either by the violent motion of the bullet, or the vehement impulsion of the air, or the attrition of the contused parts; and the heat and nerves. Alfo you may conjecture that the wounds have been made by Gunshot, if the bones shall be broken, and the splinters thereof by pricking the neighboring bodies cause defluxion and inflammation. But the chief that the bullet makes to great a contusion is, for that it enters the body without any point or corner, but with its round and sphericall body, which cannot penetrate but with mighty force; whence it comes to pass that the wound looks black, and the adjacent parts livid: Hence also proceed many grievous symptoms, as Pain, Defluxion, Inflammation, Apoplexy, Convulsion, Pneumonia, Public, Gangrene, and Mortification, whence hourly Death enters. Now the wounds do often call forth violent and very much thickening fluids, by reason of the great contusion, and the rend¬ring and tearing of the neighboring particles. A great abundance of humors flow from the whole body, and fall down upon the affected parts, which the native heat thereof being diminished, for¬sakes, and presently an unnatural heat seizes upon it. Hitherto also tend an universal or particular repugnance of all humors, chiefly if the wounds poiffe the nervous parts, as the pains. Vertically neither a Stag with his horn, nor a flint out of a fling can give so great a blow, or make so large a wound, as a leaden or iron bullet shot out of a Gun; as that which going with mighty violence, pierces the body like a Thunderbolt.

CHAP. III.
How these Wounds must be ordered, at the first dressing.

The manner how to draw Strange bodies must first be pulled forth.

The wound must forthwith be enlarged, under the condition of the part refrained, that there may be free passage forth, both for the Sanguis or matter, also for such things as are forced, or otherwise, contained therein; such as are pieces of their Clothes, Bandages, Linen, Paper, pieces of Mail or Armour, Bullets, Hail-shot, Splinters of Bones, bruised Flesh, and the like, all which must be plucked forth with as much celerity and gentleness as may be. For presently after the receiving of the wound the pain and inflammation are not so great, as they will be within a short time after. This is the principal thing in performance of this work, that you place the Patient firm in such a posture as he was in, at the receiving of the wound; for otherwise the various motions and turning of the mufcles will either hinder or threaten the passage forth of the contained bodies. You shall, if it be possible, search for these bodies with your fingers, that so you may the more certainly and exactly perceive them. Yet if the bullet be entered somewhat deep in, then you shall search for it with a round and blunt probe; lest you put the Patient to pain; yet observ¬ance you shall force by this means find the Bullet. As it happened in the Siege of Perigwait, who was wounded in his right shoulder with a bullet, which the Chir¬
B o o k  X I . and other Fiery Engines, and all sorts of Weapons.

geens thought to have entered into the capacity of his body. But I, willing the Patieut to stand
not in the same manner as he did when he received the wound, found at length the place where the
Bullet lay, by gently pressing with my fingers, the parts near the wounded, and the rest which I inspécted,
as also by the swelling, hardnes, pain and bluchnes of the part, which was the lower part
of the shouder near unto the eighth or ninth spound of the back. Wherefore the bullet being
taken forth by making incision in the place, the wound was quickly healed, and the Gentleman reco-
vered. You shall observe this, and rather believe the judgment of your fingers, than of your Prober.

C H A P. IV.

A Description of fit Instruments to draw forth Bullets and other strange Bodies.

Both the magnitude and figure of Instruments fit for drawing forth of bullets 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 bignees; of all which sorts the
Chirurgeon must have divers in a readines, that he may fit them to the bodies and wounds, and
not the wounds and bodies to his Instruments.

The Delineation of such like Instruments.

This Duck-bill that a large, round
and toothed cavity in the end, for it
more easily taketh
hold of the Bullet
when it lies among
much flesh.

Another Instrument fit for drawing forth of Bullets, which
may be termed a Catch-bullet.

A toothed Crows-bill.

A Shews the Truck,
B Shews the rod, or firing, which
opens and shuts the joints.
C The joint.

Another
Another Catch-bullet called a Lizards-foot, made for drawing out of Bullets, which are somewhat flattened by striking upon a bone.

The Swans-bill open with a screw, you may with this dilate the wound, and put in a dress Cranes-bill, as pincers to pluck forth strange bodies. The figure of both are here expresed.

But if these strange bodies, especially Bullets and Ball-bullets, be not too deep in the wound, they may be taken forth with your Lezatory, 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 they be of Lead or Tin; and of no harder metal; and so being fastened in them, being them out with them.

The figure of the Gimblets, with his Pipe or Cane.

Besides the Swans-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, Ears, Fundament, and such like.

Dilaters.

The Instruments which follow are called Seros-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 allow us use the same Needles to fearfully, or as it were to sound the depth of the wounds.
and to find out the bullets. For they cannot put one to much pain because they have smooth and round ends. So also all Probes where with 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 tick in the inequality of the flesh, neither will they be able to come to the Bullet. But if they be sharp and pointed, they will caufe and renew the pain by pricking the flesh they meet withal, and so hinder your intention of finding the Bullet: Now you must be furnished with three Instruments of a different length, according to the various thick¬nesses of the parts; for you cannot put anything through the thigh but such as are of a good length.

C H A P. IX.

What dressing must first be used, after the strange bodies are pluck’d or drawn out of the Wound.

When the strange bodies are drawn or pluck’d out of the wound, by those means we have formerly recited, the chief of the cure must be to heal the contention, and amend the disorder of the air if it be hot and moist, that is, subject to putrefaction. This shall be done by medicines taken inwardly, applied outwardly, and put into the wound. Things to be inwardly used in diet and Pharmacy I leave to the judgment of learned Physicians; but for the particular and topical medicines, (outles from the present constitution of the air, the condition of the wounded part, or from some other cause, there being a danger of a Gangrene) you must use suppuratives as you usually do in contusions, such as are oyles of Whelpes, 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 drier medicines than bely, as we have formerly delivered speaking of wounds of the joints; whereas in wounds of the joints and nervous parts you shall use more Venice Turpentine than oyle. Laurentius Jolereus the Kings Physician and Chancellor of the University of Worms, in a Treatise which he writ of wounds made with Gun-shot, forbid the ufe of Efecharo-pie.

The oil of Turpentine than oyle. A caution in the ufe of suppuratives.

Why Efecharo-ticks must be used in their kinds, if they be im¬ple.

How an Efchar may cause putrefaction.

The description of an Efecharo-pie.

The oil of Turpentine than oyle. A caution in the ufe of suppuratives.

How and when to temper this Efecharo-pie.
of Wounds made by Gunshot,  

Book XI.

Of Wounds made by Gunshot,

Why wounds made by Gun¬flot are to long before they come to suppurate.

If the wound be long before it comes to suppurate, you may use the oyl of some egg, or else a Saffron, and use this medicine, until the wound come to perfect suppurate. Here you must note this, that these kinds of wounds are longer before they come to suppurate, than other wounds made by any other sort of Weapon both for that the bullet, as also the air which it violently carries before it, by much bruising the flesh, on every side, dilates the native heat, and exhausts the spirits of the part. Which things hinder digestion, and often cause the matter to stink, and also many other pernicious symptoms. Yet most usually the quitture appears within three or four days, sooner and later according to the various complication and temperament of the Patients bodies, and the condition of the ambient air in heat and cold. Then by little and little you must come to deterrents, adding to the former medicines some Turpentine washed in Rose, Barley, or some other such like water, which may wash away the biting thereof. If the incomposing air be very cold, you may, to good purpose, add some Aqua vitae, for by Galen's prescription, we must not use hot medicines in Winter, and less hot in Summer. Then in the next place you must, as R. Aqua decotionis lordeis quantum sufficit, facci Murrantini, aq"., arctis, centuriae minoris, an. 3. Rellantiam fines female in decotionibus acerbo sup¬puat. varia et. Mellis rof. 3. j. farris, lordeis 3. ij. Cret 5. 1. Let them all be well mixed together and make a Mundificative of an indifferent consistence. Or, & Succis eliens, Plantage, abintis aqua, &c. 3. J. Terb. vort. 3. j. iiiij. Symp. abintis, & Mellis ad. off. an. 3. iij. Rellansiam feque marmorum aqua potes celeritate in solutura, adipe turbare, alice, mufchifer. Triu Florent. far. hordis, an. 3. iij. Piat Amflammaturiam ad ibum dilittum. Or, R. Terb. vort. late in aqua of. V. Vettis of the. in. Mellis of. aj. far. hordeis, aj. j. R. Thisin. E. P. hordis 3. iij. R. Mellis farinae ad. & addit, ad ussum di¬Clum. Or, R. Thisin. E. P. hordis 3. iij. R. Mellis farinae ad. & addit, ad ussum di¬Clum.

A detergent medicine.

A detergent medicine.

Why Tents must be neither too long nor thin.

Why Turpentine must be washed.

Gal. 1. Melis j. 

Lith. de ulte.

The faculties of the powder of Mercury.

The force of calcined vitriol, or wounds made by Gun¬flot may be combust.

Scarcification.

An Affringent repelling me¬
dicine.

The binding up.

How oft the wound must be dress'd in a day.

Tlie second and following dressings, unless you suppet suppurate, and a Guarngrene, you shall only put into the wound some of the Oyls formerly described, adding to them the yolks of some eggs and a little Saffron; and use this medicine, until the wound come to perfect suppurate. Here you must note this, that these kinds of wounds are longer before they come to suppurate, than other wounds made by any other sort of Weapon both for that the bullet, as also the air which it violently carries before it, by much bruising the flesh, on every side, dilates the native heat, and exhausts the spirits of the part. Which things hinder digestion, and often cause the matter to stink, and also many other pernicious symptoms. Yet most usually the quitture appears within three or four days, sooner and later according to the various complication and temperament of the Patients bodies, and the condition of the ambient air in heat and cold. Then by little and little you must come to deterrents, adding to the former medicine some Turpentine washed in Rose, Barley, or some other such like water, which may wash away the biting thereof. If the incomposing air be very cold, you may, to good purpose, add some Aqua vitae, for by Galen's prescription, we must not use hot medicines in Winter, and less hot in Summer. Then in the next place you must, as R. Aqua decotionis lordeis quantum sufficit, facci Murrantini, aq"., arctis, centuriae minoris, an. 3. Rellantiam fines female in decotionibus acerbo sup¬puat. varia et. Mellis rof. 3. j. farris, lordeis 3. ij. Cret 5. 1. Let them all be well mixed together and make a Mundificative of an indifferent consistence. Or, & Succis eliens, Plantage, abintis aqua, &c. 3. J. Terb. vort. 3. j. iiiij. Symp. abintis, & Mellis ad. off. an. 3. iij. Rellansiam feque marmorum aqua potes celeritate in solutura, adipe turbare, alice, mufchifer. Triu Florent. far. hordis, an. 3. iij. Piat Amflammaturiam ad ibum dilittum. Or, R. Terb. vort. late in aqua of. V. Vettis of the. in. Mellis of. aj. far. hordeis, aj. j. R. Thisin. E. P. hordis 3. iij. R. Mellis farinae ad. & addit, ad ussum di¬Clum. Or, R. Thisin. E. P. hordis 3. iij. R. Mellis farinae ad. & addit, ad ussum di¬Clum.
Book XL and other fiery Engines, and all sorts of Weapons.

When you must use injections.

The quantity of Tickets or Pipes, which you must use on each side.

The manner of binding up the wound.

Two causes that make strange bodies hard to be taken forth.

Why none of the injection, must be left in the wound.

Of Indications to be observed in this kind of Wounds.

When you must use injections.

The quantity of Tickets or Pipes, which you must use on each side.

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Two causes that make strange bodies hard to be taken forth.

Why none of the injection, must be left in the wound.

Of Indications to be observed in this kind of Wounds.
Wounds made by Gunshot.

Chap. IX.

Why such as are wounded must keep a flender diet.

Why we must open a vein in such as are wounded by Gunshot.

An indication to be drawn from the quick and dull coffin of the wounded parts.

An indication may also be drawn from the peculiar temper of the wounded parts, for the medicinal parts must be dried after one, and the bony parts after another manner. The different tinct of the parts, indicates and requires the like variety of remedies, for you shall not apply so acrid medicines to the nerves and tendons, as to the ligaments which are definitive of fent. The like reason also for the dignity and function of the parts needed for the preservation of life, for oft-times wounds of the brain, or some other of the natural and vital parts, for this very reason that they are detested in these parts, divert 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 certainly pronounce the whole fluxes of the disea's for wounds which penetrate into the cavities of the brain, to the heart, the lungs, and the nerves, the nervous parts of the midnigh, the liver, ventricles, small guts, bladder, if somewhat large are deadly, as alo the which light upon a point in a body repeat with ill humors, as we have formerly noted. Neither that you neglect that indication which is drawn from the sensation of the part, and the commerce in hath with the adjacent parts, or from the figure thereof, feeling that the air of the part, would not have it neglected. But we must consider in taking the forementioned indications, whether there be a composition, or complication of the diseases: for as there is one and that a simple indication, of one and that a simple disease, fomult the indication be various of a compound and complicated disease. But there is observed to be a triple composition or complication of affed's behoind the nature: For either a disease is compounded with a disease, or a disease with a disease, or a disease with a symptom, as wound with pain or bleeding. It sometimes comes to pass, that there three, the disease, cause and symptoms, concur in one case or affect. In artificially handling of which, we must follow Galen's counsel, who wishes in complicated and compound affed's, that we reftitute the parts, and the commerce with the adjacent parts, or from the figure thereof, seeing that you shall not apply so acrid medicines to the nerves and tendons, as to the ligaments which are detested in these parts, divert 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 certainly pronounce the whole fluxes of the disea's for wounds which penetrate into the cavities of the brain, to the heart, the lungs, and the nerves, the nervous parts of the midnigh, the liver, ventricles, small guts, bladder, if somewhat large are deadly, as alo the which light upon a point in a body repeat with ill humors, as we have formerly noted. Neither that you neglect that indication which is drawn from the sensation of the part, and the commerce in hath with the adjacent parts, or from the figure thereof, feeling that the air of the part, would not have it neglected. But we must consider in taking the forementioned indications, whether there be a composition, or complication of the diseases: for as there is one and that a simple indication, of one and that a simple disease, fomult the indication be various of a compound and complicated disease. But there is observed to be a triple composition or complication of affed's behoind the nature: For either a disease is compounded with a disease, or a disease with a disease, or a disease with a symptom, as wound with pain or bleeding. It sometimes comes to pass, that there three, the disease, cause and symptoms, concur in one case or affect. In artificially handling of which, we must follow Galen's counsel, who wishes in complicated and compound affed's, that we reftitute the parts, and the commerce with the adjacent parts, or from the figure thereof, seeing that...
Book XI. and other fiery Engines, and all sorts of Weapons.

tac, or Art: and if by Art, then rather with a Clyster than purging medicines taken by the mouth, for that the aspiration of humors, chiefly in the first days of the disease, is to be fulfilled, let us increase the defection down upon the wounded part. Yet Galen (in his) work, he states that when the evacuations are here needful, that is, blood-letting and purging, though the Patient be neither plebe nor repleat with ill humors. But the care hereof must be committed to the judgment of the learned Physician; for, if joyned with inflammation shall be mitigated, by anointing the parts near unto the wound with warm oil, or ointment, and the like. Unguentum Dacalephalum described by Galen, diolled with vinegar, oil of Poppy and Roses, to-od and efficacy upon wounds, de bole, does divers other things of the same faculty, though properly not Anodynes, as thos which are not hot and moist in the first degree, but rather cold, but yet not so as to have any narcotick faculty. Now these forementioned things allwage pain, for that they correct the hot difficulties, and stay the acrid and choleric defluxions, which violence is more than cold. After the use of repercussive, it will be good to apply this following Cataplasm. 

\[ R. Masticum, utriusque coralli utriusque fulvis cum gummi tragacanth. quod sufficit. \]

Of Bullets which remain in the body, for a long time after the Wound is healed up.

Bullets lye in some parts of the body some whiles seven, 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, until at length by the strength of Nature forcing them, and their proper weighter acting downwars, they thence themselves in some lower part, by their swelling or bouncing forth, and so must be taken thereby for the hand of the Chirurgeon. For they say Lead hath a certain sympathy and familiarity with most body, chiefly the lacer parts thereof. Wherefore it neither purures it feel, nor shows the sigh to perturbate; besides it hath an excellent faculty in clarifying old ulcers. But bullets of stone, iron, and of any other metal, are of another nature, for they cannot remain any long time in the body without hurt: for Iron will grow rusty, and do corrode the neighboring bodies, and bring other malignant symptoms. Yet a Lead a bullet cannot remain any long time in nervou or noble parts without danger.

Why Leaden Bullets lye in the body for so many years without doing any harm.

An Anodyne and ripening Cataplasm.

CHAP. X.

CHAP. XI.

How to correct the constitution of the Air, so that the noble parts may be strengthened, and the whole body bolstered.

Ut because, as we have formerly told you, there are some times wherein even small wounds made by Gunshot prove deadly, not by their own fault, but the fault of the air; therefore reduce it to a certain quality and moderation of subsistence, 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 certain quantity, as the Phyicin shall think fit.

\[ R. Masticum, utriusque coralli utriusque fulvis cum gummi tragacanth. quod sufficit. \]

Cordials to strengthen the noble parts.

Frontali. Linen rags, Aq. rofarum, & aq. oleum rofarum, quantum sufficit. Let it be applied warm, mificio, fiat epithema.

For the animal faculty by application of frontals, as also procure sleep, and ease the pain of the head, and often smell thereto. As, R. Rad. flor. rub. cinamomi conquaffatorum, & aether. flo. cham. & melil. an. Let it be applied, and often smell thereto. As, R. Rad. flor. rub. cinamomi conquaffatorum, & aether. flo. cham. & melil. an.

Letters to the Patients, for the fame purpose he shall carry a Pommader about him, and often smell thereto. As, R. Rof. rub. & aether. flo. cham. & melil. an.

Frontali. Theriaque & Menipus. theria de Guarda et Constantia, & Theriaque fit frontale. Let it be applied by aungles, and often smell thereto. As, R. Rad. flor. rub. cinamomi conquaffatorum, & aether. flo. cham. & melil. an.

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A sweet water. the fame purpofe, you may sprinkle the floor with sweet water if the Patient be able to undergo a great deal of pain. For the infamous and contagious passage through the veins, and the incontinence of the bowels, the Patient must be mildified; even the foul vapours raised from the Ulcers to the noble parts, which to resist, I wished him to take a spoonful of Aqua vitæ and some Treacle dissolved therein. I endeavoured to reprefs the edematous and flatulent tumor protruding all the arm with floups dipped in Oxycrate, to which was put a little Salt and Aqua vitæ, the force of which was not sufficient to draw in the bowels, unless they were misted by reason of the excessive pain which molested the Patient upon the least stir-up and strengthening the native heat. So that if this purulent humor flowed out of the arm into the belly, it must needs flow back into the veins, be mixed with the blood, and by its poisonous and contagious passage through the heart and liver, cause exceeding ill symptoms, and lastly death. Indeed he often swelled by reason of the heat which he possessed. A fever, an oedematous and flatulent tumor of the whole arm even to the fingers ends, and a certain inclination to a Gangrene: Which to resist, the Kings Chirurgeons, had made many and deep scarifications. But when I came to visit and dress him, by the Kings appointment, and had observed the great French and puerisal flashes, I wished that they would use leon of Aqua vitæ made somewhat stronger than ordinary, and dissolv'd in Vinegar, and Aqua vitæ, and do other things more largely spoken of in the Chapter of a Gangrene. For the Patient had also a Disembowel, or Flux, whereby he evacuated the purulent and slyack Diarrhoea, and a little mortification, a fever, an oedematous and flatulent tumor of the whole arm even to the fingers ends, and a certain inclination to a Gangrene: Which to resist, I wished him to take a spoonful of Aqua vitæ and some Treacle dissolved therein. I endeavoured to repress the edematous and flatulent tumor protruding all the arm with floups dipped in Oxycrate, to which was put a little Salt and Aqua vitæ, the force of which was not sufficient to draw in the bowels, unless they were misted by reason of the excessive pain which molested the Patient upon the least stir-up and strengthening the native heat. So that if this purulent humor flowed out of the arm into the belly, it must needs flow back into the veins, be mixed with the blood, and by its poisonous and contagious passage through the heart and liver, cause exceeding ill symptoms, and lastly death. 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Book XI.

and other fiery Engines, and all sorts of Weapons.

wherefore I feared to be prompted to use

fleced or round friotions, as they term them.

A medicated Lye.

A discouraging Cataplasm.

For the operation of writing this Apology.

The chief heads of our adversities.

For the sake of reading.

All wounds made by Gunshot are con¬

styled, and all others, who have written of Physick. Neither must we invent new remedies, for these new kinds of wounds, for the Laws of the sacred and divine Art of Physick, are no obnoxious to change, nor suffer to the humor of men or times, as the Decrees of Kings and Emperours are. For these are established with immutability necessity, which constancy neither confuming time nor age, nor tyranny can prevent. Wherefore neither these who with great prife are Physicians to Kings and Princes, I mean fiabert and Pecatarius, think it lawful for them to depart from the rules of Hippocrates. And this they not only do and follow in curing and doing the works of Art, but much and highly commend, confirm, and propound to be diligently observed by all in their Books, which they have published concerning the cure of these kinds of wounds. And yet these Physicians are such, as daily covetous in Armies and Kings-houses, have healed and daily cure as many wounded by Gunshot as this Physician our Antagonist hath seen in all his life. Neither do they with these same physicians of these wounds, but almost all that dies such kind, which is to the like use, that if there be nothing which may hinder, or indicate to the contrary, they presently apply suppuratives. And I wonder that he hath not observed how his neighbour Doubles the occasion of this Book, written by a certain Physician, whereby he endeavours to dispense and overthrow, that which I have hitherto writ, of the cure of wounds. And this they not only do and follow in curing and doing the works of Art, but much more eatly profit forth. But had I always special care that the exercises of the Ulecrs should be kept open with hollow taws or pipes put therein: And sometimes this following Cataplasm was applied to resolve the tumor. It Fab. bord. faber. & arbol. an. y. Vellis com. & terrob. an. 1. fpin. chamm. meli. & ref. rub. an. 3. Pelo. rad. Trea. Fler. Duper.Mol. an. 3. & D. Osseum. femp. quantum fufficit. fum cataplasmum ad formam pultis satis liquids. An empluchier de corde sine Mercury was applied thereto, whereby the pain was much allayed, and the tumor lessened: Yet were they not applied before the parts were thoroughly heated by the Fomentations. Frictions and Evaporations: for otherwise this Empluchier could never have been actuated, by reason of the excruilious coldness of the afflicted parts. Neither did we omit cataclysme powders, fit for the drying, and drawing forth of broken bones. He used a vulnerary potion for fifteen days. Also besides the particular frictions of the afflicted parts, I appointed other general frictions of the whole body, which became very lean, for by these, blood together with the spirit was drawn to the parts, and the acid, and fuliginous vapours were breathed forth. To conclude, his Fever and pain being allayed, his appetite restored, by feeding plentifully upon good meats according to his strength, he in a short time became more lively and lively, by the ingenuity of which part he 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 brag of the happy success of these Patients, which have recovered by means, and the favour of God, but that thus I may more fully and perfectly, by familiar examples, instruct young practitioners, in the operations of Chirurgery.

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A suppurative medicine of tried efficacy.

The force of Egyptiacum against putrefaction.

The rage of wounds made by Gunshot.

The force of the air in breeding and augmenting diseases.

The power of the stars upon the air and our bodies.

A suppurative medicine of tried efficacy.

The force of Egyptiacum against putrefaction.

A History.

We, aph. 1.

fol. 2.

in our second Discourse.

The final note been ten.

Thomas and great Ordinance, maintained.
in both, and certainly the Report of great Ordinance may be heard sometimes at forty miles distance, which they make any great battery in the besieging of Cities. Besides also, Iron Balls can turn with incredible celerity by the fired Gun-powder, throw down all things with a horrid force, and that more speedily and violently by how much they resist the more powerfully by their hardness. They report that Lightning mets them, and never let the Partes: Now many by the only violence of the air agitated and vehemently moved by flowing a piece of Ordinance, as touched with Lightning, have died in a moment: their bones being thinned and broken, no sign of hurt appearing in the skin. The fire of Gun-powder when it is fired, is horrid, fury, and pestilence, and the light in that which exhales or comes from bodies killed with Lightning. For men do not only live the fire, but also wild Beasts leave their Dens if touched with Lightnings. Thus the cruelty of the great Ordinance makes no less spoil among Buildings, nor slaughter amongst Men and Beasts, than Lightnings do, as we have formerly shown by examples, not only horrid to see, but even to hear reported as of Mines, the Arcenal of Paris, the City of Malmesbury. These may seem sufficient to teach, that Thunder and Lightning have a great similitude with the flowing of great Ordinance, which notwithstanding I would not have alike in all things. For they neither agree in substance nor matter, but only in the manner of violent breaking or thunder the objects.

Now let us see and examine what manner of cure of Wounds made by Gun-shot our Adversary fatitudes for ours. For he would have woundatives used and applied, yet such as should not be but moist in quality, or of an Empyemiac condition, but hot and dry things. For (faith he) there is a great difference as in Adercests, where the Physicians extends noth other supputation. But here because a contention is present with the wound, this requires to be supplied with suppuration, but the Wound to be dried.

Now to answer this objection, I will refer him to Galen, who will teach him the nature of suppuration, from whom also he may learn that great regard is to be had of the Cast, and more urgent order in the Cure of Compound Diseas: then would he willingly learn of him, whether he can heal a wound made by Gun-shot, or shall first bring that which is caused to perfect maturity. If he affirmative, I will be judged by whatsoever Practitioners he will, to judge how efficaciously these things are. Whereby you may the better understand there is nothing more commodious than our Balsam with Oil of Whetps to ipen wounds made by Gun-shot, if be do that putrefaction, or corruption, a Gun-charge, or other thing do not hinder to stay their bleeding, which if it cannot be he shall, he would have a Medicin applied confining, of the white of an Egg, Balsam Americin, Oil of Roses and Salt. But I leave it to other men's judgment, whether these Medicins have power to stay their bleeding if put into the wound: certainly they will make it bleed the more. For Vinegar feeling it is of a teneous thickness and bithinking, it is so double but that he will cause pain, defiuxion and indammation. To which purpose, I remember I put to drain bleeding, for want of another remedy, a Medicin wherein was some Vinegar, into a Wound received by a Moor, the ear of the Earl of Ralfy, hurt with a Lance run through his arm before Bolster by an English Hobeman. But he comes again to me a little after, complaining and crying out that all his arm hurt like fire, whereas I was glad to defcribe him again, and put another Medicin into his Wound, and had an innegligent Medicin upon the Wound, but poured it not therein. And then above all other remedies he extols his Balsam composed of Oil of Wax and Myrrh beaten together with the white of an Egg, which he faith is equal in operation to the natural Balsam of Peru. For histories, that this hath a faculty to confume the excrementitious humidity of Wounds, and to strengthen the part that no symptom afterwards troubles them. Yet he faith, this don't do so well to well a wound and agglutinate their wounds, as it doeth others which are cut. Yet it is ridiculous to think that such Wounds can be healed after the same manner, as simple Wounds may, which only require the uniting of the loofed continuity. Therefore neither can these Balsams be fit remedies to heal Wounds made by Gun-shot, feeling by reason of their dritness they hinder suppuration, which unless it be procured, the Patient cannot be healed. Wherefore such things ought not to be put into Wounds of this nature, before they be pinn'd, washed and cleansed which may unfix them with things sufficiently to dress so many wounded Soldiers as usually are in an Army, or whence the Souldiers have sufficient reasons to bear the charge thereof. Alto that which he faith is absurd, that the Balsams must be put into the Wounds without Teeth, and pretentely forgetting himself, he faith it will not be used if there be a little and slender Tent put into the Wound, which may easily serve to hinder the suppuration thereof. But how can these Balsams come to the bottoms of Wounds without Teeth, when as it is their chief property to carry Medicins even to the innermost parts of the Wounds, and always keep open a free passage for the evacuation of the quittance? But it is not worthy, that after he hath rejected Urgentuum Egyptiacum, he seventhels bode to apply it, from the beginning until the contention come to perfect assumption, differing it in a deceas of the tops of Wormwood, S. Jovis Wort, the latter Century and Plantain, and so injecting it into the Wound. Besides also a little after he gives another way of using it, which is, to boil a quantity of Honey of Roses in Plantain Water, carefully skimming it, until it be boiled to the confidence of Honey, and then to add as much Egyptiacum thereto, and so to make an Ointment to make those Wounds to suppuration. But I leave it for any skill in Chirurgery to judge, whether such Medicins can be suppuration, or whether they be not rather detersives. Lats all of us, that these Wounds must be dress every fourth day. And if there be a fracture of the bone joined with the Wound, then to move nothing after the first dressing until the eighth day: after which they put in another place be faith, it will be good and expedient to dress it in ten or twelve drops of the formerly defcribed Balsam every day into the Wound. Vertly such doctrine which neither agrees with it well, nor the truth, cannot but much pule a Novice and young Practitioner in Chirurgery, who is not yet versed in the Art, or the operations thereof.
CHAP. XIV.

Another Apology against those who have laboured with new Reasons to prove that Wounds made by Gun-shot are poisoned.

Some few Months ago, I visited a Patient together with some learned Physicians and skilful Chirurgeons. Now they, as it oft-times happens, in way of discourse, begun to argue of the condition and quality of Wounds made by Gun-shot, and endeavoured to prove that they might be poisoned, by five reasons. Not only through the occasion of the Gun-powder, for they all confess that it was free from poison, whether you have regard to its essence, or to its composition but by the Bullet into which the poison may be transfused and incorporated. The first reason is, that Lead being it is of a rare and porous nature, which the calizins of melting and softens organs, is very fit to drink and soak in what liquors Fever you plait. But methinks this conclusion is very weak; for in all mixtures made by Art, such as this is whereof we speak, there are two things to be considered, that is to say, the Matter of the things which enter into the mixture, and the Form. For the Matter, such bodies must be either liquid, or soft, or friable, and lastly, such as may be broken and divided into small particles, that so they may daily in all parts concur and be composed and united. But for their Form, there ought to be a certain affinity, contact, and sympathy. You may perceive this by Water and Oil; for each of them, though of a liquid substance, and such may easily be mixed with divers other things, yet cannot they be mixed the one with the other, by reason of their antipathy of Forms. For thus Gold and Silver are so agreeing with Lead, that as oft as they are melted, Lead is mixed with them. But Brafs and white Lead, white Lead, were melted cannot be mixed together, though contained under the same heaven, and common nature of Metals how then can it be compatible with another thing difficult in the whole kind, much more in Species and Form, to wit, poison? Their second reason in this is, Iron (say they) which is more dense, solid, and left porous, may receive some venenate substan"
Book XI. and other fiery Engines, and all sorts of Weapons.

C H A P. XV.

Wounds made by Arrows differ from such as are made by Gun-shot.

Wounds made by Arrows and Bolts shot out of Cross-Bows, and such like things, differ chiefly in two things, from those which are made by Gun-shot. The first is, that they are oftentimes without contusion, which the other never are. The other is, for that they oftentimes are poisoned. In both these respects their cure is different from the other. But these Wounds made by Arrows is different in it self, by reason of the variety and divers sorts of Darts or Arrows.

C H A P. XVI.

Of the diversity of Arrows and Darts.

Arrows and Darts are different amongst themselves both in manner, and in form or figure, in number, making, capacity or strength. In matter, for that some of them are of Wood, some of Reeds, some are blunt headed, others have piles or heads of Iron, Brass, Lead, Tin, Horn, Glass, Bone. In figure, for that some are round, others cornered, some are sharp-pointed, some barbed, with the barbs facing to the point, or tails, or else curved, or both ways, but some are broad and cut like a Chisell. For their biggness, some are three foot long, some less. For their number, they differ in that, because some have one head, others more. But they vary 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 loosely set on, that by gentle plucking the shaft, they leave their heads behind them, whence dangerous Wounds proceed. But they differ in force, for that some hurt by their Iron solely, others besides, by poison, wherewith they are infected. You may see the other various shapes represented to you in this Figure.

C H A P. 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 signs appear, it is fit you give an absolute judgment to that effect; lest you make the Art to be scandalized by the ignorant. But it is an inhumane part, and much digressing 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 doubtful remedy than none at all.

C H A P. XVIII.

Of drawing forth Arrows.

On must in drawing forth Arrows than Incisions and Dilaerations of Veins and Arteries, Nerves and Tendons. For it is a shameful and honyngers part to do more harm of drawing with your hand than the Iron hath done. Now Arrows are drawn forth two ways, that is, either by extration, or impulsion. Now you must presently at the first drawing pull forth all strange bodies: whether that you may more easily and happily perform, you shall let the Patient in the same posture as he stood when he received his wound; and he must have all his Instruments in a readiness, chiefly that which hath a file pipe and toothed without, into which there is put a sharp iron file, like the Gimblers we formerly mentioned for the taking forth of Bullets; but that it hath no screw at the end, but is larger and thicker, so to widen the Pipe, that so widened it may fill up the hole of the Arrows head whereinto the shaft was put, and so bring.
it forth with it, both out of the flesh as also out of the bony parts, if to 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 out-side, by pressing together of the handle. You shall find the Iron or head that lies hid by these signs: there will be certain roughnesses and inequality on that part, if you feel it up and down with your hand, the flesh there will be bended, livid, or black; and there is a heaviness and pain felt by the Patient both there and in the Wound.

A delineation of Instruments fit to draw forth the heads of Arrows and Darts which are left in the Wounds without shafts.

A hooked Instrument fit for to draw forth strange bodies, as pieces of Masts, and such other things as it can catch hold of, which may also be used in Wounds made by Gun-shot.

But if by chance either Arrows, Darts or Lancets, or any winged head of any other weapon, be run through and left sticking in any part of the Body, as the Thigh, with a portion of the shaft, or staff splitted in pieces, or broken off, then it is fit the Chirurgeon with his cutting Mullets should cut off the end of the shaft or staff, and then with his other Mullets pluck forth the head, as you may see by this Figure.

CHAP. XIX.

How Arrows broken in a Wound may be drawn forth.

But if it chance that the weapon is so broken in the wound that it cannot be taken hold on by the formerly mentioned Mullets, then must you draw, or pluck it out with your Cæsus, or Crows-bill, and other formerly described Instruments. But if the shaft be broken near the head, so that you cannot take hold thereof with your Cæsus-bill, then you shall draw it forth with your Gimblet, which we described before to draw forth Bullets, if such a Gimblet can be fitted in Bullets, it may far better take hold of Wood. But if the head be barbed, as usual-ly the English Arrows are, then if it may be conveniently done, it will be very fitting to thrust them through the parts. For if they should be drawn out the same way they went in, there would be no small danger of breaking or tearing the Vessels and Nerves by these hooked barbs. 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 be safely done; for so the Wound will be the more easily cleansed and consolidated. But on the contrary, if the point tend to any bone, or have many muscles or thick flesh against the head thereof, as it happens sometimes in the Thighs, Legs, and Arms, then you must not thrust the head through, but rather draw it out the same way it came in, dilating the Wound with fit Instruments, and by skill in Anatomy shunning the larger Nerves and Vessels. Therefore for this purpose...
Book XII.

Of Contusions and Gangrenes.

CHAP. XX.

What to do when an Arrow is left fixed or sticking in a Bone.

If the Weapon be so deep set 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 or 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 Crow-bill, or some other firm instrument formerly defended. Then press forth the blood, and affuer 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 eased of the fulness and breadth of humourous, and his molested with inflammation, purifying, and other symptoms which are customarily feared. When the Weapon is drawn forth, and the wound once drest, handle it, if simple, as you do simple wounds; if compound, then according to the condition and manner of the complication of the effects. Certainly the Oil of Whipses, formerly defended, is very good to allay pain. 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 those Wounds at any time prove poisoned, they have it from their primitive cause, to wit, the imposioned Arrows or Darts of their Enemies. You may find it out both by the property of the pain, if that be great and prickling, as it continually ting with Bees, for such pain usually causes in Wounds poisoned with hot poison, as Arrows usually are. Allo you shall know it by the condition of the wounded flesh; for it will become pale and grow livid, with some signs of mortification. To conclude, there happen many and malig symptoms upon Wounds which are imposioned, being such as happen not in the common nature of usual Wounds. Therefore presently after you have plucked forth the strange bodies, encompass the Wound with many and deep Carcifications, apply venous, or with much flame, that to the poison may be more powerfully drawn forth; to which purpose the sticking out of the Wound, performed by one whole mouth hath no foresight therein, but is filled with Oil, that so the poison he which he sucks may not stick nor adhere to the part, will much conduce. Lastly, it must be drawn forth by rubefying, vesicatory, and caustic Medicines, and assailed by Ointments, Cataplasms, Emplasters, and all sorts of local Medicines.

The End of the Eleventh Book.

B O O K XII.

Of CONTUSIONS and G A N G R E N E S.

CHAP. I.

Of Contusions.

Contusion, according to Galen, is a solution of continuity in the Flesh or Bone, caused by the stroke of some heavy and obstinate thing, or a fall from on high. The symptoms of this Disease is by Hyperpotes: called Palpita, and Metamas, that is to say, blackness and bruising: the Latin term it Suggestum. There are divers sorts of these Suggestations 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 wracked or tortured: and sometimes by too loud and forcible exclamations. Besides also, 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 obstinate blows of a hard Trenchon, Club, Stone, and all things which may bruise and press the blood out of the Veins 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 far as one can discern, untouched, the blood pours it forth into the empty spaces of the Muscles, and between the Skin and Muscles, which affect the Ancients have termed Ecchymoses. Hyperpotes calls it by a peculiar name, Naupho: for that in this affect the folwled Vates from as it were to vomit, and verily do vomit or call forth the superfluous blood which is contained in them. From these differences of Contusions are drawn the Indications of curing, as shall appear by the ensuing discourse.
OF THE general Cure of great and enormous Contusions.

T

he blood poured forth into the body, must be evacuated by visible and not visible evacuation. The visible evacuation may be performed by Blood-letting, Cupping-glasses, Hemis, Scarcification, Herellees, and purgeative Medicines; if he be the Patient have not a strong and continual Fever. The not visible evacuation is performed by retching, and fudorific potions, baths, and a slender diet. Concerning Blood-letting, Galen’s opinion is plain, where he bids, in a fall from an high place, and generally for bruises upon what part forever they be to open a Vein, through the parties affected are not of a full constitution: for that, unless you draw blood by opening a Vein, there may inflammations arise from the conceited blood, from whence without death evil accidents may come. After you have drawn blood give him four ounces of Oxycrate to drink; for that by the tenacity of its substance hinders the coagulation of the blood in the Belly, or in fluid thereof you may use this following Potion. 

R Aq. Gentiana $ij juss. boltum in Oxyacrat, in columna distillato robo etelli 5 j. fist posit. These Medicins distil, and call forth by spitting and vomit the congealed blood, if any thereof be contained in the Ventricle or Lungs: it will be expedient to expel the Patient presently in a Sheeps skin, being hot and newly taken from the Sheep, and sprinkled over with a little Myrrhe, Cretes and Salt, and to put him presently in his Bed, and then cover him so that he may sweat plentifully. The next day take away the Sheeps skin, and anoint the body with the following Anodyne and resolving Unguent. 

V Unguent. de althsia inst. Mitu us ut didum est. 

Let him take it in the morning for four or five days. In instead thereof you may make a potion of one dram of Syrups which have power to hinder the coagulation and putrefaction of the blood, such as Syrups of Vinegar and the like. They say that the Water of Green Water-fern, or the Water-mian, the Greater Comfrey, the Seeds of Fienegreek, the leaves of Sage, Marjoram; the flowers of Camomile, Marjoram, and the like. For a Warm Bath bath pow’d to ranthe the skin, to diffolve the clotted blood, by cutting the tough, and mitigating the acid humours, by calling them forth into the surface of the body, and relaxing the passages thereof; so that the rebellious qualities being overcome, there ensues an easy evacuation of the matter by Vomit or Expectoration, if it be in the Stomach, or be contained in the Chest; but by Stool and Urin, if it lie in the lower parts; by sweats and transpiration, if it lie next under the Skin. Wherefore Baths are good for those who have a Purulent matter. But we would not have the Patient enter into the Bath, unless he have first used the abovementioned general remedies, as Blood-letting and Purging; for otherwise there will be no small danger, lest the humour diffused by the heat of the Bath, cause a new defluxion into the parts affected; Wherefore do not thou by any means attempt, to ufe this or the like remedy, having not first had the advice of a Physician.

CHAP. III.

How we must handle Contusions when they are joined with a Wound.

Very great Contusions forthwith requires Blood-letting, or purging, or both; and these either for Evacuation or Revulsion. For thus Hippocrates in a contusion of the head, giveth a Vomitory Potion, the same day in the next day after the blow is broken. And then if the Contusion have a Wound afflicting it, the demolition must be fluid at the beginning with an Ointment made of Bole-Armenick, the White of Eggs and Oil of Roses, and Myrtles, with the Powders of Red Roses, Alum, and Mattich. At the second dressing apply a digestive made of the Yolk of an Egg, Oil of Violets and Turpentine. This following Cataplasm shall be applied to the receares to help for-
A Caution to 

Yet have a care in using of Cataplams, that you do not too much exceed in it, for too frequent and immoderate use of them makes wounds phlegmonous, heated, and purulent. Wherefore, the wound, after it is come to suppuration, must be cleansed, gilded with flesh and cicatrized, unless happily the contused flesh shall be very much torn, so that the native heat forfake it; for then it must be cut away. But if there be any hope to agglutinate it, let it be sewed and other things performed according to Art, but the stitches must not be made too close together, as when the wound is simple, and without contusions, for such wounds are heavily inflamed and swell up, which would occasion either the breaking of the third or flesh, or tearing of the skin.

CHAP. IV.

I

If the skin being whole and not hurt, as far as can be discerned, the flesh which lies under it is contused, and the blood poured forth under the skin make an Ecchymosis, then the patient must be governed according to Art, until the malignant symptoms, which commonly happen, be no more to be feared. Wherefore in the beginning draw blood on the opposite side, both for evacuation and revolution. The contused part shall be cleansed with equal firrations; then shall you apply Cupping-glasses, or Horns, both for evacuation of the blood, which causes the tumour and tension in the part, as also to ventilate and refrigerate the heat of the part, lest it turn into an Abscess. Neither must we, in the mean while any genetle purging of the belly. The first Topick Medicines ought to be adhesive, which must mifte force short while upon the part, that so the veins and arteries may be, as it were, strained and closed up, and so the defluxion hindered, as also that the part itself may be strengthened. This may be the form of such a remedy, in Alumnum acrom. nitri myristicy & albi, am. ij. b. aromat. & sangu. def. am. ij. b. sangu. g. & albi, inc. am. iij. intersc. & albit. & addenda acuti parum, fist med. & con., then you shall resolve it with a fomentation, cataplasm, and dificulting Embitterties.

CHAP. V.

Great Contusions are dangerous even for this cause, for that a Gangrene and mortification sometimes follow them, which Hippocrates taught happen, when the affected part is grown very hard and liquid. Wherefore when the part grows livid and black, and the native colour thereof, by reason of the efflux of the concrete blood is almost extinct, chiefly to ease the part of that burden, Cupping-glasses and Horns shall be applied to the part if it being first cleansed with a Lancet, or else, the following Instrument termed a Scarificator, which hath 8 little wheels sharp and cutting like a Razor, which may be strained and tackled by the pins noted by P. This Instrument is to be commended for that it performs the operation quickly and gently, for it makes 8 incisions in the space that you make one with a Lancet, or Knife.

Then shall you foment the part with strong Vinegar wherein the Roots of Raisin, or of Dragons, Cuckow-pint, Salomon's Seal, Angola gum, and the like, have been boiled, for such acid things do powerfully heat, revolve, and draw the concrete blood from the inner part of the body unto the skin, which by its letting in the part afflicted, destroys the entrance of the vital spirits, the precursors of integrity, yea also extinguisheth the native heat of the same part. Now we must not use these changes but with great discretion, lest so we draw not only that blood which is poured forth of the Veins, but also the other which is contained in the Veils. Moreover, albeit we must not use them, unless when the defluxion is ftaid. For small Contusions (which Galen judgeth by the frauds of the contused part) it is sufficient to apply to disguised them, Virginia-wax discolored and mixed with Common-seeds, Cloves, the Root of the black Briony, (which hath a wonderful faculty to diffuse all blackness and figulation) for the same purpose, you may also apply Wormwood bruised, and so warmed in a dish and sprinkled over with a little white Wine. Also try Wormwood with Oil of Camelioi, Bran, the Powder of Cloves and Nigri, adding thereunto a little Dittany, then put all in a linen cloth, and apply it hot to the part. The following Embitterry doth powerfully diffus and congested blood.

A Scarificator.

A Shows the Cover. B The Bow, or Caffa. 

CHAP.
CHAP. VI.

Of that strange kind of Symptoms which happen upon Contusions of the Ribs.

The ribs contused sometimes by great violence, becomes mucous and florid, or pluffed up like Veal which the Butchers blow up, the Skin remaining whole. This is seen and happens chiefly in that rib which is about the ribs; for this being bruised either by a blow or fall, or a contusio, or any other such like cause, if you press it with your hand, a certain windless or flatulent humour is observed there with a small whitening, which may be heard, and the print of your fingers will remain.

Unlesse you quickly make fit provision against this symptome, there is gathered in that space, which the rib departing from the bones leaves empty, a certain purulent humour, which divers times fouls and corrupts the ribs. It will be cured, if the mucous humour be presently pressed and finally bound with ligatures, yet so that you hinder not the breathing, when as the affect happens upon the Empiater de melilitis, also disclosing fermentation shall be used. The cause of such a humour is a certain mucous flegm, feing that Nature is so weak that it cannot well digest the nourishment, and annihiliate it to the part, but leaves something, as it were half conceited. No otherwise than the conjunctive coat of the eye is sometime so lifted up, and florid by a fhock, that it flants, as it were, out of the orb of the eye, leaving fuch fhock, or matter, as we fee fchoe which are blear-eyed to be troubled withal; because the force and natural strength of the eyes is become more weak, either by the fault of the proper distempers, or the abundance of moisture which flows thither, as it happens in thofe tumours which are against Nature. For flatulenties are easily raifed from a waterlike and phlegmattic humour brought upon by weak heat, which mixed with the heat of the humour, the humour becomes higher.

CHAP. VII.

A Differtation of Mummy, or Mummy.

From adventure it may seem strange what may be the caufe why in this Tractise of curing Contusions or Bruises, I have made no mention of giving Mummy either in Bole or Potion to fuch as have fallen from high places, or have been otherwise bruised, especially feing it is so common and usual, yea the very first and last Medicin of almost all our practitioners at this day in fuch a cafe. But feing I understand, and had learnt from learned Phyficians, that in using remedies, the indication muft always be taken from that which is contrary to the Diseafe. How could I, or how could any other give Mummy in this kind of Diseafe, feing we cannot as yet know what Mummy is, or what is the nature and effence thereof? So that it cannot certainly be judged, whether it have a certain property contrary to the nature and effects of Contusions. This, how it may have, I have thought good to enquire into that large, either do the Phyficians who preferre Mummy, nor the Authors that have written of it, nor the Apothecaries that fell it, know any certainty thereof. For if you read the more ancient Servius and Avenius, or the Modern Matthioli and Thevall, you shall find quite different opinions. Ask the Merchants who bring it to us, ask the Apothecaries who buy it of them to fell it to us, and you shall hear them speak diversly hereof, that in fuch variety of opinions, there is nothing certain and manifest.

Servius and Avenius have judged Mummy to be nothing else but Pygmaisblatum, or those Pigmasthllum is a certain fwoon or foam rising from the Sea, or Sea-water: this fame foam as long as it swins upon the Water is floud, and in fome sort liquid, but pigrieven upon the Wond, that they overthrow and fuffocate fuch passengers as they may withall, the fhock, or fieth, is still a remains in them, and affimilate it to the part, but leaves fomething, as it were half conceded. No_ otherwise than the conjunctive coat of the eye is sometime so lifted up, and florid by a fhook, that it flants, as it were, out of the orb of the eye, leaving fuch fhook, or matter, as we see fchoe which are blear-eyed to be troubled withal; because the force and natural strength of the eyes is become more weak, either by the fault of the proper distempers, or the abundance of moisture which flows thither, as it happens in thoefc tumours which are against Nature. For flatulenties are easily raifed from a waterlike and phlegmattic humour brought upon by weak heat, which mixed with the heat of the humour, the humour becomes higher.

Mummy is a fre-
Now Mahabharata, faith, that all the Mummy which is brought into these parts, is of this kind and condition. For the Noblemen and chief of the Province, to religiously addicted to the Monuments of their Ancients, would never suffer the bodies of their friends and kindred to be transported hither for filthy gain, and such detested use, as we shall shew more at large at the end of this Work. Which thing sometimes moved certain of our French Apothecaries, men wondrous ambitious and covetous, to that end, by night the bodies of such as were hanged, and embalming them with salt and drugs, they dried them in an Oven, to sell them thus adulterated in stead of true Mummy. Wherefore we are thus compelled both foolishly and cruelly to devour the mangled and putrid particles of the cadavers of the base people of or of such as are hanged, as though there were no other way to help or recover one bruised with a fall from a high place, than to bury Man by an horrid insertion in their, that is, in Mans Guts. Now if that Drug were any way powerful for that they require, they might perhaps have some pretence for this their more than barbarous inhumanity. But the cause stands thus, that this wicked kind of Drug, doth nothing help the diseased, in that case, wherefore and wherein it is administered, as I have tried a hundred times, and as testimonies, he tried in himself, when he took some thereof by the advice of a certain French Physician in Egypt, from whence it is brought, but it also infers many troublesome symptoms, as the pain of the heart grown, vomiting and thin at the mouth.

I, persuaded by these reasons, do not only my self not prescribe any hereof to my Patients, but also in confiderations, endeavour what I may, that it be not precontracted by others. It is far better, according to Galen's opinion, in Method, to drink some Oxyerate, which by its fluidity expellth the flowing blood, and by its tenacity of substance dissolveth and dissipateth the congealed clots thereof. Many reasons of learned Physicians (from whom I have learned this History of Mummy) drawn Contusions.

The effects of Oxyerat in Contusions.

But hurtful, and how.

The real and symptomatic of Contusions.

L Combinations whether occasioned by Gun-powder, or by scalding Oil, Water, some Metal, or what things foever else, differ only in magnitude. These first cause pain in the part, and imprint in it an unnatural heat. Which favouring of the fire, leaves that impression, which the Greeks call Enzymperms. There are many or less signs of this impression, according to the condition of the part burnt, glowing, glowing, burning, or ardent, which appears upon the same. If the combination be insensible, the skin rises into pustules and blisters, unless it be speedily prevented. If it be low or deep in, it is covered with an Eschar or Crust, the burnt flesh by the force of the fire turning into that crafty hardness. The burning force of the fire, upon whatsoever part it falls, leaves a hot distemper therein, condenzates, contracts, and thickens the skin, whence pain proceeds; from pain there comes an attraction of humors from the adjacent and remote parts. These humors presently turn into watery or fecous moisture, whilst they seek to pass past the crust, and are hindered thereof by the skin condenzates by the action of the fire, they lift it up higher, and raise the blisters which we see. Hence divers Indications are drawn, whence proceeds the variety of Medicins for burns. Formerly take away the Empyreuma, that is, the heat of the fire, (as we term it) and affwage the pain; other hinder the rising of blisters, other are fit to cure the ulcer, first to procure the falling away of the Eschar, then to cleanse, generate flesh, and electrize it. Remedies fit to affwage pain, and take away the fiery heat, are of two kinds: one for some do it by a cooling faculty, by which they extinguish the prettenatural heat, and expel or keep back the blood and humours, which flow into the parts by reason of heat and pain. Others used with contrary faculties, are hot and attractive, as which by relaxing the skin, and opening the pores, resolve and dissipate the fecous humours, which yield both heat and matter to the putules; and by accident affwage the pain and heat. Refrigerating: things are Cold Water, the Waters of Platanum, Nightshade, Henbane, Houndstooth, and the like. Of these some may be compounded, as some of the fore-named juices beaten with the white of an Egg, Clay beaten and diffolved in strong Vinegar, Hone-Rum diffolved in Water, with the Whites of Eggs beaten therein, Writing-Ink mixed with Vinegar, and a little Camphire, Unguentum durum, and also Populous newly made. These and the like shall be now and then renewed, chiefly at the first, until the heat and pain be gone. But these same remedies must be applied warm, for if they should be laid, or put to cold, they would cause pain and consequently defluxions; besides also, their strength could not pass, or enter into the part, or be brought into action; but so they affwage pain, hinder inflammation and the rising of blisters.

A Mongst the hot and attractive things which by rarifying, drawing out, and dissolving, affwage the pain and heat of combustions, the fire challenges the first place, especially when the burning is hot. For the very common people is hot final. For the very common people know and find by daily experience, that the heat of the lightly burnt part vanishes away, and the pain affwaged, if they burn the part which was burnt some while to the heat of a lighted Candle or burning Coals, for the familiar
lucite cauteth attraction. Thus the external fire, which it draws forth the fire which is internal and imminent into the part, is a remedy against the disease it caused and bred. It is also an easily made and approved remedy, if they presently after the burnt part have been dipped partly after the burn, and partly in well Salt. Now you must note that this Medicine takes no place, if it be once gone into an ulcer, for it would increase the pain and inflammation, but if it be applied when the skin is yet whole and not excoriated, it doth no such thing, but renders the riting of blisters and blisters. Hippocrates for this cause also says this kind of remedy in procuring the fall of the Ejechar. If any endeavor to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured to gain-fry the use of this remedy by that principle in Phythicus, which says, that Contraries are cured.
Gangrene, firft giving you the definition, then the causes, signs, prognostics, and lastly, the treatment. The Book which is in the temper and consistence of bodies, and the stubbornness and gentleness of Diseases. will tell you in our Treatise of the Plague, how it must be smoothed and made even.

After a Burn the Scar which remaineth is commonly rough, unequal, and ill-favoured: therefore we must not ulcerating or taking off the skin, and so infinuate and throughly fasten it self into the flesh by its tenacity, that it cannot be taken or drawn out thence by any remedies, no not by Phlegmoties, nor Vaccinations, nor Scleroties, nor Horns, so that the Parts thereof always remain, no otherwise than the marks which the Barbarians burn in their Slaves, which cannot afterwars be taken away or destroyed by any Art.

Barbarians otherwise than the marks which the Barbarians burn in their Slaves, which cannot afterwards be taken away, as a certain disposition, and way to the mortification of the part, and oft-times of the whole body, wherefor I have thought good in this place to treat of a Gangrene, first giving you the definition, then showing you the causes, signs, prognostics, and lastly, the manner of the Cure. For a Gangrene is a certain disposition, and way to the mortification of the part, which it seizeth upon, dying by little and little. For when there is a perfect mortification, it is called by the Greeks Sphacelot, by the Latins Syderatio, our Country-men term it the Fire of Sphacelot, or S. Marcellum.

Certainly the malign symptoms which happen upon Wounds, and the solutions of Continuity, are many, caused either by the ignorance or negligence of the Chirurgeon; 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 mortification and death of the part, and oft-times of the whole body; wherefor I have thought good in this place to treat of a Gangrene, first giving you the definition, then showing you the causes, signs, prognostics, and lastly, the manner of the Cure. Now a Gangrene is a certain disposition, and way to the mortification of the part, which it seizeth upon, dying by little and little. For when there is a perfect mortification, it is called by the Greeks Sphacelot, by the Latins Syderatio; our Country-men term it the Fire of Sphacelot, or S. Marcellum.

The most general cause of a Gangrene is, when by the dissolution of the harmony and joint temper of the four first 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, lightness, and plenty etc. Now the particular causes are many: and these either primitive or antecedent. The primitive or external are: contusions caused by things either actually or potentially burning; actually, as by Fire, scalding Oil, or Water, Gun-powder fired, and the like. But potentially by acrid Medicines, as Sublimate, Vitriol, potential Cauteries, and other things of the same nature: for all these cause a great inflammation in the part. But the ambient air may cause great refrigerations, and also a Gangrene, which caused by the air to call great refrigerations of the Brain Sphacelot. Therefore the unwise and unjust application of cold and narcotic things, a fracture, laceration, and great contusion, too great bandages, the biting of Beasts, especially of such as are venomous, a puncture of the Nerves and Tendons, the wounds of the nervous parts and joints, especially in bodies which are phlegmatic and replete with ill humours, great wounds whereby the Vessels which carry life are much cut, whence Aneurisma, and lastly, many other causes, which perturb that harmony of the four prime qualities which we formerly mentioned, and so infer a Gangrene.

Now the Antecedent or Internal and Corporal causes of a Gangrene, are plentiful and how dreadful cause a Gangrene. Cold causes a Gangrene.

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Of Contusions and Gangrene.

A History.

Gangrene, no pain, tumour, blackness, nor any other precedent sign of a Gangrene going before. For John de Piga saith, that happened to a certain Gentlevoman of Genoa under his care.

I remember the fame happened to a certain man in Paris, who, falling mortally, and without any pain on a bed, and suddenly in the night time a Gangrene crept on both his legs, causing a mortification without tumor, without inflammation, only his legs were in some places filled over with livid, black, and green spots: for the ret of the substance retaining his native colour: yet the flesh of their parts was quite dead, they felt cold to the touch: and if you did thrust your lancet into the skin no blood came forth.

A Council of Physicians being called, they thought good to cut the skin and feel lying under it, with many deep incisions: when I had done, there came forth a little black, thick, and as it were, congealed blood: wherefore this remedy, as also divers other, proved to no purpose; for in conclusion, a black blood coming into his face and the ret of his body, he died frantick.

I leave it to the Reader's judgment, whether so speedily and suddenly that the Gangrene which is caused by cold, doth set and principally affects upon the parts most distant from the heart, the fountain of heat, to wit, the feet and legs: as also those as are cold by nature, as gritty parts, such as the Nose and Ears.

CHAP. XIII.

Of the Signs of a Gangrene.

The signs of a Gangrene, which inflammatiion or a Phlegmon hath caused, are pain and pul-

lation without manifeft cause, the sudden changing of the fiery and red colour into a livid

or black, as Hippocrates testifies, where he speaks of the Gangrene of a broken heel. I would have you here to understand the palpable pain, not to be done to which is caused by the quicker

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that the head of the Muscle is not yet taken with the Gangrene: which moving it felt by its own strength, also moves its proper and continued round and tall though dead already, wherefore it is ill to make any delay in such cases.

CHAP. XIV.
Of the Prognostics in Gangrenes.

Having given you the signs and causes to know a Gangrene it is fit we also give you the Prognosticks. The serenitie and the malignity thereof is so great, that unless it be modified speedily with the supervision of a physician, it will immediately deftroy itself. For as Hippocrates writes, Lib. de Fulner. capit. 5, Marcii & exuariae mada de proportio, (b) there is no proportion between the dead and living. Wherefore it is fit presently to separate the dead from the living; for unless that be done, the living will die by the contagion of the mortification, which hath been the caufe that a Gangrene by much it hath been termed an Elibionis. For such corruption creeps out like poison, and like fire, eats, gnaws, and destroys all the neighbouring parts. And 6. Nov. the whole body will die, and also take that unless it be removed by the contagion of its mortification; which hath been the caufe of one of them termed an Ephiomenos. For such corruption creeps out like poison, destroys all the neighbouring parts, until it hath spread over the whole body. Wherefore the first step in cleanliness and opening, amend and correct the putrefaction and evacuation; and let the Scarcations be made according to the condition of the Gangrene, which are so commended, that to the hardened part may be applied the beneficent fit of perfpiration; and the contained humour of dilution, or evacuation, of their foory excrements. Let Indurations be made when the affect is great, deep and near to mortification. But Scarcations may be used when the part feels but to perspire, for the greatest part of the remedy answer in proportion to that of the disease. Wherefore if it puncture to the lees, it will be of service to cut the skin and flesh with many and deep Inductions, with an Induction-base made for that purpose, yet take care of cutting the larger Nerves and Veins; unless they be wholly punctured, for if they be not yet punctured, you shall make your Inductions in the spaces between them; if the Gangrene be less, we must rest satisfied with only puncturing it. When the Scarcations and Inductions are made, we must suffer much blood to flow freely, that so the conjunct matter may be evacuated. Then must we apply and put upon it such Medicines as may by watering, drying, relieving, cleansing and opening, assist and correct the putrefaction, and by piercing to the bottom may have power to overcome the vitious already inculpt in the part. For this purpose, Liquids made

CHAP. XV.
Of the general Cure of a Gangrene.

He indications of curing Gangrenes are to be drawn from their differences, for the cure must be diversly intituted according to the disease and magnitude. For some Gangrenes possess the whole member, others only some portion thereof; some are deep, others superficial only. Also you must have regard to the temper of the body. For infirm and delicate bodies, as of Children, Women, Eunuchs, 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, Labourers, Hunters, Porters, and men of the like nature who live fattening and hardly. Nor must you have respect to the body in general, but also to the parts affected; for the flabby and thickly parts are different from the solid; as the Nerves and Joints, or more solid, as the Peristome. Now the hot and moist parts, as the Preputium, Meatus, Womb, and Fundament, are colder and sooner taken hold of by putrefaction, wherefore we must use more speedy means to help them. Wherefore if the Gangrene be chiefly occasioned from an internal cause, he must have a Diet prescribed for the deceit and setting of the fire, and not Natural. If the body be phlegmatic, or full of humours, you must purge, or let blood by the advice of a Physician. Against the ascending up of vapours to the noble parts, the heart must chiefly be strengthened with Treacle dissolved in Sored or Cordium Water, with a bole of Mithridate, the Confitve of Rogets and Eulogis, and with Ointments made for the present purpose according to Art; this following Apozene shall be outwardly applied to the region of the heart. K. A. Azure Roter, & nemaphor. ort. 3 tvv. A cordis recte stigitatis, & cor, cornalium, sanctalorum album & rubrum, rifer. rub. in polvere redactam, & polli, thora, ae. 3 t. mulcit. & thoret. ort. 3 t. Inj. doufforum de Capheira 3 at. fluce card. in pollice, reditariusum, pol. crou. 3 J. Ex omnibus in polium redactis, fist J. Elishennifer. Which may be applied upon the region of the heart with a scarlet cloth or sponge. There are usually such as happen to the Cure of every Gangrene.

CHAP. XVI.
Of the particular Cure of a Gangrene.

The cure of a Gangrene caused by too plentiful and violent diffusion of humours suffocating the native heat, by reason of great Pilemogus is performed by evacuating and drying up the humours, which pursue by delay and collection in the part. For this purpose Scarcinations and Inductions, great, indifferent, small, deep, and superficial, according to the condition of the Gangrene, are much commended; that to the hardened part may enjoy the beneficent fit of perfpiration; and the contained humour of dilution, or evacuation, of their foory excrements. Let Inductions be made when the affect is great, deep, and near to mortification. But Scarcinations may be used when the part feels but to perspire, for the greatest part of the remedy answer in proportion to that of the disease. Wherefore if it puncture to the lees, it will be of service to cut the skin and flesh with many and deep Inductions, with an Induction-base made for that purpose, yet take care of cutting the larger Nerves and Veins; unless they be wholly punctured, for if they be not yet punctured, you shall make your Inductions in the spaces between them; if the Gangrene be less, we must rest satisfied with only puncturing it. When the Scarcations and Inductions are made, we must suffer much blood to flow freely, that so the conjunct matter may be evacuated. Then must we apply and put upon it such Medicines as may by watering, drying, relieving, cleansing and opening, assist and correct the putrefaction, and by piercing to the bottom may have power to overcome the vitious already inculpt in the part. For this purpose, Liquids made
The description of an Effect of Medicines for a Gangrene.

Or R. Accr. opini. j. med. ref. 3. iv. syr. sop. acetorum i. i. fils com. 3. v. bulliant fomum, addo aqua vina, fli. L. Let the part be frequently washed with this Medicine, for it hath much force to expel Gangrenes. After your Lotion, lay Accr. opini. for a Liniment, and put it into the Indications, for there is no Medicine more powerful against putrefaction, for by causing an Effuse, it separates the putrid flesh from the found. But we must not in this kind of aspect expect that the putrid flesh may be cut off from the found, but rather cut off with your Incision-knife. The knowledge hereof may be acquired from the colour, smell, and sensibleness of the part. The description of the Accr. opini., whose wonderous effects I have often tried in these cases, is this.

Ch. XIV. Of Contusions and Gangrenes. Book XII.

Of Gangrenes which may be used in care of a Gangrene.

Gli. ed Roseo.

A astrigent that may be used in care of a Gangrene.

After applying this astrigent, or other astrigent, it must be often renewed. If the grief be so obstinate, that it will not yield to the described remedies, we must come to stronger, to wit, Cauteries, after whose application the inflammation will immediately cease.

A wondrous symptom.

Yet must be certain of the mortification of the part, for it is no little or small matter to cut off a member without a caute.

Therefore I have thought it fit to set down the signs whereby you may know a perfect and absolute mortification.

CHAP. XVII.

The signs of a perfect Necrosis, or Mortification.

A note concerning the uncertainties of the part.

On shall certainly know, that a Gangrene is turned into a Sphacel, or mortification, and that the part is wholly and thoroughly dead, if it look a black colour, and be colder than to your touch, the cause of which coldness is not occasioned by the frigidity of the air, but there be a great fineness of the part, so that if you press it with your finger it riles not again, but retains the print of the impression; if the skin come from the thigh lying under it, it is great and firm a small exsude (especially in an ulcerated Sphacel) that the Hindus by certain indica can observe, if is a famous moisture, viscid, green or blackish, flowing from the wound, if it be quite distinct of itself, and motion, whether it be pulled, beaten, crushed, pricked, burned, or cut off. Here I must admonish the young Surgeon, that he be not deceived concerning the loss or privation of the fever of the part. For I know very many deceived as thus the Patients pricked on that part, would fly, they felt much pain there. But that feeling is oft deceitful, as that which proceeds farther from the amputation of that part for a long while after they will complain of the part which is cut away.

Verily it is a thing wonderous strange and prodigious, and which will scarce be credited, unless by such as have seen with their eyes and heard with their ears the Patients, who have many months after the cutting away of the Leg, grievously complained that they yet felt exceeding great pain of that Leg, to cut off. Wherefore have a special care lest this hinder your intended amputation; a thing pitiful, 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 signs of a Sphacel and perfect mortification; for otherwise the neglected fire will in a moment spread over all the body, and take away all hope of recovery; for thus Hoppeswart witheth, That Sections, Ulcers, and Terebrations must be performed as soon as need requires.

CHAP. XVIII.

Where Amputation must be made.

It is not sufficient to know that Amputation is necessary, but also you must learn in what place of the dead part it must be done, and herein the wisdom and judgment of the Chirugon is most apparent. Art bids to take hold of the quick, and to cut off the member in the found flesh, but the same Art witheth us, to performe whole that which is found as much as is unles.
will you by a familiar example how thou mayest carry thyself in these difficulties. Let us suppose, that the foot is mortified even to the ankle; here you must attentively mark in what place you must cut it off. For unless you take hold of the quick flesh in the amputation, or if you have any putrefaction, you profit nothing by amputation, for it will creep and spread over the rest of the body. It behoves Physick, ordained for the preservation of Mankind, to defend from the Iron or Instrument, and all manner of injury, that which imparts life and health. Wherefore you shall cut off as little of that which is found as you possibly can yet so that you rather cut away that which is quick, than leave behind any thing that is perished, according to the advice of Celsus. Yet oftentimes the commodity of the action of the rest of the part, and as it were a certain ornament thereof, changes this counsel. For if you take these two things into your consideration they will induce you, in this proposed case and example, to cut off the Leg: some five fingers breadth under the Knee. For to the Patient may more fitly use the rest of his leg, and as it were a certain ornament thereof, and that according to the common Rules of Art, you cut it off close to that which is perished, the Patient will be forced with trouble to use three legs in stead of two.

For I know Captain Francis Clark, when as his foot was struck off with an iron bullet, that an observable part of a man of War, and afterwards recovered and healed up, he was much troubled and wearied with the heavy and unprofitable burden of the rest of his leg, wherefore, though whole and found, he cut the rest thereof to be cut off, some five fingers breadth below his Knee: and verily he used it with much more ease and facility than before in the performance of any motion. We must do otherwise if any such thing happen in the Arms: that is, you must cut off as little of the found part as you possibly can. For the actions of the legs much differ from those of the arms, and chiefly in this that the body rests not, neither is carried upon the arms, as it is upon the feet and legs.

CHAP. XIX.

How the Section or Amputation must be performed.

The first care must be of the Patient’s strength: wherefore let him be nourished with meats of good nutriment, easy digestion, and such as generate many spirits, as with the yolks of Eggs, and Bread tost and dipped in Sack or Muskadine. Then let him be placed as is fit, and drawing the Muscles upwards towards the found parts, let them be tied with a strong ligature a little above that place of the member which is to be cut off, with a strong and broad litter, like that which women usually bind up their hair withal. This ligature hath a threefold use: the first is, that it hold the muscles drawn up together with the skin, so that retiring back presently after the performance of the work, they may cover the ends of the cut bones, and serve them in stead of bolster or pillows when they are healed up, and do suffer with less pain the compression in sustaining the weight of the body. The second is, for that it prohibits the flux of blood by pressing and shutting up the Veins and Arteries. The third is, for that it dulleth the sense of the part by stupefying it, the animal spirits by the strict compressing being hindered from passing in by the Nerves. Wherefore when you have made your ligature, cut the flesh even to the bone with a sharp and well-cutting incision-knife, or with a crooked knife, such as is here expressed.

A crooked Knife fit for dismembering, or a dismembering Knife. The Figure of such a Saw.

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 nearly like a crooked incision-knife. I thought good toadvertise thee hither, 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 off and divided, you shall nimblly divide it with a little Saw about some toe and 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.
CHAP. XX.
How to stanch the bleeding, when the members are cut 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 left obnoxious to inflammation and other symptoms. Then let the Veins and Arteries be bound up as speedily and straitly as you can, that so to the course of the flowing blood may be stopped and wholly stayed. Which may be done by taking hold of the Vessels with your Crow's-beak, whereof the Figure follows.

CHAP. XXI.
How, after the blood is stanched, you must dress the wounded member.

When you have the tied Vessels, loose your Ligature which you made above the place of amputation, then draw together the lips of the Wound with four stitches made across, having taken good hold of the flesh, for thus you shall draw over the bones that part of the skin and cut muscles drawn upwards before the amputation, and cover them as close as you can, that so the air may the less come at them, and that so the Wound may be the more speedily agglutinated. But when we say, draw together the lips of the Wound with four stitches, you must not so underhand it, as that you must endeavour to draw them so close as to touch each other, for that is impossible: for the stitches would sooner break out, and so the part would lie bare. Wherefore it will be sufficient to draw them indifferent close together, that so you may suffer the skin and flesh thereby to enjoy its former liberty which it possessed before the drawing up, and so in fine, by Nature's assistance, the Wound may be the more easily agglutinated.

CHAP. XXII.
How you must stop the bleeding, if any of the bound-up Vessels chance to get loose.

The haemorrhage of any of the Vessels is not to be regarded.

The Crow's-beak is 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, and drawn with this Instrument forth of the muscles, whereinto they are somewhat withdrawn by the amputation, as all parts are still used to withdraw themselves towards their originals. To performance of this work, you need take no great care, if you together with the Vessels comprehend some portion of the neighbouring parts, as of the flesh, for hereon will ensue no harm: but the Vessels will be consoled, with more ease, than if they being bloodless parts should grow together by themselves. To conclude, when you have so drawn them forth, bind them with a strong double thread.

How to draw forth the Vessels and bind them.

The Crow's-beak is fit for to draw the Vessels forth of the flesh wherein they lie hid, that so they may be tied or bound fast.

How the lips of the dismembered part are to be joined together.

The haemorrhage of small Vessels is not to be regarded.
BOOK XII.
Of Contusions and Gangrene.

CHAP. XXIII.

How to perform the relief of the Cure of the amputated Member.

Now must we feew what Medicines are fitting to be applied after the amputation of a member; which are Emplastic, as thofe which exceedingly conduces to green Wounds, as, 
R. Aloes, myrrh, croci. 

R. Aloe, myrrh, galbanum, &c. 

And in thefe Medicines, which may be applied to the green Wound, mixi.Balls of lint or ftripes, and five or six more, which may be applied to the Wound, and let them be of fmall fized fafe poffible hereafter to be tied up, and laid thereon dry Lint, but let the foregoing Reparative or Defenfive be applied to the Member. 

4. Alum, Balsam, Galbanum, 

3. Balsamum, fub faltu, &c. 

2. Aloe, myrrh, galbanum, &c. 

1. Aloe, myrrh, galbanum, &c.

This Artifice must be applied upon fpoons dipped in Oxycrate, and that fo that it may not only cover the cut Member, but alfo be fpread further and cover the neighbouring parts, as when the Leg is cut off, it muft be laid upon the joint, and fpread higher than the knee, fome fponges fpanned upon the Thigh, ft that not onely a Repercussive faculty, but alfo throughout the part, hinders the defluxion by tempering the bloud, alfo f tendering, and haming inflammation. It will alfo be good to moiften your double cloths and fpread further and cover the neighbouring parts, as when the Leg is cut off, it muft be laid upon the joint, and fpread higher than the knee, fome fponges fpanned upon the Thigh, ft that not onely a Repercussive faculty, but alfo throughout the part, hinders the defluxion by tempering the bloud, alfo f tendering, and haming inflammation. 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flying fish first wounds made in the quick and sound flesh, are ended with exquisite finde: Neither can any cautery be applied to nervous bodies, but that this horrid imprefion of the fire will be precededly communicated to the inward parts; whence horrid symptoms ensue, and off-times death it self. And verily of such as were burnt, the third part were never recovered, and that with much ado, for that caufbunt Wounds difficultly come to cicatrization for by this burning are caufed cruel pains, whence a Fever, Convulfion, and off-times other accidents worse than death. And verily of fuch as were burnt, the third part scarce ever recovered, and that with much ado for that caufbunt Wounds difficultly come to cicatrization for by this burning are caufed cruel pains, whence a Fever, Convulfion, and oft-times other accidents worse than death. Add hereunto that when the catarh fell away, oft-times a new hemorrhage ensued, for burning whereof they were forced to use other cauteries and burning Instruments. Neither did they good men know any other course: for by this repetition, there were great loss and waste made of the feiftiy and nervous substance 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 dismembered; which also took away the opportunity of strong or putting to of an artificial leg or arm, in feift of that which was taken off. Wherefore I must earnestly in¬
Galen that there was no fpedier remedy for ftanching of bloud than to bind the Vessels read in

The pra&ice of the former precepts I declared, together with a memorable History of a certain Soldier whose Arm was taken off at the Elbow.

A History.

I think it fit to confirm by an example, the prescribed Method of curing a Gangrene and Morфи¬
cation. Whilst I was a Chirurgeon to the Marshal of Mantua at Turin, a certain common Soldier received a Wound on his writhe with a Musket-ball, by which the bones and tendons being much broken, and the nervous bodies cruelly torn, as well as all the Muscles, and at length a Mor¬
fication ensued to the Elbow; besides also an inflammation feized upon the middle part of his Cheft, and that as it was a certain disposition to a Gangrene; whereby it followed, that he was painfull and dangerously troubled with belchings, hicketings, watchings, unquietnefs, and frequent vomitings, which occasioned many Chirurgeons to leave him as desperate. But it fell out, that I (overwhelmed with his Friends importunity) and took the care of this wretched perfon, and didst all im¬
novic, thmbing and not touching the inner part, by the reafon of the multitude of the large Voffsels that run that way: Wherefore knowing the mortification by its figns, I cut off the Arm by the Elbow as speedily as I could, making fuch the ligature, whereof I made mention: I fay I took it off with a Saw, but only with an Incifion-Kife, cutting in funder the ligaments which held the bones to¬
gether, because the fphace was not paffed the joint of the Elbow. Neither ought this Seificion to be
caufed by cutting the common tendons and ligaments. But fuch incifion being made, the former
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wards to free it from the danger and fear of inflammation and a Gangrene; foonfter I then panch¬
ched the bloud with an hot Iron, for as yet I knew no other course. Then (gently looking the liga¬
ture) I fcarified that part of the brawn of the Arm which was gangrenated, with many and deep in¬
cisions, thmbing and not touching the inner part, by the reafon of the multitude of the large Voffsels and Nerves which ran that way: then I prefently applied a Cautery to fome of the Incifions, both to
ftanch the bleeding, and draw forth the virulent fanies 1 of the bloud with an hot Iron, for as yet I knew no other course. Then (gently looking the ligature) I fcarified that part of the brawn of the Arm which was gangrenated, with many and deep in¬
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Of Ulcers, Fistulae, and Hemorrhoides.

BOOK XIII.

Of Ulcers, Fistulae, and Hemorrhoides.

CHAP. I.

Of the Nature, Causes, and Differences of Ulcers.

Having already handled and treated of the Nature, Differences, Causes, Signs and Cure of fresh and bloody Wounds, Reason and Order seem to require that we now speak of Ulcers, taking our beginning from the ambiguity of the name. For according to Hippocrates, the name of Ulcer most generally taken may signify all or any solution of Continuity, in which sense it is read that all Pain is an Ulcer. Generally, for a Wound and Ulcer properly so called, as appears by his Book De Ulceribus. Properly, Stab. 1. pag. as when he faith, it is a sign of death when an Ulcer is dried up through an Atrophia, or defect of nourishment. We have here determined to speak of an Ulcer in this last and proper signification. And what an ulcer, according thereto we define an Ulcer to be the solution of Continuity in a soft part, and that not bloody, but forbid and unripe, flowing with putrefaction, festers or any such like corruption, associated with one or more affections against Nature, which hinder the healing and agglutination thereof; or that we may give it in fewer words according to Galen’s opinion. An Ulcer is a solution of Continuity, caused by Erosion. The causes of Ulcers are either internal or external. The internal are through the decline of humours, in quality rather than in quantity, or else both, and so makingcretion in the skin and softer parts by their acrimony and malignity; now these things happen either by naughty and irregular diet, or by the ill disposition of the entrails, feeding forth and emptying into the habit of the body this their ill disposition. The external causes are, the excess of cold and heat.

Now drawing out the Instrument I kept his mouth open by putting in a Willow fick on each side thereof; thus I might the more easily feed him with meat soon made, as with Cows milk and fresh Eggs, until he had recovered power to eat, the convulsion having left him. He by this means freed from the Convulsion, I then again began the cure of his arm, and with an actual Cautery feared the end of the bone, so to dry up the perpetual afflux of corrupt matter. It is not altogether for your knowledge, that he said, how that he was wonderfully delighted by the application of such adual cauteries, a certain tickling running the whole length of the arm by reason of the gentle diffusion of the heat by the applying the cauteries, which fame thing I have observed in many others, especially in Such as lay upon the like occasion in the Hospital of Paris. After this cautering there fell away many and large scales of the bone, the freer appulse of the air than was fit making much thereto; besides when there was place for fomentation, with the decoction of red Rose leaves, Wormwood, Sage, Bay-leaves, Flowers of Camomil, Melilot, Dill, I so comforted the part, that I at last, by the same means, drew and took away the violent festers, which firmly adhered to the flesh and bones. Lastly, it came to pass, that by God’s assistance thefe means I used, and my careful diligence, he at length recovered. Wherefore I would admonish the young Chirurgeon, Monfters or miracles in Difeases are also Monfters.

The End of the Twelfth Book.
Of Ulcers, Fistulae, and Hemorrhoids. **Book XIII.**

Feeling upon any part, especially more remote from the fountain of heat, whence follows pain, whereby proceeds an attraction of humours and spirits into the part, and the corruption of these to drawn ulcers by reason of the debility or extinction of the native heat at that part, whence lathy ulceration proceeds. In this number of external causes may be ranged, a ranked corruption, the application of warm and acid medicines, as Causticks, Burns, as also impure contagion, as appears by the virulent Ulcers acquired by the filthy copulation or too familiar conversation of such as have the French Disease. How many and what the differences of Ulcers are, you may see here described in this following Scheme.

A Table of the Differences of Ulcers.

<table>
<thead>
<tr>
<th>Figure, whence one Ulcer is called</th>
<th>Proper, which are usually drawn from three angles, or sides</th>
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<tbody>
<tr>
<td>Round or Circular</td>
<td>Quantity, and that either according to their</td>
</tr>
<tr>
<td>An Ulcer is an imperfect solution of continuity in a fist part, flowing with flux and matter or other corruption, whereof there are two chief differences, for one</td>
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<td>Common and accidental, and those drawn either</td>
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</table>

Or Common, and many and various ways complicated, or

- With the cause, whence an Ulcer
  - In Cacochymick, Catarrhick or venenate, that is, a Caco-chymia or Repletion of ill humours, a Catarrh, or poison by which solution of continuity, or any other discommodity, whence a rough, callous, fistulous, cavernous or cavernous Ulcer, with luxation, failure, &c.
  - With the Symptom, whence a corroding, eating, painful, fletcher and virulent Ulcer.

- With the cause and disease
  - With the cause and Symptom
  - With the disease and Symptom

- With the cause, disease, and Symptom

Examples whereof may be taken from those we have formerly delivered.

CHAP.
There are various signs of Ulcers according to their differences. For it is the sign of a putrid Ulcer, if it exhalate a fetid, grievous, flaming and carious-like vapour, together with that putrid Ulcer matter. An eating Ulcer is known by the eating in, hollowness and wasting away of the part wherein it resides, together with the adjoining parts. A festid Ulcer may be known by the geesness and vividness of the excrement it sends forth, and by the loose and spongy form of it, or the created inequality of the flesh which grows over it. A cavernous Ulcer, by the draughts of the orifice, and large and deepness of the windings within. A filitious Ulcer, if to the last mentioned signs there accrew a callos hardness of the lips or sides of the Ulcer.—A cavernous Ulcer is horrible to be hold, with the lips turned black, hard and swollen, bowing with violent and flaming 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, a detempered Ulcer, is such as is nourished by some great temperater, whether hot or cold, moist or dry, or compounded of these. An ill-natured or malign Ulcer is known by the difficulty of curing and rebellious constancy to remedies appointed according to Art and Reason. We know a caustious Ulcer, if the matter which feeds it doth it from some fountain thereto adjoined or diluted, swollen and broken Veins, or from some entailed, or from the whole body being ill affected. An Apoplectic Ulcer is perceived by the presence of any tumor against Nature, whole kind may be found out by light and handling, Telephic Ulcers are such as affected Telephic, and Chimon (in whose cure Chiron excelled) are Ulcers which may be known by their magnitude, not much putrid, and consequently not sending forth any ill smell, not eating, not tormenting with pain, but having their lips swollen and hard, and therefore ill to be treated. For although they may be sometimes cicatrizated, yet it being but slender may easily be broken, and the Ulcer renewed. They are almost like an ulcerated Cancer, but that they are accompanied with swelling in the adjacent parts; they are also worse than those which are termed Caroche, that is, ill-natured, or malign; whither it is that Pericles thought they had a hidden cause of malignity; besides the common defect of the humour, and that such as can scarce be driven away, such commonly are feb after the Plague. Wherefore Galea thinks such to be malign as will not suppitate or yield any quittance.

CHAP. III.
Of the Prognosticks of Ulcers.

The bone must necessarily scale, and hollow scars be left by malign Ulcers of a years continuance or longer, and rebellious to Medicines freely applied. The bone must scale by reason of the continual efflux, and wearing by the acrimony of the humour, which looses the composure and glue by which the parts thereof are joined together. But the scars must become hollow, for that bone (whence all the flesh takes its first original) or some portion thereof, being taken from under the flesh, as the foundation thereof, so much of the bulk of the flesh must necessarily sink down, as the magnitude of the portion of the wasted bone comes unto.

You may know that death is at hand, when the Ulcers that arise in or before diseases, are suddenly either livid or dried, or pale and withered. For such drinks before the defect of Nature, which is not able to send the familiar and accustomed nutriment to the part ulcerated. But the livid or pale colour is not only an argument of the over-abundance of choler and melancholy, but also of the exactness of the native heat. In Ulcers where tumors appear, the Patients suffer no convulsions, neither are they frantic, for the tumor being in the habit of the body possessed with an Ulcer, argues that the nervous parts and their original are free from the noxious humours. But these tumors suddenly vanishing and without manifest case, as without application of a diffusing Medicine or bleeding, those who have them on their heads have convulsions and diversifications, for that the spine of the back is almost wholly noxious, but such as have them on their fore-parts, become either frantic, or have a sharp pain of their sides, or pleurisy, or else a deficiency if the tumour be reddish, for the fore-part of the body is replenished and over-spread with many and large Veils, into whose pultates the morbid matter being translated, is preciously carried to those parts which are the faxes of such diseases. Soft and loofe tumors in Ulcers are good, for thus they throw a milky and gentlehumours of the skin, but crusteous and hard swellings are naughty, for all digestion in fome measure refolves elasticity in Ulcers which are smooth and shining are ill, for they shew that there resides an humour maligne by its acrimony, which frets afunder the roots of the hairs, and depraves the natural cohesion of the pores of the skin, whereas it is, that such as are troubled with Quaart Agues, the Leprous Vaulted Venner, or Lues Fiserea, have their hair fall off. A livid flesh is ill in Ulcers which cause a rottenness or corruption of the bones lying under the flesh; for it is an argument of the dying heat and corruption of the bone, whereas the flesh hath its original and integrity.

Those Ulcers which happen by occasion of any Disease, as a Drope, are hard to be cured; as also those wherein a seme or Ixvann Vessel continually caffes in matter, which a perfect di temper forms, which have swollen, hard and callous lips, and such as are circular or round. An Hyper. jarring, or heaty excellence usually happens to Ulcers not diligently mended; and if they posse the Amour or Legs, they cause a Palemon or some other tumor in the gums, chiefly if the body be full of ill humour, as Avres hath noted. For these parts by reason of their irritancy and weakness are fit and subject to diversions. Alhenoos writes that for nine causes Ulcers are difficultly replenished, they are with flesh and cicatrized. The first, for want of blood, in a bloodless body; the second, by reason hard to heal.
N Ulcer is either simple or compound. A simple Ulcer, as an Ulcer, hath one and that a simple indication, that is, expectation, and that more than a Wound, by how much an Ulcer is milder than a Wound. There are many indications propofed for the cure of a compound Ulcer, in refpect of which Galen would have us to keep this order, that we have the firft regard of themost urgent, then of the easiest, then of that, unless it be taken away, the matter cannot be healed. By giving you an example you may easily understand the meaning hereof. Imagine on the infide of the leg, a little above a joint, an Ulcer very painful, hollow, hard, and enfringed with the rottenefs of the bone, circumbinct before you do any thing about the Ulcer, unlefs you be called.Surgi, that is violent and flows from pricked Nerves, and the Periople when they are evil affected; but the other usually flows from the Ulcers of the joints, and it is the worfe, if it be black, reddish, all-coloured, or muddy or meagre like Wine Lees, if it flow. Sutures is like the Water wherein flesh hath been washed, it argues the preternatural heat of the part; but when it is pale coloured it is laid to flow the extinction of the heat.

The things conducting to the generating of feath.

The curing of a simple Ulcer confined in excitation.

Gall. 7, Meth. Ep 12.

Gall. lib. 4, de comp. med. f. cond. get.
Nature's endeavour and the Chirurgeons help the Ulcer is replete with thyphus, it must be cicatrized, that is, covered with a callous skin in stead of the true and native skin. It may be cicatrized by burning of very dry powder, having very little or no acrimony. Thus Alum and Vitriol being burnt and made into Powder, and thinly fired upon the part, do quickly cicatrize the former thyphus. To this purpose also serve the root of Arbutus, Alice, burnt Lead, Pomegranate Piles burnt, Litharge, Tatin, and also plates of Lead besmeared with Quick-silver, whole efficacy for this purpose Chirurgeons sometimes find more certain and powerful than any other remedies.

CHAP. V.
Of an ulcerated Ulcer.

Before we speak of a distempered Ulcer, it is meet, that the Chirurgeon take one distemper for another, briefly to relate the signs of it. You may know that an Ulcer is affociated with a dry distemper by your sight, as if the Ulcer be as it were wrinkled, if it feed forth little or no moisture; also it is known by touch, if it feel rough and hard. You shall correct this distemper by humecting Medicins, as fomenting it with warm water according to Galen's opinion, or else with Hydrelenum (i.) Oil and Water mixt: but always you must mix purgative, if the body shall abound with ill humours, or else Phlebotomy if the body be plethoric; otherwise you shall draw more humours into the part than it can bear. Now you shall long foment it, until the thyphus be drawn out, but be sure to look red, wax left, and hard, and the part it fell be a little poulticed. If you proceed further, you will relive all the humour which you have drawn thither, and your labour is in vain. After the fomentation, apply such a remedy to the ulcerated part. A Cremoriuni hardi 5 ft. folvltio in ac. vett. 3 ft. ipingued;povert 5 ft. 3 pm. n. a. 1. m. vitriol in m. or. fait singulaturn.

You shall know an moist distemper affociates the Ulcer by the plenty of the excrementitious humour, which the Ulcer feeds forth, by the spongy and fungous softness and growth of the flesh about it. You shall amend this by drying remedies, such as those are, which we term Sarcoticks, having always regard to the plenty of the humour, the proper temper of the part, and other indications formerly mentioned. Amongst other remedies Galen much commends Alum Water, for it dries, cleanses, and corroborates the affected part. Allo this enfuing fomentation may be applied to good purpose. R. Ros. rub. aspirat. beton. tapari barbata an. no. 1. gularum, nuxcum etynphor. an. 5 ft. eliptic metal 3 ft. fiat decodion in vino generojo. addenda aqua vitrii et fimul, ad inquitum ftet. Then let Empyl de ceriifi or de maioni be applied to the Ulcer. Also I have found by experience that the Powder of burnt Alum lightly fired upon the ulcer is very effectual in this case. You shall know that an hot distemper affociates the Ulcer by the redness or yeasoness thereof, by the heat manifest to your touch, and the propriety of your sight. Then must you have recourse to refrigerating things, such as Ung. Rufaturn, Mef. Refrigerans Gal. Populeon, sticks and cloths dipped in Plantain Water, Nightshade Water, or Oxycrate. I have oft found by experience that scorification, or Leaches being applied, did more conducre than any other remedy. For the chilled blood, which by that means is got to corrupt, is drawn away, and the part it fell is also freed of that burden.

We know a cold distemper by the whiteness or pale colour, by the touch of the Chirurgeon, and speech of the Patient complaining of the coldness of the ulcerated part. You shall correct this distemper by applying and putting bottles filled with Water about the part, or else Sponges bladders half filled with the following decoction. R. Origani, palmeja, chamar. melitth. an. m. 1. abfinth. magianni. johannis. verjarn. an. m. 1. fiat decodion in vino generojo. addenda aqua vitrii. good sufficit. Also the Ulcer may be conveniently fomented with Sponges dipped in the same decoction, and let there be applied these: Empyl. Gynemcum. emp. de melitth. de Vopuliam meassorum, and fine mercurii. But if it is mixt and compound distemper be joined to the Ulcer, the Medicins must in like manner be mixt and compounded. The reduction of the Chirurgeons care and pain must be spent upon the proper and peculiar cure of this distemper, as the Ulcer is an Ulcer, which we said in the former Chapter was contained in detersion, regenerating flesh, and cicatrization thereof.

CHAP. VI.
Of an Ulcer with pain.

Here oftentimes so great pain accompanyeth Ulcers, that it calls thereto the countena of the Physicin. Wherefore if it proceed from any distemper, it shall be taken away by remedies proper against that distemper, such as we mentioned in the former Chapter. But if it do not so cause, we must go to Nartersticks. Such are cataplasts of the leaves of Mandrakes, Water-lilies, Henbane, Nightshade, Hemlock, the seeds of Poppy and Gills of the fame, to which also may be added Openi, Populin, and other things of like faculties. But if a malign acrimony and virulentancy of a humour corroding and eating the flesh lying under it and the lips about it, cause and make this raging pain, and virulent humours. In the mean season let refrigerating things be put about the Ulcer, lest the venemity of cold Medicins cause a defatation.
Of Ulcers, Fisstids; and Hemorrhoides. Book XIII.

CHAP. VII.

Of Ulcers, with over-growing, or protruding flesh.

Ulcers have oft-times proud or over-growing flesh in them; either by the negligence of the Chirurgeon, or fault of the Patient. Against this, drying and genrously eating or conning Medicines must be applied, such as are Galls, Cortex thoris, Alces, Tantia, Antimony, Pompelion, Vitriol, Lead, all of them burnt and wafted if need require. Of these Powders you may also make Ointments with a little Oil and Wax; but if the proud flesh, as that which is hard and dense, yield not to these medicines, we must come to cauteries, or else to iron; so to cut it off. For in Galen opinion, the taking away of proud flesh is no work of Nature, as the generating, retorting and aggravating of the flesh is; but it is performed by Medicines which dry vehemently, or else by the hand of the Chirurgeon; wherefore amongst the remedies fit for this operation, the Powder of Mercury with some small quantity of burnt Alum, or burnt Vitriol alone, seem very effectual to me. Now for the hard and callous lips of the Ulcer, they must be mollified with Medicines which have such a faculty, as with Galls, Goofe, Gason, or Ducks greese, the Oils of Lilies, Sweet Almonds, Worms, Whelpis, Opium, the mucilages of Mafth-mallows, Linied, Fernugreek-seed, Gum Ammoniacum, Guldsam, Bedkum, of which being mixed may be made Emplai ters, Unguents, and Linituments: or you shall use Empl. Dunclaun, ou de Medicamentis, De Vigor um Mercurii. To conclude, after you have for some few days used such like remedies, you may apply to the Ulcer a paste of Lead rubbed over with Quicksilver, for this is very effectual to smooth an Ulcer and deprive the lips; if you shall prevail nothing by this means, you must come to the Causticks, by which if you still prevail nothing, for that the lips of the Ulcer are so callous, you must cut them to the quick, so to make way, or as it were open a Window, for the Medicine to enter in, according to Galen. Neither in the interim must you omit Hippocrates advice, which is, that by the same operation we reduce the Ulcer, if round, into another figure, to wit, long or triangular.

CHAP. VIII.

Of an Ulcer putrid and breeding Worms.

Worms are divers times bred in Ulcers, whence they are called Wormy Ulcers; the cause hereof is the too great excrementitious humidity prepared to produce by unnatural and immoderated flesh. Which happens, either for that the Ulcer is neglected, or else by reason of the distemper and depraved humour of all the body, or the affected part; or else for that the excrementitious humour collected in the Ulcer, hath not open and free passage forth; as it happens to the Ulcers of the Ear, Nafs, Fundament, Neck of the Womb, and lastly, to all sinuous and circular Ulcers. Yet doth not necessarily follow that all putrid Ulcers must have Worms 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 Worms must first be taken forth; then the excrementitious humour must be drawn away whence they take their original. Therefore you must foment the Ulcer with the ensuing decodfion, which is of force to kill them; for if any labour to take forth all that refuse itself, and no work of Nature, as the cauticks cannot pierce into them, you must cleave them with a gentle Scarification, or else cut them to the quick, so to make way, or as it were open a Window, for the Medicine to enter in, according to Galen. Wherefore amongst the remedies fit for this operation, the Powder of Mercury with some small quantity of burnt Alum, or burnt Vitriol alone, seem very effectual to mollify the excrementitious humour collected in the Ulcer, hath not open and free passage forth; as it happens to the Ulcers of the Ear, Nafs, Fundament, Neck of the Womb, and lastly, to all sinuous and circular Ulcers. Yet doth not necessarily follow that all putrid Ulcers must have Worms in them; as you may perceive by the definition of a putrid Ulcer, which we gave you before.
well consider, at how many dressings he shall be able to wash away the gross sordes, or filthiness cling to the Ulcer, and dry up the excrementitious sordes. For oft-times these things may be done at one dressing; but in others who have more quick sense or feeling, not so soon. But when the Ulcer is freed of such gross sordes or filth, you must forbear to use more acid things for fear of pain, defluxion, inflammation and erosion, whereby the Ulcer would become more hollow. Wherefore then we shall be content to apply remedies which dry and cleanse without acrimony, that we may help Nature's endeavours in generating flesh. Such remedies are, the powders of Aloes, Mallick, Myrrh, Oritis, Litharge, Antimony, roots of Gentian, Barley-flower, and the like, which being strewn upon the Ulcer, you shall cover it with lint, and put over that a plate of Lead, rubbed over with quick-silver, and you shall put on these deficians and deficcators more or less strong, as you shall find it requisite and necessary. For the too plentiful use of drying and detritive things, doth in time hollow the Ulcer, whereby it comes to pass that in short time in like sort a great quantity of sordes flows from the Ulcer, the proper substance of the flesh being dissipated by the force or acrimony of the detritive medicines, as also the proper alimentary humour, which flowed to the part, being in like sort detiled: Which thing beguiles the unskilful Chirurgeon. For by how much he fees the Ulcer flow more plentifully with sordes, he endeavours by so much the more to exhaust and dry up with more acid medicines their humours, as if they were excrementitious: But Galen hath long ago admonished us to take heed hereof, setting forth a History of a certain Emperor which drest a Ulcer with a green, acid and eating medicine, distill'd the flesh, and so consequentially made the Ulcer more hollow, and caused more pain and defluxion, whereby it hapned, that continuallly adding more acid medicines, he continually (by his ignorance and unskillfulness) increased the disquiet of the flesh, and consequently of the Ulcer and excrementitious humidity: Wherefore we must take special care whether the said Ulcer grows each day worse, by its propre fault, and the impurity of the whole body besides, or else by the colliquation of the flesh, and corruption of the benign and alimentary humour lent thither for the nutrition of the part, by the too frequent and unskillful use of too acid a medicine. You may conjecture this by the increasement of the pain without reason, and by the heat and redness of the lips of the Ulcer. Therefore you must principally have regard to this, that you give each of your Patients his fit medicine; that is, a convenient and agreeable medicine to each of their strengths, taking indication from the strength, dexterity and confidence of the whole body, and affected part; for there is a great deal of difference whether you apply a medicine too strong for man or labourer, or to an Emaciated and worn, or whether to the eyes: For these medicines which to a dense and hard body and part are only detergent and drying, the same are to delicate and tender bodies and parts cathererick and eating, by colliquation of the flesh and corruption of the nourishment, making an increase of sordes or filth on the contrary, those things which do laudably and sufficiently cleanse the flesh in a soft body, and dry up the sordes, these same things applied to a hard body, beware the sordes and filth by faturing them to breed, neither are they of sufficient power to wash away the excrementitious impurity of a dense body. Wherefore the skilful Chirurgeon will see when he must betake himself from too strong cleansing and eating medicines to those which are more mild.

CHAP. X.

Of a virulent, eating and malign Ulcer, which is termed Cacoethes, and of a Chironian Ulcer.

Vindict and eating Ulcers differ not, unless in magist and mina, for we term it a virulent Ulcer, which finds forth a virulent sordes, which is properly called Fures. This Virus or virulence, when it becomes more malign, grows and feeds upon the parts which it enters, and are adapted to the Ulcer, and makes an eating Ulcer. Such Ulcers are by Galen called Dyspeptics, that is, difficulty to be cicatriz'd, for, faith he, it happens that the Ulcer is Dyspeptic, either for that the part affected may be vitiated, either in the habit or temper thereof, so that it may corrupt the humour which flows thither; such an Ulcer is by a particular name termed Cacoethes, or for that by reason of the evil quality of the blood flowing thither and eating the part, the part affected being too much cannot heal up. He further adds, that a Chironian Ulcer is far more malign than thefe Ulcers, which are termed Cacoethes. For the case by reason that all thefe Ulcers have a large extent, for some are more malign and ill to be cicatriz'd than other forms, 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 medicines defiers (and think they shall) all malign Ulcers. This following medicine described by Agrippa, is much commended by Galen. 

\[
\text{Agrippa:} \quad \text{Squamma: aetis, arugtnis, an.} \ 5 \ \text{Cera lis. Bio. Rec.} \ 5 \ \text{Cera lis. Bio. Rec.}
\]


How a Chironian Ulcer differs from an eating. See before, cap. 1.

How a virulent and eating Ulcer differs in magist and mina.

See before, cap. 2.

\[\text{Cerat} \ 5 \ \text{Cera lis. Bio. Rec.} \ 5 \ \text{Cera lis. Bio. Rec.} \]

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O frow the use of Aesculapius his medicines, described in the former Chapter, and con-
vince the error of thofe Chirurgions, who think they do well for their Patients, if they
fowce to thrice or thrice on a day drefs malign Ulcers. I have here thought good to digreft a lit-
tle from my propofe, and to interpofe Galen's authoity. Rightly (fifth Galen) hath Aesculapius
added thofe words to the formerly defcribed medicine: And fowe this after three days, and fowce
the Ulcer, and take the fame emplailer being waxed, and apply it again; for unless the medicin
affe long to the skin, it will do no good. Which thing notwithstanding many Physicians have
been ignorant of, thinking, if they wiped away the punes from the Ulcer thrice on a day, they
fould do better than thofe who did the fame twice a day. But thofe who drefs it but once a
day, are reproved by the Patients, as negligent. But they are much miifaken, for you muft re-
membcr, as we have delivered in moft of our Writings, that the qualities of all neighbouring bodies
do mutually affect and affect each other in fome degree, although the one thereof be much more
powerful; for by this reason in fpace of time they become somewhat alike, though they otherwife
differ much: But when the quality of the medicine fhall be like the juice to the body to be cared,
there follows the better fucces. Wherefore, if by this reason he which moved below by his folicitude,
and left appointed to use the emplailer formerly applied, is worthy of commendations; and we ought to follow him much
the rather, feeing that which he found out by reafon, is approved by experience. Neither did he
unadvisedly command, to fowce the wound every third day, that is, every dreffing; for, feeing it
is a powerful medicine, therefore it stands in need of mitigation. Thus much Galen, whole opin-
on grounded on reafon, he can again confirm with another reafon. It is already sufficiently known,
that medicines can do nothing in us unlefs by the force of the native heat, which flirs up the facul-
ty of the medicine to operation. But in Ulcers which are absolutely malign, the native heat of the
affected part is very languid, being broken and bridlified by the preffion of the putrefacnt heat; fo that it stands in need of a great fpace of time to flir up the virtue and facuity of the medicine.
Wherefore, if in that time, when as the native heat hath much moved and firled up the facuity of
the medicine, the Ulcer be loofed or opened, and that emplailer cafl away which was laid upon
the part, and a fresh one laid in the cafl away which was laid upon
the part, and a fresh one laid in the part of the wound, the heat implanted in the part, is either difaffed
by the contract of the air, or is weakened and driven in, and that endeavour which was made by the
emplailer was to no purpofe, being, as it were, stuffed in the middle of the course: But a new em-
plailer being laid on, the heat of the part muft undergo a new labour, fo to flir up the facuity to
bring it to act.

For all medicines are what they are in facuity. Equal to this is their error, who, by too oft
renewing their emplailers on the fame day, do too powerfully cleanse: for fo they do not only take
away the excrementitious humors, both froides and fainies, but alfo the alimentary juice; to wit, the
Thb. Cambium and Glutcn, which are the next matter for procreating of laudable flesh. Where-
fore, it is not good to drefs Ulcers fo often in one day, and to loofe them to apply new emplailers,
unless some fome fymptom (as pain) force us to do it, which requires to be alleviated and miti-
gated by the often changing and renewing of Anodyne medicines.

Or the binding up of Ulcers, you must always begin your bandage at the Ulcer. Now the
rowfer muft be fo large, that it may not only cover and comprehend the Ulcer, but also
fome portion of the adjacent parts above and below; and let it perf the Ulcer with that
moderation, that it may only prefent the excrementitious humors. For fo to the Ulcer will become
day, and conftantly more near to healing, as it is obferved by Hippocrates. Let this be the meafe-
ure of your binding, that it be neither too ftrit, for hence would change pain and deftrution; nor too
loof, for fuch is no ufe. You may moften your b吼lers and rollers in Oxycrate, or in red and
aftrentfentfion in Summer, when you have bound it up, the part muft be kept quiet: For according to Hippocrates, thofe who have an Ulcer in the leg, ought neither to ftrit nor fit, but
to lie on a bed. Wherefore, when the legs are ulcerated, the arms muft be exercised by bandages, lift-
ing up and falling down of divers things. But on the contrary, if the arms be ulcerated, the legs
muft be exercised with walking, or ftrictions from above downwards, if the Patient cannot endure
to walk. So the humors and fpirits which with more violence and greater plenty run down to the
part affected, may be drawn back and diverted.

Of the care of particular Ulcers, and prif of thofe of the Ear.

O uthat (in Galen's opinion) the divers Indiftrtions in curing difeases are drawn from the
condition of the part, to wit, the temper, complexion, fize, figure, ufe, duff or quick fense;
Therefore having briefly handled the general cure both ofimple and compound, and
implicit Ulcers, I think it fit to treat of them now as they are dilftinguished by the parts, begin-
ning
Of Ulcers, Fifth Book, and Hemorrhoids.

...fucking child, it will not be amiss to temper the nurse's milk with refrigerating meats, bathing the mouth. For the cure, it (shall be good to abstain from all acrid things, and if it be a The cure, 7 of easy cure, such as that which usually troubles children by reason of the acrimony of the nurse's milk; the other is malign by reason of an afflux of an evil humor (that is, venenate and malign) into the mouth. For the cure, you must note, that for moist ulcers, Powders are more convenient than Collyria. When the Ulcer is plained or filled with its proper flux, it must be cicatrized with the following collyria. R. Tatin's collyrium in decr prepared, cura, xj. sumi, albo, 3 i. Myrrha, ferricums, summi Dracunc, albo, qn, 5 i. Com aqua purificat. flat collyrium or the Powder only may be conveniently thereof. Celsus hath noted, that the cicatrizing of the eyes is incident to two dangers, that is, lest they be too hollow, or else too thick. It too hollow, they must be filled by the following remedy. R. Papaveris lutea, 3 i. Sagapenti opopanacis, 4 i. arnica, 3 i. Com aqua purificat. flat collyrium. But if the Ulcers be thick or crusts, the following remedy will exfoliate them. R. Chinnam, acaci, 3 i. Cadmae tinct, 3 i. Myrrhe, papaveris, 3 i. Sumi, 3 ij. 3 i. Piperat 3 i. cadmae, 0 i. tinct. 3 i. Com aqua plantis flat collyrium. But if the Ulcer be upon the Corona or horny coat, so that it cover the pupilla or sight, the light will be intercepted by the denseness of the membrane. Here you must also observe, that the Ulcers that are on the Corona are white, but that of the Adams are red, because this is spread over with more little veins than that.

CHAP. XIV.

Of the Corona and Ulcers of the Nostrils.

The Corona is a deep and sinking Ulcer in the inside of the nose, sending forth many crusty and thickening excrements; Celsus faith that such Ulcers can scarcely be healed. It is cured by the distillation of acid and purrid humors from the head into the nostrils about the mammillary processes. For the cure, the Patient must eat sparingly, and his meat must neither be sharp nor strong; the humor being prepared, must be purged; the head dried and strengthened, that so it may neither admit the excrementitious humors, nor send them down; then mix you to the pure the Ulcer with the Ulcer. The Ulcer must be dried with the repelling medicine; such as is the juice of Pomegranates boiled to the half in a brass vessel, the powder of Calamin, Crescet, white Helbore, the juice of Crescet with Alum and other things which you may read in Celsus. Gales out of Archigenes wishes, to draw up into the nostrils the juice of Calamin, or the juice of Soap boiled with Water, and made into powder, may be blown with a quill into the nose. Others use this following powder. R. Res, rub. mint, calamin, arom, rad, angelica, gratian, 1. eysoph, 3 i. Camph. ambra, 3 i. Myrrh. gre, 1. fr juicis. vulgarist, 1. Manzoni writes, that the urine of a Lice, though a nasty medicine, is an excellent remedy in this affection. But if the invertebrate be too hollow, or too thick, or else too thick. If too hollow, they must be filled by the following remedy. R. Papaveris lutea, 3 i. Sagapenti opopanacis, 4 i. arnica, 3 i. Com aqua purificat. flat collyrium. But if the Ulcers be thick or crusts, the following remedy will exfoliate them. R. Chinnam, acaci, 3 i. Cadmae tinct, 3 i. Myrrhe, papaveris, 3 i. Sumi, 3 ij. 3 i. Piperat 3 i. cadmae, 0 i. tinct. 3 i. Com aqua plantis flat collyrium. But if the Ulcer be upon the Corona or horny coat, so that it cover the pupilla or sight, the light will be intercepted by the denseness of the membrane. Here you must also observe, that the Ulcers that are on the Corona are white, but that of the Adams are red, because this is spread over with more little veins than that.

CHAP. XV.

Of the Ulcers of the Mouth.

Of this Tribe are the Athletes; Ulcers familiar to little children, according to Hippocrates. They oft-times begin in the gums, and by the pallet of the mouth creep into the Ovaria, throat, and over all the mouth, and under the gums; and Celsus makes two kinds of Athletes, one of easy cure, such as that which usually troubles children by reason of the acrimony of the mouth milk; the other is malign by reason of an afflux of an evil humor (that is, venenate and malign) into the mouth. For the cure, it shall be good to abstain from all acid things, and if it be a fucking child, it will not be amiss to temper the nurse's milk with refrigerating meats, bathing the mouth.
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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 oftentimes flow with such matter not there generated, for such Ulcers are usually but small, and besides in a spasmatic part, but for that the brain doth that way disburthen its self.

For the cure, the chief regard must be had of the antecedent cause, which feeds the Ulcer, and it must be diverted by purging medicines, Masticatories and Erhines. This is the form of a Masticatory. R Matlich. 5 li. Raphaeis & geneth. 8.1. Cinom. & earyph. an. 5.1. Fioa Matlichia, metue. navel & navelles. But this is the form of an Erhine. R Succi betiseus, merceritis. & maffifes. an. 5.1. Vini akis. 1 li. nois. & frequentis navelle, Inflamm. For topick medicines, we must fit all laryge and oily things, as Golellets down in Meral. medicin, where he finds fault with a certain follower of Theophrastus, who by using Teraphasmium, made the Ulcer in the ear grow each day more filthy than other, which Golel healed with the Trenches of Arduusio diluviated in Vinegar, whole composition is followeth. R Balangi. 5 li. Alum. 3.1. Aurum. Sulfur. 3 li. Myrthe 3 li. Tere. Actis speculum, gallinon. an. 5 li. Salis. Alumino. 3.1. Esciptures solis merceritis. & Salt rotten. Golel in the face place wintrith, that he had healed inveterate Ulcers, and of two years old of this kind, with the scales of Iron made into powder, and then boiled in thorp Vinegar until it acquired the consistence of Honey: Moreover, an Oxes gall diluviated in strong Vinegar, and dropped in warm, amended and dried up the putrefaction wherewith these Ulcers flow. Alto the scales of Iron made into powder, boiled in thorp Vinegar, dried, and threw upon them. But if the branded of the pustules should not give leave to the matter contained in the windings of the ears to put forth, then must it be drawn out with an Instrument thereupon called a Pyrocus, or Matter-drawer, whereas this is the figure.

CHAP. XVI.

Of the Ulcers of the Ears.

The Figures of a Pyrocus, or Matter-drawer.
The parts are ulcerated either by an external cause as an acrid medicine, or by an internal cause, as a malign fretting humor, which may equal the force of a poison generated in the body, and restrained in the parts. If the pain be increased by swallowing or breathing, it is the sign of an Ulcer in the veins, or wind-pipe joining thereto. But the pain is usually felt where that which is swallowed is either hot or cold, or the air breathed in, is more hot or cold than ordinary; But if the cause of pain be found in the stomach, more grievous symptoms arise; for sometimes they swound, have a nauseous disposition and vomiting, coughings, gastings, and pain almost intolerable, and the coldness of the extreme parts; all which when present at once, few escape unless such are young, and have very strong bodies. The same affec may befall the whole stomach, but because both for the bitterness of pain, and greatness of danger, that Ulcer is far more grievous which takes hold of the mouth very strong bodies. The same affec may befall the whole stomach, but because both for the bitterness of pain, and greatness of danger, that Ulcer is far more grievous which takes hold of the mouth, for it is the seat of the Heart, therefore Physicians do not make so great a reckoning of that which happens in the lower part of the stomach. Now we know that the guts are ulcerated, if Pur, or much putrid matter come forth by dool, if blood come that way with much gripping, for by the Pur stitting, and as it were gathered together in that place, there is, as it were, a certain continual Teoufam, or define to go to stool. Now all such Ulcers are cured by meats and drinks, rather than by medicines, according to Galen. Therefore you must make choice of all such meats and drinks as are gentle, and have a lenitive faculty, thinning acrid things; for Tazia, Litharge, Gentle, Verdigris and the like, have no place here, as they have in other Ulcers: But when the Ulcer shall be in the gullet or esophagus, you must have a care that such things may have some viscosity or stickiness, and be swallowed by little and little, and at divers times, otherwise they will not much avail, because they cannot make any stay in these common ways of breath and meats; therefore they presently slip down and flow away; whereas all such things shall be used in form of an Eedigma, to be taken lying on the back, and swallowed down by little and little, opening the mucus of the throat, let the medicines pull ing down fe¬donly, and in great quantity, cause a Cough, a thing exceeding hurtful to these kinds of Ulcers. When they must be cleansed, you shall have crude honey, which hath a singular faculty above all other detergent things, in these kinds of Ulcers: But when they can conveniently swallow, you shall minj Gum Traganth dissolved in some astringent decoction. In Ulcers of the stomach, all acrid things (as I have formerly advised) must be shunned; as those which may cause pain, inflammation and vomit, and besides, hinder the digestion of the meat; Therefore let them frequently use a Prutan, and suged Galliens wherein Gum Traganth, and Boute-Armeniack have been put, the decoction of Prunes, Dates, Figs, Raisins, Honey, Cows-milk stuffed with the yolks of Eggs, and a little common Honey. When they are to be agglutinated, it will be convenient to make use of barbed, astringent and agglutinative things, which want all acrimony, and ungentful taste, such as are Hypericis, Pomegranate-flowers and pills, Exs. figulattia, famboch, or senna, a decoction of Quincies, the Lentisk-wood, the tops of Vines, or Brambles, Myrtles, made in astringent Wine, unless there be fear of inflammation. Their drink shall be Hydromel with Sugar, syrup of Violets and Jupides. Honey mixed with other medicines is a very fitting remedy for Ulcers of the guts and other parts more remote from the stomach, if you shall use astringent medicines alioe of themselves, they will stick to the stomach; neither will they carry their strength any further; but honey mixed with them, besides that it distributes them to the rest of the body, and helps them forward to the affected parts, also cleans the Ulcers themselves. Here also Albus milk may with good success be used instead of Goats or Cows milk; The use of a vulnerary potion is also commendable, if so be that it be made of such Herbs and Simples, as by a certain tacit 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, haemorrhage with a Clyster and Ipecacuah, made of the same juice and astringent things, such as thefe which are made of Earley-water, or Wine, with Exs. tristre. But if the small guts be ulcerated, you must be rather healed by potions and other things taken at the mouth; for that (as Galen faith) thefe things which are put up into the body by the fundament, do not commonly adoe to the small or finer guts, but such as are taken at the mouth cannot come unlefs with the loss of their faculty, for so far as the great guts.
The cure.

Why we must first purge.

Things to cleanse those Ulcers.

Trochilees for the ulcers of the kidney and bladder.

1. Method.

Signs to know what part of the bladder is ulcerated.

Signs why Ulcers in the bottom of the bladder are uncertain.

[Apocryphon for the ulcers of the bladder.]

Ulcers are bad in the womb, either by the conflux of an acrid or biting humor, fretting the coats thereof, or by a tumor against nature degenerating into an abscess, or by a difficult and hard labour; they are known by pain at the Perineum, and the efflux of Pur and Sanies by the privity. All of them in the opinion of Auteis, are either purulent, when as the Sanies breaking forth is of a flinking smell, and in colour resembles the water wherein flesh hath been washed, or else forced, as when they show with many virulent and crude humours or else are eating or spreading ulcers, when as they call forth black Sanies, and have pulsatlon joined with much pain. Besides they differ amongst themselves in fit, for either they pollute the neck and are known by the fit; but by putting in a fomentum, or else are in the bottom, and are manifested by the condition of the more liquid and fervent excrements, and the fire of the pain. They are cured with the fame remedies with what the ulcers of the mouth, to wit, with Aqua fortis, the Oyl of Vitried and Antimony, and other things made somewhat more mild, and corrected with that moderate, that the ulcerated parts of the womb may be safely touched with them; it is requisite that the remedies which are applied to the ulcers of the womb, do in a moment that which is expected of them, for they cannot long endure or stick in the womb, as neither to the mouth. Galen finds, that very drying medicines are exceeding fit for ulcers of the womb, that do the putrefaction may be checked, and the painful malacities of the humour abated. Ulcers when they are cleansed, must prettily be cleansed that may be done with Alem-water, the Water of Plantain wherein
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wheresoever a little Viriole or Alum have been dissolved. Lastly, if remediless nothing availing, the ulcer turn into a Cancer, it must be dressed with Anodynes and remedies for a proper Cancer, for which you may find set down in the proper Treatise of Cancers. The cure of ulcers of the fundament was to be joined to the cure of those of the womb, but I have thought good to refer to the Treatise of Fisitula's, as I do the cure of these of the urinary passage to the Treatise of the Last Venereal.

CHAP. XX.

Of the Varices, and their cure by cutting:

A Varix is the dilatation of a vein, some whilsts of one, and that a simple branch, other whilsts of many. Every Varix is either flait or crooked, and as it were folded into certain windings within its fol. Many parts are subject to Varices; as, the temples, the region of the belly under the naval, the testicles, womb, fundament, but principally the thighs and legs. The matter of them is usually melancoly blood, for Varices often grow in men of a melancholy temper, and which usually feed on gross meats, or such as breed gross and melancholy humours. Also women with child are commonly troubled with them, by reason of the heaping together of their suppressed menstrual evacuation. The precedent caufes are a venefent concurrence of the body, leaping, running, a painful journey on foot, a fall, the carrying of a heavy burden, tearing or racking. This kind of dilatation gives manifest signs thereof by the largeness, thicknefs, swelling and colour of the veins. It is best not to meddle with them, as are incontinent; for of such being cured there is to be feared a reflux of the melancoly blood to the noble parts, whereas there may be imminent danger of malignant ulcers, a Cancer, Maladies or Suffocations. When as many Varices, and directly implicit are in the legs, they often swell with congealed and dried blood, and cause pain, which is increased by going and compre{{ion. Such like Varices are to be opened by dividing the wound with a Lancet, and then the blood must be proflled out, and evacuated by pressing it upwards and downwards; which I have oft-times done, and that with happy success to the Patients, whom I have made to rest for some few days, and have applied convenient medicines. A Varix is often cut or opened in the inside of the leg a little below the knee, in which place commonly the original thereof is from. He which goes about to intercede a Varix downwards from the first original, and as it were maintain therein, makes the cure far more difficult. For hence it is divided, as it were, into many rivers, all which the Chirurgeon is forced to follow.

A Varix is therefore cut or taken away so, to intercept the paffage of the blood and humour mixed together therewith, flowing to an ulcer feared thereby; so left that by the too great quantity of blood, the vessel should be broken, and death be occasioned by a hemorrhagic peace ceasing from thence. Now this is the manner of cutting it. Let the Patient lie upon his back on a bench or table, then make a Ligature upon the leg in two places the distance of some four fingers each from other, wherein the excision may be made, for so the vein will swell up and come more in sight; and besides, you may also mark it with ink, the halving the skin up between your fingers, cut it longways according as you have marked it; then prick the vein with a lancet, thread with a long double thread, and so bind it fast; and then let it be opened with a Lancet in the middle under the Ligature, cut it longways according as you have marked it; then free the bared vein from the adjacent bodies, and put thereunder a blunt-pointed needle (lest you prick the vein) thread with a long double thread, and so bind it fast; and then let it be opened with a Lancet in the middle under the Ligature, just as you open a vein, and draw as much therewith as shall be fit: Then straight make a Ligature in the lower part of the forementioned vein, and then cut away as much of the fad vein as is convenient between the Ligatures, and so let the ends thereof withdraw themselves into the skin above and below, and let these Ligatures alone until such time as they fall away of themselves. The operation being performed, let an astringent medicine be applied to the wound and the neighbouring parts; neither must you fix the wound any more for the space of three days. Then do all other things as are fit to be done to other such affections.

CHAP. XXI.

Of Fisitula's.

A Fisitula is a fluxuous, white, narrow, callous, and not seldom unperceivable Ulcer: It took its denomination from the similitude of a reeded (Fisitula) that is, a pipe, like whose hollow is its opening and downwards from the first original, and as it were maintain therein, makes the cure far more difficult. For hence it is divided, as it were, into many rivers, all which the Chirurgeon is forced to follow.

A Fisitula is a certain fluxuous ulcer, white, solid, or denfe and hard, dry and without pain, generated by heaping up of dried excrementitious phlegm, or else aduff melancholy encumbrances or cavi ty of a Fisitula is sometimes dry, and other whilst drops with continual moisture: The dropping of the matter suddenly ceases, and the orifice thereof is shut up, that so it may dehydrate the circuit of the ulcer, and substitute itself in the place of the laudable flesh. The Chirurgeon is forced to follow.

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A Fisitula is a fluxuous, white, narrow, callous, and not seldom unperceivable Ulcer: It took its denomination from the similitude of a reeded (Fisitula) that is, a pipe, like whose hollow is its opening and downwards from the first original, and as it were maintain therein, makes the cure far more difficult. For hence it is divided, as it were, into many rivers, all which the Chirurgeon is forced to follow.
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The sign that the bone is bare from the condition of the matter which is call forth.  

The fign that the bone is affected, if there be a purulent effusion of an unctuous or oily matter, not much unlike that marrow whereby the bone is nourished. For every excrement flows by the invitation of the nourishment of the part whereby it is sent in a Fistula which penetrates to a nerve. The Patient is troubled with a prickling pain, especially when you come to touch with a Probe, especially if the matter which flows down be more acrid.  

At this time if it be cold, the member is quelled, the motion being weakened, believe also the matter which flows from thence is more liable, and therefore that the bones are eaten, rauch and putrid. If it defend into the veins or arteries, the matter happens in those of the nerves; but that there is no such great pain in searching with your Probe, nor no offence or impediment in the use of any member: Yet if the matter of the fistulous Ulcer be so acrid, as that it corrode the vessels, blood will flow forth; and that more thick and with some murmuring as from an artery. Old Fistula's, and such as have run for many years, if suddenly that up, cause death, especially in an ancient and weak body.

For the cure, in the first place it will be expedient to search the Fistula; and that either with a wax fire, a Probe of Lead, Gold or silver to find out the depth and width or corners thereof. But if the Fistula be bored with two or more orifices, and thofe contiguous, so that you cannot possibly and certainly fearch or find them all out with your Probe, then must you call an Injection in one of thofe holes, and so obferv the places where it comes forth, for fo you may learn how many, and ho much superficially diver fenfation which increases here; then by making incisions you must lay open and cut away the callous parts. You must make incisions with an Incision-knife or Razor, or else apply actual or potential cauteries, for nature cannot, unlefs the callous substance be ftrangely taken away, reftore or generate flefti, or agglutinate the difjointed bodies; For hard things cannot grow together, unlefs by the interpofition of glue, fuch as is laudable blood, but a callous body on all fides perfifting the facrifice of the ulcerated refl, hinders the flowing of the blood out of the capillary veins, for the retaining of the lost fubftance, and uniting of the difjointed parts.  

If you at any time make caufick Injections into the Fistula, you must prettily flop the orifice thereof, fo that they may have time to work the effect, for which they are intended. Which thing we may confider from the nature of the part, the divifion of the flowing matter, and its inferior quantity. Then you must hurry the falling away of the Eftchar, and then the Ulcer must be dried over like other Ulcers. But oft-times the Callus which perfifts the famous cavity of a Fistula, overcome by the power of acrid and effcarotick medicines, comes whole forth, and falls out like a pipe, and leaves a pure Ulcer underneft it. Which I obferved in a certain Gentleman, whom I had writhe out of the capillary veins, for the reftoring of the loft fubftance, and uniting of the difjointed parts.

But if the bone be quite rotten and perifhed, it must be wholly taken away, which  

If your matter which flows down be more acrid; Oft-times if it be cold, the member is quelled, the motion being weakened, believe also the matter which flows from thence is more liable, and therefore that the bones are eaten, rauch and putrid. If it defend into the veins or arteries, the matter happens in those of the nerves; but that there is no such great pain in searching with your Probe, nor no offence or impediment in the use of any member: Yet if the matter of the fistulous Ulcer be so acrid, as that it corrode the vessels, blood will flow forth; and that more thick and with some murmuring as from an artery. Old Fistula's, and such as have run for many years, if suddenly that up, cause death, especially in an ancient and weak body.

Of the cure of Fistula's.  

The cure of what Fistula's may be at tempted, and which may not.  

A palliative cure of a Fistula,  

The cure of a Fistula proceeding from a corruption.  

Of the cure of Fistula's.  

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Of the cure of Fistula's. 

For the cure, in the first place it will be expedient to search the Fistula; and that either with a wax fire, a Probe of Lead, Gold or silver to find out the depth and width or corners thereof. But if the Fistula be bored with two or more orifices, and thofe contiguous, so that you cannot possibly and certainly search or find them all out with your Probe, then must you call an Injection in one of those holes, and so observe the places where it comes forth, for so you may learn how many, and how deep or superficially sensitive these be; then by making incisions you must lay open and cut away the callous parts. You must make incisions with an Incision-knife or Razor, or else apply actual or potential cauteries, for nature cannot, unless the callous substance be strangely taken away, restore or generate flesh, or agglutinate the disjointed 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 persisting the sacrifice of the ulcerated flesh, hinders the flowing of the blood out of the capillary veins, for the retaining of the lost substance, and uniting of the disjointed parts. 

If you at any time make caustic Injections into the Fistula, you must prettily stop the orifice thereof, so that they may have time to work the effect, for which they are intended. Which thing we may consider from the nature of the part, the division of the flowing matter, and its inferior quantity. Then you must hurry the falling away of the Eschar, and then the Ulcer must be dried over like other Ulcers. But oft-times the Callus which persists the famous cavity of a Fistula, overcome by the power of acrid and escharotick medicines, comes whole forth, and falls out like a pipe, and leaves a pure Ulcer underneath it. Which I observed in a certain Gentleman, whom I had washed out of the capillary veins, for the restoring of the lost substance, and uniting of the disjointed parts. 

But if the bone be quite rotten and perished, it must be wholly taken away, which  

If your matter which flows down be more acrid; Oft-times if it be cold, the member is quelled, the motion being weakened, believe also the matter which flows from thence is more liable, and therefore that the bones are eaten, rough and putrid. If it descend into the veins or arteries, the same happens in those of the nerves; but that there is no such great pain in searching with your Probe, nor no offence or impediment in the use of any member: Yet if the matter of the fistulous Ulcer be so acrid, as that it corrode the vessels, blood will flow forth; and that more thick and with some murmuring as from an artery. Old Fistula's, and such as have run for many years, if suddenly that up, cause death, especially in an ancient and weak body.

Of the cure of Fistula's.  

The cure of a Fistula proceeding from a corruption.  

The cure of what Fistula's may be attempted, and which may not.  

A palliative cure of a Fistula,  

The cure of a Fistula proceeding from a corruption.
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CHAP. XXIII.  
Of the Fistulae in the Fundament.

Fistula's in the Fundament are bred of the same causes as other kinds of Fistula's are: viz., of a wound or abscess not well cured, or of a hemorrhoid which is suppurated. Sich as are occult, may be known by dropping down of the feaces and putrid humor by the fundament, and the pain of the adjacent parts. But such as are manifest, by the help of your probe you may find whither they go, and how far they reach. For this purpose the Chirurgeon 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 sign it penetrates into the capacity of the gut. Besides also, then there flows not only by the fundament, but also by the orifice which the malign humour hath opened by its acrimony, much matter, some times fancious, and oft-times also breeding Worms. Fistula's may be judged canicular, and running into many turnings and windings, if the Probe do not enter far in, and yet notwithstanding more matter flows there-hence than Reason requires should proceed from so small an Ulcer. You may in the orifices of Symptoms; all Fistula's perceive a certain callous wart, which the common Chirurgeons term a Hens-arfe. Many symptoms accompany Fistula's which are in the fundament, as a Tenesmus, strangury and falling down of the fundament. If the Fistula must be cured by manual operation, let the Patient lie upon his back, that lifting up his legs, his thighs may press his belly; then let the Chirurgeon having his nail pared, put his finger, befmeared with some Ointment, into the Patients fundament, then let him thrust in at the orifice of the Fistula, a thick leaden 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 they may sustain 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 means cut the Fistula without any fear of a Hemorrhage, 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 meet 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 pricking and cutting may destroy the Callus, which thing you cannot perform with the formerly described leaden Probe, which hath a blunt point, unlike with great pain.

The Description of a below silver Probe, to be used with a Needle, as also a leade Probe.

The Callus being warted, the Fistula shall be bound as we formerly mentioned. That which is superfluous needs no binding; only it must be cut with a crooked scalprum; and the Callus being cutted, the rest of the cure must be performed after the manner of other Ulcers. But you must note, that if any parcel of the Callous body remain untouched by the medicine of Instrument, the Fistula reviving again, will cause a relapse.

CHAP. XXIV.  
Of Hemorrhoides.

Hemorrhoides as the word is usually taken, are Tumors at the extremities of the veins encompassing the fundament, caused by the deduction of an humor commonly melancholic, and representing a certain kind of Varices. Some of these run at an hole being opened, which sometimes in space of time contracts a Callus; others only swell, and call forth no moisture; some are manifest, others lie only hid within. Tho' which run, commonly call forth blood mixed with yellowish fresco moisture, which stimulates the blood, to break forth, and by its acrimony
Symptoms.

To apply this medicine to the swollen places, and renew it every four hours.

Incorporantur simul cum ovi albumine, fiat medicamentum ad usum.

When they are stretched out and swollen without bleeding, it is convenient to beat an Onion roasted in the ensuing medicine.

For suppurat. This kind of remedy is very prevalent for internal hemorrhoides; but such as are manifest, may be opened with Horse-leaches, or a Lancet. The juice or mass of the herb called commonly Dead-nettle, fast bound; and of linen cloaths, some are made of flax, others of hemp, as Galen observes. But Bandages which are made of of linen clothes must be differed in figure, for that some of them are rolled up, to which nothing must be allowed, for that their Bandages made thereof, may be the more soft and pliable: Yet must they be or cut long-ways, and not athwart, for so they will keep more firm and strong than they bind, for so cut they pass the manner of a disease, whence they are termed Morcell, proceeding from the suppression of melancholick blood; or else they represent Warts, whence they are called Verrucae, enjoying the fame material cause of the generation as the Morcell do. This affect is cause of many accidents in men, for the perpetual efflux of blood extasitheth the vivid and lively colour of the face, calls on a Deepth, overthrows the strength of the whole body. The flux of Hemorrhoides is commonly every hour, sometimes only four times in a year. Great pain, inflammation, an aches which may at length end in a Fistula, unless it be relieved by convenient remedies, do oft-times fore-run the evacuation of the Hemorrhoides. But if the Hemorrhoides flow in a moderate quantity, if the Patients brook it well, they ought not to be stayed, for that they free the Patients from the fear of eminent evils, as Melancholy, Leprosie, Strangury, and the like. Besides, if they be stopped without a cause, they by their reflux into the lungs cause their inflammation, or else break the veiils threded; and by flowing to the liver, cause a Dropifie by the suffocation of the native heat, or else they cause a Dropifie and universal leanness on the contrary, if they flow immediately, by refrigerating the liver by lots of too much blood, wherefore when as they flow too immediately, they must be stayed with a pledge of Hares-down dipped in the ensuing medicine. Be Pol. alter, theorem, borant, fangu, deætatis, etc. § 14. Incorporantur simul cum ovi albumine, fiat medicamentum ad usum. When they are stretched out and shown without bleeding, it is convenient to beat an Onion roasted in the ensuing medicine, over the places, and apply this medicine to the 2nd place, and renew it every four hours.

A remedy for the immediate flowing of the Hemorrhoides.

For suppurat. Hemorrhoides.

The end of the Thirteenth Book.
or else in the midst, others arerowed together, which consist of many branches rowed together, and end in divers heads, and representing divers figures, such are the Bandages appropriated to the head. But they thus differ in length, for that some of them are borier, others longer, some like fort for breadth, some for breadth, others narrower. Yet we cannot certainly define one set down, neither the length nor breadth of rowlers, for that they must be various, according to the different length and thickness of the members or parts. Generally they ought both in length and breadth to fit the parts, wherein they are used. For these parts require a binding, different each from other, the head, the neck, shoulders, arms, breasts, groins, toes, fundament, thighs, legs, feet and toes. For the parts of Bandages, we term one part their body, another their heads. By the body we mean their due length and breadth, but their ends, whether they run longways or crossways, we according to Celsus, term them their heads.

CHAP. II.

Shows the Indications and general Precepts of fitting 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 felt. From the part affected: So the leg, if you at any time bind it up, must be bound long-ways, for if you bind it over-keur, the binding will look so soon as the Patient begins to go, and part forth his leg, for then the muscles take upon them another figure. On the contrary, the arm or elbow must be bound up, bending in and turned to the breadth; for otherwise at the first bending, if he be bound when it is at stretched forth, the Ligature will be slackened, for that (as we formerly said) the figure of the muscles is inverted. Now for this Indication, let each one persuade himself thus much, that the part must be bound up in that figure, wherein we would have it remain.

After this Indication which is drawn from the disease, if there be a hollow Ulcer, firmous and curious, curling forth great store of Sanguis, then must you begin the ligature and binding from the bottom of the Ulcer, and end at the outside of the Ulcer. For thus the Ulcer therein contained shall be emptied and cast forth, and the lips of the Ulcer too far separated shall be joined together; and otherwise the contained sanguis will eat into all that lies near it, increase the Ulcer, and make it uncurable, by rupturing the bowels which lie under it within this acrid juice. For the first, as before mentioned, you must continue your rowling a great way from the broken or luxated part, and from the top, bottom, middle, or sides of the Ulcer. For thus the sanguis may not fall to be on the affected or grieved part; for it is better that they come above or below, or else in the midst, others are rowed together, which consist of many branches rowed together, and end in divers heads, and representing divers figures, such are the Bandages appropriated to the head. But they thus differ in length, for that some of them are shorter, others longer, some for breadth, some for breadth, others narrower. Yet we cannot certainly define one form, neither the length nor breadth of rowlers, for that they must be various, according to the different length and thickness of the members or parts. Generally they ought both in length and breadth to fit the parts, wherein they are used. For these parts require a binding, different each from other, the head, the neck, shoulders, arms, breasts, groins, toes, fundament, thighs, legs, feet and toes. For the parts of Bandages, we term one part their body, another their heads. By the body we mean their due length and breadth, but their ends, whether they run longways or crossways, we according to Celsus, term them their heads.

Ligatures must not be only lightly, but alfo neatly and elegantly, to the satisfaction both of himself and the beholders. For it is the kind of Ligature, to wit, that which is already done and finished, and is called Diligatia operata: For the first, that the Ligature may be well made, it is fit that it be close rowled together; and besides, that the Surgeon hold it stiff and drain in his hand, and not carelessly; for so he shall bind up the member the better. Alto he must in the binding observe, that the ends of the rowlers, and consequently their fatting, may not fall loose on the affected or grievous part; for it is better that they come above or below, or else on the side: Besides also, he must have a special care, that there be no knot tied up to hinder and prevent the entrance in of any other, which may be ready to fall down. For in fractures and lacerations, and all dislocations of bones, as also in wounds and contusions, you must begin your Bandage with two or three windings, or wraps about upon the place, and that (if you can) more fairly than in other places, that so the fett bones may be the better kept in their places, and that the humors if any be already fallen thither, may by this frist compression be preferved forlo 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 preferved forth of its proper vessels, as those which are violently lacerated and torn, which caues congestion in the neighbouring feth, which fett looks red, but afterwards black and blue, by reason of the corruption of the blood poured forth under the skin. Wherefore after the fett windings, which I formerly mentioned, you must continue your rowling a great way from the broken or lacerated part; he which does otherwise, will more and more draw the blood and humors into the affected part, and cause impothenes, and other malign accidents. Now the blood which flows, goes but one way downwards, but that which is preferved, is carried as it were in two paths, to wit, from above downward, and from below upwards. Yet you must have a care that you rather drive it back into the body and bowels, then towards the extremities thereof, as being parts which are incapable of so much strength and benefit of the faculties remaining in the bowels, and the native heat, and the strength and benefit of the faculties remaining in the bowels, and the native heat.

CHAP.
Of Bandages and Ligatures.

BOOK XIV.

Of the three kinds of Bandages necessary in Fractures.

TWO sorts of Ligatures are principally necessary for the Surgeon, according to Hippocrates, by which the bones as well broken as dislocated may be held firm, when they are reforted to their natural place.

Of thefe, some are called *Hippodundes*, that is, Under-binders; others *Epidesinis*, that is, Over-binders. There are sometimes but two Under-binders used, but more commonly three. The firft must fet all be cast over the Fracture, and wrapped there some three or four times about, then the Surgeon must mark and observe the figure of the Fracture, for as that shall be, so must he vare the manner of his binding. For the Ligature must be drawn almost upon the side opposite to that whereunto 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 there contained. Therefore, if the right side be the more prominent or standing forth, thence you must begin 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 go towards the opposite side in binding and rowling it. Here therefore would I require a Surgeon to be Ambidexter, (i.e.) having both his hands at command, that so he may more exquisitely perform each variety of ligations: But let him in rowling, bend or move this firft Ligature upwards, that is, towards the body, for the former reasons. But neither is this manner of ligation peculiar to Fractures, but common to them with luxations: For, into what part forever the luxated bone flew, when it is restored, that side must be bound more closely and gently wheresoever it is deformed, 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 be more loofe and left, and not strictly girt with boulters or rowlers, that so it may be more inclinable to the side opposite to the ligation. 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 again, and removed from its place, whereunto it was restored by art and the hand. Which thing Hippocrates so much feared, that on the contrary he willed that the surgeon should first twine more unto the part contrary to that whereunto it was driven by force, than the natural and proper figure thereof should require. But to return to another discourse of the Three Ligatures: The firft Under-binder being put on, we then take the fecond, with which we in little foot begin at the right side of the body, but having wrapped it once or twice about there, for that, as we formerly said, we must not force back, and press too much blood towards the extremities, as we must do towards the body and bowels: Wherefore this Ligature shall be drawn from below downwards, gently tightening it to press forth the blood contained in the wounded part: When by rowling you shall come to the end of the part, then you shall carry back again that which remains thereof, to wit, upwards. But otherwise you may take the third Under-binder, wherein you begin to rowl, whereas you left with the second, and you may carry it thus, rowling it from below upwards. Thrice Under-bindings thus inserted, apply your boulters, after them your or Upper-bindings, which are of times two, but sometimes three. The firft hath two heads, and is wrapped both from the right hand and the left, for the preservation of the firft Under-binder and the boulters, and restoring the muscles to their native figure. The two other which remain, consist of one head, and the same of them must be rowled from below upwards, the other from below downwards, after such a manner, that they may be directed contrary to the Under-binders: as if they were rowled from the right hand, then thence must be from the left. Now this is the manner of Hippocrates his Ligation, which, for that its now grown out of use, we must here set down that which is in common use. They do not at this time use any Over-binders, but that which we termed the third Under-binder, serves our Surgeons instead of the three fore-mentioned Over-binders. Wherefore they carry this third Under-binder, wrapped from below upwards (as we formerly said) contrary to the first and second Under-binders, as if these began on the right side, this shall be rowled from the left, and thence and afterwards the third Under-binder ended. And you must not only draw it indifferently hard, but also make the spaces and windings more rare. This third rowler is of this use in this manner of ligation: that is, it refolves 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 always have regard, that you observe that measure in wrapping your Ligature, which Reafon, with the fenfe of the Patient, and cares in suffering, prescribes: having regard, that the tumor become not inflamed. Also the habit of the body ought to preface a measure in ligation; for tender bodies cannot away with fo hard binding as hard. Vertly, in Fractures and Luxations, the humors by too strict binding are pressed into the extreme parts of the body; whence grievous and oft-times enormous Oedema's proceed: for healing wherein the Ligature must be loofed, and then the tunished parts pressed by a new rowling, which must be performed from below upwards, and so, by forcing the matter of the tumor thither, it may be helped: for there is no other easier way to drive the humor back again. He which does this, forfaikes the proper cure of the diftance, for to relief the symptom, which the Surgeon shall never refuse to do, as often as any necessary caufe shall require it. For this caufe Hippocrates bids, that the Bandages be loofed every three days, and then to foment the part with hot water, that so the humors, which (drawn choler by the venemeny of pain) have been in the part, may be diffolved and diffipated, and inuring and other such like symptoms prevented. To this end all accidents being past, let the ligation be looser or later loofed, and more slack than it formerly was acutuated; that so the blood and liquidal matters, whereof a Colica may ensue, may now more freely in the affected part.

CHAP.
Of the binding up of Fractures affected with a Wound.

F sometimes happens that a fracture is accompanied 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 afflux of humors from the neighboring parts. But it is not fit to endeavour to tie that kind of binding which is performed with many circumvolutions or wrappings about. For facing the wound must be dressed 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 rest. 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 boufler, and fewed with as much convenience as you can, that it may be so large as to encompass the whole extent of the wound, for these real causes shall be delivered at large in our Trefifie of Fractures. But if the wound run long-ways, let the bouflers and splints be applied to the sides of the wound, that to the lips of the wound may be pressed together, and the contained flesh pressed forth. But if it be made over-ways, we must abstain from bouflers and splints: For that in Giffon's opinion, they would dilate the wound, and the purulent matter would be pressed out, and called back into the wound.

CHAP. V.

Certain common Precepts of the binding up of Fractures and Luxations.

In every Fracture and Luxation, the depressed, hollow and extenuated parts, such as are near unto the joints, ought to be filled up with bouflers, or clothes put about them, fo 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 seats. So when the joint is bound up, you must fill the arm or that cavity which is there, that so the ligature may be the better and speedily performed. The fame must be done under the arm-pits, above the heel, in the arm near the wrist, and to conclude, in other parts which have a conspicuous inequality by reason of some manifest cavity. When you have finished your binding, then enquire of the Patient, whether the member seem not to be bound too tight. For if he say that he is unable to endure it so hard bound, then must the binding be somewhat slackened. For, too strict binding caueth pain, heat, defluxion, a gangrene, and lastly, a staphylo or mortification: But too loose is misprofitable, for that it doth not contain the parts in that place where we desire. It is a sign of a just ligation that is neither too strict nor too loose, if the ensuing day the part be frozen with an external cold tumor, caused by the blood pressed forth of the broken place; but of too strict ligation, if the part be hard frozen, and of too loose, if it be no whit swollen, as that which hath pressed no blood out of the affected part. Now if a hard tumor, caused by too strict binding, trouble the Patient, it must presently be looked for fear of more grievous symptoms, and the part must be fomented with warm Hydromel, and another indifferent, yea verily, more loose ligature must be made instead thereof, as long as the pain and inflammation shall continue; in which time, and for which cause, you shall lay nothing upon the part which is anything burdensome. When the Patient begins to recover, for three or four days space, especially if you find him of a more compact habit and a strong man, the ligature must be kept firm ad not loosed. If on the third day, and so until the seventh, the windings or windings be found more loose, and the part affected more flender, then we must judge it to be for the better. For hence you may gather, that there is an expression and digestion of the humors, causing the tumor made by force of the ligation. Verily, broken bones fitted up, are better set, and more firmly agglutinated, which is the cause why in the place of the fracture, the ligature must be made the stricter, in other places more loofe. If the fractured bone stand fixed in any part, it must there be more strictly pressed with bouflers and splints. To conclude, the seventh day being past, we must bind the part more strictly than before: For that then inflammation, pain, and the like accidents are not to be feared. But these things which we have hitherto spoken, of the three kinds of Ligatures, cannot take place in each fractured part of the body, as in the claps, collar bones, head, nofe, ribs: For, being such parts are not round and long, a ligature cannot be wound about them, as it may on the arms, thighs and legs, but only be put on their outsides.

CHAP. VI.

The use for which Ligatures serve.

By that which we have formerly delivered, you may understand that ligatures are of use to restore those things which are separated and moved forth of their places, and join together those which gape; as in fractures, wounds, contusions, lineous ulcers, and other like affedics against Nature, in which the solution of continuity stands in need of the help of Bandages, for the repairing thereof. Besides also, by the help of Bandages these things are kept stiffer or feparated, which otherwise would grow together against Nature; as in burns, wherein the fingers and the limbs would mutually grow together: as also the arm-pits to the chest, the chin to the breast, unless they be hindered by due ligation. Bandages do also conduct to refresh emaciated parts.
Cafes.

and ufe of

The matter of

Their ufe

What Junks are.

The manner and ufe of

Cafes.

part: Wherefore if the right leg waffe for want of nourishment, the left leg, beginning at the foot, may be conveniently rowled up even to the groin. If the right arm connive, bind the left with a ftrait Ligure, beginning at the hand, and ending at the arm-pit. For thus a great portion of blood from the bound-up part is sent back into the Vena cava, from whence it regurgitates into the veins of the heart, and thus the life being thereby furnished with a plentiful aliment, is preserved.

The fourth.

The fifth.

The sixth.

The firth.

The second ufe of them.

The third ufe of them.

Bandages and Ligatures.

Boulflers, or Compreffes.

Of Bandages and Ligatures.

Book XIV.

Of Boulflers or Compreffes.

Outflers have a double ufe, the first is to fill up the cavities and those parts which are not of an equal thicknefs to their end. We have examples of cavities in the arm-pits, clavicles, hams and groins; and of parts which grow small towards their ends, in the arms towards the wrists, in the legs towards the feet, in the thighs towards the knees. Therefore you muft fill these parts with boulflers and linen clothes, that fo they may be all of one bignefs to their ends.

The fecond ufe of Boulflers, is to defend and preferving the skin and muscles lyng under it, that the operation being performed, they may, by their falling down again, cover the ends of the cut-off bones; and fo by that means help forwards the agglutination and cicatrization, and when it is healed up, the hurt member to move more freely, and with lefs pain and also to perform the former actions of body by that means help forwards the agglutination and cicatrization, and when it is healed up, the hurt member to move more freely, and with lefs pain.

You may alfo ufe Boulflers, lefl the too flrait binding of the ligatures caufe pain and trouble to the new-fett bones. A three or four times doubled cloth will ferve for the thicknefs of your boulflers, but the length and breadth muft be more or lefs, according to the condition of the parts and differing which for which they muft be applied.

Of the ufe of Splints, Junks and Cafes.

Aving delivered the ufe of ligatures and boulflers, it remains that we fay fomewhat of the other things, which ferve to hold the bones in their places; as Splints, Junks, Cafes, and fuch other like. Splints are made and compofed of paper-board, of thin splinters of wood, of leathers, fuch as those-folds are made with, f of kinds of trees, or plates of lattin, or leather, and fuch other like, which have a gentle and yielding fubftance, yet would I have them made as light as may be, lefl by their weight become troublesome to the affeded part. But for their length, breadth and number, let them be fitten, agreeable to the part wherefo they muft be applied. You muft have a fpecial care, that they run not fo far as the fwellings out, or eminencies of the bones; as the ankles, knees, elbows, and the like, lefl they hurt them by their prefure; alfo you muft have a care, that they be smaller at their ends, and thicker in their middles, whereas they lye upon the broken bone. The ufe of Splints is, to hold the bones in their places, and thus they may ly in their places. If the bone be not broken, they may ly in their places; but when the Patient is to be carried out of one bed or chamber into another, or elfe hath need to be conveyed, they are principally ufed in fractures of the thighs and legs. Cafes are made of plates of lattin, or elfe some thin leather, hence their ufe is for carrying the Patient, when the Patient is to be carried out of one bed or chamber into another, or elfe had need to be conducted through the streets, they are principally ufed in fractures of the limbs and legs, and in the broken or luxated members.
Of Fractures.

CHAP. I.

What a Fracture is, and what the differences thereof are.

Fracture, in Galen's opinion, is the solution of continuity in a bone, which by the
Greeks is called *Catagme*. There are many sorts of hurting or offending the bones; as,
the drawing them asunder, location, or putting them out of joints; their unnatu-
ral growing together, their cutting or dividing asunder, corruption, alexed, par-
triction, rottentwixt, tronging bare the *Perichymum*, being violated or loft; and laftly,
that whereof we now treat, a Fracture. Again, the varieties of Fractures are al-
most infinite. For one is complete and perfect, another imperfect; one runs long-wise, another
transverse, another oblique, one while it is broken into great pieces, another while into little
and most infinite. For one is perfect and perfect, another imperfect; one runs long-wise, another
up, as if it were vaulted. They call it Attrition, when the bone is broken into many fmall
fragments, and cannot be perceived by the eye, unleff you put ink upon them, and then fliave
them with your Scraper piece of timber, that is, right-down, and alongft the bone; and thefe fradu-
tures either are appa—
are thofe fradures which are called
as rent into splinters, or after the manner of a board
Schidacidon,
otherwhiles unequal, and, as it were (harp and rough with little teeth or pricks. Some fradures
and, as it were fcales or chips. The fragments of fradured bones are fometimes fmooth and poliffed,
but, on the contrary, are broken Rapha-
ters, that is, long-ways, but together, and at once into two pieces overthwart, which Fracture is
called Raphanodon, that is, after the manner of a Radial.
A Fracture is made Carys-.—on, or like a nut, when at the bone flies into many small pieces, ferved
each from other, as when a nut is broken with a hammer, or mallet, upon an Anvil: Which fra-
dure is alfo termed Alphitidon, by reafon of the refeemblance it hath to meal or flour •, and fuch is
often feen in fradures made by bullets, that out of Guns and fuch fiery Engines. Contrary to thefe
there are thofe fractures which are called Schidadden, as rent into splinters, or after the manner of a board
or piece of timber, that is, right-down, and alongft the bone: And thefe fractures either are appa-
rent to the eye, or elfe not apparent, and therefore called Capillary, being fo fmall, that as they
cannot be perceived by the eye, onely you put ink upon them, and then thave them with your Scra-
pers. Sometimes the bone is only prefled down with the froke •, sometimes on the contrary it flies
up, as if it were vaulted. They call it Attrition, when the bone is broken into many fmall fragments,
and, as it were fcales or chips. The fragments of ffradured bones are fometimes fmooth and poliffed,
otherwhiles unequal, and, as it were fhp and rough with little teeth or pricks. Some fractures
touch only the furface of the bone, tetching off only a fcale: otherwheres change not the fite of the
bone, but only leaves them length-ways, without the plucking away of any fragment, other-
wise penetrate even to their marrow. Furthermore, fome fractures are fimple and alone by them-
elves; otherwheres are accompanied with a troop of other affeds and fymptoms, as a Wound, He-
morhagy, Infammation, Gangrene, and the like. Hereunto you may alfo add the differences drawn
from the parts which the fradures poffefs •, as from the head, ribs, limbs, joints, and other members
of the body. Add alfo thefe which are taken from the habit of bodies, aged, young, full of ill humour,
well tempered; alfo thefe which have their proper and peculiar indications for curing. Now the Theeaufe of
the caufes of
the caufes of
Fractures.

CHAP. II.

Of the signs of a Fracture.

W

E may know by evident figns that a bone is broken: The firft whereof and infot cer-
rain is, when by handling the part which we fufpeft to be broken, we feel pieces of
the bone ferved asunder, and hear a certain cracking of their pieces under our hands,
caufed by the attrition of theattered bones. Another fign is taken from the impoftency of the
part, which efteemews it felt, when both the bones, the leg, 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 leg, and for
his arm, for the brace-bone bears for it the fattening of the muscles, and not of the limb, as the
leg-bone doth. The third fign is drawn from the figure of the part changed besides Nature: For a third,
it is there hollow, from whence the bone is flown or gone. But gibbous or bouching out whi—
ther
Why bones are more brittle in frosty weather.

Why the solidity in bones is not so easily repaired.

Why bones sooner knit in young bodies.

Means of grofs and tough nourishment conducive to the generation of a Callus.

Fractures at joints dangerous.

Ligations conducive to the hastiness of a Callus.

Extension must preferably be made after the bone is broken.

CHAP. III.

Of Prognosticks to be made in Fractures.

We must prognosticate in fractures whether they are to end in the destruction or welfare of the Patient; or whether their cure shall be long or short, easy, or difficult and dangerous; and lastly, what accidents and symptoms may happen thereupon. He shall callattend to the knowledge of all these things; who is not only well seen in the anatomical description of the bones, but also in the temper, composition and complexion of the whole body. Wherefore in the first place, I think good to admonish the Surgeon of this, that in Winter when all is stiff with cold, by a little fall, or some such slight occasion, the bones may be quickly and readily broken. For then the bones, being dried, by the darts of the air encompassing us, become more brittle, which every one of the vulgar usually observe to happen both in waxen and tallow-candles: But when the Sun is mild, the bones are more mellow, and therefore more flexible and yielding to the violence of the obvious and opposing body. Therefore also you may gather this to the framing of your Prognosticks. That bones by reason of their natural driness are not so easily agglutinated and consolidated as flesh; though in children, according to Galen, by reason of the abundance of their humidity, the soft substance may be repaired, according as they term it Callus; that is, by retarding of the fame kind of substance or matter. But in others, about the fractures, a certain hard substance usually concreted, of that nourishment of the broken bone which abounds, which glues together the fragments thereof, being finely put together. This substance is then termed Callus, and it is so hardened in time, that the bone thereafter in the broken part is seen to be more firm and hard than it is in any other; therefore that usual saying in Physick is not without reason, That rest is necessary for the uniting of broken bones. For the Callus is easily dissolved, if they be moved before their perfect and solid agglutination. The matter of a Callus ought to be indifferent and laudable in quantity and quality, even as blood which flows for the regeneration of the lost flesh in wounds. It is true, that there may be sufficient matter for such a Callus, that the part have a laudable temper, otherwise 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 there is plenty of the primigenious and radical moisture, that is laudably holding and glutinous, and in the other there is store of water and excrementitious humour. By this you may easily conjecture, that you cannot certainly set down a time necessarily for the generating a Callus: For in some it happens later, in some sooner; the cause of which variety is also to be referred to the constitution of the Year and Region, the temper and diet of the Patient, and manner of ligation; For, those Patients whose powers are weak, and blood weak and thin, in the he generation of a Callus ideae to be more slow: On the contrary, strong powers hallow to agglutinate the bones, if there be plenty of grofs and viscous matter; whereas by it comes to pass, that meats of grofs nourishment are to be used, and medicines applied which may help forwards the endeavour of Nature, as we shall declare hereafter. When the bones are broken near unto the joints, the motion afterwards used to be more difficult, especially if the Callus, which is substancted, be somewhat thick and bunching forth. But if, together with the violence and force of the fracture, the joints shall be broken and bruised, the motion will not only be lost, but the life brought in danger, by reason of the greatness of the Inflammation, which usually happens in such effects, and the excess of pain in a continual body. These fractures wherein both the bones of the arm or leg are broken, are more difficult to cure, than thoee which happen but to one of them: For they are handled and kept in their places with more difficulty, because that which remains whole serves the other for a rest or stay to which it may lean. Moreover, there is longer time required to substitute a Callus to a great bone, than to a little one. Again, those bones which are more rare and spongy, are sooner glued together by the interpolation of a Callus, than those which are soft and solid. A Callus Doos grow in fanguines, than in cholecystic bodies: But broken bones cannot be to happily agglutinated, nor restored in any body, but that always some acrimony or unequal propinquity may be seen on that part where the Callus is generated: Therefore the Surgeon ought not to make artificial ligations, that the Callus may not stand out too far, nor sink down too low. That fracture is least troublesome which is simple, on the contrary, that is more troublesome which is made into splinters; but that is most troublesome and worst of al which is in small and sharp fragments; because there is a danger of Convulsion by pricking a nerve, or the Jonism. Sometimes the fragment of a broken bone keep themselves in their due place: They also oft-times fly forth thereof, so that one of them gets above another; when it happens, you may perceive an inequality by the depression of the one part, and the bunching forth of the other, as also pain by the pricking: Besides all, the number is made shorter than it was; and than the found member on the opposite side is, and more twich the contraction of the muscles towards their original. Wherefore when a bone is broken, if you perceive any thing to be deprived, presently putting your hand on both sides above and below, thrust 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 restored to their proper fast of themselves. This extension must be performed in the first days, for afterwards there will happen inflammation: Which being present, it is dangerous to draw the nerves and tendons too
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Too violently; for hence would ensue an Impolthume, Convulsion, Gangrene and Mortification. Therefore Hippocrates forbids you to delay such extension until the third or fourth day. Fractures are thought dangerous, whole fragments are great, and by our, especially in those bones which are filled with marrow on the inside. When broken or dislocated bones cannot be restored to themselves and their natural place, the part waits for want of nourishment; both for that the natural fire of the veins, arteries and nerves, is pervaded, as also because the part it lies immovable, or form movable, whereby it comes to parts, that the spirits do not freely go thence, as neither the nutritive juice cometh thicker in sufficient plenty. When the dislocated or broken is troubled with any great inflammation, it is doubtful whether no Convulsion will happen, or cent bodies: Which pain will not cease, before it be restored to its place. And hereof the Surgeon suffice the Surgeon to view it once, but even as often as he shall dress it; For it may happen, that out itndit will give manifest signs thereof by renewing the pain, by pressing or pricking the adjacent, rugged, but the surface of the membrane remain smooth and equal and lastly, if the broken

of their own accord contrading themseft towards their originals, that the member may again fall

of the

The general care of broken and dislocated bones.

To cure a broken and dislocated bone, is to restore it to its former figure and site: For the performance whereof, the Surgeon must provide three things to himself: The first is, to restore its place to its place: The second is, that he contain or stay it being so restored: The third is, that he hinder the increase of malignant symptoms and accidents: or else if they do happen, that then he temper and correct their present malignity: Such accidents are pain, inflammation, a fever, stiffness, gangrene and laceration. For the first intention, you may easily restore a broken or dislocated bone, if preferably, as soon as the mischief is got, or else the same day, you endeavour to restore it: For the bitterness of pain or inflammation, which may trouble the Patient, is not as yet very great; nor is the contraction of the muscles upwards, as yet very much or the like. For the whole, the Patient with his whole body, but especially with the broken or dislocated part, as also the Surgeon, must be in some place which hath good and sufficient light: Then let trutly and skilful attendants be there, good ligatures, and also, if need so 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 afflicted, he shall stretch 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, neither will you much avail your felt by stretching it at such a distance: But if you only endeavour below with your hand or ligature, stitching to make extension thereof, it will be dangerous if there be nothing above which may withstand or hold, lest that you draw the whole body to you: This being done according as I have delivered, it is fit the Surgeon make a right or right extention of the part affected: For when the bone is either broken or out of joint, there is 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 state, 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 prevent with your hand press it down, if there be any thing that bunches or swells up. But if the bone be dislocated or forth off joint, then presently after the extension thereof, it will be requisite to bend it somewhat, and so 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 joints: for that 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 so much will they be contracted more powerfully upwards towards their originals: Yet have a care that you extend them not too violently, lest by rending and breaking down the muscles and nerves, ye cause the aforementioned Symptoms, Pain, Convulsion, a Palsey and Gangrene: All which fooner happen to strong and aged bodies, than to Children, Eunuchs, Women, Yonths, and generally all moist bodies, for that they are less hurt by violent extension and pulling, by reason of their native and much humidity and Dustin. For thus skins of Leather, moistered with any liquor, are easily ratchet, and drawn out as one pleaches: But such as are dry and hard, being left tradable, will sooner rend and tear, than stretch 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 fit, and the feeling performed as it is, if the pain be allayed, if you, the fibres of the muscles, and the other parts being restored to their former state, and all compression, which the bones moved out of their places have made, being taken away it, to your feeling there be nothing, bonding out, nor rugged, but the surface of the membrane remain smooth and equal; and hastily, if the broken or dislocated member compares with its opposite in the compoture of the joints, and knees, as the ankles answer jolly and equally in length and thickness. For which purpose it must not follow that you extend them, but even as often as he shall deems it: For it may happen that the bone which is well fit, may be some change, as by the Patients unconsiderate turning himself in his bed, or, as it were, a convulsive twitching of the members or joints whilst he sleeps, the muscles of their own accord contracting themselves towards their originals, that the member may again fall out. And if it is not much, you may therewith relieve the pain, by peeling or prickling the adjacent, or some

cont bodies: Which pain will not cease, before it be restored to its place: And hereof the Surgeon

ought

Signs of a bone well set.

Cauts and signs of the relate of a bone.
Of Fractures.

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four choice means to hinder accidents.

The causes and differences of itching.

All from sect. 2, of fall.

AD, sect. 21, 1st, &c. fall.

Remedies against the itching.

Hipp. sect. 45, sed 5, de fall.

By what means you may perform the third intention in curing Fractures and Dislocations, which is the binding and correction of accidents and symptoms.

If it have to diligent care: For it, whilst the Callus is in growing, one bone ride over another, the bone it fell will afterwards be so much the shorter, and consequently the whole member so that if this error shall happen in a broken leg, the Patient will limp ever after, to his great grief, and for want of the stake by which so much as in him lies, be for ever the broken member, before that the Callus be hardened. Such diligent care needs not be had in Dislocations: For these once fixt, and artificially bound up, do not afterwards to evilly fall forth as broken bones. The second scope is, that the bones which shall be restored may be firmly kept in their place and not, as the surgeons before have said, be moved, no, farther than by the contractions of the muscles, for which reason you must be patient and not apply any violent means to move them. If the fracture be simple, or with Red-wine, or the liquor warm (in Galen's opinion) if a wound be joyed to the Fracture: and it will be to moisten Fractures often in Summer: for the part is strengthened, the defluxion being repelled, whereby the inflammation and pain are hindered. You must deftill from humectating and washing the part when the symptoms are past, lest you retard the generating of a Callus for which you must labour by those means which we shall hereafter declare. To this purpose also conduces the red and ly by the part in its proper figure and line acutiform in health's that it may the longer remain in the same place uninjured: Besides also, it is expedient thin only to dress the part, when it is nother bound with thofe things which are requisite, flaming or such as may be, inflammation and pain. That figure is thought the bent, which is the middle; that is, which contains the muscles in their line, which it without pain, so that the Patient may long endure it without labour or trouble. All thofe things being performed, the Patient must be asked, whether the member be bound up too tight. If the answer be, No, (unless peradventure a little upon the fracture or location, for three or four days space, unless peradventure pain urge you to the contrary. In dislocations the fame binding may be kept for seven or eight days, unless by chance force symptom may happen; which may force us to open it before that time: for the Surgeon must with all his art have a care to understand the chance of evil accidents and symptoms, which, how he may bring to pafs, shall be declared in the following Chapter.

What the middle figure is, and why left.

Fit time for loofing of ligatures in fractures and dislocations.

C H A P. V.

Hat we may attain unto this third scope, it is requisite we handle as gently and without pain, as we may, the broken, or dislocated member: we drive away the defluxion ready to fall down upon the part, by medicines, repelling the humour, and strengthening the part; we, by appointing a good diet, hinder the occurring of excrements in the body; and divert them by purging and phlebotomy: 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 forment the Patient: This anathet from a collection and supposition of subacid vapours, arising from the blood, and other humors under the skin: Whereas a light bating, which caueth a little itch, or else a more grievous, or else a more grievous (in Galen's opinion) proceeds a painful itching. Wherefore fuch matter, as the cause, be evacuated, all itching ceaft: But this cannot easily and freely be evacuated and breathed out, because the pores of the part are furht; and, as it were, opprefled with the burthen of the excrements. Wherefore the patient, who provide not for it by loofing their ligatures. Besides also, the part must be long fomented with hot water alone, or else with a decoction, of Sage, Chamomil, Roses, and Melilot made in Wine and water: For long fomenting attenuates and evacuates, but shorter fills and mollifies, as it is delivered by Hippocrates. Also gentle frictionings, performed with your hand, or a warm linen cloth upwards, to the right side and left, and circularly to every side, are good. But if the skin be already rick into blisters, they must be cut, let the matter contained therein under may corrode and ulcerate the skin: Then must the skin be assisted with forc ceasing and drying medicines; as Urg. album Camphorum Rubrum, Aquafortis rubrum, aquafortis funce, adding thereto the powder of a rotten pot, or prepared Smyra, or the like. Other accidents more grievous thence, do often happen, but we will treat of them hereafter: But if the scales of the bone underneath, be quite fewered from the whole, then must they be prettily taken forth, especially if they prick the muscles; and so prompt the use of the wounded feth that it cannot be restored into its face, it must be cut off with your Cuttage-mallets, or Parotis-book, as occasion shall offer it: If in the interim you must have a care that the part enjoy perfpiration, 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-purged, neither too strait bound, otherwise it will
will be apt to inflammation. Thus much concerning fractures and dislocations in general: Now we must descend to particulars, beginning with the fracture of the nose.

CHAP. VI.

Of the Fracture of the Nose.

The nose is gristly in its lower part, but bony in the upper. Wherefore it suffers no fracture in the gristly part (unless a peradventure a Sclerosis but only a depreflion, distortion or contusion. But a fracture often happens to the bony part, and to great a depreflion to the inner side, that unless it be provided for by diligent reftoring it, the nose will be flattened, or wrinkled alike, whence there will be difficulty of breathing. That this kind of fracture may be reftored, that bone which stands too far out, must be prefled down, but that which is depreffed, muft be lifted up with a frature, or little thick handfomely fashioned and wrapped about with cloths or Alumum rag. To avoid pain: Therefore you fhall hall the fpafthem in one hand, and re- fence and order it with the other. The bone being reftored, directions or fecrets of a convenient mufi fee lifted up with a fpafthem, or little ftick handfomely fafhioned and wrapped about with cloths. Then the bone which hands too far out, must be prefled down, but that which is depreffed, wrefted alide, whence there will be difficulty of breathing. That this kind of fracture may be reftored, the following medicine, which hath a faculty to repel and reprefs the defluxion, to ftrengthen and keep the part in its due pofture, and to dry up and waste the matter which hath already fallen down, fhall be applied to the nose, and all the other dry parts.

Of the Fracture of the Lower Jaw.

The lower jaw runs into two, as it were, horns or tops: The one whereof ends flarip, under the mammillary process, and it is there implanted in a fmall cavity; it is joined together in the middle of the chin by Synphesis, and is marrowy within: The fracture, which happens thereto, is reftored by putting your fingers into the Patients mouth, and preffing them on the inside and outside, that to the fractured bones put together may be imitated and united: But if they be broken wholly from each other, extenfion muft be made on both fides on contrary parts, upwards and downwards, whereby the bones may be compofed, and joined more easily to one another: The teeth in the mean while, if they be either flaken or removed out of their fockets, fhall be reftored to their former places, and tied with a Gold or Silver wyer, or elfe an ordinary thred, to the next firm teeth, until fuch time as they fhall be fatned, and the bones perfectly knit by a Callus: To which purpofe, the ordered fragments of the fractured bone fhall be stayed, by putting a fpafthem on the outside, made of fuch leather as foode foal are made; the midle thereof being divided at the chin, and of fuch length and breadth as may serve the jaw: Then you fhall make ligation with a fhade two furies broid, and of fuch length as fhall be fufficient, divided at both the ends, and cut long-maws in the midle thereof; fo that it may encroach the chin on both fides. Then there will be four heads of fuch a ligation fo divided at the ends, the two lower whereof being brought to the crowns of the head, fhall be there fatned, and lowed to the Patients night-cap. The two upper drawn athwart, shalt likewise be fowed as artificially as may be, to the cap in the nape of the neck. It is a molt certain thing, that the jaw is reftored and well fet, if the teeth fatned therein stand in their due rank and order. The Patient fhall not lye down upon his broken jaw, let the fragments of the bones though again fall out, and caufe a great defluxion. Unless inflammation, or fome other grievous fymptom fhall happen, it is strengthened with a Callus within twenty days: for that it is fpongious, hollow, and full of marrow, espe- cially in the midle thereof. Yet sometimes it heals more slowly, according as the temper of the Pa- tient is, which alters also in other fractured bones. The aggravating and repelling medicine, defcribed in the former Chapter, fhall be used, as alfo others, as occasion fhall offer it. The

Hippocr. de art. & Gal. p. 40, &c.
The Patient must be fed with liquid meats, which stand not in need of chewing, until such time as the Collar-bone grow hard, lest the scarce or ill-jointed fragments should fly in funder with the labour of chewing. Therefore shall he be nourished with Water-gruel, Pondado’s, Cullifles, Barley-creams, Gellies, Broths, Rear-eggs, Retaurative Liquors, and other things of the like nature.

CHAP. VIII.
Of the Fracture of the Clavicle or Collar-bone.

A

How to reduce the fractured Clavicle.
The first way.
The second way.
The third way.

as the nature and kind of the fractured Clavicle shall be, so must the cure and recovering thereof be performed: But howsoever this bone shall be broken, always the end towarded to up the way. Store this kind of fracture, put a clew of yarn under the Patients arm-pit, so to fill up the cavity. For thus the broken clavicle, sidg or left. Now these boulsters must be of a convenient thicknefs and breadth, fufficient to fill the cavities which are above and below that bone: Then shall you make fit ligation with a ligature per- fectly to re-flore a fractured clavicle.

The Surgeon with his fingers shall reduce the fracture, prefling down that which stood up too high, and lifting up that which is preffed down too low. Some, that they may more easily re-flore this kind of fracture, put a clew of yarn under the Patients arm-pits, so to fill up the cavity there. Then they forcibly prefl the elbow to the ribs, and then pull the bone into its former feat: But if it happen, that the ends of the broken bones shall be depreft, that they cannot be drawn upwards by the fore-mentioned means; then must 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 rag or fome fich thing; Then the fervant shall fo long prefl the Patients shoulders with his hands, until the ends of the bones, lying hid and prefled down, by out and threw them­selves: Which being done, the Surgeon may eafily re-flore or fet the fractured bone. But if the bone be fo broken into fplinters that it cannot be reduced, and any of the fplinters prick and wound the fkin, and fo caufe difficulty of breathing, you then must cut the skin even againft them, and with your Inftrument lift up all the depreffed fplinters, and cut off their fharp points: For so to prevent all deadly accidents, which thenceupon may be feared. If there be any fragments, they, after they are fet, shall be covered with a knitting medicine made of Wheat-flour, Frankincenfe, Bole­arnenfhe, Sanguis draconis, Kefinipini, Sanguis draconis, made into powder, and mixed with the whites of Eggs, and then three boulsters dipped in the fame; two whereof shall be laid upon the fides, and the third upon the prominent fracture; fo to repreff it and hold it in: For thus the fragments shall not be able to flir or let themselves up further than they fhould, either to the right fide or left. Now these boulsters must be of a convenient thicknefs and breadth, fufficient to fill up the cavities which are above and below that bone: Then shall you make fit ligation with a rowler, having a double head call crofs-wife, of a hands breadth, and fome two ells and half long, more or lefs, according to the Patients body. Now he (hall be fo rowled up, as it may draw his arm somewhat backwards, and in the interim his arm-pits shall be filled with boulsters, efpecially that next the broken bone; for fo the Patient may more eafilyuffer the binding. Alto you shall with the Patient, that he of himfelf bend his arm backwards, and fet his hand upon his hip, as the Country Clowns ufe to do, when they play at Leap-frog. But how great diligence foever you use in curing this fort of fracture, yet can it caufe to be performed, but that there will fome defor­

He Greeks call that Omplata, which the Latins term Scapula, or Scapula postica, that is, the shoul­der-blade. It is fathed on the back to the ribs, now, the Vertebrae of the chest and neck; but not by articulation, but only by the interpofition of mufcles, of which we have spoken in our Anatomy: But on the forepart it is articulated after the manner of other bones, with the collar-bone, the fholes, or arm-bone: For with its proces, which repreffes a prick or thorn, and by force, for that it is more long and prominent, is called Acromion (that is, as you would lay, the top or point of the faid shoul­der-blade) it receives the collar-bone. There­fore there Anatomy, according to Hippocrates, as they fuppofe, call all this articulation of the collar-bone, with the hollowed proces of the shoul­der-blade, Acromion. There is another pro­cess of the faid blade-bone, called Corpus omplata, or the neck of the shoul­der-blade; this thin­ly is very flow, but ending in a broad intimated head, provided for the receiving of the shoulder or
or arm-bone. Not far from this proceeds another, called Coracoides, of the back: which runs like a hill, alongd the midft thereof for its fafety, as we fee in the of that part. The ftiouldcr-blade may be fradured in any part thereof, that is, either on the ridge, nowmany hapning accidents are more grievous or gentle. 

We know the fpine or ridge of the fhoolder-blade to be broken, when a dolorifick inequality is perceived, by touching or feeling it: But you may know, that the broader or thinner part thereof, is depreffed, if you feel a cavity, and a pricking pain molest the part, and if an numbefs trouble the 

The cure, of the membrane^ and the lung, argue the deprelfion thereof. For the re- 

the back, as wefet down in the fetting of the 

Vertebra oP 

fion fluffed with tow or hay under the 

collar-bone: Then a fervant (hall lie ftrongly with both his hands on His ftioulders, as if he would 

pret them down, whilft the Surgeon, in the mean time preifing the ribs on each fide, fhall reftore 

and fet the bone with his hand and then the formerly defcribed medicines fhall be applied for tp 

made crofs-ways above the fhoulders^ but that not too ftrait, left it hinder the Patients breathing. 

a Knight of the Order, who had his b'heaft-plate bended and ^ven in, with an iron bullet fhot 

out of a Field-piece, as alfo his 

blow i he did fpit blood for three moriths after I had-fet the bone, yet for all this he lives at this 

diay in perfeft: health. 

The true ribs, for that they are bony, may be broken in any part of them; but the baffled 

ribs cannot be truly broken, unlefs at the back-bone, becaufe they are only bony in that 

part, but grifly on the fofefide toward the breaft-bone: Wherefore there they can only be federal or crooked in. Thofe which are bifected to fractures, may be broken inwards and out- 

wards. But of-times it comes to pafs, that they are not absolutely broken, but chft into feifins, 

and that fomentines inwards, but not outwards. Thus the fiture doth of-times not exceed the 

middle fubftance of the rib; but fometimes it is break through all that, the fragmenitis and fplinters do prick and wound the membrane, which inves and lines them on the inside, of 

which is great danger. But when the fracture is fimple without a wound, compression, pauchure of the 

membrane,
Of Fractures. Bok XV.

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membrane, and lathy, without any other symptom, then the danger is least: Therefore Hippocrates establisheth, that those, who are thus affected, fill themselves more freely with meat; for that moderate repulsion of the belly, is (as it were) a certain prop or stay for the ribs, keeping them well in their place and place; which rule chiefly takes place in fractures of the baffard ribs. For such as have them broken, use to feel themselves better after, than before meat. Formerly meat, or of the stomack, makes a repulsion of the ribs, as not under-propped by the meat. Now that fracture which is outwardly, is far more ease to heal, than that which is inwardly; for that this pricketh the membrane or Pleura, and causeth inflammation, which may easily end in an Empyema. Add heretofore, that this is not so easily to be handled or dealt with, as the other: whereas by it cometh to pafs, that it cannot be so easily restored, for that these things cannot be so fully and freely performed in this kind of fracture, which are necessary to the setting of the bone, as to draw it out, hold it and join it together. It is therefore healed within twenty days, if nothing else hinder. The sign of fractur'd ribs are not obscure; for by feeling the grieved part with your fingers, you may easily perceive the fracture by the inequality of the bones, and their noise or crackling, especially if they be quite broke atander. But if a rib be broken on the inside, a pricking pain, far more grievous than in a pleurifie, troubles the Patient; because the sharp splinters prick the Cartilagenous membrane: Whence great difficulty in breathing, a cough, and spitting of blood ensue. For blood, flowing from the vein by broken, by the violence of the thing causing the fracture, is (as it were) stuck up by the lungs, and by a dry cough carried into the wearon, and at length spat out of the mouth. Some, to pull up the bone that is quite broken and defteps, apply a Cupping-glass, and that is ill done; for there is caused greater attraction of humours, and excites of pain by the pressure and contraction of the adjacent parts, by the Cupping-glass, whereas Hippocrates also forbids it: Therefore it is better to endeavour to restore it after this following manner. Let the Patient ley upon his foone side, and let there be laid upon the fractured side an emplaster made of Turpentine, Rheum, Black-pitch, Wheat-bour, Mansitch and Aloes, and spread upon a strong and new cloth. When it hath stuck there some time, then sheet it suddenly with a strong and new cloth, and by that means the rib will follow together against it, and be put to and drawn together therewith, and be stuck up and drawed therewith. It is not sufficient to have done this once, but you must do it often, until such time as the Patient shall find himself better, and to breathe more eafily. There will be much more hope of restitution, if, whilst the Surgeon do this diligently, the Patient tobeare coughing, and hold his breath: Otherwise, it necessity urge, as if sharp splinters with well broken terminating in pain, that Cartilagenous membrane, overseep'd with many veins, veins and arteries, which run under the ribs, whence difficulty of breathing, spitting of blood, a cough and faveur 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 laying it bare, you may discern 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, Phlebotomy and Purgation, which (as faith) are not very needful in a simple fracture, for that these there are no symptoms which may require such remedies; yet, they, by reason of the complicated symptoms, as a convulsion, fever, Empyema, and the like, must here be prefcribed by the advice of the Physician which oversees the cure. A Cerate, and other remedies fitting the occasion, shall be applied 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 lying and lying, than fuch as is taken from the will and content of the Patient.

CHAP. XII.

Of certain preternatural affections which ensue upon broken Ribs.

Any symptoms ensue upon fractured and contused ribs; but among the rest, there are two which are not common, whereby we treat in this place. The first is, the inflammation, or swelling up of the contused ribs, which doth ensue upon light affeets of the bone, which have been neglected at the beginning. But the other is not rarely pushed up of it fell, but also within a certain phlegmatick, gluttonous and viscous humour gathering thereunto. The cause hereof is, the weakness of the digestive faculty of the part, occasioned by the stroke and distempers; which therefore cannot assimilate the nourishment flowing more plentifully than it was wont, either drawn thither by means of the pain, or fed thereto by a blind violence of nature, fittered thereto by a defire of its own preservation. Wherefore this latter humde humour remaining there, raifeith much flauting from its self, or else wrought upon by the weaker heat, it is devolv'd into cloudy vapours; whence it cometh to pafs, that the flesh is weak in that place, and the skin on the contrary groweth fat, and if it be blown up with a quill, therefore laying your hand thereon, you may hear the noise of the wind going forth thereof, and for a cavity left in the part, as it is usually seen in edematous tumours. Unlesse you remedy this inflammation, there will ensue an inflamation, fever, abode, difficulty of breathing; and lastly, that fecund kind of affect whereof we have determined to treat in this Chapter, to wit, the putrefaction, corruption, or blwin of the flesh. As abode, and the separation of the flesh, the bone and the cartilage therein, is called the cause hereof. For hence it cometh to pafs, that the bone, deposed of its natural and fihilly clothing wherein it was cherishead, is easily offended by the touch of the extraneous air, which it never formerly felt, and so at length it become (as it were) blasted. Which when it happeneth, they spit up fih, and so fall into a Contumaciou. As well in that as in their inconveniencies, you must as speedily as you can, remove the fractured bones by the former delivered means: And then this mucous tumour must be repaired by proper heating and diffusing medicines,
Of Fractures.

Book XV.

Of the Fracture of the Vertebrae, or Rack-bone of the Back, and of their Proceses.

Chapter XIII.

The Vertebrae are sometimes broken, other times bruised or strained on the inside, whereby it comes to pass, that the membranes which invest the spinal marrow, as also the spinal marrow itself, are compressed and strained, which cause many malignant accidents which, whether they be curable or not, may be certainly foretold by their magnitude. Amongst these symptoms, are the stupidity, or numbness and palsy of the arms, legs, fundament and bladder, which diminish, or else take away from them the faculty of force and motion: so that their urine and excrements come from them against their wills and knowledge, or else are wholly suppressed. When which they happen (as Hippocrates) you may suspect death is at hand, by reason that the spinal marrow is hurt. Having made such a Prognostick, you may make an incision, so to take forth the splinters of the broken Vertebrae, which driven in, press the spina! marrow, and the nerves thereof. If you cannot do this, at least you shall apply such medicines as may alleviate pain, 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 the Proceses only of the Vertebra be broken, the fragments shall be put in their places, unless they be quite severed from their Periostea. But if they be severed, you shall open the skin and take them forth, and then dress the wound as is fit. We understand that only the procefses of the Vertebrae are broken, if in the absence of the forementioned symptoms of numbness and the palsy, you laying your finger upon the grievous part, feel something, as a bony fragment, thumping and moving thereunder, with a certain crackling noise; and then, if when the Patient holds down his head, and bends his back, he feels no more pain, than when he stands up straight on his feet: For in stooping, the skin of the back with the Periostea is somewhat stretched forth and extended, and also forced upon the sharp splinters of the fragments, whence proceeds a dolorific solution of continuity, and a pricking. On the contrary, the stretched skin is relaxed, and consequently hit mistaken with the sharp fragments. The fractured procefses of the Vertebrae easily heal, unless they be affected with some other more grievous symptom which may hinder them, such as a certain great contusion, and the like. For as we formerly laid out of Hippocrates, all rare and spongy bones are knit by a Callus within a few days.

Chapter XIV.

Of the Fracture of the Holy-bone.

A lo the Holy-bone in a certain part thereof, which may easily be healed, may be broken by the blow of bruising 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 ushered in the former Chapter.

Chapter XV.

Of the Fracture of the Rump.

The Rump is composed of four bones, the first whereof hath a cavity, wherein it receives the lowest Vertebra of the holy-bone, the other three are joined together by Symphysis 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 fragments forth, and fit and restore it to the rest of the bones by your other hand lying upon the back: But that it may be the sooner healed, it is in 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 be nothing which may press the broken part, and strong remedies for healing fractures shall be applied at occasion shall offer it self.
The description of the hip.

The hip consists of three bones: The first is named Os Ilium, the haunch-bone; the other, Os Ischion, the huckle-bone; the third, Os Pubis, the three-bone. These three bones in men of full growth, are to full joint and joyned together, that they can by no means be separated: but in children they may be parted 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 signs, as you know others, to wit, pain, prickings, a depressed cavity, and inequality, and also a numbness of the leg of the same side. The splinters of the bones (if quite broke off) shall by making incision, be taken away at the fifth 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 and large, that large nerve which is sent into the muscles of the thigh and leg. On the contrary, such fragments as are not broken or severed from their Periosteum, shall be smoothed and set in order with your fingers, as is setting. Other things shall be done according as art and necessity shall persuade and require.

The description of the arm, or shoulder-bone.

The arm-bone is round, hollow, full of marrow, rising up with an indifpensable neck, and ending on the upper part into something a thick head. On the lower part it hath two processes, the one before, the other behind; between which there is (as it were) a half-circle, or the cavity of a pulley, each end whereof leads into its cavity, of which one is interior, another exterior; that by thence (as it were) hollow flops, the bending and attainment of the arm might be limited, lest that the bone of the cubit, if the circle should have been perfect, riding equally this way and that way, might, by its turning, have gone round, as a rope runs in a pulley; which thing would much have confined the motion of the cubit. For to the extension or bending it back, would have been equal to the necessary bending it inwards. It is very expedient that a Surgeon know these things, that so he may the better know how to reduce the fractures and injuries of this part. If one of the fragments of this broken bone shall lie much over the other, and the Patient have a good strong body, then the arm shall be much extended, the Patient being so on the joynts. For, in the opinion of Hippocrates, heaters under him; yet Hippocrates regarding another thing, would have the Patient to sit higher: But you must have a care that the shoulder-bone it self be drawn directly downwards, and the cubit fo bended, as when you put it into a scarf. For if any one of 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 be spoiled, when as you come to put the arm in a scarf: Wherefore the Surgeon must diligently and carefully observe, that in setting a broken arm, he put in such a posture, that retting on the breast, it look down toward the girdle. You must have care in laying the splints, and roping your ligatures, that they hurt not, nor press too hard upon the joynts. For, in the opinion of Hippocrates, by the pressure of parts which are nervous, field sets, and consequently ended with exquisite forces, by the splints there is danger of much grievous pain, inflammation, denudation both of the bone and nerve; but chiefly, if such compression hurt the inner part, towards which the arm is bended; wherefore the splints made for this place must be the flouter: Therefore after the arm-bone is set, the arm shall be laid upon the breast in a right angle, and there bound up in a scarf, lest that the Patient, when he hath need to stir, slip and un-do the setting, and figure of the broken bone: But the arm must be kept in quiet, until such time as the fragments shall be conformed with a Callus, which usually is in forty days, sooner or later, according to the different constitutions of bodies.

The differences

I sometimes happeneth, that the cubit and wand are broken together and at once, and at other

whiles that but the one of them is fractured. Now they are broken either in their midit or ends; their ends (I say,) which are either towards the elbow, or else towards the wrist. That fracture is worst of all, wherein both the bones are broken, for then the member is wholly impotent to perform any sort of action, and the cure is also more difficult for the member cannot so easily be contained in its state: For that bone which remains whole, serves for a stay to the arm, and binds the splinters from being drawn back, which usually draw back and think up themselves, whenever 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 easest of all, wherein only the wand is broken, for fo the fractured part is fatuated by the ell-bone: When both the bones are broken, there must be made a stronger extension, for the muscles are the more contracted: Therefore, whenever either of them remains whole, it doth more servce in fatuating the other, than any other ligatures or splints, for that it keeps the muscles right in their places: Wherefore,
Wherefore after the bones shall be set and fastened up with ligatures and splints, the arm must be so carried up in a scarf put about the neck, that the hand may not be much higher than the elbow, lest the blood and other humours may fall down thereinto: But the hand shall be set in that posture which is between prone and supine, for so the parts shall lie disably under the elbow, as we have read of Hippocrates:

"The reason is, forthit by a supine figure or situation, both the bone and muscles are perverted: for first, for the bone, the Epiphysis, Styloides and Olecranon of the cubit, ought to be in an equal plain, and to be placed each against another, which is not so in a supine figure, as wherein the Processus styloides of the cubit is set against the inner parts 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 tallow, the insertion of the tail thereof; but by a supine figure, the muscles arising from the inner parts of the arm-bone, and bending the cubit, shall have the bone placed in an higher and more exterior site. In the interim, you must not omit, but that the Patient's Arm may lie with as little pain as possible you can, be bound and extended now and then, lest by the too long rest of the tied up part, and the interruption of its proper function, the bones of the joint may be folded together by the interpolation: and as it were glue of the defequion which falls abundantly into the joint of the elbow, and neighbouring parts, whereas the stiffness and immobility therefrom, as if there were a Callus grown 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 Ancylo and Ancylos.

If a Wound also affiorn a fracture of the arm, then see that you put about it Plates or Lattin, or Pallet-board, and make a convenient ligature and that the fragments of the bones be kept in the same places wherein they were set and restored: Moreover, let him lay his arm upon a soft pillow, or cudia, as the predecessor Figure shows you.
In short, this Glosco-
comium, you may make
use of my Pulley: for
Hippocrates, in this bone
when it is broken, doth
approve of extention so
much, that although by
the gnomes of the ex-
tension the ends of the
fragments be somewhat
distant afield, an em-
pty space being left be-
tween, yet myriads
flanding would have
ought about of Ligation
keeps the muscules un-
movable: but here, in the extended thighs, the delegation is not of such force as that it may stay
and keep the bones and muscules in that state wherein the Surgeon hath placed them: For, seeing that
the muscules of the thigh are large and strong, they overcome the ligation, and are not kept under by it.

The Surgeon in letting it shall allow consider, that the thigh-bone is hollowed on the inner-side, but external in the out-side, therefore it must be better in its native figure. Otherwise, if any, unmindful
of this consideration, would have it straight, he shall make his Patient halt all his life after:
wherefore this inner and native hollowed must be filled up and preferred by putting in a compro-
with black, having spread over with Unguentum Rosati, or the like glutinous thing that it may not fall off.
for thus also the ligation shall the more faithfully keep the fragment of the bone in their places.

Our Surgeons therefore at this day require three ligatures for Fractures, the first whereof they pre-
ferved in let-
ning the bone.

The part to be bound up
must be made
plain either by
Nature or Art.

The manner of binding
used by Sur-
gons at this
day.

Why the win-
ding of the up-
er ligatures
must be thic-
ker than the lo-
er.

Why the
third ligature
must be con-
ded country
to the two
first.

The Surgeon
must be judi-
cious in placing
the three
lines in pla-
cing the mem-
ber.

The natural
and internal
crooked line
must be pre-
pared in let-
ing the bone.

The part to
be bound up
must be made
plain either by
Nature or Art.

The manner of binding
used by Sur-
gons at this
day.

Why the win-
ding of the up-
er ligatures
must be thic-
ker than the lo-
er.
Of Fractures.

A fracture sometimes happens at the joint of the hip in the neck of the thigh-bone, as I once a lady, observed in an honest citizen. I being called to her, when I had observed the thigh

be to be shorter than the whole, with the outward prominence of the

iliacus, which at the

first light I supposed to proceed from the head of the thigh-bone, I presently perceived my self it was a Dislocation and so Fracture. I then therefore extended the bone, and forced (as I thought) it to be placed higher than the rest of the body, yet keeping such a mean, that the part may not be too

The part ought to be somewhat high, that the defluxion may be hindered, which is easily shifted by a prone and declining figure: for if the foot shall be placed in a lower figure, the blood which flows thither from the abundance of the ligatures: so that by the superscription thereof, many have not only been

but also the skin being broke by the acrimony of these, as well vapours as humours, which are kept

If, together with the tumour there be a contusion and rigidity, it must be the longer fomented, that the excrementitious humour resting in the part may be digested. But if this quantity of time shall not suffice, then must you use stronger

But the part ought to lie somewhat high, that the defluxion may be hindered, which is easily stirred

Besides all you must have regard to the temper and habit of the Patient, heretofore that saying of Hippocrates must here be remembered, which faith, That a weak

Therefore when accidents shall be feared, the part shall be long be fomented with warm Water and Oil, as you think fit: for, such fomenting

The next day I visited her the first sight I supposed to proceed from the head of the thigh-bone, I presently perswaded my self that the bone was broken, and not

Wherefore broken bones have very much need of rest, to the generating of a Callus, otherwife the Rest necessary to the knitting of the bone.

But the other hanging down hath nothing thereunder, whereupon it may reft: Therefore Hippocrates bids us diligently to take heed that the bone be

united the five dislocated or drawn away the part, whilst one portion of the hurt part is born up, and

fixed by that which lies under it, but the other hanging down hath nothing thereunder, whereupon it may rest: Therefore Hippocrates bids us diligently to take heed that the bone be

neither fomentes adomineth us. In the mean time, this hurt leg or side ought to be of equal length with the found, and for that purpose it must be laid on both sides with jews, as we

threw you hereafter, when we come to speak of a broken leg. The bandage being performed, as we have said, the following night, and the next day the Patient feels the member more firmly

bound, than when it was at first wrapped, yea, verily the Knee is lifted up into a firm tumor by the

expulsion of the humour from the wounded part: but on the contrary, the inflating day the ligation

is thicken and relaxed, some portion of the humour contained in the part being digested. Also the

next day all things are perceived more loose, there being made a larger resolution of the humour.

Then therefore the bandages must be loofed, and that not only, lest that the fragments of the bones should fall forth of their place, but also that we may gratifie the Patient by that alteration

or change of place, and besides that we may avoid irritations, which usually happen to parts too long

bound up, by reason of the superscription of acid and fuliginous excrements, which use to be gathered

in great quantity in a part at rest and bound up, both from the excrementitious humours, wherewith the part is mottified, and the alimentary humours, in a part which is idle and at quiet, by reason the diffusion and transpiration are hindered by want of exercise, and the pores of the skin shut up by the

abundance of the ligatures: so that by the superscription thereof, many have not only been

insane, but also the skin being broke by the acrimony of these, as well vapours as humours, which are kept

that and pent up, have Likeys bent forth: Therefore when accidents shall be feared, the part shall be long be fomented with warm Water and Oil, as you think fit: for, such fomenting

affliging pain, relaxeth that which was too much strained by the binding, and amended the

refrigeration of the part, caused by the repercussion and expersion of the blood and spirits, the

nativ and internal heat being by this means revived. If, together with the tumour there be a con

tuation and rigidity, it must be the longer fomented, that the excrementitious humour resting in the

part may be digested. But if this quantity 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. Therefore that saying of Hippocrates must here be remembered, which faith, That a weak

fomentation, and the fright of using one, doth attract, but not disturb; but a longer and groner

wastes the flesh. Besides all you must have regard to the temper and habit of the Patient; for fomentations used to phlethoric bodies, draw superfluous humours to the part. The Apothecaries bid, that the ligatures be loofed every third day, yet after the seventh, on every seventh day: but hereof nothing can be certain or perpetually decreed. As, according to the accidents the Patients must be moved sooner or seldor, renewing the

every seventh day: but hereof nothing can be certainly and perpetually decreed: For accordance

matter thereof flowing down, quickly flows away, and nothing is done. You may much help for ward the generation of a Callus, which is begun about the thirteenth or fifteenth day, by applying bones

Wherefore broken bones have very much need of rest, to the generating of a Callus: in the otherwise, the

matter thereof flowing down, quickly flows away, and nothing is done. You may much help for

ward the generation of a Callus, which is begun about the thirteenth or fifteenth day, by applying an embriater made with the white of an Egg, having the Powder of red Rose-leaves, and Wheat-flour mixed therewith, and catagmatic Flathers, which shall hereafter be described in speaking of the Fracture of a Leg.
Of Fractures.

Book XV.

Of the Fracture of the Patella, or Whirl-bone of the Knee.

Why the Fracture of a bone near a joint is more dangerous.

The Differences.

Signs.

Causes.

Why those that who have had this bone fractured.

Sign that both the bones are broken.

To the top of the thigh-bone, but have judged it only a dislocation. Then therefore (that I may return to my former narration) I let the bone, and joined the fragments together, laid thereupon splints with compresses, made ligations to a rower, having two heads wrapped about the joint, and the body crofs-wise, and I defended her foot with a cafe, that none of the doths might press it: I falved a rope to a pole, and let it come down into the midst of the Bed, and tied many knots thereon, for the better taking hold and lifting up her felfy the which thing you must always do in Fractures and Dislocations of the Thigh and Leg, that to your Patients may have some thing whereby they may fix theirfelves with their hands as off as they desire to rise or lift themselves up in their Beds, or go to bed, as alfo, that they may give perfpiration, and as it were ventilation to the joints, hotrocks, rump, and other parts, compreffd and weared with long lyings, for want whereof they are molested with heat and pain, whence Ulcers arife, which oft-times torment the Patient with fuch tormenting heat and pain, that he is even conftituted by a Fever, watchings, and want of refh. This opportunity of raising the body out of the Bed, is by fo much the more needful in this place, by how much the Fracture is nearer the joints for there it is more dangerous than in the multitudes of the Nerves, Tendons, and Ligaments, which are about a joint is the thicke, and consequently more difficult to dress and heal, for that the part is bloodrous.

Lih. $.fent. 6.

That both wards: But when both the bones are broken, the figns of the Fracture doa equally appear both here and there. But when only one of these bones are broken, the Fracture is far more difficult to detect and heal, because that which remains whole, is a much more firm stay to that which is hurt than any splinters can be. But that I may the better instruct and make ready the Surgeon for the reducing
Book XV.

Of Fractures.

Of this Fracture, I will illustrate the matter by an example from myself. Physticks, Richard Hubert, and I, went together to visit a Patient at the place of the Prior Minuets. Wherefore, intending to pass over the Sins within sight of the place, I endeavoured to make my horse take boat, and therefore switched him over the buttrockes: The Jade, madded therewith, struck at me with his heels that he brake both the bones of my left leg, some four fingers breadth above my ankle. Then I, fearing some worse mischiefe, and left the Jade should double his blow, flew back; and as I fled back, the broken bones flew in funder; and breaking through the flesh, flocking, and boot, thereof themselves, whereby I felt as much pain as it is credible a man was able to endure; wherefore I was presently carried into the Boat, that so I might be carried to the other side of the Water to be drest; but the stirring of the Boat as they rowed, almost killed me with bittemefs of pain, for that the sharp fragments of the bones were rubbed against the flesh which lay next them. Being terriied over, as I was conveyed into the next houses, my pain was much increas'd, whilst lifted by the hands of divers persons, one while up another down, sometimes to the left side, other whiles to the right with my whole body, and all the parts thereof. Whereat the length I was laid upon a bed, I was somewhat freed from the bittemefs of my pain, and had time to wipe off the sweat which ran down over all my body. Then was I drest with such a Medicine as the time and place would afford, we composed it of the White of Egg, Wheat-flour, Root of a Chimney, and melted Butter. For the rest, I contrasted 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 severity of Art, but chiefly, that he would stretch my foot quite out, and if the wound were not sufficiently wide, that he would enlarge it with his Incifion-kife, that so he might the more easily set the broken bones in their due place: that he would with his fingers (whose judgement is far more certain than the bell made instruments) search, whether the splinters which were in the wound were quite fevered from the bone, and therefore to be taken forth: that he would with his hand press forth the blood, and the cloths of blood which were in a great quantity concerte at the mouth of the wound: that he would band up and place my leg in that line and manner as he thought best; which is, that he should have three rowlers in a quadrant, the first whereof he should cast directly upon the wound, so that he should begin his ligature at the wound: also he should put splinters about it, three or three, but others two fingers breadth, of the length of half a foot, somewhat depreffed and hollowed, whereby they might be the more easily put about the leg, more firstly at their ends, and a finger distance each other, which at the last he should bind with fillets, like those wherein Woman use to bind up their hair, yet so that the binding might be more ftraight upon the wound: that he would fill the cavity of the ham and of the ankles with bulks made of flax wrapped in linen cloths: that he would forflie the fides of my leg with Junks instead of bent sticks, or little fticks, and lined with linen cloth, stretched from my heel to my groin, and bound over in four places, so that the ftraight figure of the leg might barely be perverted by any force: that he would gently and fmoother lift up my leg to an indifferent height: and laftly, that he should arm it from the violence of the ligatures by putting it in a Box or Cafe. But you must note, that the fitt placing or laying of the Leg is a matter of fuch moment, that if any error be here committed, it will cause no lefs than lamentation: For if it be lifted up higher than is fit, the Callus will be hollow on the forefeide; if lower, then it will be gibbous or bunching forth, whether he do in any error, or commit a small error, who do not fill up the cavities at the ankles after the afore-mentioned manner; for, hereupon the heel will be too much loft, and whilst it is forced to fustain a tedious and painful comprifion, which at length brings a hot diltemper, because the fpirits cannot freely flow thereunto which I finding by experience, not knowing the caufe, wilfed them ever now and then to lift up my heel, whereby it might enjoy the benefits of expiftonation, and the fpirits have free entrance thereunto, and the contained vapours paffing forth. To conclude, my hurt leg was laid upon a cushion, after the manner you fee here defcribed.

G H A P. XXIV.

Of some things to be obferved in Ligation, when a Fracture is afsoociated with a Wound.

That the ligature muft be made upon the Wound, otherwise the wounded part will prefently lift it felf into a great tumor, and change the flourifh and native colour into a livid or blackish hue, by reafon of the flowing and abundance of the humours preffed forth by the force of the ligatures made on this and that fide, above and below, whence enfeue many malignant fymptoms. You may make trial hereof upon a found fthly part; for if you bind it above and below, not touching that which is in the midft, it will be lifted up into a great tumor, and change the flourifh and native colour into a livid or blackish hue, by means of the flowing and abundance of the humours preffed forth by the force of the ligature made from the neighbouring parts. Therefore fuch things will happen much the rather in a wounded or operated part; But for this caufe the Ulcer will remain unappliqued and weeping, crude and liquid Saneis bowing thence, like unto that which ufually flows from inflamed Eyes: Such Saneis, if it fall upon the bone, and make any thay there, it, with the touch thereof, burns and corrupts them, and fo much the more, if they be rare and flefe. This will be the fituation of a foul made Medicine.
Signs of the offuch corruption of the bones. if a greater quantity, and that more filthy flow from the Ulcer their bones.

When the wounded part must be omit¬
then the false bones, if you find it fally and rough, or alfo, who would have the offuch kind of ligation is wholly to be disliked, and that Onely to be ufed Which we have deferi¬

You must have a care that the compreffes and rowlers grow not hard by dri¬

The defcrip¬

The caufes of a Fever and Abfchews, cur¬

Signs of fcales or flivers of bones.
unfelt by a new extension and impulsion, which was much more painful to me than the former. My fever when it had lasted me seven days, at length enjoyed an end, partly by the eruption of matter, and partly by sweat, flowing from me in a plentiful manner.

CHAP. XXVI.

What may be the cause of the convulsive twitching of broken Members?

This contraction, and (as it is) 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 cometh to pass, that the extreme parts grow cold. In the mean while, 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 whereto they are infected, are together drawn, whereby it comes to pass, that they are again displaced, and with great content of pain, fall from their former seat. This contraction of the Muscles is towards their original.

The Figure of a Case.

The natural faculties lari. guiTiin the parts by idleness, but are strengthened by action. How and what Ulcers happen upon the fracture of the leg, to the rump and heel.

CHAP. XXVII.

Certain documents concerning the parts wherein the Patient must necessarily rest while he lies in his Bed.

Those who have their leg or the like bone broken, because they are hindered by the bitterness of pain, and also with for their cure or consolidation, are forced to keep themselves without fitting, and upon their backs in their beds for a long time together. In the mean space the parts whereupon they must necessarily lie, as the heel, back, hoyle-bone, stump, the muscles of the broken thigh or leg, remain stretched forth and unmovable, for at liberty from their usual functions: Whereas it comes to pass that all their strength decays, and grows dull by little. Moreover also by the supposition of the fuliginous and acrid excrements, and want of perspiration, they grow par tropically hot; whose defullion, an abcess and ulcer happen to them, but principally to the hoyle-bone, the rump, and heel: to the former, for that they are defended with small sore of flesh; to the latter, for that it is of more exquisite sense. Now the Ulcers of these parts are difficulty healed, yea, and oft-times they cause a gangrene in the flesh, and a rottenness and mortification in the bones thereunder, and for the most part a continued fever, affecting, convulsion, and by that sympathy which generally accompanies such affections; a hickering. For the heel and hoyle-mach are two very nervous parts, the latter in the whole body elsewhere, and by a large portion of the nerves of the foot complexion; 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 par tropically, as also by the infection of the noble parts, whose sole the life cannot want, by carrion-like vapors. When as I considered all these things with myself, and became more skilful by the example of others, I presently perceived 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 my self, that so the parts pressed with continual lying, might unspite and be ventilated. Moreover also I laid thefe 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 air; and I did oft-times apply linen cloths spread over with unguenolium roseum, for the allaying of the pain and heat: Besides also, I devised...
A Caffe of Lattin, wherein the broken Leg being laid, is kept in its place, far more surely and powerfully to
help nature in cicatrisation. For, the fragments of the bones, they must break forth, should be filled with tents made of sponge or flax, that so by this means I might keep the Ulcer open at my pleasure; but I put into the bottom of the Ulcer emplastrum diacalcitheos, a little burnt alum, to procure the egrefs of the formerly mentioned scales. Thee at length call forth, I cicatriz'd the Ulcer with burnt alum. For, this having a drying and alitmingent faculty, conforms and hardens the flesh, which is loofe and spongy, and flowing with liquid
bloud, and helps forward Nature's endeavours in cicatrisation. For, the fragments of the bones, they by reason of their natural dryness and hardness, cannot be joined and knit together by themselves without a medium; but they need a certain substancé, which thickening and conciling at their ends, doth at length glue them together, and (as it were) fasten them with foder. This substancé hath its
power to help forward Nature's endeavours in cicatrisation. For, the fragments of the bones, they must break forth, should be filled with tents made of sponge or flax, that so by this means I might keep the Ulcer open at my pleasure; but I put into the bottom of the Ulcer emplastrum diacalcitheos, and emplastrumcefrum albé quantum sufficit, that the ulcer may be...
Wine indifferently tempered with Water. For my second course, I ate Chestnuts and Medlars, or wheat sodden in Capon broth with the yolks of Eggs; I drank red, thick and astringent wine. Neither do I without some reason, thus particularise my diet; for as much as pertains to the generating of a Callus, it is plain that for that makes the teeth too tender. But on the contrary, those meats which carry blood into the bones, but in the large cavities of the bones is marrow contained, as in the small, a certain marrowy substance, proportionable thereto, being their proper nourishment. The generation of marrow is from the greater portion of the blood, which flows into the greater cavities of the bones by large Veins and Arteries, but into the left by leters, which end in their pores and small passages. For in large bones you may observe large and apparent passages, by which their Veins and Arteries enter for the fore-mentioned use. By the same ways the Nerves also intimate themselves, thence whence proceeds a membrane which involves the marrow of the bones, the which by that means is infused with most exquisite felms, as experience teacheth which is the cause that makes many be of an opinion, that the marrow hath feme of feeling, because the membranes thereof being hurt causeth greater pain. Therefore out of the marrow and the proper substance of the bone, there sweats a certain grofs and terrestial juice, whereof by the power of the assimilating faculty, which sweats in itself, a Callus is produced. Those simple features of the leg are usually lost in fifty days, but through the occasion of the Wound, and the feases quite broke off, and other accidents which befell me, it was three whole Moneths before the fragments of the bones were perfectly knit, and it was also another Moneth before I could go upon my Leg without the help of a Crutch. Going was painful to me for some few days, because the Callus had taken up some place of the muscles; for before my former freedom of motion could return again to the broken and knit part, it was necessary that the tendons and membranes should separate themselves by little and little from the bone. In the performance of all these things, I had the diligent and faithful assistance among the Surgeons, to omit Physicians, of Anthony Forster the Kings Surgeon.

Of those things which greatly hinder the generation of a Callus, and how to correct the faults thereby, if it be ill-formed.

Having already spoken of the signs of a Callus beginning to concrete, of its generation and the manner thereof; it now remains that we treat of these things which hinder the generation thereof. Those which are the contrary help forwards the constitution and concretion thereof. Now these things which either wholly hinder, or else retard the generation of a Callus, have a strong and powerful destructive and atroxing faculty; or else they are unctuous, oily, and moist. For by these the juice, whereas the Callus ought to be, is either melted and confumed, or else grows left, and is relaxed. But on the contrary, those things which help forwards the generation of a Callus, must be drying, incrusting, thickening, hardening, and emplasticke, moderately hot and astringent; for by these the Callus is ill formed, that is, too thick, or crooked, or otherwise ill shapen, whereby it may be washed and broken, so to be restored again after a better manner. Yet notwithstanding, these things are not to be attempted, unless when the Callus is yet green, and is deprived that the fault thereof doth very much pervert the natural conformation of the part, and exceedingly offend the action: Then in such case the place must be fomented with a decoction of a Sheep's-head and guts, wherein shall be boiled the roots of Marsh-mallows, of Briony, the seeds of Line, Faenugreek, Pigeons-dung, Bay-leaves, and the like. You shall also use this following Ointment and Plaister: 1° Unguentum de Atlass, 3° oleis liberrum, & angusti affinis, an. 2° aqua vitis parum, liquescentis sanitatis, fat livoris, qui tinctori partis. Then apply this following Emplastere. 1° Emplastere: De Vete com Mercantii, ovarii, nigrae, dispositione Physagogi, an. 3° olei acetatis & liberrum, an. 4° liquescentis sanitatis, fati emplastere, let it be spread upon leather for the aforesaid use. When by this means the Callus shall seem to be sufficiently mollified, it shall be broken, and the bones restored to their natural state, and the care of the Fracture to be followed as at the beginning. If the Callus be too hard through age, it is better not to break it, but to let it alone, lest some worse accident befall the Patient. For it may so fall out, that by your laboring to break it, the bone may break in some other part, before it breaks in that which is hurt by the Callus; therefore the different Patient had rather live lame, than foreboding that, to undergo the hazard of his life. If the Callus be too loose, it shall be diminished (if it be as yet soft) with emollient, resolutive, and powerfully astringent Medicines, which have force to dissolve, dry and exhaust. It will also be good thoroughly to rub the Callus with Olive Oil, to which some other kind of Salt hath been dissolved, then wrap it about with a rowler to bind it very instantly, putting a leaden plate thereon, whereby the flowing down of the nourishing humour into the part, may be forbidden, that thus by little and little the Callus may decay and diminish. If on the contrary it any ways happen that the Callus be more thin and tender, and grow more slowly, for that the time makes it, or because the idle part is longer kept in quiet than is the case, you must take care of its proper function, (which cause is to be reckoned among the chief causes of the learsens, even for this reason, for that excresces rise upon the native heat of the part, the warmer of digestion and nutrition,) or else for that they feed upon such nourishments as afford in quality or quantity.

The causes of a Callus.
**Of Dislocations or Luxations.**

**BOOK XVI.**

**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 cavity into an accustomed place besides nature, hindering voluntary motion. There is another kind of Luxation, which is caused by a violent dilation, and as it were a certain divarication, and dilatation, or extension into length and breadth of the ligaments, and all the nervous bodies, which contain, strengthen, and bind together the joints. Thus those who have been tormented and racked, have that thick ligament which is in the inner cavity of the bade bone too violently extended. Tho' who have suffered the Strappado, have the ligaments encompassing the articulation of the arm-bone, with the shoulder blade, borely and violently dilated. Such also must be kept, for as we use our legs to walk, so we use our feet to stand: besides also the Patient must keep his bed until they be knit.

The bones of the foot, back, and toes of the Feet, may be fractured as the bones of the hands may: Wherefore thefe shall be cured like them, but that the bones of the toes must not be kept in a crooked posture, as the bones of the fingers must, lest their action should perish or be deprav'd; for as we use our legs to walk, so we use our feet to stand: besides also the Patient shall keep his bed until they be knit.

**CHAP. XXXI.**

**Of the Fracture of the bones of the Feet.**

The bones of the infeet, back and toes of the Feet, may be fractured as the bones of the hands may: Wherefore thefe shall be cured like them, but that the bones of the toes must not be kept in a crooked posture, as the bones of the fingers must, lest their action should perish or be deprav'd; for as we use our legs to walk, so we use our feet to stand: besides also the Patient shall keep his bed until they be knit.

**The End of the Fifteenth Book.**
Book XVI.
Of Dislocations or Luxations.

from the other: yet this may be referred to the second foot of Dislocations, because it happens not without dilatation, or else the breaking of the ligaments. There is also a fourth added to these, as when the Epiphyseal and heads of bones are plucked from the bone whereon they were placed or flected; which unproperly called kind of Luxation, hath place chiefly in the bones of young people, and, it is known by the impotency of the part, and by the rots and grating together of the ensnareling bones when they are handled. Now the bones of young folks are also incident to another casualty, for as the bones of old people are broken by violence, by reason of their dints and hardness, so the bones of children are bent or crooked in by reason of their natural formness and humotility.

CHAP. II.
Of the Differences of Dislocations.

Some Dislocations are simple, others compound: We term them simple which have no other preternatural effect joined with them; and such compound, as are accompanied with one or more preternatural effects; 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 let alone the luxation until thefe be remitted of themselves, or by our Art. Some dislocations are compleat and perfect, as when the bone wholly falls out of its cavity; other fome are imperfect, as when it is only lightly moved, and not wholly fallen out; wherefore we only call them sublaxations or flaws. Differences of Luxations are also drawn from the place; for sometimes the bone is wrested forwards, otherswhiles backwards, upwards, downwards, sometimes it may be wrested according to all these differences of time, and otherswhiles only according to some of them. Differences are also taken from the condition of the dislocated. Joint in greatness and littlenefs, from the accidental or deep excavation of the fone or hollowworms, and bulk, from the time, as it be lately done, or of some long continuance. I have judged it fit to fet down all thefe, for that there are several indications of curing, according to the variety of each of thefe, as we shall teach hereafter.

CHAP. III.
Of the Caufes of Dislocations.

There are three general caufes of Luxations, internal, external, and hereditary: The internal are excrementitious humours and flatulencies, which falling into the joints with great force and plenty, do to make lipperty, rotten and relax the ligaments which bind together the bones, that they can't fall out of their cavities, or else they fall, and undiffuse those ligaments, and make their bodies, that being contested, they also contested the appendage of the bones from whence they are, and to 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 monoxide humour doth also concur, which puffing and rilling up the cavities of the joints, puts them from their feats, as it oft-times happens to the joint in the fainlie Sciatine, and to the Vertebra of the spine, by which Luxation people become gibbous, or otherwise crooked. But external caufes of Dislocations are fall or heavy blows, the Rack, Strappado, fipping in going, and all fuch like things, which may force the heads of the bones to fly out of their feats or cavities, which also happens fometimes to Infants in their birth, when as they are too carelefly and violently drawn forth by the Midwife, fo that either their arms or legs are put out of joint. Hereditary caufes are fuch as the Parents transfufe into their children, that Infants in the very Womb may have their joints dislocated by a fall, blow, and compression, and by the too much humidity and loosenefs of the joints; whence alfo we fee many crookedy and footed from their nativity, fo that none need marvel or make any doubt hereof. We have read it observed by Galien, in Libro de Arte, that children may have impotlumnes in their Mothers Wombs, which may caft forth quitture, the Ulcers being opened of their own accord, and be carried by the commonly benefit of Nature. It alfo happens many from their iniit conformaution, that the cavities of their joints are too deepened that they should be, and that their veins are more dilated than they ought to be, whereby it happens that the heads of the bones can't enter into them. It falls out that otherbones have the ligaments appointed by Nature for faining together the bones of the joint, whether infted or placed about, to weak, that from their own original they are not of sufficient strength, or else about with much phlegm, either born together with them, or fowing from some other place, fo that by their too much lipperty they left fafhionally contain the knittings or articulations of the bones. In all these, as the bones are easily dislocated, fo they may presently be easily restored, without the affiufance of a Surgeon, as I have oft-times oberved in fome.

CHAP. IV.
The Signs of Dislocations.

One of the signs whereby we come to the knowledge of a luxated bone, are common to all the common dislocations; others are proper only to feveral Luxations. It is a common ftign that there is always a tumor in that part where the bone runs, and a hollowworm on that fide from whence it is flown. Now the proper ftign shall be thewed, when we come to treat of the particular
ticular kinds of Luxations. We know a perfect Dislocation by the lost action of the part, that is, to say, the lost motion; pain also breeds a suspension of a dislocation; for the head of the bone, which (moved out of its place) is forced into another, preffes the flesh, and detinds the nerves also moved out of their place. Hereat also conduces the comparing of the found joint with that which is hurt, in which collation is it in the found part, which is compared with the hurt, helps so ways, whereby by Nature or any accident, wronged, not deformed, nor withered or decayed, nor twofold above measure, otherwise it may cozen and deceive you, if ye be leas wary. Labour and difficulty of action in moving, is a sign of an uncomplite Luxation, or strain. Now we thus know that the ligaments serving to the connection of the articulations, are extended and relaxed, if the head of the bone may be dislocated, but thereupon prefent death ensues, by reason of composition of the whole spinal marrow presently at the original thereof, such also is the dislocation of a vertebra of the spine, and of the Jiuy-bone, which, flipped forth on both sides, both caused inflammation, and a great tumor before he be fet. The bones of other Joints, as they are more or leas dislocated and moved out of their parts, so may they be more eafily or difficultly reftored: For, by how much they are the leas moved out of their places, by fo much they are the more quickly, and by how much they are the more firmly and difficultly fet. Alfo an indication taken from the figure of the luxated bones, gives a sign of the case or hard reftoring of the dislocation; as in the arm, by how much the bones be the more easily dislocated, by fo much one luxated is the more easily reftored. Bones do not easily fall out of joint in fleshy bodies, but when they chance to be put out, they are not eafily got to again: For in fuch, the articulation is finally on every side held in by the thickness of the muscles and the plenty of the fat lying thereabouts. On the contrary, fuch as are leas, efpecially those who formerly have been more fat, have their joints more lax, whereby it comes to pafs, that their bones may eafily be put forth of joint: besides, though, through the default of the digestive faculty, they have their joints replete with mucous humours: whence it is, that the heads of the bones, as standing in a fliptly place, are the leas ftable, as it is recorded by Hippocrates, that the heads of the bones, as standing in a fliptly place, are naturally dry, compact and dense, have their muscles and ligaments more strong and dry; whereof their bones are the more difficultly dislocated, and placed, the more difficultly fet. Some bones, joined amongst themselves, do fometime be sftered, as when the shoulder-blade flies from the collar-bone at the Acrorom, and in the Arm, the Ell from the Wond, and in the Leg, the one fcolie from the other, and the Heel-bone from the Ankle. Bones thus feparated will never be joined together again, will never recover their former comely figure, never their strength of action: For then it mofl ufually happens that the ligaments are either broken sftered, or else refoled and become loose. Thoofe whole bones are dislocated by an external caufe, they, after they be fet, may eafily fall out again, for that the ligaments, mollified and to the put forth of the bone, gives a sign of the easie or hard reftoring of the dislocation. Hence we thus know that the part doth absolutely be lofed motion: for by the opinion of Hippocrates, the prostcrance of the weight of the body is not fullained by the hands as it is by the legs: and by how much the hand is the more exercised, by fo much the arm becomes the more compotent. Contrariwise, if the thighbone be dislocated, especially if it be wrested inwards, the whole leg quickly decays by an atrophy, because the part doth absolutely be lofed motion: for by the opinion of Hippocrates, the performance of the proper action increases strength, and makes the part in better plight; but if the dislocation be not real, and makes it lean. If a great wound and iradture be joined with a luxation, there is anger, heat, and makes it lean. If a great wound and iradture be joined with a luxation, there is anger, heat, while we use extention for reftoring the part, we draw the nerves too violently, and 6break the tendons and arteries, whence would raise fear of inflammation, convulsion, and other malig- nant symptoms. Wherefore Hippocrates judges it better in such a concourse and complication of anatomic affults, absolutely not to meddle at all with the setting of the dislocated bone: for, by attempting the restitution, certain death; but by omitting it, solely lamented to be feared. Every dislocation must be reftored before inflammation cometh; but if it be already present, you must pre-fently be careful to take it away: For other things, let the Patient rest, let the affult be inveterate, the increas and acces of pain caufe a convulsion, gangrene, and finally death, as I remember I have sometimes obferved. Therefore when inflammation, and other malignant symptoms shall be mitigated and
and corrected, then may you endeavour to restore the luxation, especially if the habit of the body and member affected may admit it. For if the body be slender, delicate and tender, then the restoration will be more speedily and facile. But on the contrary, more difficult if it be gross and compact. And let thus much suffice for Prognosticks in Luxations.

**CHAP. VI.**

Of the general care of Dislocations.

For all that I have heretofore delivered the general method of curing Fractures and Dislocations, yet it shall not be improper to repeat here in this place those things which may be accommodated to this Treatise of curing Luxations. Now be it that will cure Dislocations must have regard to five intentions, which it will be fitting to perform 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 into the fifth, of correcting the concomitant, or following symptoms.

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 be held by the strong embracement of your Servant or Attendant, as when the shoulder, the forearm, or the thigh-bones are dislocated. But in the dislocation of the Collar-bone, Elbow, Hand, Knee, or Foot and Leg, it is sufficient only to hold the part firmly in your hands. There is necessity of holding either the body, or else some part thereof, lest while the dislocated bone is extended, the whole body follow by continuance of parts, if there be nothing which may hinder: for if the body should follow him that draws or extends, all the Work-makers labour and endeavor to enforce it is to no purpose. The use of the second scope, that is, of drawing or extending, is, that there may be a free space and distance between the luxated bones, by which distance the dislocated bone may be 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 muscles and ligaments, and dislocation of the bones to this or that part. Therefore this work is almost always performed by the hands, when they cannot suffice, we must have the assistance of Instruments and Engines whose figures you shall see hereafter delineated: But that you may not do amiss, you may to far use extension, until the head of the bone be brought full against its cavity. When the Surgeon hath brought it to this pass, then must he be held to the third intention, which is, to put the head of the bone first moved, and gently bended, into its cavity: For he must have a special care that he force it no other way than into its proper cavity; for it would be dangerous, lest he should turn it from one extreme into another, and the bone, for example, of the thigh, which was dislocated into the forepart by too violent forcing, by exceeding the middle cavity, may be driven and dislocated into the hinder part. To attain this, the bone shall be put back the same way that it fell out, which may easily be done in feets and late happening dislocations. We understand that the bone be set by the noise, or as it were a pop, or found like that, which field and founding bodies, being fully and forcibly thrust into their cavities, do make: by the finitude and consist in figure, magnitude, and all conformation of the affected part with the found, and lastly, by the mitigation of the pain. The fourth scope, which is of the convenient site of the part, must be fulfilled, that the bone after it is set may be kept in its cavity, and not fly forth again; Wherefore if the arm that the bone after it is set may be kept in its cavity, and not fly forth again; Wherefore if the arm be dislocated it shall be carried round up in a scar; if the thigh, bone, leg, or foot be luxated, they shall be fully laid in a bed; but in the interim the Surgeon, presently after he hath set them, shall have a care that the affected joint be wrapped about with cloths and clothes, or compresses steeped in Rose Vinegar, and tied with convenient Medicines: and then let it be bound with an artificial deligation, rolling the ligatures into the part contrary to that wherein the dislocated bone flew. For with which purpose thicker bandages shall be there applied whenever the bone came out, otherwise there will be some danger lest it should be again dislocated: when these things are done, he shall for four or five days space meddle with nothing about the dislocation, unless pain, or some such like symptom happen. For then the fifth scope will call us from that cessation and rest, which is to correct the symptoms and complicate affections, as pain, inflammation, a wound, fracture, and others, whereof we have spoken abundantly in our Treatise of Fractures. Before we attempt to fet inveterate Dislocations, we must endeavour to humble the ligaments, tendons, and muscles, by ligations, cataplasmes, emplastrums, and other remedies, that to these parts may be more obdurate to the Surgeon's hand; then, lastly, must the dislocated bones be moved with a gentle motion up and down, and again, that by this means the excrementitious humour, which by continuance of time hath flowed down, may wax hot, be augmented, resolved or made flippers, and after the fierce of the muscles, ligaments, and nervous bodies, placed about the joint for the defense thereof, may be loosed, that to they may presently be more freely extended: But if a great swelling, pain, and inflammation urge, we must first think of alleviating and curing them, then of the restoring the Dislocation.

**CHAP. VII.**

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 forts of Bandages, and give you their Figures, as those which are most fit to hold and correct 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 extending, and consists of one knot. The third, wherein the letter C is put, consisting of two knots, is to hold or bind more tightly.
I have thought good also to delineate the following Engine, made for to draw and extend more powerfully, when the hand will not suffice. It is made like a Pulley, marked with these Letters D D. Within this there lie hid three Wheels, through whose Arrows runs the rope which is to be drawn, marked with this Letter H. At the ends of the Pulley are hooks furnished, the one of which is to pull the Pulley to a Post, the other is to draw the ligature fastened to the part. The Boxes or Cases wherein the Pulley is kept, is marked with B B. Their Covers are marked with A A.

A Screw-pin which may be twisted, and so fastened to a Post, that so one of the ends of the Pulley may be hooked thereto, is signed with C. A Gimlet (marked by F) to make a hole in a Post, to let in the Screw-pin. You may see all these things exprest in this Figure.

Some Practitioners in stead of this Pulley, make use of this described Instrument, which they term Manubrium versatiles, or a Hand-vice. The end thereof is fashioned like a Gimlet, and is to be twisted into a Post. Within that handle lies a Screw with a hooked end, whereeto the String or Ligature must be fastened. Now the Screw-rod or Male-screw runs into the Female by twining about of Manubrium versatiles, or a Hand-vice.

the handles and thus the ligature is drawn as much as will suffice, for the setting the dislocated bone. Having delivered these things thus in general, now I come to treat of the Luxations of each part, from the Jaw-bone even to the Toes of the Feet.

CHAP.
Book XVI. Of Dislocations, or Luxations.

CHAP. VIII.
Of the Dislocation of a Jaw-bone.

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 fore, than into the hinder part, by reston of the maxillary additaments, which hinder it from falling backwards. The dislocation is sometimes but on one side, otherwise on both. If the one side only be luxated, it (together with the chin) is drawn away into the contrary side, which is not dislocated: the place is hollow from whence it is flown, but swollen whither it is gone. The patient cannot shut his mouth, but is forced to gape, so that he cannot eat the jaw, together with the teeth therein, hangs somewhat forwards; neither do the teeth uncover to one another, but the dog teeth are under the fore parts. But if both sides be dislocated, all the jaw and chin hang forwards and towards the breast, besides also, the temporal muscles appear distended, spittle runs out of the patient's 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 volubility to speak, the patient hammering in his speech. When it is dislocated on both sides, it is more difficultly restored, and all the symptoms are more vehement, wherefore it must be set with all speed, otherwise the patient will presently have grievous pain about his throat, inflammation, a fever, whereupon oftentimes death ensues within ten days, by reason of the five branches of nerves, which arising from both the second and fifth conjugation of the brain, are distributed into the moving muscles thereof, which too violently extended, brings the here-mentioned symptoms. Practitioners affirm, that the jaw twelve days after it is set, is free from the danger of relapse. If it have been dislocated some few days before you go about to restore it, you must use soothing and relaxing medicines to it; but when it is put in the joint, apply a medicine made of the whites of eggs and oil of roses to affuage the pain, and apply cloths dipped in ointment. At the second setting you shall apply such things as have power to agglutinate and strengthen the ligaments and other relaxed parts, and also to keep it being restored in its place. This shall be the form of such a medicine: 

\[ \text{Fulv. bulb. albuminis ovorum q.f.q. astringent medicamentum} \]

The Surgeon, drawing, extending, and doing other things necessary for restoring, then the Surgeon putting his thumb between the grinders, shall press down the jaw, and gently drawing it aside, force it into its cavity in the mean while allo the Patient, as much as in him lies, shall help forwards the Surgeon's endeavours, in opening his mouth as little as he can, let the muscles should be carried, and he shall then go wide as to admit the Surgeon's thumb, for to the temporal muscles shall be referred to their place and favour the restitution. If he open his mouth as wide as he can, they will be extended after a convulsive manner; on the contrary he shut his teeth too close, there will be no passage for the Surgeon's thumb into his grinding teeth. Some there be which affirm, that the jaw bone may sometimes be dislocated towards the hind part, and that then the mouth is to close that, that the Patient cannot open it nor gape, and that the lower jaw stands further in, and nearer the throat than the upper. Now for restoring it, the Patients head must be straightly held behind, whilst the Surgeon, the mean while putting both his thumbs into the Patients mouth, holding his other fingers without under the Patients chin, he shall by

\[ \text{Hh} \]

flapping

CHAP. IX.

How to set the Jaw dislocated forwards on both sides.

The first manner of setting it a Jaw-bone.

Another.

He patient must be placed on the ground or some low seat, with his face upwards, and his head must be firmly held by your Servant, that so it may be the more immovable; and his head muft be firmly held by your Servant, that so it may be the more immovable; and with them the larger teeth of the luxated jaw, but put his other fingers without under his chin, and go up the whole jaw with them. But if the operation cannot be thus done, for that the joint on the outside is so that and clofed, that the thumbs cannot be put therewith, then must you thrust in wooden wedges made of soft wood, as hale, or fir, being cut square, and of formingers thicknests. These thef be wedged in on each fide above the grinders, then call a ligature under his chin, whole ends your fervant fhall hold in his hands, and letting his hands upon the Patients forehead, shall pull them upwards; at the fame time the Surgeon defcends, and the jaw bones thus refored, fhall be kept fob by convenient ligation, and drieed with medicines, as it is fitting; and in the mean fpace you must forbid the Patient to speak, or needfully to open his mouth. Wherefore he must abstain from hard meats, and fuch as require much chew

Diet.

ing, until his pain be quite pafled, and ufe only foon-meats, as Barley Creems, Parabees, Jelles, Calfes, Brats, and the like.

CHAP. X.

Of restoring the Jaw dislocated forwards but on one side.

What the Surgeon, standing at his back, hold his head firml and steadily, that it may not follow the jaw. Surgeon, drawing, extending, and doing other things necessary for referring. Then the Surgeon putting his thumb between the grinders, shall press down the jaw, and gently drawing it aside, force it into its cavity in the mean while allo the Patient, as much as in him lies, shall help forwards the Surgeon's endeavours, in opening his mouth as little as he can, let the muscles should be carried, and he shall then go wide as to admit the Surgeon's thumb, for to the temporal muscles shall be referred to their place and favour the restitution. If he open his mouth as wide as he can, they will be extended after a convulsive manner; on the contrary he shut his teeth too close, there will be no passage for the Surgeon's thumb into his grinding teeth. Some there be which affirm, that the jaw bone may sometimes be dislocated towards the hind part, and that then the mouth is to close that, that the Patient cannot open it nor gape, and that the lower jaw stands further in, and nearer the throat than the upper. Now for restoring it, the Patients head must be straighthold behind, whilst the Surgeon, the mean while putting both his thumbs into the Patients mouth, holding his other fingers without under the Patients chin, he shall by

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flashing
haking it, draw it to him, or forwards, and to restore it to its place. For my own part, I confess I never saw this kind of Luxation, and I truly perceive my fault in that it can scarce ever happen, for the reason I gave in the former Chapter. But nevertheless, if it by any means chance to happen, yet can it not be a perfect Luxation, but an imperfect one; the jaw being only a little thrust back to the throat to those manly additions; and then it may easily 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.

An anatomical description of the Spine.

The variety of the processes of the Spine.

The Cure.

Anatomical differences of the Collar-bone, &c.

CHAP. XII.

Of the luxation of the Spine, or Back-Bone.

The Back bone consists of many bones Vertebrae, like bowls or wheels mutually jointed or knit together, by their smoothness and circular form confining to an appoect of moving or bending forwards. For it it should consist of one bone, we should find continually with the trunk of our bodies immovable, as thrust through with a stake. The Vertebrae have a hole pifling through the midle of them, whereby the marrow pifling this way out from the brain as by a pipe, may serve for the propagation of the sensitive and motive nerves, and the generation of the nervous and motive nerves, and arteries pifling in for the propagation of nourishment and life. The whole extenfice face of the spine is rough, and as it were armed with thorns of the nature of the Spine, or Back-Bone.

Vertebrae, which makes them, as also all the other joints of the body slippery and fit for motion; the spine is flexible with notable agility forwards only, but not backwards, for that so there would be continual danger of breaking the hollow ascendent vein, and the great defending artery running thereunder; therefore the articulations of the Vertebrae, mutually strengthened with strong ligaments, do look more backwards. I have thought good to premise these things of the nature of the spine, before I come to dilocations happening thereon, willingly omit divers other things which are most copiously delivered by Galen, content only to add this much, that there is nothing to be found in the whole frature of mass bones, which more clearly mantics the industry of Gods great worthmanship, than this expediency of the Spine and the Vertebrae thereon.
Of Dislocations, or Luxations.

CHAP. XII.

Of the Dislocation of the Head.

The head stands upon the neck knit by dearticulation to the first vertebra thereof, by the interposition of two processes which arise from the basis thereof, near the hole through which the marrow of the brain passes down into the back-bones, and they are received by its cavities, hollowed in this vertebra. These processes sometimes fall out of their cavities, and

cause a dislocation behind, whereby the spinal marrow is too violently and hard compressed, bruised, and extended, the chin is tazned to the breast, and the patient can neither drink nor speak: wherefore death speedily follows upon this kind of luxation, not through any fault of the surgeon, but by the greatness of the disease, resisting all cure.

CHAP. XIV.

Of the Dislocation of the Vertebrae, or back-bones of the neck.

The danger of the dislocation, or back-bone of the neck.

The other vertebrae of the neck may be both dislocated and strained. Dislocation verily, unless it be speedily helped, brings sudden death: for, by this means the spinal marrow is precisely oppressed at the very original thereof, and the nerves that hence arising, suffice allo together therewith, and principally that which serves for respiration; whereby it comes to pass, that the animal spirit cannot come and discharge itself left into the rest of the body lying thereby; hence proceeded sudden inflammation, the quintuple, and a difficulty, or rather a defect of breathing. But a strain or incompleat luxation brings not the like calamity: by this the patient, about his ears, between his hands, and so shake and move it to every part, until the whatever be not too great, left by pressing the wound and gutters, it creates the passages of breathing and swallowing.

CHAP. XV.

Of the Dislocated Vertebra of the back.

The danger of the dislocated vertebra of the back.

The rack-bones of the back may be dislocated inwards, outwards, to the right side, and to the left. We know they are dislocated inwards, when they leave a depressed cavity in the spine; outwards, when they make a bunch on the back; and we know they are located to the right or left side, when as they obliquely bunch forth to this or that side. The vertebrae are dislocated by a cause either internal or external, as is common to all other luxations; the internal is either the defluxion of humours from the whole body, or any part to them and their ligaments or of a concoction proceeding from the proper and native weakness of their parts; or an attraction arising from pain and heat. The external is a fall from high upon some hard body, a heavy and bruising blow, much and often stooping, as in dressers and lookers to vineyards, and pavers, decrepit old men, and also such as through an incompleat dislocation of the thigh-bone are forced in walking to stoop down, and hold their hand upon their thighs. But a vertebra cannot be forced or thrust inwards, unless by a great deal of violence; and if it at any time happen, it is not but with the breaking of the nay and ligaments, for they will break rather than suffer so great extension. Such a dislocation is deadly, for that the spinal marrow is exceedingly violated by too great a compression, whose proceeds death, and lots of sense in the members lying thereunder. Neither is restitution to be hoped for, because we cannot through the belly force it into its place; the urine is then suppressed, as also the excrements of the belly; sometimes on the contrary, both of them break forth against the patient's mind, the knees and legs grow cold, their sense and motion being lost. Such things happen more frequently when the spine is located inwards than when it is dislocated outwards, for that the nerves thereby arising, run and are carried more inwardly into the body. Besides the pressed spinal marrow becomes inflamed, and that being inflamed, the parts of the spine kind, and such as are joined thereto, are also inflamed by contact, whence it happeneth that the bladder cannot carry forth the urine. Now where the fuses are pressed, they can no more receive the irradiation of the animal faculty: hence follows the deprivation of the sense and motion in the parts whereof they are carried, therefore the contained excrements do no more proceed to expulsion by their troublesome fuses, neither are pressed to keep them in: hence proceeds their suppression, and hence their breaking forth against their wills. But the spine outwardly dislocated, scarce causes any compression of the marrow or nerves.

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CHAP. XVI.

How to reduce the Spine outwardly dislocated.

The Cure.

Another manner of cure.

The Vertebrae are outwardly dislocated, when as they stand bunching forth, then is it fit to lay the Patient upon a Table with his face downwards, and firmly to bind him about with Towels under the arm-pits, and about the flanks and thighs; and then to draw and extend, as much as we can, upwards and downwards, yet without violence: for unless such extension be made, restitution is not to be hoped for, by reason of the processes and hollowed cavities of the Vertebrae, whereby, for the firmer knitting, they mutually receive each other. Then must you lie with your hands upon the extuberancies, & force in the prominent vertebra. But if it cannot be thus restored, then will it be convenient to wrap two pieces of wood, of four fingers long, and one thick, more or less, in linen cloths, and so to apply one on each side of the dislocated Vertebra, and so with your hands to press them against the bunching forth Vertebra, until you force them back into their seats, just after the manner you see it before 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 Vertebrae are restored by the equal smoothness of the whole Spine. It is fit, after you have restored it, to bind up the part, and lay splints or plates of Lead neatly made for that purpose upon it; but so, that they may not press the crystals or middle processes of the Vertebrae, which I formerly mentioned, but only the sides: then the Patient shall be laid upon his back in his bed, and the splints long kept on, lest the Vertebrae should fall out again.

CHAP. XVII.

A more particular enquiry of the dislocation of the Vertebrae, proceeding from an internal cause.

The Vertebrae are in like fort luxated by the antecedent cause, as we have formerly said, which is caused by the natural imbecility of the parts, principally of the nervous ligament, by which all the Vertebrae are bound each to others: this ligament comes not to the spinal marrow, but only binds together the Vertebrae on their outsides. For, besides the two membranes proceeding from the two Meninges of the Brain, wherewith the marrow is covered, there is a third strong and nervous coat put upon it, lest while the Spine is diversely bended, the bounded marrow should be broken. This third coat ariseth from the Pericranium, as soon as it arrives at the first of the neck. Now that ligament, wherewith we said the Joints of the Vertebrae were mutually knit and fastened, is encompassed with a tough and glutinous humour for the freer motion of the Vertebrae. Sometimes another cold, crude, gross and viscid humour, confused and mixed herewith by great deluxions and catarrhs, beget a tumour, which doth not only distend the Nerves proceeding forth of the holes of the Vertebrae, but also distends the ligaments wherewith they are bound together. Which so distended, and as it were drawn aside, do draw together with them the Vertebrae, one while towards the right side, another while to the left, somewhiles inwards, otherwhiles outwards, and thus move them out of their seats, and dislocate them. A dislocated Vertebra, standing forth and making a bunch is termed Cyphosis, (Thofe thus aifed fed we may term Saddle-back:) But when it is depressed, it is named Lordosis, (Such we may term Saddle-back:) But when the same is luxated to the right or left side, it maketh a Scoliofe (or Cow-hump,) which wretching the spine, draws it into the similitude of this letter S. Galen adds a fourth defect of the Vertebrae, which is, when their joints are moved by reason of the bones of their ligaments, the Vertebrae yet remaining in their places, and he calls it a Seifis, or shaking. They also note another defect peculiar to the spinal marrow, which is, when as it (the Vertebrae being not moved whereas it adheres) is plucked and severed from them: this defect is occasioned by a fall from on high, by a great stroke, and by all occasions which may much shake, and consequently depref the spinal marrow, or by any other means remove, or put it forth of its place. Scarce any recover of this defect, for many reasons, which
Book XVI.

Of Dislocations, or Luxations.

which any excrescence in the Art, may easily think upon: But let us return to the internal cause of Luxations. Fluid and soft bodies, such as Children, usually are very subject to generate this internal cause of dislocation. If external occasions shall concur with their internal causes, the Vertebrae will sooner be dislocated: Thus Nurses, whilst they too finely lace the breasts and sides of Girls, so to make them flender, cause the breast-bone to fall in forwards or backwards, or else the one shoulder to be bigger or fuller, the other more spare and lean. The same cause 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 legs, and never put their other hand under their backs, never so much as thinking that children grow more towards their heads.

CHAP. XVIII.

Postscript of the dislocated Vertebrae of the Back.

If in Infancy it happen that the Vertebrae of the back shall be dislocated, the ribs will grow little or nothing in breath, but run onwards before, therefore the Child lotheth its natural stature, and stands out with a sharp point. Hence they become athletick, the lungs and muscles which serve for breathing, being prefixed together and strained: and that they may the easier breathe, they are forced to hold up their heads, whence also they seem to have great hairs. Now because the Woman being thus prefixed, the breath is carried through a strait passage, therefore they wheeze as they breathe, and foor in their sleep, for that their lungs, which receive and load forth the breath or air, be of its biggest; besides all they are subject to great dilatations upon their lungs, whereby it comes to pass that they are shorter-lived. But such as are back-bowed below the midriff, are incident to defects of the Kneedes and Bladders, and have smaller and slenderer thighs and legs, and they more slowly and sparingly emit forth hair and have Beards: to conclude, they are less fruitful, and more subject to barrenness, than such as have their crookeddefects above their midriff. The bands which proceed from external causes are oft-times curable: but such as have their original from an inward cause, are absolutely incurable, unless they be withstood at the first with great care and industry. Wherefore such as have it by kind, never are helped. Such is it, in which they are yet children, before their bodies be come to perfect growth, that they are shorter-lived. Neither is it any wonder, for seeing the Veins, Arteries, and Nerves are not in their places, the Spirit do neither freely, nor the alimentary juices plentifully flow by these strained passages, wherefore leanets must needs ensue: but the limbs shall thence have no wrong, for that not the whole body, but the neighbouring parts only are inflected with the contusion of this evil. When divers Vertebrae, following each other in order, are together and at one time dislocated, the dislocation is less dangerous, than if one alone were luxated: For, when one only Vertebra is dislocated, it carries the spinal marrow away with it, that it forces it almost into a sharp angle; whereas being more friable prefixed, it must necessarily be either broken or bent, which is absolutely deadly, for that it is the brain's substance. But when divers Vertebrae are dislocated at once, it must of necessity be forced one by one into an obtuse angle, or rather a fenatice; by which compression it certainlyisses, but not so, as that death must necessarily ensue thereon. Hence may seem to belong that which is pronounced by Hippocrates: a circular moving of the Vertebrae out of their places is less dangerous than an angular.

CHAP. XIX.

Of the dislocation of the Rump.

The Rump oft-times is after a fort dislocated inwards by a violent fall upon the buttocks, or a great blow; in this the Patient cannot bring his heel to his buttocks, neither is much force, bend his knees: Going to stool is painful to him, neither can he sit unlesst in a hollow chair, lest this dislocation may be restored, you must thrust your finger in by the Fundament, even to the plate affected, as we have said in a Fracture; then must you strongly ruffle up the bone, and with your other hand at the same time join 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 be recovered about the twentieth day after it is set. During which time the Patient must not go to stool, unless sitting upon a hollow seat, lest the bone, as yet scarce well recovered, should fall again out of its place.

CHAP. XX.

Of the Luxation of the Ribs.

The Ribs may by a great and bustling stroke be dislocated, and fall from the Vertebrae where to Caused they are articulated, and they may be driven inwards, or outwards. Of which kind of luxation, though there be no particular mention made by the Ancients, yet they confess that all the bones may fall, or be removed from their seats or cavities, wherein they are received and articulated. The sign of a rib dislocated and slipped on one side, is a manifest inequality, which sign here makes a hollowness, and there a bunching forth: but it is a sign that it is driven in, when as there
there is only a depressed cavity where it is knit and fastned to the Vertebra. Such dislocations cause divers symptoms, as difficulty of breathing, the line rib hindering the free moving of the chest; a painfullness in bowing down or lifting up the body, occasioned by a pain, counterfeiting a pleurie; the rising or putting up of the mafeulous flesh about the rib, by a macose and flatulent humour generated: the reasons whereof we formerly mentioned in our Treatise of Fractures. To which stand all thefe, the dislocation must be forthwith restored, then the paining up of the illth must be helped. Wherefore, if the dislocated rib fall upon the upper side of the Vertebra, the Patient shall be set upright, helping by his arm upon the top of some high or window: then the head of the rib, where it stands forth, shall be pressed down until it be put into its cavity. Again, if the rib fall upon the lower side of the Vertebra, it will be requisite that the Patient bend his face downwards, setting his hands 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:

CHAP. XXI.

Of a dislocated shoulder.

The shoulder is easily dislocated, because the ligaments of its disarticulation are soft and loose, as also for that the cavity of the shoulder-blade is not very deep and befits it is every where smooth and polite, no other wise than that of the shoulder-bone, for that it is herein that disarticulation, as is in the leg and knee. Wherein notwithstanding, we must not think Nature defective, but rather admire Gods providence in this thing; for that this articulation serves not only for extenion and bending, as that of the elbow, but for a round or circular motion, as that which carries the arm round about, now up then down, according to each difference of life, upwards, downwards, or into the arm-pit, forwards and outwards, or to the hinder part: For, seeing that there the cavity of the blade-bone, which receives the head of the shoulder-bone, which Hippocrates calls the arm-socket, may be dislocated four manner of ways, upwards, downwards, or into the arm-pit, forwards and outwards, or to the hinder part: For, seeing that there the cavity of the blade-bone, which receives the head of the shoulder-bone, which Hippocrates calls a joint, lies 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 firming muscle, termed Deltoideus, lying over it, besides also the back and serrunum of the blade, and lastly, the Anchor-like, or heel-like process, all which four hinder this joint from slipping inwards.

Now Hippocrates faith, that he hath only seen one kind of dislocation of this bone, to wit, that which is downwards or to the arm-pit; and certainly it is the most usual and frequent; wherefore in this we intend to handle it in the first place. When the shoulder is dislocated downwards into the arm-pit, a depressed cavity may be perceived in the upper part of the joint; the serrunum of the blade flows more sharp and standing forth than ordinary, for that the head of the shoulder-bone is flipt down and hid under the arm-pit, causing a swelling forth in that place; the elbow also callis it (as it were) outwards, and stands further off from the rib, 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, neither to his mouth nor shoulder. Which sign is not peculiar to the luxated shoulder, but common to it, peered with some alfo of their fibres being broken. There are six ways to restore the shoulder luxated downwards into the arm-pit: The frist is, when it is performed with ones fill, or a towel; the second with a claw of yarn, which put under the arm-pit, shall be thrust up with ones heel; the third, with ones shoulder put under the arm-hole; which manner, together with the first, is most fit for new and easily to be restored luxations, as in thofe who have loose flesh, and effeminate persons, as children, eunuchs, and women; the fourth, with a ball put under the arm-pit, and then the arm cast over a piece of wood held upon two men shoulders, or two standing pofts; the fifth, with a Ladder; the sixth, with an instrument called an Ambu. We will describe thefe six ways, and present them to your view.

CHAP. XXII.

Of the true manner of setting a Shoulder, which is without Fig.
thought no such thing, it sufficed for restitution only to have extended the arm. But if the luxation be inveterate, and the band cannot serve, then must the Patient's shoulder be fastened to a post with the fore-mentioned ligature, or else committed to one 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, wherein a cord shall be fastened; which being put or fastened to the pulley, shall be drawn or fluttered forth as much as need shall require. Lastly, the Surgeon, with a towel, or such like ligature, fastened about his neck and hanging down, and to this ligature a little oil of roses or myrtles, a little vinegar, of refrigerant galenic, or refrigerant Galenæ, let it stick to the hairs, 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 ell long; more or less, according as the body shall require. The mid of thereof shall be put immediately under the arm-pit, and then crost over the same shoulder, and so ordering it as much as shall be fit, it shall be wrapped under the opposite arm. And lastly, the arm shall be laid upon the breast, and put in a tray, in a middle figure almost to right angles, so that by lifting up the same he may almost touch his sound shoulder, lest the bone newly set may fall out again; neither shall the arm draining be flinched, until four or five days be past, unless the disease of some happening symptom divert us from this our purpose.

CHAP. XXIII.

Of the second manner of restoring a Shoulder, that is, with the heel, when the Patient by reason of pain, can neither sit nor stand.

The Patient must be laid with his back on the ground upon a covered, or mat, and a clew of yarn, or leathern ball, stuffed with tow or cotton, of such bigness as may serve to fill it, &c. fill up the cavity, must be put under his arm-pit, that so the bone may straightways move easily be forced by the heel into its cavity. Then let the Surgeon sit beside him, even over against the luxated shoulder, and if his right shoulder be luxated, he shall put his right heel to the hall, which filled up the arm-pit, but if the left, then the left heel; then let him forthwith draw towards him the Patient's arm, taking hold thereof with both his hands, and at the same instant of time strongly press the arm-pit with his heel. Whilst this is doing,

one
one shall stand at the Patients back, who shall lift up his shoulder with a towel, or some such thing, fitted for that purpose, and also with his heel press down the top of the shoulder-blade; another also shall sit 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 expressed by the precedent figure.

CHAP. XXXIV.

The third manner of restoring a Shoulder.

Some one who is of a competent height and strength, shall put the sharp part of the top of his shoulder under the Patients arm-pit, and also at the same time, shall somewhat violently draw his arm towards his own breast, so that the Patients whole body may (as it were) hang thereby. In the meantime another, for the greater impression, shall lay his weight on the luxated shoulder, thaking it with his whole body. Thus the shoulder, drawn downwards by the one which stands under the arm-hole, 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 this Figure shews.

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 six foot long; in the midst hereof let there be fastened a clew of Yarn, or ball of sufficient bigness to fill up the cavity of the arm-hole: Let there be two pins put in, one on each side of the ball, each alike distant therefrom, with which, as with stays, 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 arm-pit upon that place where the ball 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 figure declares, wherein you may see the Perch or Yoak, with the two wooden Pins and Ball fastned in the midst, delineated by it self.
CHAP. XXVI.

Of the fifth manner of putting the shoulder into joint, which is performed by a Ladder.

On may also restore a shoulder dislocated into the arm-pit, by the help of a Ladder, after this manner. Let some round body, as a Ball or Clew of Yarn, 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 let a low stool, whereupon let the patient mount; then bind both his legs, and also his found arm behind his back, lest, when you are about your operation, he hinder and spoil all you do, 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 fastned ball; the patient in the mean while being wished 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 be no small danger of breaking the shoulder-bone: Also let him take heed that he put not his head between the steps. Then his arm, bound above the Elbow with binding, or some other ligature fit for that purpose, shall be drawn down by the hand of some that assist you; and at the same time let the stool be plucked from under his feet, so that he may hang upon the Ladder. Thus by this means the head of the shoulder will be restored by itself, the endeavour of the Surgeon assisting, and pressing down the shoulder-blade, and moving it to and fro. The bone being set, the stool, which a little before was plucked from under the patient's feet, shall be put there again, that he may with the more ease and less pain, pull back his arm from the step of the Ladder: for if he should lift it high up to draw it over, there would be danger, lest being newly set, and not well fixed, the head of the bone might fall out again. I have thought good to have all these things here expressed, that you may learn this operation, as if you see it done before you. I have another Figure expressing the fourth manner of restoring a dislocated shoulder.
not thought fit in this place to omit the industry of Nicholas Piets, the Duke of Goffs his Surgeon, who being called to a certain Country man to set his shoulder being out of joint, and finding none in the place besides the Patient and his wife, who might assist him in this work, he put the Patient, bound after the aforesaid manner, to a Ladder; then immediately he tied a raff about the lower end of the ligature, which was fastened about the Patients arm above his elbow; then put it fast tied under one of the steps of the Ladder, as low as he could, and got aside thereupon, and late thereon with his whole weight, and at the same instant made his Wife to pluck the stool from under his feet: which being done, the bone presently came into its place, as you may see by the foregoing figure.

If you have never a Ladder, you may use a piece of Wood hewn upon two Potts. Also you may use a Door, as the other Figure shews, wherein you must observe that piece of Wood or Jpatula, with fittings thereto, whole use shall be shown in the following Chapter.

CHAP. XXVII.
The facts and manner of restoring a shoulder luxated into the arm-pin.

Hippocrates writes, that this is the best way of all to restore a dislocated shoulder. You must take a wooden Jpatula of some four or five fingers breadth, and some two fingers thickness or less, but some yard or thereupon long; the one end thereof must be narrow and thin, with a round head standing up and lightly hollowed, that put under the arm-pin, it may receive part of the head of the shoulder. This upper part of the Jpatula must be wrapped about with a linen or woollen rag, or some flesh soft things, that it may be the fitter and hurt the less; and then it must be fo thrust under the arm-pin, that it may thoroughly penetrate into the inner part between the ribs, and the head of the shoulder-bone. There must, besides this Jpatula, be two holes in three several places, each alike distant from other, through which let foft firings be put, whereby it may be tied to the arm, 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, so that they may hold it firm: Therefore let the distances of the holes be fitted to this purpose; but principally you must have a care of this, that the upper part of the Jpatula, reaching beyond the head of the arm, enter even to the innermost cavity of the arm-pin; then a crosf pin or piece of wood must be made fast through two Potts or a Frame, and well satisfied thereunto, and thereupon the Arm with the Jpatula must be fo put over, that the pin may be under the arm-pin, 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 crosf pin must be put on such a height that the Patient may stand on tip-toes. Now this is the very best way of restoring a shoulder. In stead of two Potts or a Frame, you may make fitth with a Ladder, Door, Bed-posts, and such like things as shall be there present. I have heard Henry Aven, a very good Surgeon of Orleans say, that he never attempted this manner of putting into joint a shoulder dislocated into the arm-pin without good success, unless by chance (which also is noted by Hippocrates) that the feth is grown into the cavity, and the head of the bone hath made it self another cavity in the place whereinto it is fallen, for in this case the bone either will not be retorted, or else not remain in its place, but fall back notwithstanding into the new hollowed cavity, which serves it in stead of its natural socket or cavity. But I must here admonish young Surgeons, that if the bone be not retorted at the first endeavour and on-set, that they do not despair and presently desist from their intended operation, but they must wholly about, and gently move the joint: for so at the length it will be more easily moved, and enter into the natural cavity: When it is in, it must be bound up with clothings and rollers after the fore-mentioned manner.

To the former Figures I have thought good to add this, which expediteth the manner of retorting a shoulder dislocated into the arm-pin, with a Jpatula after the manner of Hippocrates. This Jpatula framed with an iron pin to the standing Frame, may be turned, lifted up, and prised down at your pleasure. A Shews the wooden Jpatula. B The frame or standing potts.

For the more certain use of this Instrument the Patient must set upon a raff that which must be some what lower than the standing Frame, that to the Jpatula which is thrust into the arm-pin may be the more forcibly deprest, so to force in the head of the shoulder-bone; the Patients feet must also be tied, that he may not raise him self up whilst the Surgeon endeavours to reduce it. Now he shall then endeavour to reduce it when he shall have bound the stretched forth arm of the dislocated shoulder into the Jpatula, and thrust the one end thereof under the lifted forth head of the shoulder-bone, as we have formerly shewed, for then by pressing down the other end of the Jpatula which goes to the head, the bone is forced into its cavity. You must diligently observe the wooden Jpatula, which therefore I have caused to be exprest by it self, which Hippocrates calleth Ambi, whose head is a little hollowed, where it is noted with this letter B. The whole Jpatula is marked with this letter A, with three
three fringes hanging, threat, provided for the binding of the arm, that it may be kept steady, as you may perceive by the annexed figure.

There are other additions to this Ambi, whose figure I now exhibited to your view, by the invention of Nicolas Feart, the Duke of Lorain’s Surgeon, the use and knowledge whereof, bestowed upon me by the inventor himself, I would not envy the studious Reader.

Another Figure of an Ambi with the Additions.

CHAP. XXVIII.
How to restore a Shoulder dislocated forwards.

It is seldom that the shoulder is luxated towards the fore, yet there is nothing so liable and firm in our bodies which may not be violated by a violent assault; so that those bones do also fall out of joint, whose articulations are strengthened for the firmer connexion with fleshy, nervous, gristy and bony stays, or bars: This you may perceive by this kind of dislocated shoulder, strengthened, as it were, with a strong wall on every hand; to wit, the Acromium and the end of the collar-bone, tending to hinder it, as also the great and strong muscles, Epicondylus, and Biceps. Happens, that up within the strict bounds of the latter Epicondylus, 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 certain Nun, which weary of the Nunnery, cast herself down 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 known by the deprivation of the conformation or figure of the member, by the head of...
Cure.

The 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 deep-seated 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 be laid flat on his back, 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 be forced into its cavity, for thus it shall be easily restored: But into what part soever the shoulder-bone is dislocated, the arm must be extended and drawn directly downwards. After the restitution setting medicines shall be put about the joint. Let there be something put into the arm-pit which may fill it up, and let compresses or bolsters be applied to that part whereto 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 arm-pit, and so brought across upon the joint of the shoulder, and thence carried unto the opposite arm-pit by so many windings as shall be judged requisite: Then the arm must be put and carried in a scarf to right angles, which figure must be observed not only in every luxation of the shoulder, but in each fracture of the arm also, for that it is least painful, and consequently, such as the arm may stand the longest therein without moving.

CHAP. XXX.

Of the Shoulder dislocated upwards.

The head of the shoulder also may sometimes be luxated into the upper part: Which when it happens, it thaws it self by bunching forth at the end of the collar-bone, the hollowness of the arm-pit is found larger than usual, the elbow flies further from the ribs than when it fell downwards, now the arm is wholly unable to perform the usual actions. It is fit for the restitution of such a luxation, that the Surgeon floor down, and put his shoulder under the Patient's arm, and then stand up as high as he can upon his feet, and therewithal press down the head of the shoulder-bone into the cavity, or else make some other to do it. Otherwise it is fit to lay the Patient upon his back on the ground, and whilst one extends the affected arm by drawing it downwards, the Surgeon with his own hand may force down the head of the bone into its cavity. The operation performed, the same things shall be done as in other luxations, compresses being applied to that part whereto the bone flew, and it being also bound up with ligatures. Now you may understand in these four fore-mentioned kinds of dislocations, that the bone which was located is restored, by the found which shall be heard as you force it in, by the restitution of the accustom'd actions, which are perceived by the bending, extending and lifting it up, by the mitigation of the pain, and lastly, by the collation and comparing of the affected arm with the found, and by its magnitude and equality therewith.
Book XVI.

Of Dislocations, or Luxations.

Chap. XXXI.

Of the Dislocation of the Elbow.

The elbow may also be four manner of ways dislocated: to wit, inwardly, outwardly, upwards and downwards. By the part which is forwards, I mean that which looks towards the center of the body, when the arm is placed in a natural line to sit, in a middle figure between prone and supine; I make the outward part, that which is 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 joynt 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 to inflamration and to grow hard thereupon, as Hippocrates 

Hippocr.

Hippocr. Sent. ult. agree with Hip. St. ab, fel. fell. sed. and Celsus in the setting down the kind of a dislocated elbow

Celsus

* The Author deeth not agree with Hippocr. and Celsus, in setting down the notes of these dislocations; for these notes which are here attributed to an outward and inward motion, those 

Celsus hath gi

ven on an el

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You may know that the elbow is dislocated outwardly, if at any time you shall observe the Sign, the arm to be distended, and not able to be bended. Wherefore you must forthwith undertake the restitution thereof, for fear of distortion and inflammation which the bitterness of pain causeth, upon what part formerly the luxation happeneth. There is one manner of restoring it, which is, you must cause one to hold hard and ftedily the Patients arm a little under the joynt of the shoulder, and in the mean while let the Surgeon draw the arm, taking hold thereof with his hand, and also force the shoulder-bone outwards, and the eminence of the cubit inwards, but let him by little and little draw and extend the arm, wrettling 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 bended for the restoring of this kind of dislocation, for restitution cannot to be hoped for, because by this kind of luxation the inner procceds of the cubit possesthe place of the exterior procceds in the cavity of the shoulder-bone. Wherefore whilst the arm is bended or crooked, the cubit is only lifted up, and not drawn into its seat. But if we cannot attains to a restitution thereof with our hands alone, you must cause the dislocated arm, lightly bended, to embrace a poll, then must the end of cubit called Olecranon be tied or bound about with a strong ligature or line, and then relented into its cavity by putting a batton or staff into the ligature, as is demonstrated by this ensuing figure.
A Figure which shows how to restore the Elbow by putting it about a post, with a button.

Theris also another more exquisite way of restoring it, which is expressed by the latter figure wherein a line of some inch breadth is call about the Oletramm of the arm, embracing a post or pillar, and it is drawn fo long, until the dislocated bone be brought into its feat. Now we know that the bone is returned into its place, and restored, when the pain cealeth, and the figure and whole natural conformation is restored to the arm, and the bending and extending thereof is eafe, and not painful.

CHAP. XXXIII.

Of the Vipcation of the Elbow to the intide, and of a complete and uncomplete Luxation.

If the elbow be dislocated to the inner part, the arm must be strongly and powerfully exten-
ded, then bended quickly, and with sudden violence, fo that his hand may flrike upon his
shoulder. Some put fome round thing into the bout of the elbow, and upon that do fudd-
ily force the elbow to the shoulder, as we have formerly faid. If the cubit-bone be only light-
ly moved out of its place into the upper or lower place, it is eafeily 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 wright, and each draw towards himfelf: And alfo the Surgeon (who fhall there be
prefent) fhall force the bone which is dislocated from that part wherein it is bent, unto the
contrary: After he fhall thus have restored it, he fhall lay the arm in a ftrait angle, and fo bind it
up, and apply fit medicines formerly mentioned, and fo let him carry it in a fcarf put about his neck,
as we faid in the dislocation of the fhoulder. Hiphocrates bids, that the Patient, after it_ is set, fhall
often endeavour to bend his hand upwards and downwards, and alfo exten and bend his arm, yea,
and alfo to attempt to lift up fome heavy thing with his hand; for fo it will come to pafs, that the
ligaments of this joint may become more fett, ready and able to perform their accustomed functi-
on, and alfo the bones of the cubit and fhoulder fhall be freed from the affect termed
Ancylofis, whereto they are incident by the luxations of this part. Now Ancylofs is a certain prettunatural
agglutination, coagmentation, and, as it were, union of sundry and feveral bones in the fame joint,
which afterwards hinders the bending and extenion thereof. Now a Callus is generated in the el-
bow sooner than in any other articulation, whether it remaineth out, or be put into joint, by rea-
son that by refl and effufion from the accutened actions, a vifid humour which is placed natu-
 rally in the joints, as alfo another which is prettunatural drawn thither by pain, flows thLOUR. and
is hardened, and gicles the bones together, as I have obferved in many, by reafon of the idlenefs
and too long ref of this part: Wherefore that we may withftand this affect, the whole ligation
muft be loofed fooner and oftner than otherwife, that is to fay, every third day, and then the Pati-
ents arm muft be gently moved every way. Within the space of twenty, or twenty five days, these
reftored Bones recover their freight, sooner or later, according to the happening accidents. It is ne-
cessary alfo that the Surgeon know that the Radius, or wand, fometimes talleth out, when the cu-
bite or ell is wholly dislocated, wherefore he muft be mindful in letting the cubit, that he alfo restore
the
Book XVI. Of Dislocations, or Luxations.

The wand to its place; in the upper part it hath a round proc of lightly hollowed, wherein it receiveth the shoulder-bone: it hath also an eminency which admiteth the two-headed muscle.

CHAP. XXXIV.

Of the Dislocation of the Stylovertea, or bugbro-like proc of the Cubit or Ell.

The proc of the Ell called Stylovertea, being articulated to the wrist by Diaurospfs, by which it is received in a small cavity, is dislocated, and falleth out sometimes inwardly, sometimes outwardly: The case usually is the falling of the body from high upon the hands: It is restored, if that you force it into its fate, diligently bind it, and apply thereunto very astringent and drying medicines; But yet, though you shall diligently perform all things which may be done in dislocations, yet you shall never so bring it to pass that this bone shall be perfectly restored, and absolutely put into the place where-hence it went; Which thing we have said, observed by Hippocrates. When Sect. 1. foll. 2. (Sith he) the greater bone, to wit the Ell, is removed from the other, that is, the Wand, it is not as it was referred to its own nature again; for that, seeing that neither any other common connection of two bones, which they call Symphysis or union, when it is drawn aforter and destroyed, may be reduced into its former nature, by reason thefes ligaments wherewith they were formerly contained, and as it were continued, are too violently distended 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 Dislocation of the Wrist.

We understand by the wrist, a certain bony body, consisting of a compository of eight bones knit to the whole cubit by Diaurospfs: For the wrist considereth wholly in its self, is knit and articulated with the ell and wand: With that, against the little fingers, with this against the thumb: For thus, as it were, by two connections the joint is made more firm; yet may it be dislocated inwardly, outwardly, and towards the sides. We say it is dislocated, when the hand is bent downwards, but outwardly, when it is crooked in, and cannot be extended. But if the chance to be dislocated side-ways, it stands away either towards the little fingers, or else towards the thumb, as the luxation befalls to this or that side. Here it may seem to depend upon the different disarticulation of the ell and wand with the hand or wrist: For the wand, which is articulated on the lower part with the thumb, by its upper part, whilst it receives the outward swelling or condylyte of the ell in its cavity, performs the circular motions of the hands: But the cubit or ell, which lie in like sort is connected on the lower part by Diaurospfs at the little finger with the wrist, being articulated on the upper part with the shoulder-bone, bends and extends, or stretches-forth the hand. There is one way to restore the formerly mentioned dislocations: The arm on one side and the hand on another must be extended upon a hard resting and smooth place, so that it may lie flat, and you must have a care that the part whence the dislocated bone fell, be the lower in its fire and place, and the part whether it is gone, the higher: Then to conclude, the prominences of the bones must be pressed down by the hand of the Surgeon, until by the force of compression and the luxated bones be thrust and forced into their places and cavities.

CHAP. XXXVII.

Of the dislocated bones of the Wrist.

The wrist consists of eight bones, which cannot, unless by extraordinary violence, be put or fall out of their places. Yet if they shall at any time fall out, they will shew it by the tumor of the Sign. Here in before chap. 3. the Authors differ from Celsus and Hippocrates, in expelling the names and signs of these dislocations.

CHAP. XXXVIII.

Of the dislocated bones of the Atomos.

Here are four bones in the palm or after-swift, the two middlemost whereby cannot be dislocated, being fixed in the case, because they are hindered and kept from falling aside by the opposition of the other parts, as it were retarding them. Neither can that which answereth to the little fingers, nor that whereby the fore-fingers rest, be dislocated towards that side which is near the middle bones, whereof we now speak, but only on the other side, freed for the neighbour-hood of the bones: But all of them may be dislocated inwardly and outwardly. They may be restored as those of the wrist.
CHAP. XXXVIII.
Of the dislocated Finger.

The bones of the fingers may be four several ways dislocated, inwardly, outwardly, and at each side. To restore them, they must be laid flat upon a table, and so put into joint, as if by the fingers of the hand, and their joints are shorter, and ligaments less strong. In twelve days space they will recover their strength, as also those dislocations that happen to the wrist and after-wrist.

CHAP. XXXIX.
Of a dislocated Thigh or Hip.

The thigh or hip 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 may happen to that part of the heads of such bones may be contained in the cavity, and other parts filled or fall forth, but that they will quickly be restored to their places by the motion and wheeling about of the joint, and the strength of the encompassing muscles. But a subluxation may happen in these parts from an internal cause. For then the ligaments and ties being formed 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 longer, and the knee appears somewhat lower, and looks outwardly with the whole foot, neither can the Patient stand upon his leg. To conclude, the head of the thigh-bone worsens it fell lying in the groin, with a twist manifest both to the eye and hand, now the leg is longer than that which is found, for that the head of the thigh is out of its cavity or socket, and situated lowering, to wit, in the groin, therefore the leg is made by so much the longer. Now the bone stands forth, because necessarily the lower head of the thigh-bone stands contrary to the socket. This is common to all dislocated bones, that whereas the dislocation happens to the one side, the other end of the bone must cut to the contrary. Whence it is, that if the upper-head of the thigh-bone fall inwards, the other head, which is at the knee, must necessarily look outwards. The like happens in other dislocations. The leg cannot be bending towards the groin, for that the dislocated bone holds the extending muscles of the same part to stiffly stretched out, that they cannot yield, or apply themselves to the benders. For motion or bending ought to precede extension, and extension, flexion.

CHAP. XL.
Prognostic belonging to a dislocated Hip.

Here is this danger in the dislocation of the hip, that either the bone cannot be put into the place again, at least unites with very much trouble, or else being put in, that it may preferably fall out again. For if the tendons of the muscles, the ligaments, and other nerves parts of the member be hard and strong, they, by reason of their constancy and stiffness will hardly suffice the bone to return to its place. If that be left loose, it may fall out again. It it be relaxed, there is only this hope to contain the restored bone, that is, to consume and draw away the heaped up humidity by application of Medicine and Cauteries of an external cause, and strength of the part, and nourishment. But if it be broken, how often the bone be restored, it will presently fall out again. If it be relaxed, there is only this hope to contain the restored bone, that is, to consume and draw away the heaped up humidity by application of Medicine and Cauteries of both kinds, for which purpose those are more effectual which do actually burn, for that they dry and strengthen more powerfully. Leaves of the body, and the want of Appetite, that is, of broad tendons, and external ligaments, whereof many encompass the knee, increaseth the difficulty of containing it in the place. But the parts adjoining to the dislocated and motionless bone, will carry away by little and little, and continue with an Apophysis or want of nourishment a bone, because the part it self it is forced through from the encompassing bones and muscles, as also for that the veins, arteries and nerves being more untied and put out of their places, hinder the spurs and nourishment from flowing so freely as they ought, to the part: Whence it comes to pass that, the part it self it is made more weak, the native heat being debilitated through idleness, it can neither attract the alimentary juice, neither can it digest and assimilate that little of which flows and tallow thereto. Verily the thigh-bone, as long as it is forth of the cavity, grows no more after the manner as the other bones of the body do, and therefore in some space of time you may perceive it to be shorter than the sound bone. Notwithstanding the bones of the leg and foot are not hundred of their growth,
growth, for 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 and leanness of the proper muscles thereof. The same thing happens to the whole hand, in the largest acceptation, when as the shoulder is out of joint, callous that the calamity and loss hereof is the life. For the shoulder being both of joint you may do something with your hand, whereby it will come to pass that no small portion of nourishment may flow down into those parts. But the thigh-bone being dislocated, essentially inwards in a child unborne, or an infant, much left alimentary nourishment flows to that part, because it can much less use the foot and leg by reason of the dislocation of the hip, than it can do by a hand by the luxation of the shoulder. But now we shall understand that which is said by Hippocrates. That dislocated bones, and not refixed, do decrease or are hindered from their just growth, to be only in those who have not yet attained to their full and naturally appointed growth in every dimension. For in men of full growth, the bones which are not refixed, become more slender, but yet no shorter, as appears by that which he hath delivered of the shoulder.

CHAP. XLI.

Of the Signs of the Hip dislocated outwardly or inwardly.

T he thigh-bone or hip when it is dislocated outwardly, and not refixed, after some time the pain is allayed, and eat grows about it, the head of the bone wears it a new cavity in the adjoining hip, whereinto it breaks it into so small a piece of cartilage that the head will fall out without the least force. But the luxation happen inwards, a greater leanness will befall them, by reason that the vessels naturally run more inwardly. Galen observes in the dislocation of the Femor is to the index therefore it comes to pass, because they are more grievously oppressed. Besides, the thigh-bone cannot walk or once again against the share-bone, whereas if the bone thus dislocated be not refixed soon after, then they may eat their leg about as they walk, just as we see Oxen do. Wherefore the found leg, whilst they go, takes much less space than the lame, because this, whilst it thrusteth or moveth, must necessarily fetch a compass about, but that performeth its motion in a right line. Besides, whilst the Patients stand upon their lame leg to put forwards the found, they are forced to stand crooked, whereupon they are forced to lay themselves with a staff that they fall not. Furthermore those who have this bone dislocated either backwards or outwards, so that it cannot be refixed, have the part it fell into, and that it may grow, and go forward from, eat forced to grow, and strengthen themselves thereby laying their hand on their lame thigh at every step, both for that their lame leg is the shorter, as also because the weight of the whole body be not wholly or perpendicularly upon the joint or head of the thigh-bone. Yet in continuance of time, when they are old to it, they may go without any staff in their hands. Yet in the interim, the found leg becomes more deformed in the composite and figure, because, whilst it forceth the opposite and lame leg by the arm standing on the ground, it beareth the weight of the whole body, in performance whereof the ham almost necessarily now and then bend. But on the contrary, when as the head of the thigh being dislocated inwards is not put into the joint, if the Patient be arrived at his full growth, after that the head of the bone hath made it felt a cavity in the neighbouring bone; whereas it may yet, he may be able to walk without a staff, because the dislocated leg cannot easily be bend, or the bone, or he will lose ret upon his heel than upon his toes. This kind of dislocation if in sooner, can never be refixed. And these things happen, when as the thigh-bone is dislocated inwards, or when the inter- nal ligament which fustains the disarticulation shall be broken or relaxed. But the contrary shall plainly appear if the dislocation shall happen to be outwards, for then the lame leg becomes the shorter, because the head of the thigh lies 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 leg, together with the knee and foot looketh inwards, they cannot go on their heels, but upon the setting on of the toes. The leg may be bending, which is in a dislocation of the thigh inwards, as Paulus theorizes. Therefore we must diligently observe that sentence of Hippocrates which is read with a negative, in thefe words, Sed neque conficere quemadmodum signa haud fideium, that they ought to be read with an affirmative after this manner, Sed confeffum, quae & una fideium, &c. But now the lame leg will better sustain the weight of the body as an external, than in an internal dislocation, so for then the head of the thigh is more perpendicularly subject to the whole weight of the body. Therefore when in the fennec of time it shall by wearing have made it felt a cavity in the neighbouring bone, which in time will be continued, so that there will remain no hope of refuring the dislocation, nevertheless the Patient shall be able to go without a staff, for that then no fome of pain will trouble him, whereof it follows, that the whole leg also will become life lean, for that going is life painful, neither are the vessels so much profus as in that dislocation which is made inwardly.

CHAP.
chap. xii.

of the thigh-bone dislocated forwards.

It seldom happeneth that the thigh is dislocated forwards; yet when as it shall happen, it is by these signs. The head of the thigh lieth towards the sole, whereas the groins swell up, and the buttock on the contrary is wrinkled and extenuated by reason of the contraction of the muscles, the Patient cannot extend his leg without pain, no verily, not so much as bend it towards the groin, for the fore-muscle which ariseth from the hanch bone is so pressed by the head of the thigh, that it cannot be dislocated, neither can the ham be bended without very much pain. But the fore-muscle is equal at the heel with the other leg, yet the Patient cannot stand upon the setting on of the toes; therefore when he is forced to go, he toucheth the ground with his heels, and thereby the sole of his foot is left inclined to the forside, neither doth it seldom happen, that the urine by this accident, is impeded, because the head of the thigh opposes the greater nerves from whence the fore-muscle which ariseth to the bladder, which through the occasion of this compression is pained and inflamed by continuance; Now when inflammation shall feiz upon the Syndesmuses, the urine can scarcely flow out, for that it is hindered by the swelling.

chap. xiii.

of the thigh-bone dislocated backwards.

 seldom happeneth that the thigh is 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 rest. The Patient can neither extend nor bend his leg by reason of the much compression and tension 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 then the muscles are more strongly extended. The lane leg is shorter than the found; When the buttocks are pressed, the head of the thigh is perceived hid amongst the muscles of that part, but the opposite groin is lax, felt, and with a manifest cavity. The heel toucheth not the ground, for that the head of the thigh is placed back again by the muscles of the buttocks, amongst which it is hid: But principally by that which is the larger, and which is laid to make, as it were the pillow or cushion of the buttocks; for this is much more prefixed in this kind of dislocation than the rest. 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 sole of his luxated leg without a shaft, he shall fall only, yet very likely the sole of his foot is left inclined to the forside, neither doth it seldom happen, that the urine by this accident, is impeded; because the head of the thigh opposes the greater nerves from whence the fore-muscle which ariseth to the bladder, which through the occasion of this compression is pained and inflamed by continuance; Now when inflammation shall seize upon the Syndesmuses, the urine can scarcely flow out, for that it is hindered by the swelling.

chap. xiv.

the general cure.

Seldom 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 rest. The Patient can neither extend nor bend his leg by reason of the much compression and tension 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 then the muscles are more strongly extended. The lane leg is shorter than the found; When the buttocks are pressed, the head of the thigh is perceived hid amongst the muscles of that part, but the opposite groin is lax, felt, and with a manifest cavity. The heel toucheth not the ground, for that the head of the thigh is placed back again by the muscles of the buttocks, amongst which it is hid: But principally by that which is the larger, and which is laid to make, as it were the pillow or cushion of the buttocks; for this is much more prefixed in this kind of dislocation than the rest. 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 sole of his luxated leg without a shaft, he shall fall only, yet very likely the sole of his foot is left inclined to the forside, neither doth it seldom happen, that the urine by this accident, is impeded; because the head of the thigh opposes the greater nerves from whence the fore-muscle which ariseth to the bladder, which through the occasion of this compression is pained and inflamed by continuance; Now when inflammation shall seize upon the Syndesmuses, the urine can scarcely flow out, for that it is hindered by the swelling.

chap. xvi.

of displacements, or luxations.
Of restoring the Thigh-bone dislocated inward.

It is fit to place the Patient after the foregoing manner, upon a table or bench, in the midst whereof shall stand a wooden pin of a foot's length, and as thick as the handle of a spade: but it must be wrapped about with some soft cloth, lest the hardness hurt the buttocks, between which it must stand, as we read that Hippocrates did in the extension of a broken leg. The wooden pin hath this use, to hold the body that it may not follow him that draweth or extendeth it, and that the extension being made as much as is requisite, it may go between the Peritoneum and the head of the dislocated thigh. For thus there is no great need of counter-extension towards the upward parts; and besides it helpeth to force back the bone into its cavity, the help of the Surgeon concerning, who turning forewordly to this, and otherwhiles to that side, doth direct the whole work. But when the extension hath need of counter-extension, then it is needful 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, and 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 and like ligature shall be put upon the joint directly at the hip, and held stiff by the hands of a strong man, yet so that it may not touch the head of the thigh by pressing it, for it would hinder the reducing thereof. This manner of extension is common to four 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 whereto the head inclineth, to wit, thus the joints of the foot and knee are more extended than that of hip or huckle-bone, for they are nearer to the ligature, and consequently to the active force: But they ought to do otherwise, therefore in a dislocated shoulder you shall not fall the ligatures to the hand or writ, but above the elbow. But if the hands shall not be sufficient for this work, then must you make use of engines. Wherefore then the Patient being placed as it is, and the stretched part firmly held, some round thing shall be put into the groin, and the Patient's leg, together with his whole leg, shall be drawn violently inwards, towards the other leg. And in the mean 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 shews:

A Figure which manifesteth the way of restoring the Thigh-bone dislocated inward.
Of Dislocations, or Luxations.

Book XVI.

Of restoring the Thigh dislocated outwards.

The Patient must be placed groveling upon a table in this kind of dislocation also, and ligatures as before, cast upon the hip and lower part of the thigh, then extension must be made downwards, and counter-extension upwards; then presently the head of the bone must be forced by the hand of the Surgeon into its place. If the hand be not sufficient for this purpose, our Pulley must be used, as the following figure sheweth.

A Figure which expresseth the manner of restoring the Thigh luxated outwards.

When it is this kind of dislocation is the easiest restored of all those which happen in the thigh or hip, for that I have divers times observed the head of the thigh to have been drawn back into its cavity, by the only resort of the extended muscles into themselves towards their originals, s<

Of restoring the Thigh dislocated forwards.

When the thigh is luxated forwards, the Patient must be laid upon his sound side, and tied as we have formerly delivered. Then the Surgeon shall lay a bolster upon the prominent head of the bone, and have a care that his servant firmly hold it: Then if his hand will not serve, he shall attempt it with his knee. Then to conclude, he shall use the rest of the things formerly mentioned to contain the restored bone.

Of restoring the Thigh dislocated backwards.

The Patient shall be placed groveling upon a table or bench, and the member extended, as in the rest, one ligature stretched from the groin, 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 leg. The bone thus placed and restored, the cure requires nothing else than to be bound up and kept long in bed, lest that the thigh, if it should be moved, the nerves being yet more loose, might again fall out: For the thigh is in great danger of relapse, for that the cavity of the huckle-bone is only depressed, as far as it goes in, and the burden of the hanging or adjoining thigh is heavy.
CHAP. XLVII.
Of the Dislocation of the Whirl-Bone of the Knee.

The Whirl-Bone of the knee may fall forth into the inner, outer, upper and lower part, but never to the hind-part, because the bones which it covers do not suffer it. To restore it, the Patient must have his foot 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 fallen. When it shall be restored, the cavity of the ham shall be filled up with bolster[s] so that he may not bend his leg; for if it be bended, there is no small danger of the falling back of the whirl-bone. Then a case or box shall be put about it, on the side especially whereof it fell, being made somewhat flat and round, resembling the whirl-bone itself, and it shall be bound on with ligatures and medicines so fast, that it may not stir a jot. After the part shall seem to have had sufficient rest, it is fit that the Patient try and accustom by little and little to bend his knee, until at length he shall find that he may easily and safely move that joint.

CHAP. XLIX.
Of the Disingrazed Knee.

The knee also may be dislocated three manner of ways, that is, into the inner, outer and hind-part, but very seldom towards the fore-side, and that not without some grievous and forcible violence, the whirl-bone lying upon which, hinders it from slipping out, and holds it in. The other ways are easy, because the cavity of the leg-bone is superciliary and very smooth, but the cavity of the lower end of the thigh-bone is made in the manner of a spout or gutter, and besides, the head thereof is very smooth and slippery, but the whole joint is much more lax than the joint of the elbow. So that as it may be the more easily dislocated, so may it be the better be restored; and as it may be the more easily, so may it be the more safely dislocated, for that inflammation is less to be feared here, as it is observed by Hippocrates. Falls from high, leaping, and too violent running are the causes of this dislocation. The sign thereof is the disability of bending or lifting up the leg to the thigh, so that the Patient cannot touch his buttock with his heel. The dislocation of the knee, which is inwardly and outwardly, is restored with indifferent extension and forcing of the bones into their seats from those parts whereunto they have fallen. But to restore a dislocation made backwards, the Patient shall be placed upon a bench of indifferent height, so that the Surgeon may be behind him, who may bow with both his hands and bring to his buttocks the Patient’s leg put between his legs. But if the restitution do not thus succeed, you must make a clew of yarn, and fallen it upon the midst of a staff, let one put this into the cavity of the ham, upon the place where the bones stand out, and fo force it forwards, then let another cast a ligature of some three fingers breadth upon his knee, and draw it upward with his hands, then presently and at once they shall so bend and crook the lame leg, that the heel thereof may touch his buttocks.

CHAP. L.
Of a Knee dislocated forwards.

But if the knee be 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 down with both his hands the bone which is out of joint, until it shall return to its place again. To which purpose if the strength 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.
Of Dislocations, or Luxations.  

Book XVI.  

You shall know that the bone is restored by the free and painless extension of the leg; then will there be place for medicines, bullouses and strengthening ligatures. In the mean space the Patient shall for fear going too long as the part shall seem to require.

CHAP. II.  

Of the separation of the greater and lesser Facile.

The joyning of the leg and shin-bones.

The cure.

The Fibula or lesser Facile is shalved and adheres to the Tibia, leg-bone, or greater Facile without any cavity, above at the knee, and below at the ankles. But it may be plucked or drawn aside three manner of ways; that is, forwards, and to each side. This chance happens when the going we take no sure footing, so that we slide with our feet this and that way as in a slippery place, and so wrest it inwards or outwards; for then the weight of our body lying open upon it, draws the leg, as it were, in hinder, so that the one Facile is dislocated or separated from the other. The same may happen by a fall from an high place, or some grievous and bruising blow. Besides also, their appendices are sometimes separated from them. For the relieving of all this, their proper places, it is fit they be drawn and forced by the hand of the Surgeon into their feats: Then shall they be finnely bound up, putting compresses to that part unto which the Fibula fell, beginning also your ligations at the very separation, for the fore-mentioned reasons. The Patient shall ret forty days, to wit, as long as shall be sufficient for the strengthening of the ligaments.

CHAP. LII.  

Of the Leg-bone or greater Facile dislocated and divided from the Pattern-bone.

Of the Symptoms which follow upon the contusion of the Heel.

Henceover leaping from an high place have fallen very heavy upon their heel, have their heel dislocated and divided from the Pattern-bone. This dislocation happens more frequently inwardly than outwardly; because the prominence of the lesser Facile embraces the Pattern-bone; whereof it is that the bone is more firmly and firmly knit. It is restored by extension and forcing it in, which will be no very difficult matter, unless some great dilution or inflammation hinder it. For the binding up it must be finnely in the part affected, that so the blood may be pressed from thence into the neighbouring parts; yet using such a moderation, that it may not be painful, nor press more straitly than is fit, the nerves and gross tendons which at the heel fix. Besides, also, there be place for ipedicines, bulloures and strengthening ligatures. In the mean space the Patient shall forbear going so long as the part shall seem to require. After the bone shall be restored, it shall be kept by to by compresses and in deligation, by grofe or contrary binding to the side opposite to that towards which the bone fell, that so it may be more and more forced into its place. In the mean time you must have a care that you do not too straitly press the great and large tendon which is at the heel. This kind of dislocation is restored in forty days, unless some accident happen which may hinder it.

CHAP. LIII.  

Of the dislocation of the Heel.

Differences of the symptoms.

Causes and differences.

The cure.

Why the heel is subject to inflammation.

If it happeneth by the vehemency of this contusion, that the veins and arteries do, as it were, vomit up the blood both through the secret passages of their coats, as also by their ends or orifices, whence an Erythema or blackness over all the heel, pain, swelling, and other the like qualities, which implore remedies and the Surgeons help, to wit, convenient diet, and drawing of blood by opening a vein, (of which though Hippocrates makes no mention, yet it is here requisite by reason of the fervor and inflammation,) and if need require, purge; 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 usdly hard and thick (such as are Gentianas of warm water and oil,) so that divers times we are forced to facilitate it with a lancet, stimulating the quicks. For so at length the blood pressed forth into the part, and there heaped up, is more easily attenuated, and at length refolved. But these things must all be performed before the inflammation feizes upon the part, otherwise there will be danger of a convulsion. For the blood, when it falls out of the vessels, readily parishes, by reason the density of this part hindereth it from ventilation and diffusing to the adjacent parts. Herein may be added, that the large and great tendon which covers the heel, is endowed with exquisite force, and also the part it self is on every side spread over with

CHAP. LIV.  

Of the Symptoms which follow upon the contusion of the Heel.
with many nerves. Besides a{o there is further danger of inflammation by lying upon the back and heel, as we before admonished you in the fracture of a leg. Therefore I would have the Surgeon to be here most attentive and diligent to perform these things which we have mentioned. If by inflammation a Gangrene and Mortification (for here the faintest sighs plentifully falls upon the bone) happen together with a continued and sharp Fever, with trembling,icketttering and ravings. For the protection of this part first by contagion affects the nerves, and thence a Fever affails the heart by the arteries presided and grown hot by the putrid heat, and by the nerves and that great and notable tendon made by the concours of the three muscles of the calf of the leg, the muscles, brain and stomach are evilly affected and drawn into consent, and to cause convulsions, ravings and a deadlyicketttering.

CHAP. LV.
Of the dislocated Patellar, or Ankle-bone.

The Atrophia or patellar bone may be dislocated and fall out of its place to every side. Signs: When it falls out towards the inner part, the fold of the bone is turned outswards, when it flies out to the contrary, the sign is also contrary; if it be dislocated to the sideways, on the hand side the broad tendon coming under the heel is hardened and distended, but if it be located backwards, the whole heel is, as it were, hid in the foot: neither doth this kind of dislocation happen without much violence. It is restored by exceeding it with the hands, and forcing it into the contrary part to that from whence it fell. Being restored, it is kept so by application of medicines and ligation. The Patient must keep his bed long in this case, but that bone which flitting up bears up the whole body, may again sink under the burden, and break out, the fineses being not well knit and strengthened.

CHAP. LVI.
Of the dislocation of the In-step and back of the Foot.

The bones also of the In-step and back of the foot may be luxated, and that either upwards or downwards, or to one side, though seldom sideways. For the reason formerly stated, speaking of the dislocation of the like bones of the hand, if that they stand upwards, then must the Patient tread hard upon some plain or even place, and then the Surgeon by pressing them with his hand shall force them into their places; on the contrary, if they stand out of the fold of the foot, then must you press them thence upwards, and restore each bone to its place. They may be relieved after the same manner if they be thrown out to either side. But you must note, that although the ligatures confist but of one head in other dislocations, yet here Hippocrates would have such used as have two heads, for that the dislocation happens more from below upwards, or from above downwards than sideways.

CHAP. LVII.
Of the dislocation of the Toes.

Our the toes may be four ways dislocated, even as the fingers of the hand; and they may. The different be restored just after the same manner, that is, extend them directly forwards, and then force each joynct into its place, and lastly, bind them up as is fitting. The restitution of all them is safe, for that they cannot far transgress their bounds. To conclude, the bones of the feet are done Cure, cated and restored by the same means as those of the hands, but that when as any thing is dislocated in the foot, the Patient must keep his bed; but when any thing is amiss in the hand, he must carry it in a far. The Patient must rest twenty days, that is, until he can firmly stand upon his feet.

CHAP. LVIII.
Of the Symptoms and other accidents which may befall a broken or dislocated member.

Any things may befall broken or dislocated members by the means of the fracture or dislocation, such as are bruises, great pain, inflammation, a Fever, Imposthume, Gangrene, Mortification, Ulcers, Fissures and Atrophies, all which require a skilful and diligent Surgeon for their cure. A contusion happens by the fall of some heavy thing upon the part, or by a fall from high, whence follows the effusion of blood poured out under the skin: Which if it be poured forth in great plenty, must be freely evacuated by facrirication, and the part cased of that bone, left it should thence gangrenate. And by how much the blood shall appear more thick, and the skin more dense, by so much the facrirication shall be made more deep. You may also for the same purpose apply Lecches.

Concerning pain we formerly laid, that it usually happens by reason that the bones are moved out what may of their places, whence it hapoth that they become troublesome to the muscles and nerves, by pricking, have by pricking and pressing them. Hence ensue inflammation, as afore imposthume and a fever, other times a pa
grene, and in conclusion a mortification, corrupting and rotting the bones; other times a muse-ous ulcer or fissure. But an Atrophie and leannelis arresth by the flesh and adheres of the member de-
inging of the strength thereof, and by too strict ligation intercepted the passages of the blood, other- wise ready to fall and flow thither.
Remedies for Atrophia or fomenting. What measure to be used in fomenting.

Now the leaftens which is occasioned by too fhort ligature receives cure by the fracturing of the ligatures wherewith the member was bound. That which proceeds from idleness, is helped by moderate exercife, by extending, bending, lifting up, and deprefling the member, if it be that he can move with exercife. Otherwise be that ufes fhriftic and fomentations with warm water. The fhriftics must be moderate in hardness and gentleness, in length and fervomeas. The fhriftic moderation shall be oberved in the warmnees of the waters, and in the time of fomenting. For too warm water draws the blood that is drawn. But that which is too little or fhort a fbrace draws little or notting at all: After the fomentation, hot and emplafick medicines made of Pitch, Tungentie, Eulphires, Pellitaries, Spain, Sulphur, and the like, shall be applied. They shall be renewed every day more often or feldom, as the thing it felf shall fcan to require.

These medicines are termed Droopoes, whose form is thus: R Fisic nigre, ammomiati, orandi gemmi elmi in aqua vita difolutionem an. 5. Olii laurini: 3 j. tincturae piperis, zanthis, granati periculus, baconis terrae et juniperi, anum: Fist emplafium ficundum urban, extendatur super alintum. It is alfo good to bind about the oppofite sound part with a ligature, yet without pain: As if the right arm fhall decay for want of nourishment, the left fhall be bound, beginning your ligation at the hand, and continu¬ing it up to the arm-pit. If this milchance fhall feize upon the right leg, then the left fhall be twafhed up from the foles of the foot to the groin. For thus a great portion of the blood is forced back into the veins casso or hollow veins, and from this being dividuced and over full, into the part affeded and gaping, with the voles almost empty, beside alio it is convenient to keep the sound part in ref, that it may draw the life nourishment, and by that means there will be more flore to refreh the weak part.

Some with alio to bind up the decayling member with moderate ligation; for thus, fay they, the blood is drawn thither: for when as we intend to let blood by opening a vein with a lancet, we bind the arm. Alfo it is good to dip it into water fomewhile more than warm, and hold it there until it grow red, and fwell: for this blood is drawn into the veins, as they fhew, which ufe to draw blood of the Sphæra and Salarum. Now, if when as things and the like be done, the lame part grows hot, red and fwole, then know that health is to be hoped for; but if the contrary happen, the cafe is defperate: Wherefore you need attempt nothing further.

Furthermore, there is fometimes hardness left in the joynts, after fhriftines and dilocationes are reforred. It is to fettle this, by refolving the contained humor, by Forgettions, Liniiments, Vepilatoria, orphans embalming made of the roots of Marsh-mallows, Brissey, Lilies, Line-pee, Fenugreek, and the like, and alio of Gumms difolved in Springfield, as, Ammoniacan, Lobanos, Opponum, Lobanos, Sagapenum, fyxum liquida, and alio absinthium, gallicarnum, humatum, oleum liniimento, and the like. Also you muft with the Patient to move the part every now and then, and every day, yet fo, that it be not painful to him, that fo the pent up humor may grow hot, be attenuated, and at length dif¬solved the blood that is drawn. But that which is too little or fhort a space draws little or notting at all; After the fomentation, hot and emplafick medicines made of Pitch, Turpentine, Saphena, and the like, fhall be applied. They (hall be renewed every day, as alio the cafe is defperate: Wherefore you need attempt nothing further.

Now the leannefs which is occafioned by too fhort ligation receives cure by the flackning of the callus, and from this being dilfended and over full, into the part alFedred and gaping, the callus, and laftly the part it felf reftored as far as Art can perform it: for oft-times it cannot be help¬ful. It is tit to foften this, by refolving the contained humor, by Fomentations, Liniments, and the like, for the refidue of his life the motion thereof ufeth to be painful and difficult, and oft-times grow red, and fwell, for thus blood is drawn into the veins, as they fhew, which ufe to draw blood of the Sphæra and Salarum. If the cafe is defperate: Wherefore you need attempt nothing further.

For want of nourishment, the left fhall be bound, beginning your ligation at the hand, and continu¬ing it up to the arm-pit. If this mifchance fhall febe upon the right leg, then the left (hall be fwathed about the oppofite found part with a ligature, yet without pain: As if the right arm fhall decay for want of nourishment, the left fhall be bound, beginning your ligation at the hand, and continu¬ing it up the emaci¬ated part.

Signs that in Atrophia is ex¬"
The Tinea (let me fo term it in Latin, whil't it is not a word may be found) or a Scalp-head, is a disease poffefling the unctuous skin of the head or the hairy scalp, and eating there-into like a Moth. There are three differences thereof: one is called by Galen, Scaly or braw-ny, for that whil't it is eaten the man-like eale: Some Practitioners turn it, A dry scall, because of the great addition of the humour eating it. Another is called, Fairly, a fig-like scall, because when it is defpiled of the crust or eab which is yellow, there appear grains of quick and red flesh, like to the inner seeds or grains of figs, and eating out a bloody matter. Galen names the third Achor, and it is also vulgarly termed, the Corrosive, or Vulture scall, for that the many uleres whereof it abounds are open with many small holes flowing with liquid foats like the washing of flesh, flinking, corrupt and Carrion-like, somewhiles vivid, somewhiles yellow. These, if they be somehow larger, make another difference, which is called Grin or Faus, (that is, like a honey-comb) because as Galen thinks, the matter which floweth from these, refemblith honey in colour and confinence. They all proceed of an humour which is more or lefs vicious, for a lefs corrupt humour cauflh a feally, a more corrupt the fig-like, but the moft corrupt produces the ulcerous. It will happen to an Infant by reafon of the fault and contagion of the Nurfe, or elfe prefently after it is born, it fafe admite of cure, neither mud we attempt that, before the child come to age that he may be able to endure the cure and medicines. But you may in the mean while apply the leaves of Goldworth or Pecan beaten with fresh butter, or other good medicines, and every day before the children go to bed, let them be anointed with a Oyl of Staves-ace mixed with black-fope, both to draw and reprefs the malady of the humour impofed in the part. You may alfo ufe the following medicine even to the perfect cure of the disease, at that which is much commendfed in this kind of deftacle by Pygo Gordoni and Gudis it is thus made. B Eilth, aloes & oliv, astring. augment, augmentum, lib. v. cap. vii. viii. cit. & vi. viii. vitriol, alsi in pulverem redadi d i. Camphur.

If this will not be of any use, let the patient be taken up to a surgeon by the advice of a Phyfician. For the cure of a Scalp-head, an ointment to be applied to the head and remain on for two days, then let it be quickly and forcibly plucked away the hair at once. If the hairs appear rotten, they fhall be plucked out one by one, yet if fuch putrefadion fhall poffefs the root of Marfhy-mallows, Lilies, Docks, Sorel boiled in Lee with a little Vineger added thereto. The scall.

For it will make it fall off in the fpace of four and twenty hours, besides if it be continued, it poulds of

troubled in like fort with crouty ulcers, I would wish that his head might be anointed with an ointment made of Arsenes, Tumodore, and a little Sulphur, and then some emplastrum perficranii or little Pillers into the fashion of a cap; also some plasters of the flame may be applied to the fluidors, thighs and legs, and so let him be kept in a very warm 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 Blanches the King's Surgeon, upon a certain young man, when as he in vain had diligently tried all other usual medicines, his thighs and legs, and so let him be kept in a very warm chamber, and all things done as if he had the Lues venerea. A contumacious fall must be cured as we cure the Lues venerea.

The diffe¬
Vertigo.

In what kind
The Artery IS good, nal or external veffels. For, hence always enfueth an evacution of the conjund matter, blood and

CAH. III.
Of the Vertigo, or Giddiness.

The Vertigo is a sudden darkning of the eyes and light by a vaporous and hot spirit, which ascends to the head by the spongy arteries, and fills the brain, disturbing the humors and spirits which are contained there, and roiling them unequally, as if one ran round, or had drunk too much Wine. This hot spirit oft-times riseth from the heart upwards by the internal spongy arteries to the Rete mirabile, or wonderful net; otherwhiles it is generated in the brain it fell, being more hot than isfitting, and oft-times riseth from the foroam, spleen, liver, and other entrails being too hot. The legs of this disease is the sudden darkning of the fight, and the closing up, as it were, of the eyes, the body being lightly turned about, or by looking upon wheels running round, or whirl-pits in waters, or by looking down any deep or steep places. If the original of the disease proceed from the brain, the Patients are troubled with the head-ach, heavines of the head, and nafe in the ears, and oft-times they lose their fume. Emptia Regia for the cure bids us to open the arteries of the temples. But if the matter of the disease arise from fome other place, as from fome of the lower entrails, fuch opening of an artery little afiailes. Wherefore then fome skillful Physician must be confulted with, who may give directions for Phlebotomy, if the original of the disease proceed from the heart of the entrails by purging, if occasioned by the fume of the stomack, or by any noife, or fmall murmuring, nor light, nor fMs however fweet, no nor the fume of Wine. The pain is fometimes continual, otherwhiles by fits. If the caufe of the pain proceed from hot, thin and vaporous blood, which will yield to no medicines, it is very necessary to take forcible and speedy re¬

CAH. IV.
Of the Hemiancrania, or Magism.

The Magism is properly a disease affeding the one fide of the head, right or left. It fometimes paffeth no higher than the temporal muscles, otherwhiles it reacheth to the top of the crown. The caufe of fuch pain proceedeth either from the veins and external arteries, or from the Meninges, or from the very subftance of the brain, or from the Pericranium, or the hairy fcalp covering the Pericranium, or lately, from putrid vapours arifing from the head, and vomit comes up in the throat, which is the reafon that Gold-fmiths, and fuch as gild Metals are commonly troubled with this disease. But whensoever the caufe of the evil procedeth, it is either a fimple dilater, or with matter: Withe matter, I fay, which again is eitherfimple or compound. Now, this affecfion is either alone or accompanied with other affections as infiammation and ftenfion. The heavines of head argues plenty of humour, pricking, beating, and tenfion fheaves that there is a plenty of vapours mixed with the humour, and that it paffeth no higher than the temporal fubftrance, otherwhiles it reacheth to the top of the crown.

A critical
Vertigo.

The diference.

In what kind of Magism the opening of an Artery is good. A History.
of certain affeets of the Eye, and first of prying up the upper Eyelid when it is too lax.

OF the diseases which befall the eyes, some poisse the whole substance thereof, as the Ophthalmia, a Phlegmon thereof: Others are proper and peculiar to some parts thereof, as that which is termed Cataracta or to the optic nerve. Whence Galen made a threold difference of the diseases of the eyes, as that happened to the eye by hurting or offending the chief organ thereof: that is, the crystalline humor: others by hindring the animal faculty, the chief author of light, from entering into them; and lastly, other some by offending the parts subservient to the 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 Episcop, Catarrhalis, Glaucoma, and divers others. Of the kind of this kind. Some have their upper eyelid fall down, by reason that the upper skin thereof is relaxed more than is sufficient to cover the eye, the grille in the mean while not relaxing, it self together with therewith. Hence proceeds a double trouble, the first, that the eye cannot be easily opened; the other, because the hairs of the relaxed eyelid run in towards the eye, and become troublesome thereto by prickings it. The cause of such relaxation is either a particular pulse of that part which is frequent in old people, or the defection or falling down of a watrilli humor, and not acrid or blistings which appears by this; that those who are thus afflicted have a rank of hairs growing under the natural rank, by reason of abundance of heated-up humor, as it is most probable; but whereas a wet and marsh ground hath the greatest plenty of grass. Now if this same humor were acrid, it would cause an itching, and consequently become troublesome to the Patient, and it would also fret the eyelid as it were, and destroy the roots of the other hairs, so far it is from yielding matter for the preternatural generation of new. It is before you do any thing for the cure, that you mark with ink the portion thereof which is superfluous, and therefore to be cut away, lest if you should cut off more than is requisite, the eyelid should remain turned up, and so cause another kind of affeect, which the Ancients have called Estrion. 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 grille beneath it, and then cut it aright, taking away just so much as shall be necessary to make it, as it were, natural; lastly, turn the lips of the wound together with a simple fliture of three or four flitches, that so it may be cicatrized; for the cicatrization restrains the eyelid from falling down so looly, at least some part thereof of being taken away. There ought to be some measure and heed taken in the amputation, otherwise you must necessarily run into the one or other inconvenience, as if too much be cut away, then the eye will not be covered; if too little, then you have done nothing, and the Patient is troubled to no purpose. If there shall be many hairs grown preternaturally, you shall pluck them away with an instrument made for such purpose; then their roots shall be hennis with a gentle cautery, the eye being left untouched, for a fear perfectly sitting will hinder them from growing again.

OF Ligophthalmus, or the Hare-eye.

Such as have their eye-lids too short, sleep with their eyes open, for that they cannot be covered by the too short skin of the eye-lids: The Greeks term this affect, Axyphoteexis. The cause is either internal or external: Internal, as by a Carbuncle, Impatient or Ulcer; external, as by a wound made by a sword, burn, fall, and the like. If this mischief proceed by reason of a cicatrization, it is curable, if so that the short eyelid be of an indifferent thickness. But if it have been from the first conformation, or by some other means, whereby much of the substance is lost, as that which happens by burning, and a carbuncle, then it is incurable. For the cure, you shall use relaxing and excellent fomentations, then the skin shall be divided above the whole face, in figure of an Halt-moon, with the horns looking downwards. Then the edges of the incision shall be opened, and lint put into the middle thereof, so that it may hinder the lips from coining together again. Then shall you apply a plaster upon the lint, and to bind up the part with a sitting ligature, that may somewhat pecs upon the whole eye, left it should lift it somewhat upwards again, and to return into its ancient, but not natural figure. But in cutting the skin, you must...
must take care that your incision harm not the gristles, for if it be cut, the eye-lid falls down, nei-
ther can it be afterwards lifted up. But now for the lower eye-lid: it is subject to sundry disastes,
amongst which there is one which awakens in proportion to that, which we late mentioned, which
is, when it is lifted upwards little or nothing, but hangs and gaps, and cannot be joined
the upper, and therefore it doth not cover the eye, which affects prisonar to old people; it is called
Hydatia, or the turning up, or out of the eye-lid.

CHAP. VII.

Of the Chalazion, or Halit-tone, and the Hordeolum, or Early-corn of the Eye-lids.


The cure.

He Chalazia is a round and clear pimple, which grows upon the upper eye-lid; it is also
moveable, and may be lifted this way and that way with your fingers. The Latins
call it Granula, or Grains, for that it resembles a half-tone. Another pimple not much like this
grows sometimes upon the verge of the eye-lids above the place of the hairs. It is termed Hor-
deolum, by restion of the dimilitude it hath with a barley-corn. The matter of this is contained
in its proper cist or skin, and therefore is hardly brought to suppuration. At the first beginning
it may be resolved and diffused; But when as it is once grown and concrete into a plate or
fibro-like hard-def, it is scarce curable. Wherefore it is bell to perform the cure by opening them,
that so the contained matter may flow or be plunged forth. If the pimple or swelling be small,
then thrust it through with a needle and thread, and leave the thread therein of such length, that
you may learn out of Coffee, which swells and swells, and therefore it doth not cover the eye, which affects
prisonar to old people; it is called
Hydatia, and it may be helped by means formerly delivered.

CHAP. VIII.

Of the Hydatis, or fissure of the Eye-lids.

What Hydatis is.

Com. ed. afpr. 55. lit. 5.

The cure.

The Hydatis is a certain fatty substantia, like a piece of fat, fasted and lying under the skin
of the upper eye-lid. It is a disease incident to children, who are of a more humid na-
ture: Wherefore it is a sort and looks tumor, making the whole eye-lid, which it pod-
feeseth, oedematous, so that as if depressed with a weight, it cannot be lifted up. It hath its
name, for that it hath, as it were, a bladder distended with a wheyish humor, which kind of fluid
is observed by Galen in the liver. Those who are thus affected, have their eyes look red, and flow
with tears, neither can they behold the Sun, or endure the light. The cure is performed by cut-
ing off the superficialis substantia, not hurting the neighbouring parts; and then presently put some
falt into the place whence it was taken out (unless the veneration of pain hindereth) that so the place
may be dried and strengthened, and the root of the matter (if any such be) may be consumed, and
hastened from growing again. Lastly, you shall cover the whole eye with the white of an egg dis-
folved in Rose-water, or some other repercussive.

CHAP. IX.

Of the Eye-lids fastened or glued together.

PIxiis cap. 15. Lib. 6.

The cure.

Sometimes it cometh to pass that the upper-eye-lid is glued or fastened to the under, so that
the eye cannot be opened, or so that the one of them may flick or be fastened to the white
coat of the eye, or to the horn. This fault is sometimes drawn from the first original, that
is, by the default of the forming faculty in the womb (for thus many Infants are born with their tin-
kers faftned together, with their fundaments, privities and ears unperforated) the eye in all other
respects being well compouded. The cause of this fault comes from a wound, other-
whises from a burn, field, or impohtimnation, as the breaking of the Smill-pox. It is cured by
putting in a thin instrument, and so opening them; but with such moderation, that you caunot
the horney coat, for otherwise it would fall out. Therefore you must put the end or point of your
probe under the eye-lids, and so lifting them up (that you hurt not the substantia of the eye) divide
them with a crooked Incision-knife.

The incision made, let the white of an egg beaten with some Rose-water be put into the eye, let
the eye-lids be kept open; yes, let the Paracels himself be careful that he often turn upwards, and
liff it up with his fingers, not only that the medicine may be applied to the ulcer, but also that they
may not grow together again. In the night, time let a little pledge dipped in water, and that eit-
ther plain, or wherein some vitriol hath been dissolved, be laid thereon. For thus you shall hinder
the eye-lids from joining together again. Then on the third day the parts or edges of the eye-lids
shall be touched with waters drying without burning or arcmomy, that so they may be cicatrized. But
if the eye-lid adhere to the honyey-coat at the pope's or apple of the eye, the Bastian will either be
quite blind, or very ill of sight. For the fear which ensues will hinder the spaces of things en-
tering to the crystalline humor, and the valve spires from passing forth to the objects. For prognostics
like this cure is subject to a relapse, so that it may be thinned neither
dissipago, left to resolve.

A difeafe of
by diligence nor industry, but that the eye-lid will always adhere and cleave to the eye.

CHAP.
BOOK XVII.

Of the itching of the Eye-lids.

Any have their eye-lidsitch vehemently by reason of falt phlegm, which oftentimes excoriating and ulcerating the parts themselves, yields a faster, which joyes together the whole eye at the night time, as if they were glued together, and makes them warm and bleared. This affect doth not to torment the Patient, that it oft-times makes them require the Physician's help. Wherefore general medicines being premised, the ulcers shall be washed with the following Collyrium: & Agua vulgaris in balneo mora dissipat 5 f. Saccari candi 5 f. Aloe lava & in piparium rotundis 3 f. Pet Collyrium. Which if it do no good, you may use this which follows; & Hunc Collyrium. Which if it do no good, you may use this which follows:

**Chap. X.**

Of the itching of the Eye-lids.

Here are many whose eyes are never dry, but always flow with a thin, acrid, and hot humor which causeth roughness, blearedness, and at length aloes. Such eye-lids are often troublesome all the life time, and is to be cured by no remedy; in some it is curable. Such as have this dislike from their infancy, are not to be cured, for it remains with them til! their dying day.

**Chap. XI.**

Of Lippitudo, or Bleared-eyes.

**Chap. XII.**

Of the Ophthalmia, or inflammation of the Eyes.
there is scarce that pain of any part of the body, which may be compared to the pain of the inflamed eyes. Verily the plagues of the inflammation hath forced the eyes out of their orb, and broken themander in divers. Therefore there is no part of Physick more blazed abroad than for sore eyes. For the cure, the Surgeon shall consider and intend three things, diet, the evacuation of the uttermost and conjunct caufes, and the overcoming it by topick remedies. The diet shall be moderate, ecfewing all things that may fill the head with vapours; and thofe things used that by affliction may strengthen the caufe of the ventricle, and prohibit the vapors from flying up to the head: the Patience shall be forbidden the use of Wines, unless peradventure the difeafe may proceed from a gross and vital humor, 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 houlders and neck with caufation, and without: And laftly, by fritious, as the Physician that hath undertaken the cure shall think fit. Galen after universal remedies for old inflammation of the eyes, commends the opening of the veins and arteries in the forehead and temples, because for the most part the welts thereof are exceeded with acrid, hot, and vaporous blood, caue great and vehement pains in the eye.

For the impugning of the conjunct caufe, divers topick medicines shall be applied according to the four fiery times or feafons that every phlegmon ufually hath. For in the beginning when as the acid matter flows down with much violence, repercussive do much conduce; and tempered with resolving medicines, are good alo in the interce. Ap. rifo. & plant. an. & myrrh. gum.

The cure.

A phlegmic medicine.

Aftigmatic emplafiers.

An auralne.

Plaftam.

The efficacy of Baths in pains of the eyes.

Ad aptum. fol. 7.

Detergent.

Collyria.

The cure.

The atheria of the eye.

The phlegmic thereof.

L.b. 3. cap. 12.

The cure.

The atheria of the eye.

The phlegmic thereof.

L.b. 3. cap. 12.

The atheria of the eye.

The phlegmic thereof.

L.b. 3. cap. 12.

The cure.
Of the Vngula, or Web.

The Vngula, or Web, is the growth of a certain fibrous and membranous flesh upon the upper coat 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 only the Adnata, but also some portion of the Cornea, and coming to the pupil it hurteth the sight therefore. Such a web sometimes adheres not at all to the Adnata, but is only stretched over it from the corners of the eye, so that you may thrust a Probe between it and the Adnata: It is of several colours, sometimes red, sometimes yellow, sometimes dishit, and others white. It hath its original either from external causes, as a blow, fall, and the like, or from internal, as the defluxion of humors into the eyes. The Vngula which is inveterate, and that hath acquired much thicknes and breadth, and besides doth difficulty adhere to the Adnata, is difficultly taken away; neither may it be helped by medicines whereby tears in the eyes are extenuated. But that which covereth the whole pupil must not be touched by the Surgeon, for being cut away, the fear which is left by its density hindereth the entrance of objects to the crystalline humour, and the egrefs of the animal 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, he must first use a spare diet, purging medicines shall be given, and blood taken away by opening a vein, especially if there be great inflammation. For peculiar remedies, the excellence shall be eaten away, or at least kept from growth, by dropping into the eye Collyrium of Vitriol described in wounds of the eyes. But if that be profit nothing by this means, it remaineth, that we take it away with the hand after the following manner:

You shall set the Patient upon a form or stool, and make him lean much back, and be held so firmly, that he may not fall nor stir, then must you open his fore eye, putting therein a fresious clips formerly described in treating of the wounds of this part, and then must you lift up the web, as with a sharp little hook, with the point turned a little in, and put under the midst of the web; when you have lifted it a little up, thrust a needle threaded with a smooth thread between it and the Adnata, then taking hold of the hook, and the two ends of the thread drawn 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 thereunder, beginning at the original thereof with a crooked Incision-kife, and so proceed it even to the end, yet so as you hurt no part of the Adnata nor Cornea.

Then must it be cut off with a pair of scissors, and the white of an Egg beaten with some Rose-water laid thereon, and often renewed. Afterwards the eye must every day be opened, lest coming to cicatization, the eye-lids shall be glued together in that part whereas the web is taken away, which also shall be hindered by putting of common Salve, Sage and Cummin-seed into the eye, being first chamfed and chewed in the mouth. There are some who instead of the crooked Knife separate the web from the Adnata with a Horse hair, 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 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 humor will continually flow; a disease by the Greeks termed Rhyas. 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.
Of divers preternatural Affectis, Book XVII.

Of the Agglumes, Fistula lacrymosa, or weeping of the Fistula of the Eye.

A

The site of the glandule at the greater corner of the eye. The difference of the two kinds and typical fistula's.

The cure.

The efficacy of an actual cautery.

The efficacy of an actual cautery whereof it is more effectual, ready, certain and excellent, than a potential cautery, as I have tried in many with happy success. In my opinion it makes no matter, whether the cautery of Gold, Silver or Iron; for the efficacy it hath proceeds not from the mater, but from the fire. Yet if we must religiously observe and make choice of metals, I had rather have it of Iron, as that which hath a far more drying and astringent faculty than Gold, for that the Element of Earth beareth the chief sway therein, as appeareth by the waters which flow through Iron mines. Wherefore you shall cause to be made a triangular Iron, sharp at the end, that it may the more speedily penetrate. And then the found eye and adjacent parts being well covered and defended, and the Patient being affrighted, sit him self in the very instant of the operation. But a plate of Iron somewhat depressed in the midst, for the cavity of the greater corner shall be applied and fitted to the pained eye. This plate shall be perforated that the hot Iron may pass thereby to the fistula lying thereunder and so may only touch that which is to be cauterized.

After the bone is burnt with the Cautery, a Collyrium made of the whites of Eggs beaten in Plantain and Night-shade waters may be poured into the hole it fell, 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 Echar 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.

What a Saphyloma, is and the causis thereof.

Chap. XVI.

Of the Saphyloma, or Grapes-like swelling.
Book XVII. 
whose Cure is performed by Surgery.

CHAP. XVII.

Of the Hypopyon, that is, the suppurate or putrify eye.

Putchessen is sometimes gathered between the horny and gropy coat from an internal or external cause: From an internal, as by a great defluxion, and oft-times after an inflammation, but externally by a stroke, through which occasion, a vein being opened hath poured forth blood thicker, which may prefently be turned into Quitture. For the cure, universal remes, dies being premised, Copping-glares shall be applied, with Scarifications and Frictions used.

Above and digestive Cataplasms shall be polled from above downwards. Galen writes that he hath sometimes varied this manner, the Curè being opened at the Iris, in which all the coats meet, concord and are terminated. I have done the like, and that with good success, James Guthlacum, the King's Surgeon being prefent, the Quitture being expressed and evacuated after the apertion. The ulcer shall be decorated with Hydramis, or some other like medicine.

CHAP. XVIII.

Of the Mydriasis, or dilatation of the Pupil of the Eye.

M

This is the dilatation of the pupil of the eye, and this happeneth either by nature or chance: The cause.

The former proceedeth from the default of the first conformation, either it is curable, but the other is not, for it is either from an internal cause, the off-spring of an humor flowing down from the brain, whereof physical means must be used for the cure thereof. Note that which causeth by any external occasion, as a blow, fall or contusion upon the eye, must be The cure.

Hereby, that it be cured not by applying reperculvive and antiseptic medicines, the defluxion must be hindered by diet skillfully appointed, phlebotomy, cupping, scarification, friction, and other remedies which may seem convenient. Then you must come to resolving medicines, as the blood of a Turtle-dove, Pigeon or Chicken, rocking-hot out of the vein, being poured upon the eye and the neighboring parts. Then this following Cataplasms shall be applied thereto, & Farínas farina, & bordeis an. 3. i. A digelling rofar. & magnil. an. 3. i. Cum farina. You may also use the follow. Cataplasm


CHAP. XIX.

Of a Cataract.

A Cataract is called also by the Greeks Hypephora, by the Latins Suffusio. Howsoever you a Cataract, term it, it is nothing else but the concretion of an humor into a certain thin skin under the horny coat, just against the apple or pupil, and as, it were swimming upon the watery humor, and whereas the place ought to be empty, oppressing it fell to the internal faculty of seeing, whereby it differenceth from spots and scars growing upon the horny coat and Adema. It forms the differencecovereth the whole pupil, otherwise but the one half thereof, and sometimes but a small portion thereof. According to this variety the fight is either quite lost, weak, or somewhat depauperated, because the animal vivè spiritus cannot in its entire substance pass through the density thereof. The cause of this affection is the dilatation of the pupil and its circumference, which may be drawn thus: For when the Cataract is formed and ripe, it refemblèth a certain thin membrane spread over the pupil, and apparencies of a different colour, according to the variety of the humor wherein it consisteth, one white, another white mixed, yellow, and the like, as if they were cruelly stabb'd and down before their eyes. Sometimes every thing appeareth two, and some whites less than they are, because the vivè spiritus is hindered from passing to the objects by the density of the skin, like as a cloud shadowing the light of the Sun.

Whereas it is that the Patients are duller sighted about noon, and outer and quicker sighted in the morning and evening, be that the little vivè spiritus diffus'd through the air, is differenc'd by the greater light, but contracted by the less. Now it this film cover half the pupil, then all things seem but by half, but if the midst thereof be covered, and, as it were, the centre of the crystalline humor,
C H A P. XX.

Of the physical cure of a beginning Catarrat.

A

Beginning Catarrat is hindered from growing and concretion by diet conveniently and artificially prehended, by either catarrh from wine, especially more strong and vaporous, and farbearing the use of meats, which yield a phlegmatic juice and vapores, as farce, beans, tunpers, chntffus, and lastly, all fuch things as have the faculty of nourishing the humors, and causing defiliation in the body, fuch as are all salt, and fpiced meats, as alfo garlike, onions, muflard. The immediate ufe of woody hurts more than all the reft, for that it more violently exasperates the whole body, weakens the brain and head, and begets crude humors. Let his bread be confolored with fome fennel-seeds, for it is thought to have a faculty of helping the fight, and clearing the eyes, and diftilating the mufthy vapors in the forehead where they can afford to the brain. Wherefore by the fame reafon it is good to ufe Mannsblade of quickleaves, Cuffonade of Rules, and common Smoke-powder, or any fuch like compofed of things good to break wind, or corufluere the ventricle. Phlegmoncy and purging, if they be requisite, fhall be truly appointed: Veneties fhall be reapplied to the shoulders and neck, and phlegmatic matter fhall be diverti and evacuated by the mouth with ufcful manipulations in the morning. There be fome which believe, that a beginning Catarrat may be diftilated and diffuflved by often rubbing the eyc with the breath of a conflamment mofter, or fuch like bright fhining things, and alfo the hot breath of him who holdeth in his mouth, and cheweth the enfeels, and fuddenly brought and diffused over the eye, directly oppofite againft fome bright fhining thing, it may form to have a penetrating, diffusing, diffipating, and alfo a continuing, and drying faculty. Bec- fides, alfo the hot breath of him who holdeth in his mouth, and cheweth fennel-seeds, Nutmeg, Cinnamon, Cloves, and the like, hath a great facility, the eyes being ftrift gentily rubbed with the fingers, it being breathed in near at hand, and often received, to fetc, ac- tuate, relive, deliver, and difflute the humor which is ready to concrete. Moreover, this Calyrium of John Figo is thought very powerful to clear the eyes, through that the lighit, hinder, folution, and difflutes them, if at any time they concrete, and begin to gatten. & Hepatir hberis fani & recov, & citr. iod calami aromatici & melili. 

C H A P. XXI.

By what figure ripe and curable Catarrata may be difcerned from unrife and incurable ones.

Uncurable Catarrata,

I

Let this difflill'd liquor be often dropped into the eyes. But if you prevail nothing by all thefe medicines, and that the cloudy and heaped-up humor doth daily increase and thicken, then must you abtain from medicines, and expect until it be no more heaped up, but thickned, you must it at fimt to be grown somewhat hard: For the it may be couched with a needle: otherwise if this fame skin fhall not be ripe, but more tender then it is ftring, when you fhall come to the operation, it will be broken and thurit through with the needle, and not couched. On the contrary, if it be too hard hard, it will reflit the needle, either will it fuffit if it be only roufed. Wherefore it is requisite that the Surgeon know when it is ripe, and he must diligently obferve the figns whereby he may difcern a ripe Catarrat from an unrifee and that which is curable, from that which is incurable. For only that which is ripe and curable, is to be couched: that which is unrife, that is fuch an one as is more tender, and as it were crude, and that which is more hard and dense, and falt, that which is incurable mufl not be attempted at all.

Curable Catarrata,

F

The foul eye being ftill, the pupil of the fore or fuffufed eye, after it is thubbed with your thumb, is ditalled and difftued for a long while. But it is a common fign of a ripe, as alfo more dense, and consequently uncurable feftion, to be able to fee not diftingufhing no visible thing beside light and brightnefs; for to difcern other objects through that it is not yet ripe. Therefore the foul eye being that prefled, the pupil of the other rubbed with your thumb, is ditalled, colored, fuffufed, and is more difftued that the vifive fpirits by this comprcfion being, as it were, forced from the found into the fore-eye. But thefe following Catarratas are judged incurable, that is, fuch as are greft, fuch as when the eye-lid is rubbed is nothing ditalled or difftued, whose pupil become no broader by this rubbing: For hence you may gather, that the thieving or chafthed is in the optic nerve, fo that how cunningly and well you ferv that the Catarrat be couched, yet will the Pariot puncture blind, you shall do no more good in couching a Catarrat, which is in an eye confironed and waited with a Peflilence. Also that Catarrat is incurable, which is occaflioned by a molt grievous difeafe, to wit, by molt bitter and cruel pains of the head, or by a violent blow. Such a rare of a plaiter-like green, black, livid, citrine and quick-filver-like color, are usually incurable. On the contrary, fuch as are of a Glibour color, or of a sky or fea-water color, with fome little whitefports, yield great hope of a happy and fucceflful cure.
Book XVII. whose Cure is performed by Surgery.

Chapter XXII.

Of the Couching a Cataract.

For you shall know by the fore-mentioned signs that the Cataract is curable, it remaineth that when you attempt the couching thereof, but so, that there be nothing which may hinder. For if you couch a Cataract, the pain of the head, cough, nausea, or vomiting at that time trouble the Patient, rect.
you shall then bellow her labour in vain; wherefore you must expect till those symptoms are gone. Then make choice of a season fiting for that purpose, that is, in the descent of the Moon, when the Air is not troubled with Thunder or Lightning, and when the Sun is not in Aries, because that sign hath dominion over the head. Then let the Surgeon consult a Physician whether purging, or blood-letting be convenient for the Patient, so to relit plethoric symptoms, otherwise ready to yield matter for relapse. Two days after you must make choice of a place furnished with no different or competent light, and the Patient being fasting shall be placed in a straight Chair, so that the light may not fall with the beams directly upon him, but side-wise. The eye which shall be cured, must be made more steady by laying and binding Wool upon the other. Then the Surgeon shall feast and place himself directly against the Patient upon a chair somewhat higher, and holding the Patient put his hands down to his girdle, he shall hold the Patient's legs between his knees. One shall stand at the Patient's back, who shall hold his head, and keep it from shivering by little little shivering he may lose his sight for ever. Then must you prepare and make ready your Needle. The Needle die, and shiver it often into loose thick cloths, that it may be as it were smooth by this motion, and for the performance of the work in hand with the less pain somewhat warmed. It must be made of iron, or steel, and not of gold or silver, it must be also flatted on the sides, and sharp-pointed, that so it may the better pierce into the eye, and wholly couch the Cataract once taken hold of, and left it should slip in the Surgeon's hand, and be his fee'dly, it shall be put into a handle, as you may see by this Figure.

A Needle fitted in a handle for the couching of Cataracts.

All things being thus in a readiness, you must bid the Patient to turn the sight of his eye towards his note, and the Needle must be boldly thrust (for it is received in a place that is void, and easily filled with spices) directly by the coat, and against the middle of the Cataract, yet so as that you hurt no vein of the Adnata, and then by gliding it as it were diversely until it come to the midfl of the pupil and suffusion. When it is come thefeither, the Needle must be inclined from above downwards to the suffusion, and there to yield matter for relapse. Two days after you must make choice of a place furnished with no different or competent light, and the Patient being fasting shall be placed in a straight Chair, so that the light may not fall with the beams directly upon him, but side-wise. The eye which shall be cured, must be made more steady by laying and binding Wool upon the other. Then the Surgeon shall feast and place himself directly against the Patient upon a chair somewhat higher, and holding the Patient put his hands down to his girdle, he shall hold the Patient's legs between his knees. One shall stand at the Patient's back, who shall hold his head, and keep it from shivering by little little shivering he may lose his sight for ever. Then must you prepare and make ready your Needle. The Needle die, and shiver it often into loose thick cloths, that it may be as it were smooth by this motion, and for the performance of the work in hand with the less pain somewhat warmed. It must be made of iron, or steel, and not of gold or silver, it must be also flatted on the sides, and sharp-pointed, that so it may the better pierce into the eye, and wholly couch the Cataract once taken hold of, and left it should slip in the Surgeon's hand, and be his fee'dly, it shall be put into a handle, as you may see by this Figure.

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the needle, it must be let alone, for there is no doubt but that in process of time it may be diffolved by the force of the native heat. There are also some Cataracts which at the first touch of the needle are diffused and turn into a substance like to Milk or troubled Water, for that they are not thoroughly ripe, yet those put us in good hope of recovery, if it be but for this, that they can never afterwards concret into one body as before. Wherefore at the length they are also diffused by the strength of the native heat, and then the eye recovers its former splendor. If that any other symptoms come unlocked for, they shall be helped by new counsels and remedies.

CHAP. XXIII.

Of the dropping of the passage of the Ear, and the falling of things therein.

The Cause.

I T sometimes happeneth that children are born without any holes in their ears, a certain flithly or membranous substance growing in their bottom or first entrance. The same may also happen afterwards by accident, they being ulcerated by some imputation or wound; and the ears that up to some filithly excrescence or fcar. When at the dropping is in the bottom of the cavitty, the cure is more difficult than if it were in the first entrance. For 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 acid and cathartic medicines, in performance of which there is need of great moderation of the mind and hand. For it is a part enwrapped with most exquisite sense and near the brain wherefore by handling it too roughly, there is fear of dilatation of the nerves, and consequently of death.

Sometimes also the preternatural falling of some strange bodies into this passage maketh a dropping of the ears, such as are fragments of Stone, Gold, Silver, Iron, and the like Metals, Pearls, Cherry- stones, or Kernels, Pear and other fuch like Pulp. Now solid and heavy bodies still retain the same magnitude; but Pearls and Kernels by drawing the moisture there implanted into them, swell up, and cause vehement pain by the dilatation of the neighbouring parts, whereas 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 Ear-picks. But if you profit nothing thereby, then must you use fich gimmers as are made for the drawing forth of bullets that deep into the body. Little bones and bodies of the like frothy hardness, shall be forced forth by the brain, provoked to concussion by ftryning, and by dropping some Oil of Almonds first into the passage of the Ear, that the way may be the more slippery, for it will come to pafs by this ftryning, or violence of the internal air so forcibly ftriking passage out, that at length they may be call forth, the mouth and nostrils being stopped with the hand. But if we cannot thus prevail, it remains, that we cut open the passage with an incision knife, so much as shall be sufficient for the putting in and uling of an Instrument to extract them. If any creeping things of little creatures, as Fleas, Ticks, Pinnifes, Gnats, and the like, which sometimes happeneth, shall get therein, you may kill them by dropping in a little Oil and Vinegar. There is a certain little creeping thing, which for piercing and getting into the Ears, the French call Perfu-evoke (we an Ear-wig,) this if it chance to get into the Ear, may be killed by the fore-faid means; you may also catch it, or draw it forth by laying half an apple to your Ear, as a bait for it.

CHAP. XXIV.

Of getting of little bones and fich like things out of the Jaws or Teeth.

Sometimes little bones and fuch like things in eating greedily ufe to fixe, or as it were fallen themselves in the Jaws or Teeth. Such bodies if you can come to the light of the mouth, shall be taken out with long, slender and crooked Mallets made like a Crab's beak. If they do not appear, nor there be no means to take them forth, they shall be call forth by coughing vomit, or with swallowing a croft of bread, or a dry fig gently chawed, and fo swallowed; or else they shall be thrust down into the thorax, or placed back with a leek, or some other fuch long and fift crooked body anointed with Oil and thrust down the throat. If any fuch like thing fhall get into the Wazon, you must caufe coughing, by taking sharp things, or fety ftriking 1; to call forth whatsoever is there troubled.

CHAP. XXV.

Of the Tooth-ach.

O f all pain, there is none which more cruelly tormenteth the Patients than the Tooth-ach. For we for them oftentimes after the manner of other bones touffer inflammation, which will quickly suppurate, and they become rotten, and at length fall away piece by piece; for we lett them by daily experience to be eaten and hollowed, and to breed Worms, some portion of them preserving. The cause of fuch pain is either internal, or external and primitive. The internal is hot or cold defluxion of humours upon them, filling their orifices, and then causing gently driving out the teeth, which is the region that they lend sometimes for forth, that the Patient neither chaw, nor can make ufe of them to chaw for fear of pain; for that they are broke in their sockets by the relaxation of the Gums, caused by the falling down of the defluxion. When they are rotten and perforated even to the roots, if any portion of the liquor in drinking fall into them, they are pains as if you thrust in a pin or bodkin, the bitterness of the pain is fuch. The signs of a hot defluxion are thump and pitching pain, as if needles were thrust into them, a great pufation in the root of the pained Tooth and the Temples, and fome eafe of the pain is fuch. The figns of a cold defluxion are fteep and piercing pain, with tender and crooked Mallets made like a Cranes beak. If they do not
the Teeth grow loose by the means of the decaying Gums, the disease is then incurable: but
acrid or watery humours from the brain, or through want of nourishment in old bodies.

If Teeth, made upon the right or left side, but I being once troubled with grievous pain in this kind, followed with Pitch and Mastic, and applied to the temple on that side where the tooth aches, causing the pain is carried from within outwards. But of what nature soever the matter which causes the Patient begins to be somewhat better and more at ease. For by the strength of Nature the tumor and put into the hollow tooth, will make it and

Preparations for the mouth.

He Teeth are also troubled with other preternatural affections. For sometimes they shake presently to fall away in pieces. When the gums and cheeks are swollen with a manifest tumor, then the

Three scopes of curing.

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Old medicines in such kind of remedies. Koks, Balaustii, and Sumach.

Of curing.

For in the lights of Nature the tumor carrying the pain is carried from within outwards. But of what nature ever the matter which causes the pain be, it is convenient to intercept the course thereof with

Chap. XXVI.

Of other Affections of the Teeth.

The Teeth are also troubled with other preternatural affections. For sometimes they shake by relaxation of the Gums, or else become corrupt and rotten, or have Worms in them. Causes of both or else are seen on edge. For the first, the Gums are relaxed either by an external or pri-

peculiar

3 you

Causticks.

Vesicatories.

Vesicatories.

Vesicatories.

Vesicatories.

Vesicatories.

Vesicatories.

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Vesicatories.
A Hillory.

The causes of setting the teeth on edge happen to them by the immoderate eating of acrid or tart things, or by a cold defluxion, especially of acrid phlegm, falling from the brain upon the teeth, or the continual ascent of vapours endued with the same quality, from the orifice of the ventricle to the mouth, or by a cold defluxion even to their roots, and being there contained, it putrefies, and becoming more acrid, it doth not only draw the teeth into the contagion of its putrefaction, but also perforates and corrodes them.

The putrefaction may be corrected, if after general Medicins you put Oil of Vitriol or aqua fortis into the hole of the eaten tooth: or else, if you burn the tooth itself to the root with a small iron wire being red hot: you shall thrust this hot iron through a Pipe or Cane made for the same purpose, left it harm any found part by the touch thereof, and thus the putrefaction, the cause thereof, and the affection may be had. But if the hole be on the one side between two teeth, then shall you file away so much of the found tooth, as that you may have sufficient liberty to thrust in your wire without doing any harm.

Causa of Worms breeding by putrefaction in the roots of the teeth, shall be killed by the use of causticks; by gargles or lotions made of Vinegar, wherein either Pellitory of Spain hath been steeped, or treacle and corrosive liquor, or else if you burn the tooth itself to the root with a small iron wire being red hot: you shall thrust this hot iron through a Pipe or Cane made for the same purpose, lest it harm any sound part by the touch thereof, and thus the putrefaction, the cause thereof, and the affection may be had.

Setting the teeth on edge happens to them by the immoderate eating of acrid or tart things, or by the continual ascent of vapours induced with the same quality, from the orifice of the ventricle to the mouth, or by a cold defluxion, especially of acrid phlegm, falling from the brain upon the tooth, or by the too excessive use of cold or stupefying liquors. This aifed is taken away, if after general Medicins and Shinning the things that cherish the disease, the teeth be often washed with aquafortis, or good Wine wherein Sage, Rosemary, Cloves, Nutmegs, and other things of the like nature have been boiled.

C H A P. XXVII.

Of drawing of Teeth.

Teeth are drawn, either for that they cause intolerable pains, which will not yield to Medicins, or else for that they are rotten and hollowed, so that they cause the breath to smell, or else for that they infect the found 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 plucked out, they must oft-times be broken of necessity, that so you may drop some stick thing into their roots, which may take away the fente, and consequently the pain. 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 brain are shaken with great 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 flake them with your fingers, and do this until they begin to be loose; for a tooth which is fast in, and plucked out with one pull, oft-times breaks the jaw, and brings forth the piece together therewith, whereas follows a Fever and a great flux of blood not easily to be stayed (for blood or pus flowing out in great plenty is, in Cleft's opinion, the sign of a broken bone) and many other malign and deadly symptoms. Some have had their mouths drawn so awry, during the rest of their lives, that they could scarce speak. Besides, if the tooth be too deep, then the hole prepared 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...
it is twitched more straitly to be plucked out, and the root remain, ready in a short time to cause more grievous pain. But judgment must be used, and you must take special care, lest you take a sound tooth for a pained one; for oft-times the Patient cannot tell, for that the bitterness of pain by neighbourhood is equally diffused over all the Jaw. Therefore for the better plucking out a tooth, ob.

...the three things which I have mentioned, the Patient shall be placed in a low seat, bending back of drawing his head between the Tooth-drawer’s legs; then the Tooth-drawer shall deeply scarifie about the tooth, separating the gums thence with the instruments marked with this letter A, and then if spoiled as it were of the wall of the gums, it grow loose, it must be shaken and thrust out, by forcing it with the three-pointed Levatory noted with this Letter B; but if it be too full, and not air at all, then must the tooth be taken hold of with some of these toothed forcipae marked with these letters C D E, now one, then another, as the greatness, figure and size shall seem to require. I would have a Tooth-drawer expert and diligent in the use of such toothed forcipae, for unless one know readily and cunningly how to use them, he can scarce to carry himself; but that he will force out three teeth at once, oft-times leaving that untouched which caused the pain.

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 press the flesh of the gums on both sides with his fingers whereas he took but the Tooth, that so the socket that was too much dilated, and oft-times torn by the violence of the pluck, may be closed again. Lastly, The mouth shall be washed with Oxycrate, and if the weather be cold, the Patient shall take heed of going much in the open air, lest it cause a new defluxion upon his Teeth.

CHAP. XIV.
Of cleaning the Teeth.

Pieces 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 sweetness of the breath. He that would elchew this, ought presently after meat, to wash his mouth with Wine mixed with Water, or Oxycrate, and well to cleanse his teeth, that no slimy matter adhere to them. Many folks teeth by their own default gather an earthy filth of a yellowish colour, which eats into them by little and little, as rust eats into iron. This rusty filth, or as it were mould, of the teeth doth also oft-times grow by the omitting of their proper duty, that is of chawing. Whence...
force this fliny fluid proceeds, we must get Deocribes to itch it off withall, and then the teeth must be perfectly washed with aqua fortis and aqua viva mixed together, that if there be any thing that hath escaped the Deocribes, it may be all fetched off: yet such sialor washings are hurtful to the found teeth, for they bit by little and little contumace and waste the flint of the gums.

Deocribes shall be made of the root of Marsh-mallows boiled in white Wine and Alum; and, as when the teeth are loose, we must abstain from such things as are hard, to be eaten and chewed, but much more from breaking of such things as are of a bony consistence, so also here we must than these things that by their toughness stick to the teeth. Many for the cleaning of the teeth commended Powder made of Slate-stones, Purple-shells, Furnace-stone, burnt Alum and Harts horn, and a little Cinnameum, which is a singular remedy for the teeth howsoever affected. Many others are content with Lead only to be eaten and beaten, but this following Water is very effectual to whiten the teeth.

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\text{CHAP. XXIX.}
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Of the impediment and contrariation of the Tongue.

The Tongue is sometimes tied and short from the nativity, as when the liberty of the Tongue is restrained by the subjacent and neighbouring, as well membranous as muscular, being either too short or too hard. Sometimes this disease happens after they are born by some accident or preternatural affect, as by too hard a fear left by the healing of an Ulcer under the Tongue. The Patient at his beginning to speak, is too slow in speaking, but presently leaving his slowness, he becomes too quick, so that he stammers. If the disease proceed from the abrasion and thinness of the ligamental membrane lying under the Tongue, then the incision shall be made broad-wise, having great care that the veins and arteries which are short, be not violated, for fear they should cause an Hemorrhagie, not easily to be stayed. Then the mouth shall be presently washed with Oxy-

crate, and some lint dipped in Syrup of dried Roses, or Honey of Roses put into the middle of the incision, lest the part of the ligament, especially in the night time when the Tongue is silent and at rest, should grow to the rest of the ligament. For the same purpose the finger shall be often thrust this way, and the Tongue more violently rolled up and down and thrust out of the mouth. Yet sometimes this ligament is too thick and short, and therefore holds down the Tongue so close, 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 be thrust through it, and so the thread shall be tied, stretched and tightened every day, until by little and little this ligamental tie of the Tongue, which by its immoderate thinness intercepts the liberty of the motion, shall be consumed and broken.

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\text{CHAP. XXX.}
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Of superfluous Fingers, and such as stick together.

The difference.

Each hand hath naturally five Fingers only; whatsoever is more or less is against Nature: and if there be fewer, it is 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. These are either wholly fleshly, or have bones of their kind and nails upon them. Those which are of a bony nature, do either arise from the joints of the natural Fingers, and are jointed like them, and so are off-times movable, or else from some middle space of a joint, and these have not power to stir or move. Now they are sometimes equal

Cutting Mullets neatly made for the cutting off superfluous Fingers,

in magnitude to the natural Fingers to which they grow, yet more frequently they are shorter. Those which are only fleshly, are easily amputated and made even with a razor; but those which are also bony cannot be cut off, unless with the cutting Mullets here described, and this is a disease of the Fingers in number. There is also another disease in Fingers, for they sometimes stick together,
Book XVII. whose Cure is performed by Surgery.

gather, and otherwhiles they are very little separated. This fault happens either from the first original, by the error of the formative faculty, or else it happens afterwards by accident, as by a Wound, or Burn ill cured. For neighbouring Fingers being ulcerated do easily grow together, unless they be kept asunder by a linen rag. And if they by chance shall grow together by a little and thin skin, they shall sooner or later be divided with a sharp Razor; but if they be bound by the interpolation of a more gross and dense substance, to wit, the nerves, tendons, and vessels being knit together on each side, it will be but not to meddle at all with the dividing them.

Neither must we omit, that many have their nails run with such bony thornpicks into the flesh of their fingers lying under them, that they cause much cruel pain; neither commonly do you avoid any thing by purging them for growing up within a while after, they press downwards again with the more violence. Therefore the Surgeon is often forced to cut away all the flesh wherein the thornpicks of the nail 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 purging away all little and little, the callous hardnes, and then laying a head of Garlic beaten thereon. Yet the Cure is more quick and certain, which is performed by caustics, as aquafortis, or Oil of Vitriol.

C H A P. XXXI.
Of the too short a Prepuce, and of such as have been circumcised.

W hen an inch Prepuce of fine skin is too short, it cannot cover the Glans. This happens either by Nature, or Wit, by the first constitution, or afterwards by some accident, as to those whom Religion and the custom 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 there is between the two membranes of the Prepuce, be not cut in hand. Hence it is drawn downward by extension, until it covereth the Glans, a decisive emplastment being first put between it and the Glans, left they should grow together. Then Pique being fast put into the urinary passage, the Prepuce shall be there bound until the incision be cicatrized. This cure is used to the Frens, when having abjured their Religion full of superstitions, for handntoffed fate, they would cover the Nut of their Yard with a Prepuce, and so recover their cut-off fingers.

C H A P. XXXII.
Of Phimosis and Paraphimosis, that is, to great a constringition of the Prepuce about the Glans or Nut, that it cannot be laced or uncovered as pleases.

T he Prepuce is straitned about the Glans two ways: for it either covers the whole Nut, and to straightly encompasseth the end thereof, that it cannot be drawn upward, and consequently the Nut cannot be uncovered, or else it leaves the Glans bare under it, being fastened so flatly to the roots thereof, that it cannot be turned up, or drawn down, or over the Glans. The first manner of constringition is termed Phimosis, the latter Paraphimosis. The Phimosis happens either by fault of the first constitution, or else by a fear, through which occasion the Prepuce hath grown leff, as by the growing of Warts. Now Paraphimosis is often occasioned by the inflammation of the Yard, by impure copulation; for hence Ulcers breed between the Prepuce and Glans, with swelling and great inflammation, so that the Prepuce cannot be turned back. Whence it is that they cannot be laced 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 by amputation; but if a fear be the cause of the constringation of the prepuce, the Patient being placed in a convenient fite, let the Prepuce be drawn forth and extended, and as much as may be stretched and enlarged, then let the fear be gently cut in three or four places on the inner fold with a crooked knife, but so, that the gashes come not to the outside, and let them be an equal distance each from other. But if a leffly occurrence, or a Wart shall be the occasion of this straitness and constringion, it shall be corrected by the fame remedies, by which the Warts of the Womb and Yard are consumed or taken off. But when as the Prepuce doth chiefly adhere to the Glans on every side, the Cure is not to be hoped for, much less to be attempted.

C H A P. XXXIII.
Of those whose Glans is not rightly perforated, and of the too short or strait ligament, bridle, or cord of the Yard.

S omereg at their birth by evil conformation, have not their Glans perforated in the middle, but have only a small hole underneath, toward the bridle and 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 constitution, the food is hindered from being cast directly into the Womb. The Cord is thus: In the manner of a stenosis, and is thus performed. The Prepuce is taken hold of and trodled 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 underneath. But such as have the bridle or ligament of the Yard too short, so that the Yard cannot stand straight, but crooked, and as it were turned downwards in this all the generation of children is hindered, because the food cannot be cast directly and plain
ritually into the Womb. Therefore this ligament must be cut with much dexterity, and the wound must be dressed in the manner of other wounds, having regard to the part.

Children also are sometimes born into the World with their fundament unperforated, for a skin preternaturally covering the part; hinders the passage; for the excrescence thence 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 birth.

CHAP. XXXIV.
Of the Caufes of the Stone.

The Stones which are in the bladder have for the most part had their first original in the reins or kidneys, to wit, falling down from chance by the Ureters into the Bladder. The cause of this is two-fold, that is, material and efficient. Cross, toph and vivid humours, which crudities produce by the distempers of the bowels and immediate excreences, chiefly and immediately after meat, yield matter for the Stone: whence it is that children are more liable than those of other Ages. But the efficient cause is either the immediate heat of the kidneys, by means whereof the matter of the humours is resolv'd, but the greater and more earthly crudities, and hardened as we see Bicks hardened by the Sun and Fire, or the more tender heat of the bladder, sufficient to take into a stone the faces or dregs of the Urine gathered in great plenty in the capacity of the Bladder. The strangeness of the Ureters and urinary passage may be accounted for by this means the thinner portion of the Urine flows forth, but that which is more frequent and muddy being held behind, growth as by tafe upon tafe, by addition and collection of new matter into a tooxny mass. And as a quick often times dipped by the Chandler into melted Tallow, by the copious adhesion of the tallowy substance presently becomes a large Candle; so the more griefs and vivid faces of the Urine flow as it were in the vessel of the gathered gravel, and by their continual appulse are at length weighed and fashioned into a true stone.

CHAP. XXXV.
Of the Signs of the Stone in the Kidneys and Bladder.

The signs of the Stone in the Reins, are the subduing of the vital soul or yellow Sun in the Urine, a certain obscure itching at the Kidneys, and the sense of a weight or heaviness at the lungs, a sharp and prickling pain in moving or bending the body, a numbness of the thigh of the same side, by reason of the compression caused by the stone, of the nerves defending out of that place. Signs of the Stone in the Bladder, are a drowsy pain when the stone is in the Bladder, an uneasiness of walking, when the stone is in the Bladder; and a deep pain running to the end of the Yard, and there is a continual itching of that part, with some occasions of the stone to scratch it; hence also by the pain and heat there is a tension of the Yard, and a frequent and neglectful desire to make water, and sometimes their urine cometh from them drop by drop. A most grievous pain tormenteth the Patient in making water, which he is forced to thaw by stamping with his feet, bending of his whole body, and the grating of his teeth. He is oft-times tormented with several pains, that the Spintiber being relaxed, the right gut falleth down, accompanied with the swelling heat and pain of the Hemorrhoids veins of that place. The cause of such torment is the frequent thriving of the bladder to expel the stone wholly contrary to the nature thereof, whereby the expansive faculty of the stone and all the parts of the belly come as it were for supply. The formation of the Urine is grofs and vivid, and oft-times like the whites of Eggs, which argueth the drowsiness of the patient's head not augmenting 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 bitterness of pain; yet may it more certainly be known by putting in or searching with a Catheter, that they may serve for every body bigger or lesser, as the body shall require, and annoyed with oil or butter, shall be thrust with a skilled hand into the passages of the Urine, and into the capacity of the bladder. But if the Catheter cannot come to that capacity, the Patient shall be placed in such a posture, then shall he be laid upon his back on a couch, or the feet of a bed, with his knees bent, and his heels drawn to his buttocks, after which manner he must almost lie when he is to be cut for the stone, as shall be shown hereafter. For thus the Catheter is more easily thrust into the Bladder, and thers there a stone by the making and obturating body. You must have handy Catheters, that they may serve for every body bigger and lesser, and these must be crooked, smooth and hollow. When being thrust into the urinary passage (which before unwares I omitted) they come to the neck of the bladder, they must not be thrust straight into the bladder, but taking hold of the Yard with the left hand, they must be gently thrust with the right directly into the bladder; especially in men, by reason of the length and crookedness of the way, which tends in the form of this letter S. It is not for women by reason of the thorntifs and flinches of the neck of the bladder.

The Figure of the neck of the Bladder in Men and Women.

The Figure of the passage of the Bladder in Men and Women.
HEN the Stone is cast forth of the Kidney (whereas it bred by little and little) and is so small, it cannot be dropped into the cavity of the ureter, except it be driven out of one of the ureters; that it wholly stoppeth, and death ensueth by the suffocation and extintion of the native heat, by the Urine flowing back by the rivulets of the veins over all the body. But if it be small, like a grain of sand, it may be cast forth from one of the ureters, and pass through the body, and the patient not perceive it.

The stone, if it be large, and doth not pass freely, will cause a cruel pain with gripings, with often desire to go to stool and make water, but oft-times do neither; for such oft-times have their bellies dilated with flatulencies; and by sneezing and coughing, or any other concussions of the body, a pricking pain is felt, especially if it be either rough, or have sharp points like horns. This pain is communicated to the hip and thigh by sympathy, and some have the stones drawn up as it were with great violence. To these may be added the colick, choleric vomiting, and almost a general sweat. The stone in the kidneys is most commonly bred in such as are ancient, by reason of the weaknesse of the expulsive faculty: But the stone in the bladder happeneth to such as are more young, because the native heat is more vigorous in youth, and strong and inordinate motions increaseth the strength of the expulsive faculty. When the stone is in the bladder, and the urine appeareth bloody, it is the sign of a small, as also a prickly and rough stone, for thus it more easily entereth into the neck of the bladder, and exacerbateth it being stopped, whence the blood cometh away with the urine, and most cruel pain, as why stones of needles thruft into the flesh, especially after labour and much exercise: on the contrary, a large and more smooth stone will not cause such tormenting pain, and it causeth a milky water. The shapes of stones in the kidneys are various, according to the variety of the strainers through which they pass whilst they are bred. Verily I have seen stones which represented the figure of greyhounds, hogs, and other creatures, and things wholly contrary to man's nature, by the production of their prickles and as it were branches. Some are square, others long and like a finger, others of a round figure with many protuberancies like a pine-apple kernel; neither is the variety less in magnitude, number, and colours; for some are yellowish, others whitish, red, sable-coloured, or some other like, according to the various temper of the affected bodies. The stones of choleric and lean men usually concretion by preternatural heat and dryness, but those of phlegmatick or fat bodies, of a certain congelation as it were, and obstruction of the passages. A stone falling sometimes from the bottom of the bladder into the passages of the urine quite stops it up, and thence followeth a total suppreffing of the urine. Therefore then the patient shall be placed upon his back and his legs being lifted up high, he shall be shaken and tossed up and down just as one would shake a sack to fill it, and thus it is forced back into the bladder, whence it came, from the passage of the urine wherein it was got, yet it may also be forced back by thumping in a catheter. The pain which affliceth such as have the stone is sometimes continual, yet more frequently it cometh by fits and returns, sometimes monethly, otherswhiles yearly. Such as have the stone in the kidneys make for the most part water in urine. Women are not so subject to the stone as men, for they have the neck of their bladder more short and broad, as also more straight; whereas the stone by reason of the concretion of the passages of the urine is evacuated in gravel, before it can be gathered and grow into a stone of just magnitude; yet stones breed in some women, and almost equally as big as in men, and therefore they are to be cured by fiction and the like remedies. When the stone exceedeth the bigness of an egg, it can scarce be taken away without tearing of the bladder, whence happeneth an involuntary shedding of the water, curable by no art, because the bladder, seeing it is nervous and without blood,
Let must first be appointed, which by the convenient use of the six drugs Not Natural (as they term them) may happen small stone of gros, tough, and solid humour in our bodies. Therefore cold and cloudy air is to be thinned. They must dilate from Fish, Beef, Pork, Water-fowl, Poultry, Calves, Mill-meats, fried and hard Eggs, rice, Cane, all Puffs, unseasoned bread, and lastly, all manner of obstructing meats. Also Garlic, Onions, Leeks, Mustard, Spices, and lastly, all things which increase the heat and humour must be thinned, especially if you fear that the stone is concrete by the heat of the reins. Standing and muddied Waters, thick, and troubled Waters, and fish kind of Liquors must be echeewed. Solace in meats, and fish kind of Liquors must be thinned, as that which breeds crodities. Also long watching and continual labour because they inflame the stone, cause crudities and preternatural heat; must be carefully echeewed, as also more vehement passions of the mind. If the body be plethoric, then it must be evacuated by Phlebotomy, Purging, and Vomiting, which is accounted for a singular remedy for the prevention of this disease. For the performance of all these things a Physician shall be consulted. But because Physicians are not in every place and always at hand, I have thought good to set down these: following Apotheke: yet we must first remember this Counsel of Galen, the use of Diuretics and strong purging Medicines is hurtful, as often as there is inflammation in the reins and bladder, for to the converse of the humour to the affected parts is the greater, whence the inflammation and pain are increased.

Book XVII. whose Cure is performed by Surgery.

four ounces three hours before dinner.]

Book XVII. 395.

Meat. The following Powder is very effectual to dissolve the matter of the Stone.


but let them be beaten severally and make a Powder, whereof let the

Eth the Patient in that place whereas the Ifone Ificketh, which alfo by conent may be communicated

in jufficienti quantitate aqu£ pro incejjucoquantur ifia omnia inclufa fiacco:

of fome two miles, or if he can have no opportunity to do fo, then let him run up and down a pair

the power of thefe remedies, then the Patient muft be put into a Semepium,that is, a Half-bath,made

but let it be kept long, that so it may have the more power to difeufs the wind.

Signs of the

Stone, with a gentle fire, afterwards let them be beaten severally and make a Powder, whereof let the

The following Figure.

if the Patient remain as long as is fufficient in thefe rightly made, the pain is mitigated, the exten-

The following Cataplaft shall be profitably applied to the grieved place, to vitail, the loins,

Clysters.

Clysters.

in fufficienti quantitate aqu£ pro incejjucoquantur ifia omnia inclufa fiacco:

when the fpirits are diluted, and the powers refolved by too long flay therein. But on the contrary,

into the bladder. But if it be not moved by this means any thing at all out of the place, and that the

into the bladder did any thing avail, yet notwithstanding he fhall try

him for the day, and relax the faculty, as you may fee in the following Figure.

also the fame decodtion may be

into the bladder. But if it be not moved by this means any thing at all out of the place, and that the

the water of Pellitory of the Wall and White Wine. Let fridfions of the whole body be made from

or any other thing in thefe hrtf palfages of the yard and neck of the blad-

A Decotion

for a Bath.

into the bladder, but before the Patient entered into the bath the putting of a Carafe into the bladder did any thing avail, yet notwithstanding he fhall try

the water of Pellitory of the Wall and White Wine. Let fridfions of the whole body be made from

into the bladder. But if it be not moved by this means any thing at all out of the place, and that the

Val. sem. melil. anetbi, an.

there will be danger left the guts being dilated, fhould more prefts upon the

in the following Figure.

in the following Figure.

An anodyne

or any other thing in thefe hrtf palfages of the yard and neck of the blad-

and relaxing faculty, as Oil of Sweet Almonds newly drawn, and that without fire, and mixed with

of fome two miles, or if he can have no opportunity to do fo, then let him run up and down a pair

in jufficienti quantitate aqu£ pro incejjucoquantur ifia omnia inclufa fiacco:

then prest the patient in thefe rightly made, the pain is mitigated, the exten-

into the bladder did any thing avall, yet notwithstanding he fhall try

the patient in thefe rightly made, the pain is mitigated, the exten-

into the bladder, and that without fire, and mixed with

of the waters are diluved, and the powers refolved by too long flay therein. But on the contrary,

into the bladder. But if it be not moved by this means any thing at all out of the place, and that the
Of divers preternatural Affectts, Book XVII.

Signs of the Stone fallen out of the ureters into the bladder.

...Quantumque sufficit, et ad usum praelimini. After, by these means, the stone forced out of the ureters is fallen into the bladder, the pain presently (if there be but one stone, for sometimes more with much gravel do again 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 unless he be very weak, it is best that he ride and walk about, and take 

\[\text{cumulì an. i}.\text{fann. cicer. quantumfuffleit}^\text{f} \text{fate cataplafma ad usum prædium.}\]

After, by these means, the stone forced out of the ureter is fallen into the bladder, the pain presently (if there be but one stone, for sometimes more with much gravel do again 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 unless he be very weak, it is best that he ride and walk about, and take 3 iv. of frutes Lithobridae in four doses with white Wine, or the broth of red Ciceri three hours before dinner and supper. Besides, let him plentifully drink good Wine, and after he hath drunk, let him hold in his Urin as long as he can; that so it being gathered in great 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. 

\[\text{Re Syrupi capill. ven. }\text{§ j. aqüæ alcapögi § iij. oleo scorpionum }\text{§ f.}
\]

Let it be injected into the bladder with a syringe.

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C H A P. XXXIX.

What must be done to 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 it gently with his fingers to the end of the Yard, the passage being first made slippery by injecting some Oil of Sweet Almonds. But if it stop in the end of the Glans, it must be plucked out with some crooked instrument, to which if it will not yield a Gimblet with a Pipe or caele 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 sharp Screws, like ordinary Gimblets.

The delineation of a Gimblet made to break the stones in the passage of the Yard, together with its Pipe, or Cafe.
Book XVII.

Who cure is performed by Surgery.

The effigies of another leaff Gimblet.

Verily what Gimblets foever are made for this purpose, their body or point must be no thicker than a small Fraser; lest 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.

When stones 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 thick, hard, rough and remote from the end of the Yard, than that it may be gotten out by the means formerly mentioned in the precedent Chapter, and if that the urin be wholly stoppèd therewith then must you cut the Yard upon the side with a straight wound: for you must make incisions on the upper part, for fear of a flux of blood, for a large vein and artery lieeth thereunder; nor in the lower part, for if it would force ever heal again, for that it is a blood-lost part, and besides, the continual and acid falling of the urine would hinder the agglutination: wherefore the incision must be made on the side, on that part whereas the stone most readily and swiftly out. For that part is the more fishy, yet yield the end of the skin of the prepuce must be much drawn up so to cover the Glass, which being done, the Urethra shall be tied with thred a little above the stone, that to the stone may be fluid 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 Glass, is to be let go back again; for so it will come to passe that a whole part of the skin may cover the cut Yard, and so it may be the more speedily united, and the urin may naturally flow out. I have by this means oftentimes taken forth the stone with the instruments here delineated.

Instrument 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 agglomerative Medicin following. I. Turb. ton. 3 liv. gum. chino. 3 j. jangu. draco. & mar. sicc. in 4. As this medicament is very bitter, then the whole Yard must be covered over with a retrospective Medicin made of the whites of Eggs, with the Powder of Bole Armenick, Alces, farina vulcanale, and Oil of Roses. Lastly if need require, a Wax-candle, or Lead-en fire augmented with Venice Turpentine shall be thrust into the Urethra, to halten the agglutination, and retain the natural smoothness and straightness of the urinary passage, lest peradventure a candle grow therein.

CHAP. XLI.

What manner of Section is to be made when a stone is in a Boy’s Bladder.

Hitherto we have shewed, by what means it is convenient to draw small stones out of the Urethra, Bladder, and passage of the urin; now will we briefly shew the manner of taking of greater stones out of the bladder, which is performed by incision and iron instruments, and I will deliver the practice thereof first in children, then in men, and lastly in women. First therefore let the Surgeon take the Boy (upon whom it is determined the work shall be performed) under the arm-holes, and give him five or six shakes, that so the stone may descend the more downwards to the neck of the bladder. Then must you cause a strong man, sitting upon an high stool, to lay the child upon his back with his face from him, ward, having his hips lying upon his knees. The child must lie somewhat high, that he may breath the freer, and let none the nerves or part be too much frenched, 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 bended back, with the child, that putting his legs to his harms, that he draw them up as much as he can, aud let the other be drawn back; for this ease of the child much conduceth to well performing of the work. Then let the Surgeon thrust two of the fingers of his left hand as far into the child’s fundament as he is able, but when the Yard may be fully cut.

How to make the stone appear by what means it is convenient to draw small stones out of the Urethra, Bladder, and passage of the urin; now will we briefly shew the manner of taking
Of divers preternatural Affectis, Book XVII.

Where to divide the pri-

Nature very powerful in children.

Where to divide the pri-

Hocks to pull stones forth of Childrens Bladders.

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S Eeing we cannot otherwise help 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, return to the work: for the Patient cannot but be weakened by purging and bleeding. Also it is expedient for some days before to foment the Privies with such things as relax and soften, that by their yielding, the stone may the more easily 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 loins and back, so that he may lie half upright with his thighs lifted up, and his legs and heels drawn back to his buttocks. Then shall his feet be bound with a ligature of three fingers breadth cast about his ankles, and with the heads thereof being drawn upwards his neck, and cast about it, and so brought downwards, both his hands shall be bound to his knees, as the following figure sheweth.

The Figure of a man lying ready to be cut of the Stone.

The stone being drawn out, a small pipe shall be put into the wound, and there kept for some space after, for reasons hereafter to be delivered; then his knees shall be bound together, for thus the wound will the sooner close and be agglutinated. The residue of the stone must be plucked forth with the instrument here expressed.

How to cut men for the taking out of the Stone in the Bladder.

What to be done before dilfection.

How to lay the Patient.

Why the Probe must be slit on the outside.
He shall gently wring the Probe, being thrust in, towards the left side, and also he who standeth on the Patient's right hand, shall with his left hand gently lift up his cords, that so in the free and open space of the left side of the Perineum, the Surgeon may have the more liberty to make the incision upon the Probe, which is thrust in and turned that way. But in making this incision, the Surgeon must be careful that he hurt not the seam of the Terinum and Fundament. For if that seam be cut, it will not be easily consolidated, for that it is callous and bloodless, 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 hemorrhoidal veins, whereas a bleeding may ensue, which is scarce to be stopped by any means, or that he may rend the sphincter muscle, or body of the bladder, so that it never can 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 pulled after awkwardly. Neither must the incision thus made, exceed the bigness of one's thumb, for that it is afterwards enlarged by putting in the Crows-beak and the Dilater, but more by the stone as it is plucked forth. But that which is cut, is neither so quickly nor easily healed up as that which is torn. Then presently put into the wound 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 and prominent head, whereby it may be put into the described cavity of the Probe, and they are noted by the letters A A, then 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.

Now the Probe is to be drawn forth, and the Guiders to be thrust and turned up and down in the bladder, and at length to be fixed there by putting in the pin; yet such Guiders as want a Pin are fitter for the hand, and are by some called fleshers. Then must they be held betwixt the Surgeon's fingers. It will be also necessary for the Surgeon to put another instrument called the Duck's-bill between the two guiders into the capacity of the bladder, he must thrust it in somewhat violently, and dilate it to thrust in with both his hands, turning it every way to enlarge the wound as much as shall be sufficient for the admittance of the other instruments which are to be put into the bladder; yet it is far 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.
The effects of an Instrument called a Ducks-bill.

Which if you have not in readiness, and the largeness of the stone require more dilatation, then must you put in this dilator; for being put into the bladder, and the handle pressed together, it will dilate the incision as much as you desire.

The Figure of a Dilator shut and opened.

The wound by the help of this Instrument being dilated as much as is sufficient, then put in the straight Ducks-bill before described, or the crooked here express.

Crooked Forcipes like a Ducks-bill.

The stone may be sought and taken hold of with these Instruments, and being taken hold on, the branches of the Instrument shall be tied together, lest they should suffer that to slide away which
which they have once taken hold of. Neither shall the stone be suddenly plucked out, but easily shaken to and fro, and at length gently drawn forth. Yet you must beware that you do not prick it too sharply in the foreskin, lest you should break it in pieces: Some, lest it should fall away, when they have once taken hold thereof, put their two fingers into the fundament, and put them about the stone that it may not fall out, nor slip back again, which I think conduceth much to the easy extraction of the stone. There are others who strengthen this comprehension by putting in on each side above and below the stone, winged instruments, so that the stone can slip forth on either side.

Winged Instruments to hold the stone with the Duck-beak.

The Figure of another.

The Figure of another winged Instrument, the end of whose handle is fitted by a flerm, at also a bended iron plate, which is marked with the letter A, for the firmer holding thereof.

After the stone is by this 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 more stones 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 loop or chanter.
A Clesner or Scoop whereby you may search whether there be any more stones behind, or else cleanse or purge the bladder from gravel, stones of blood, and other such bodies as oft to remain behind after the drawing forth of the stones.

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 forever, clotted 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 fearful rending of the bladder, as it will be better to take hold thereof with this Crow's bill, and to break it to pieces.

The edges of a toothed Crow's bill made neatly to break greater stones, with a Screw to force it together.

This Crow's bill hath only three teeth, and those sharp ones on the inside, of which two are placed above, and one below, which is the middlemost, so that it falleth between the two upper. When the stone is broken, all the pieces thereof must be taken forth, and we must have a special care, lest any piece thereof lie hid, for that in time, increas'd by the access of a tough and viscous matter, or compounded with other fragments by the interposition of the like matter as glue, may rise to a stone of a large bigness.

CHAP. XLIII.

What care 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 thread, leaving only so much space as shall be sufficient to put in a pipe for the use we shall hereafter throw, your thread must be of crimson silk waxed, and let it not be too small, lest it by binding should cut atunder the thin lips of the wound, or rot in a short time, either by the moisture of the Urin, or matter flowing from the Ulcer. Therefore you shall take up much flesh with the skin in sewing it, lest the lips of the wound being torn, your labour prove in vain, 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, whereas 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 them, which oft-times in want of instruments the Surgeons are forced to do, to the great harm of the Patient.
Book XVII.
whose Cure is performed by Surgery.

Silver Pipes to be put in 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 slith gathered and concrete in the bladder may flow and be carried forth this way. When clear Urine shall begin to flow out of the wound, there shall be no more need of a Pipe; therefore if you continue it and keep it longer in the wound, there is some danger lest Nature accustomed to that way, may afterwards neglect to send the Water through the Vrethra, or urinary passage. Neither must you forget to defend the parts near to the wound with the following recompositio Medicinis to hinder the diffusion and inflammation, which are incident by reason of the pain. *& Albulm, niger, ou. 3 j. pot. A recompositio
bals armenc, canguriit dracon, ou. 3 j. olei ref. 3 j. pilorum lepironum quantum sufficit* make a Medicin of Medicinis the confidence of honey.

C H A P. XLIV.
How to lay the Patient after the Stone is taken away.

All 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 Chaff, to drink up the Urin which floweth from him. You must have divers of these pillows, that they may be changed as need shall require. Sometimes after drawing forth of the stone, the blood in great quantity falleth into the Cod, which unless you be careful to provide against, with discutting, drying and conferving Medicins, it is to be feared that it may gangrene. Wherefore if any accident happen in caring these kind of Wounds, you must diligently withstand them. After some few days a warm injection shall be caft into the Bladder by the wound, consisting of the Waters of Plantain, Night-shades, and Roses, with a little Syrup of dried Roses. It will help to temper the heat of the Bladder caused both by the wound and contusion, as also by the violent thrusting in of the Instruments. Alfo it sometimes happens, that after the drawing forth of the stone, clots of blood and other impurity may fall into the urinary passage, and fo stop the Urin that it cannot flow forth. Therefore you must in like fort put a hollow Probe for some days into the Vrethra, that keeping the passage open, all the greater slith may flow out together with the Urin.

C H A P. XLV.
How to cure the Wound made by Incision.

On must cure this wound after the manner of other bloody wounds, to wit, by agglutination and cicatrization, the slith, or such things as may hinder, being taken away by detergency Medicins. The Patient shall bathe the agglutination if he can, being, and keep a slender diet until the seventh or ninth day be past. He must wholly abstain from Wine, unless it be very weak in stead thereof let him use a decocition of Barley and Licorice, or Mead, or Water and Sugar, or boiled Water mixed with Syrops of dried Roses, Maidens-hair, and the like. Let his Meat be Parome, Raisins, stewed Fruites, Chickens boiled with the cold Seeds, Purslane, Sorrel, Bo rage, Spinage, and the like. If he be bound in his belly, a Physician shall be called, who may help it, by appointing either Coffia, a Clyster, or some other kind of Medicins as he shall think good.

C H A P. XLVI.
What care is to be used to Ulcers, when as the Urine flows through them, long after the stone is drawn out.

Any after the stone is drawn out, cannot have the Ulcer consolidated, therefore the Urin flows out this way continually by little and little, and against the Patient will during the rest of his life, unless the Surgeon help it. Therefore the callous lips of the wound must be amputated, so to make a green wound of an old ulcer; then must they be tied and bound with a fresh wound. The instruments we term a Retorsionem or thay; this must be perforated with three holes, anfwering to three other on the other side, Needles shall be thrust through them holes, taking hold of much flesh, and shall be knot about it, then glutinative Medicins shall be applied, such as are Venice Turpentine, Gum Eleosa, Sanguis dracon, Bals Armenian, and the like; after five or six days the Needles shall be taken out and also the stay taken away. For then you shall find the Wound almost gloved, and there will nothing remain but only to cicatrize it.

The
What to do in want of a Stay.

If a Retinaculum or Stay be wanting, you may conjoin the lips of the Wound, after this following manner. Put two Quills somewhat longer than the Wound, on each side one, and then percutually 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 filthy lips of the wound kept from being torn, which would be in danger if the needle and thread were only used.

CHAP. XLVIII.

How to take stones out of Women's bladders.

We know by the same signs that the stone is in a woman's bladder as we do in a man's, yet it is far more easily searched by a Catheter, for that the neck of the bladder is the shorter, broader, and the more straight. Wherefore it may not only be found by a Catheter put into the bladder, but also by the fingers thrust into the neck of the Womb, turning them up towards the inner side of the Os pubis, and placing the sick woman in the same posture, as we mentioned in the cure of men. Yet you must observe that maids younger than seven years old, that are troubled with the stone, cannot be searched by the neck of the womb, without great violence. Therefore the stone must be drawn from them by the same means as from Boys, to wit, by thrusting 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 neck of the bladder, and then drawn forth by the forementioned means. Yet if the riper years of the Patient permit it to be done without violence, the whole work shall be more easily and happily performed, by putting the fingers into the neck of the Womb, for that the bladder is nearer the neck of the womb than it is to the right gut. Wherefore the fingers thus thrust in, a Catheter shall be presently put into the neck of the bladder: This Catheter must be hollow, or slit on the outside like those before described, but not crooked, but straight, as you may perceive by the following Figure.

Upon this Instrument the neck of the bladder may be cut, and then with the Dilater made for the same purpose, the incision shall be dilated as much as need requires; yet with this caution, that seeing the neck of a woman's bladder is the shorter, it admits not so great dilation as a man's, for otherwise there is danger that it may come to the body of the bladder, whence an involuntary ejection of the water may ensue and continue thereafter. The incision being dilated, the Surgeon putting one or two of his fingers into the neck of the womb, shall press the bottom of the bladder, and then thrust his crooked Instruments or forcipes in by the wound, and with these he shall easily pluck out the stone, which he shall keep with his fingers from slipping back again. Yet Lawrence Cole the King's Surgeon, and both his sons (than whom I do not know whether ever there were better cutters for the stone) do otherwise perform this operation, for they do not thrust their fingers into the Fundament or neck of the womb, but contriving themselves with putting in only the Guides (whereof we former mentioned) into the passage of the Urine, they presently therewith make straight incision directly at the mouth of the neck of the bladder, and not on the side as is usually done in men. Then they gently by the same way thrust the forcipes hollowed on the outside formerly delineated, and dilate the wound by tearing it as much as shall be sufficient for the drawing of the stone forth of the bladder. The relief of the cure is the same with that formerly mentioned in men; yet this is to be added, that if an ulcer grow in the neck of the bladder by reason of the rending it, you may by putting in the speculum matris, dilate the neck of the womb, that fitting remedies may be applied with the more ease.

CHAP.
Think it not amiss to teftifie by the following Histories, the providence of Nature in expelling by Urin such things as are unprofitable in the whole Body, or in any one of its parts. 

**An History.**

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**An History.**
Therefore no marvel, if according to Galen, the pus unmixed with the blood flowing from the whole body by the veins and arteries into the kidneys and bladder, be cast forth together with the urine. Thefe and the like things are done by Nature, not taught by any Counsel or Reason, but only assisted by the strength of the urgeging and expulsive faculty, and certainly we perfectly difcovering the dead body, observed that it all, as also all the bowels thereof, were free from inflammation and ulceration, neither was there any sign of impregnation of any purulent matter in any part thereof.

CHAP. L.

By what external causes the urine is suppressed, and proportionately concerning the suppression thereof.

There are also many external causes, through whose operation the urine may be suppressed; such are bathing and swimming in cold water; the too long continued application of Narcotic Medicines upon the Reins, Peritoneum, and Spleen; the use of cold meats and drinks, and such other like. Moreover, the dissocation of some Perspira of the loins to the inside, for that it puzzles the nerves disoriented thence into the bladder; therefore it causes a flupidity or numbness of the bladder. Whereas it is, that it cannot perceive it self to be velicated 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 proceeds, if it perseveres for some days, death is to be feared, unless either a Fever which may consume the matter of the urine, or a Scouring or Flux, which may divert it, shall happen. For thus by it is acquired an acid and venenate quality, which flowing by the veins readily infecteth the mass of blood, and carried to the brain, much molesteth it by reason of that similarity and sympathy of condition which the Bladder hath with the Meninges. But Nature, if prevalent, easily treateth it from this danger by manifest evacuation by sweat, otherwise it must necessarily call for it to be tufts aid, a seventh heat, which may fend the abounding matter of this ferous humour out through the skin, either by a feasible evaporation as by sweat; because sweat and urine have one common nature: or else dispersed and breath it out by transpiration, which is an infensible excretion.

CHAP. LI.

Of bloody Urine.

Some pils pure blood, others mist, and that either with urine, and then that which is expelled resembles the washing 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, which by the suppression of the accustomed and periodical evacuation, by the Cutents or Hemorrhoids, now turns its course to the reins and bladder: the fretting anguish of some vesel by an acid humour, or the breaking thereof by carrying or lifting of some heavy burden, by leaping, falling from high, a great blow, the falling of some weight upon the loins, riding too violently, the too inmoderate use of venery, and lastly, from any kind of painful and more violent exercise, by a rough and sharp stone in the kidney's, by the weaknesses of the retentive faculty of the kidneys, by a wound of some of the parts belonging to the urine, by the too frequent use of diuretic and hot meats and medicines, or else of things in their whole nature contrary to the urinary parts; for by thefe and the like causes, the reins are oft-times so inflamed, that they needfully incrustate, and at length the insudation being broken it turns into an ulcer, calling forth quittance by the urine. In so great variety of the causes of bloody urine, we may gather whence the causes of this symptom may arise; by the depraved action of this, or that part, by the condition of the flowing blood, to wit, pure or mist, and that either with the urine alone, or with Pus. For example, if this bloody matter flow from the lungs, liver, kidneys, dislocated Peritonia, the straight gut, or other like parts: you may discern it by the feat of the pain and symptoms, as a Fever: and the propriety of the pain, and other things which have preceded, or are yet present. And we may gather the same by the plenty and quality; for, if, for example, the pus flow from an ulcer of the arm, the purulent matter will flow by thorns, one while by the urine, so that little is cast forth by the ulcer's then presently on the contrary the urine becomes more clear. That purulent matter which flows from the lungs by reason of an Empyema, or from the liver, or any other bowel placed above the midriff, the pus which is cast 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, or a Surgeon's office either to underset, or deliver the care of this affett. It shall suffice only to note that the care of this symptom is not to be hoped for so long as the caufe remains. And if this blood flow by the opening of a vesel, it shall be laid by astringent medicines, or broken, by occidental, if con- rod or treated sudain, by favoritick.

CHAP. LII.

Of the Signs of the ulcerated Kidneys.

I had not determined to follow or particularly handle the causes of bloody urines, yet because that which is occasioned by the ulcerated reins or bladder more frequently happens, therefore I have thought good behove to speak thereof in this place. The sign of an ulcer of the reine or bladder, in the loin's matter however mixed with the urine, never evacuated by it self, but always flowing forth
forth with the Urin, and residing in the bottom of the Chamber-pot, with a liminous and red sediment, feeth and as it were bloody filznes swimming up and down in the Urin, the smell of the fiilznes is not so great as that which flows from the ulcerated bladder, for that the leudnes, being that of a bloody sediments, do far better ripen and digest the purulent matter than the bladder which is servous and bloozles.

CHAPTER LIII.

Of the signes of the ulcerated Bladder.

Ulcers are in the bottom of the Bladder, and the neck thereof. The sign of an ulcer in the difference.

Bladder are, a deep pain at the three-bones ; the great stretch of the matter flowing therefrom, white and thin washes swimming up and down in the water. But when the Ulcer poftcfts the neck of the bladder, the pain 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 water, to wit, by reason of the pain caused by the Urin fretting of the ulcerated part in the paffage by: neither is it easie to make an ulcer of the upper parts, because it is feared forth not together with the Urin, but after it.

CHAPTER LIV.

Prognosticks of the ulcerated Bladder.

Ulcers of the kidneys are more easily and readily healed than those of the bladder; for bloody parts more freely heal and knit than bloodless and nervous parts. Ulcers which are in the bottom of the bladder, are incurable, or certainly most difficult to heal; for besides that they are in a bloodless part, they are daily vellicated and exasperated by the continual afflux of the contained Urin; for all the Urin is never evacuated: now that which remains after making water, becomes more acrid by the distemper and heat of the part, for that the bladder is always gathered together in the Urin, that is, the suppotion or difficulty of making water, you may sometimes 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 sitting in these parts, unless they be consoled in a short time, remain unanswerable.

CHAPTER LV.

What Cure must be used in the Suppofition of the Urin.

In curing the suppofition of the Urin, the indication must be taken from the nature of the diffcopes of cale, and causeth thereof, if it be yet present or not. But the diversity of the parts by which being ring, hurt, the infides begin to vitiate the variety of Medicines, neither must we profprely run to diuretics, and things breaking the stone, which many Emperics do. For hence grievous and malaign symptoms often arise, especially if this suppofition proceed from an acrid humour, or blind preffion of the bladders. For thus the pain and inflammation are increafed, whence follows a gangrene, and at length death.

Why ulcers of the bladder are cured with more difficulty.

To what supposition of the diuretics may not be used.

To which, and when to be applied.

But it is common both to the one and the other, that the yard is extended in making water; to wit, by reason of the pain caused by the Urin fretting of the ulcerated part in the paffage by: neither is it easie to make an ulcer of the upper parts, because it is feared forth not together with the Urin, but after it.
Of the Diuretics, or inability to hold the Urin.

**CHAP. LVI.**

Of the Diabete, or inability to hold the Urin.

The Diabete is a Disease, wherein, preceding one hath drunk, the Urin is presentely made in great plenty, because the distillation of the retentive faculty of the reins, and the depra

The external causes are the unreasonable and inordinate use of hot and diuretic things, and other violent and vehement exercises. The internal causes are the inflammation of the Liver, Lungs, Spleen, and especially of the kidneys and bladder. This affect must be diligently distinguished from the excretion of the morbid causes by Urin. The loins in this disease are troubled and sore, and there is a continual and unceasing thirst; and although this disease proceed from a hot diuretic, yet the Urin is not coloured, red, troubled, or thick, but thin, and white or watery, by reason of the matter thereof makes very small stay in the Stomach, Liver, and hollow Vein, being presentely drawn away by the heat of the kidneys or bladder. If the affect long endure, the Patient for want of nourishment falter away, wherence certain death ensues. For the cure of so great a disease, the matter must be purged, which causes or feeds the inflammation or phlegma, and consequently blood must be let. We must abstain from the four hot feeds, for although they may profit by their first quality, yet will they hurt by their diuretic faculty. Refrigerating and astringent nourishments must be used, and such as generate gross humours, as Rice, thick and astringent wine mixed with much water. Exceeding cold, yet carotic things shall be applied to the loins, for otherwise by reason of the thick and cold humour in the kidneys and bladder, which causes or feeds the inflammation, together with the deficient heat of the body, the parts will becorrod and correct and heat.

The Strangury is an affect having some affinity with the Diabete, as that wherein the water is involuntarily made, but not together at once, but by drops, continually and with pain. The external causes of a Strangury are, the too abundant drinking of cold water, and all too long stay in a cold place. The internal causes are, the deficient heat of the reins, the declension of cold humours into the body, and hence they are resolved by a certain palsy, and the bladder is relaxed, so that he cannot hold his water according to his desire; inflammation also and all distemper causeth this affect, and whatsoever in some sort obstructs the passage of the Urin, as clotted blood, thick phlegm, gravel, and the like. And because, according to Galen's opinion, all forms of distemper may cause this affect, divers Medicines shall be appointed according to the difference of the distemper. Therefore against a cold distemper, fomentations shall be provided of a decoction of Mallow, Roses, Oixizanum, Calamin, and the like; and applied to the Privates: then presently after, let them be anointed with Oil of Bays, and of Calamin, and the like. Strong, and pure Wine shall be preferred for his drink, and not only on this cause, but also when the Strangury happens by the occasion of obstruction, caused by a goit or cold humour, if so be that the body be not phlegmatic. But if inflammation, together with a Plethora or phlegma, hath caused this affect, we may, according to Galen's advice, heal it by blood-letting. But if obstruction be in the flesh, that shall be taken away by Diuretics either hot or cold, according to the condition of the matter obstructing. We here omit to speak of the Dysuria, or difficulty of taking water, because the remedies are in general the same, with those which are used in the Intermission, or suppression of Urin.
W

the guts being obstructed, or otherwise affected, the excrements are hindered from putting forth, and if the fault be in the small guts, the affect is termed *Peptialus*, *Ileus*, and *Mifererus*. And naturall variants there are in the guts, wherein the excrements are difficultly evacuated by the fundament. *Pantericati* indistinctly makes use of all the cases of the Colick, how various forever, to four heads: To wit, to the grossness or toughness of the humors impanted in the guts: Flatulentness hindered from passage forth; the inflammation of the guts and lard, the collection of acid and biting humors. Now we will treat of each of these in particular. Almost the fame casts produce the grossness of humors and flauvities in the guts, to wit, the nature of flatulent and phlegmatick, tough and viSSk meats, yes alfo of such as are of good nourishment, if sundry thereof, and of fundry kinds be eaten at the same meal, and in greater quantity then is fit. For by nature and constitution, and by length the collection of flatullencies, whereon a tenfive pain ensues. This kind of Colick is alfo caused by the bite of crude fruits, and too cold drink, drunken especially when any is too hot by exercit, or any other way: For thus the stomach and the guts continue thereto, are refrigerated, and the humors and excrements therein contained are congealed, and, as it were, bound up. The Colick which is caused by the inflammation of the kidneys, happens by the sympathy of the veins paincd or troubled with the stone or gravel contained in them or the urin. Therefore then alfo pain troubles the Patient at his hips and loins, because the nerves, which spring from the vertebre of the loins, are oppressed by the weight of the stones and gravel, about the joint of the hip are differentiated into the muscles of the loins and thigh. Alfo the urin are paincd (for they contain nothing else but certain hollow nerves) and alfo the cranmer muscles, so that the Patients sometimes may seem to be drawn upwards with much violence. Hence great phlegmatick, and colick vomiting, and sweat of the whole body, all which do not subsist before the stone or gravel shall be forced down into the bladder. Now vomiting happens in this affect, for that the veincrete by reason of its contiguous and neighbourhood it which hath with the guts, suffereth by comfort or sympathy. For the stomat is of the same kind or matter as the guts are, so that the guts from nothing else but a certain production of the stomach. Therefore if at any time Nature endeavour to expel any thing that is troublesome in the kidneys, urin, guts, cost of the guts, re-

fentery, *Pancreas*, and hypocondries, it causeth a Colick with pain and vomiting. An hot and dry inflammation also causeth the Colick, producing a prickling and biting pain, by drying the excrements that up in the guts, as also by vomiting, it may be, the radical humors of that place provided for the lubricating of the guts. Acid, viSSk and tough phlegm causeth the same. There is alfo another cause of the Colick which is not so common; to wit, the turning of the guts, that is, when they are so twisted, folded, and doubled, that the excrements, as it were, bound in their knots, cannot be expelled, as is manifestly happeneth in the cramp called *Enemota*, by the tacking of the guts into the cod: Likewise alfo Worms generated in the Colick-gut, whilst that they mutually fold or twine themselves up, do alfo twine the Colon it fell, and fold it with them. Alfo the too long stays 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 excrements and pains taken in the heat of the Sun, or by the greatness of distemper, the mind being carried away, causeth the Colick, with Head-ache, and plenty of vapors flying upwards.

I remember once didciff the body of a Boy of some twelve years old, who had his guts folded with many, as it were, ties or knots of the restrained, too hard and dry excrements, the which he cast out by his mouth a little before his death, which brought him to his end, being not helped in time by sitting medicines. Now therce are the caues of the Colick, according to the opinion of the Ancient and Modern Physicians, of whose bodies I judge it not amiss here to treat in particular. You shall know the Patient is troubled with the Stone-colick, by the pain which is fixed and, as it were, kept in one place, to wit, of the kidneys: by the pain of the Rectum, by the two sides of the loins, and also by the kidneys and loins, by the pain of the hips and tefticles for the formerly mentioned caues and lardl, by that the Patient calsteth forth by his mouth a little before his death, which brought him to his end, being not helped in time by sitting medicines. This kind of Colick is alfo caused by the ufe of crude fruits, and too cold drink or, if the Patient hath formerly voided stones or gravel together with his urine, by the pain of the hips and tefticles for the formerly mentioned caues and lardl, by that the Patient calsteth forth by his mouth a little before his death, which brought him to his end, being not helped in time by sitting medicines. This kind of Colick is alfo caused by the ufe of crude fruits, and too cold drink or, if the Patient hath formerly voided stones or gravel together with his urine, by the pain of the hips and tefticles for the formerly mentioned caues and lardl, by that the Patient calsteth forth by his mouth a little before his death, which brought him to his end, being not helped in time by sitting medicines. This kind of Colick is alfo caused by the ufe of crude fruits, and too cold drink or, if the Patient hath formerly voided stones or gravel together with his urine, by the pain of the hips and tefticles for the formerly mentioned caues and lardl, by that the Patient calsteth forth by his mouth a little before his death, which brought him to his end, being not helped in time by sitting medicines. This kind of Colick is al
...for that when as the right gut is inflamed, the bladder is pressed by reason of their solidity or neighbourhood. The Colick which proceeds from the conuolent of the guts, hews it by the excessive cruelty of the pain anfiring, for that the guts are not to their due life and place, and because the excrements by their too long detention acquire a preternatural heat, and 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, and kept there, whereby the excrements being bakes, becoming more acridly hot, cause inflammation, and by raising up flatulentcies, increaçe the diftenfe through all the guts, until at length a deadly Ileo or colick anfiring, come forth at the mouth. For prophylactics, it is better to have the pain in the colick to wan¬der up and down, than to be fixed: It is good also that the excrements are not wholly fup¬pel but they are in the belly and flanks, and renewed before they grow cold. You may, instead of these bags, ufe Ox-bladders half filled with a decoction of resolving things, as Salt, Rosemary, little bags made with Millet, Oats, and Salt fried with a little White-wine in a frying-pan, ftall be applied hot upon the belly and flanks, and renewed before they grow cold. For inqua diftincta breed, loxos, moli inantifatis, face, rhum. an. S. Balati, & camith, an. Aucre, an. in qua diftincta breed, loxos, melo inantifatis, face, rhum. an. 5. Balati, & camith, an. 4. 2. Let a colick of the guts unfold by the weight of the Quick-filver, and the excrements are deprived and thrust forth; therefore it ariseth. That Colick which is like to this, and proceeds from falt, acrid, thick and tough phlegm, taken inwardly by the mouth, or otherways, the beginning of the colick in the guts, and the curing is much the fame. But fuch as have griping and pain about their navil and loins, which can neither be helped by medicine nor otherwise, it ends in a Droffe. The cure must be diverted according to the variety of the colick, for the Stoae-colick is cured by medicines proper to the stone; which that is caused by an internoe, is cured by the only reftoring the gut to its place; which is occasioned by Worms, requires medicines fit to kill and cafl forth the Worms. But that which proceeds from the weakened and refrigeration of the guts and stomack, is cured by hearing and strengthening medicines as well applied outwardly, as taken inwardly by the mouth, or otherways. The beginning of the pain, there being which more doth the powers than pain. To this purpofe you shall provide Barts, Semenps, intoxications of Mallow, Marsh-mallows, Violae leaves, Penroyal, Fennel, Origamum, the seeds of Thyme and Fenugreek, flowers of Camelot, Mohnie, and other herbs. An ointment. An ointment must be usually hot. Also the belly may be anointed with this following ointment. Smokia, fomentations of Mows Marl-mallows, Viole. leaves, Penroyal, this following clyfter is much approved. Alfo puf.b given clyfter is this inserted in the Quantity of a large Cupping-glafs (hall be applied to the navel, to draw and difpate the windiness; the belly shall be bound with ftrong and broad ligatures, to ftrengthen the guts, and difeufs the matter of flatulentcies. The Patients taught by Nature to ufe this remedy, while they admonihing themselves, or the excrements raifed, and thorough the guts is deadly intolerable tormenting pain, continual vomiting, cold sweat, colic和平 of the extreme parts, hiccucking, or raife of the tympany the fomatic bath with the guts, a phrenzie by the con¬fumption of the brain with the stomach, and oft-times a convulsion, by drawing the matter into the nerves. Why efters in the Colick must be given in lefi quan¬tity. A colick of the guts, which have power to heat, dry, aromatic and emollient the skin, to difpate the wind. But all medicines, which may be given in mod fuch a manner, that they may either make the colick better, or at leaft not increafe it. An ointment. An ointment must be actually hot. Also the belly may be anointed with this following ointment. V Olin chammem. anib. batts. recent. an. S. fim. sim. perj. & galang. an. S. Ag. tumult. an. falsie an Thymi chimas extr. ad. 3f. The following liniment is much commended by Holens. vs Olib. Ft. An. & phalmac. an. Balanum can. an. 9. ac. ac. ediff. 5. Inff. Potass. fum ad two with flav. & Eth. & gauff. Inff. Potass. Linimentum. Alfo little bags made with Miller, Oats, and Salt fried with a little White-wine in a frying-pan, shall be applied hot upon the belly and flanks, and renewed before they grow cold. You may, instead of these bags, ufe Ox-bladders half filled with a decoction of resolving things, as Salt, Rosemary, Thyme, Lavender, Bay-berries, and the like. This injects a colick being thus made. R & malton sim. aug. Galanum ac. ac. ac. diff. 5. Inff. Potass. an. I. & & Inff. Potass. Inff. Potass. & 5. Let this be injected as hot as the Patient can endure. I have of times, by miracle, helped intolerable pain caused by the Wind-colick and Phlegm with this clyfter. Axis prebius a carminative clyfter made of Hyppop. Origi¬num norm. Anis-seeds, and English Colongal. Let the Patient feed upon meats of good juice and cafe digestion, as Beeds made with the yolks of Eggs, Suffron, hot Herbs, and a Nutmeg, let him drink good Wine, Medefair, or Hypocra made with good Wine, fo to heat the stomach and guts. For in Calces opinion, all windines is generated by a remis heat. But if the pain thall continue, a large Cupping-glass shall be applied to the navel, to draw and difpate the windines; the belly thall be bound with ftrong and broad ligatures, to ftrengthen the guts, and difpate the matter of flatulentcies. The Patients taught by Nature to ufe this remedy, while they admonihing themselves, or the excrements raifed, and thorough the guts is deadly intolerable tormenting pain, continual vomiting, cold sweat, colic和平 of the extreme parts, hiccucking, or raife of the tympany the fomatic bath with the guts, a phrenzie by the con¬fumption of the brain with the stomach, and oft-times a convulsion, by drawing the matter into the nerves. 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Phlebotomy is the opening of a vein, evacuating the blood with the rest of the humors; thus Arteriotomy is the opening of an artery. The first scope of Phlebotomy is the evacuation of the blood offending in quantity, although oft-times the Physicians intention is to draw forth the blood which offends in quality, or either way by opening a vein. Repletion, which is caused by the quantity, is two-fold: the one ad sera, that is, to the strength, the veins being otherwise not very much swelled: This makes men incontinent and weak, Nature not able to bear his humor, of what kind soever it be. The other is termed ad safa, that is, to the vessels, the which is so-called comparatively to the plenty of blood, although the strength may very well away therewith. The veins are oft-times broke by this kind of repletion, so that the Patient cats and spits up blood, or else evacuates it by the nose, womb, hemorrhoids, or varices. The repletion which is ad sera, is known by the heaviness and weariness of the whole body; but that which is ad safa, is perceived by their distention and fulness, both of them being in need of evacuation. But blood is only to be let by opening a vein, for five respects: The first is to lessen the abundance of blood, as in phlemoniacal bodies, and those who are troubled with inflammation without any pleaditude. The second is for diversion or revulsion, as when a vein of the right is opened to stay the bleeding of the left nostril. The third is to allure or draw down; as when the febula is opened in the ankle, to draw down the courses in women. The fourth is for alteration or introduction of another quality; as when in sharp fever we open a vein to breathe out that blood which is heated in the vessels, and cooling the residue which remains behind. The fifth is to prevent imminent distaste; as when in the Spring and Autumn we draw blood by opening a vein in such as are subject to spitting of blood, the Squinancy, Plurifie, Falling-sicknefs, Apoplexy, Madnefs, Gout or in another quality, as when in sharp feavers we open a vein to breathe out that blood which is heated in the vessels, and cooling the residue which remains behind. Blood must not be drawn from ancient people, unlefs some present necessity require it, lest the native heat which is but languid in them, should be brought to extreme debility, and their substance decay; neither must any in like fort be taken from children, for fear of resolving their powers by reason of the tenderness of their substance, and rarity of their habit. The quantity of blood which is to be let, must be considered by the strength of the Patient and greatness of the disease: Therefore if the Patient be weak, and the disease require large evacuation, it will be convenient to part the letting 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 warm water, that to the skin may be fitter, and the blood drawn into the veins in greater plenty. In the Squinancy, the veins which are under the tongue must be opened allant, without putting any ligatures about the neck, for fear of strangling. Phlebotomy 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, Squinancy, and Burning-feaver, though the strength be not great, nor the blood faulty in quantity or quality, blood must not be let in the height of a Fever. Most judge it fit to draw blood from the veins must remote from the affected and inflamed part, for that thus the course of the humors may be diverted, the next veins on the contrary being opened, the humors may be the more drawn into the affected part, and so increase the burthen and pain. But this opinion of theirs is very erroneous, for an opened vein always evacuates and burtheneth the next part. For if we find any times opened the veins and arteries of the affected part, as of the hands and feet in the Gout of their parts, of the temples in the Megrim, whereupon the pain always was somewhat affwaged, for that together with the evacuated blood, the malignity of the Gout, and the hot spirits (the caules of the Head-ach or Megrim) were evacuated. For thus Ga witheh to open the arteries of the temples in a great and contaminations defolution falling upon the eyes, or in the Megrim or Head-ach.
How to place the Patient.

Rubbing the arm.

Binding it before we open the vein.

Why the Radial and Median may not be opened so safely as the Cephalick.

The binding up after blood-letting.

CHAP. LX.

How to open a vein, or draw blood from thence.

The first thing is, to fear or place the Patient in as good a posture as you can, to wit, 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 arm with his hand, or a warm linen cloth, that the blood may flow more plentifully into the vein; and he shall draw back the blood upwards towards the ligature from the lower part, and if it be the right arm, he shall take hold thereof with his left hand; but if the left, then with his right hand, preferring the vein in the mean time with his thumb a little below the place where you mean to open it, lest it should slip away, and that it may be the more swift by forcing up the blood. Then with his nail he shall twist or design the place to be opened, and shall anoint it, being fo masked, with butter or oyl, whereby the skin may be relaxed, and the lancet enter more easily, and therefore the infliction may be the less painful. He shall hold his lancet between his thumb and fore-finger, neither too near, nor too far from the point; he shall lift his other three fingers upon the Patients arm, that his hand may be the more steady, and lest trembling. Then shall he open the vein with an incision agreeable to the magnitude of the vessel, and the indifferent thickness of the contained blood, somewhat slanting, diligently avoiding the artery which lies under the Radialis, and the nerve or tendon of the two-headed muscle, which lies under the Median vein. But for the Cephalick, it may be opened without danger. As much blood as is sufficient being drawn, according to the mind of the Physician, he shall loosen the ligature, and laying a little bolster under, he shall with a ligature bind up the wounded part to stay the bleeding, the ligature shall be neither too strait nor loose, but so that the Patients arm may freely bend and extend his arm, wherefore whilst that is in doing, he must not hold his arm strait out, but gently bended, otherwise he cannot freely bend it.

The Figure of a Lancet to let blood withal.

CHAP. LXI.

Of Cupping-glasses or Ventoses.

The ufe of Cupping-glasses.

Lib. B. cap. 1.

Cupping-glasses are applied especially when the matter conjunct and impast in any part is to be evacuated, and then chiefly there is place for scarification after the Cupping glasses: yet they are also applied for revolution and diversions, for when an humor 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 womens breasts, for to stop the courant 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 possessed by a pestiferous Bubo or Caruncle, in order to draw the poiyon from within outwards. For (as Celsus saith) a Cupping glafs where it is fastned on, if the skin be first scarified, draws forth blood; but if it be whole, then it draws spirift. Also they are applied to the belly, when any grievous or thick windinesst but up in the guts, or membranes of the Epigastrium, or lower belly causeth the colick, it is to be diffcifed. Also they are fitted to the Hypochondri, when as flatulency in the liver, or fpleen, swells up the entrails lying thereunder, or in too great a bleeding at the nofe. Also they are set against the reins in the bottom of the belly, whereas the ureters run down to draw down the stone into the bladder, when as it stops in the middle or entrance of the ureter. You shall make choice of greater and lesser Cupping glasses, according to the condition of the part, and the contained matter. But to those parts wherefo theses cannot by reason of their greatness be applied, you may fit horns for the same purpose.
The Figures of Capping-glasses of different bignesses, with little holes in their bottoms, which shall be stopped with wax, when you apply them to the parts, but opened when you would take them off, that the air may enter in with the more ease.

A Lancet.

Horns which without fire, by only sucking at the upper holes draw from the part lying under them.

No 3  CHAP.


The use of Leeches.

In those parts of the body where Cupping-glass and horns cannot be applied, to those Leeches may for the most part be put, as to the fundament, to open the coat of the Hemorrhoidal veins, to the mouth of the womb, the gums, lips, nose, fingers. After the Leeches being filled with blood, shall fall off, if the leech require a large evacuation of blood, and the part affected may endure it, Cupping-glass, or Horn, or other Leeches shall be substituted. If the Leeches be handled with the bare hand, they are apprehend, and become so tormentful, as that they will not bite; whereas you shall hold them in a white and clean linen cloth, and apply them to the skin, being filled lightly-entangled, or beinfedated with the blood of some other creature, for thus they will take hold of the belt, together with the skin more greedily and fully. To cauie them fall off, you shall put some powder of Aloes, Salt or Alkales upon their heads. If any desire to know how much blood they 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 forever they have filled. If you desire they should suck more blood than they are able to contain, cut off their trunk as they suck, for thus they will make no end of sucking, for that it runs out as they suck it. The Leeches by sucking, draw the blood not only from the affected part where they are applied, but also from the adjacent and distant parts. Also sometimes the part bleeds a good while after the Leeches be fallen away, which happens not but by cautery after the application of Cupping-glass or Horn. If you cannot stop the bleeding after the falling away of the Leeches, then press the half of a tumbler upon the wound, until it stick of itself, for thus it will stick also a burnt rag may be finally applied with a bandler and hit ligature.

The end of the Seventeenth Book.

BOOK XVIII.

Of the Gout.

CHAPTER I.

The description of the Gout.

The Gout is a disease occupying and harming the substance of the joints by the falling down and collection of a virulent matter accompanied by four humors. This word Arthritis or Gout, is general for every joint so affected; yet it enjoys divers particular names in sundry joints of the body; as that which slaleth upon the joint of the jaw, is termed Synoagra, for the Greeks call the Jaw Synos, that which affects the neck is termed Synalegra, for the neck is termed Tracheos; that which troubles the backbone is called Syna- fagra, for the spine is termed Rhois; that which molesteth the shoulders Omagra, for the joynt of the shoulder is called Omos; that which affects the joynt of the collar-bones Chlaphagra, for that the Greeks call this bone Claphys, that in the elbow Puedagra, for Puedys signifies the elbow; The Gout in the hand is called Chiragra, in the hip Chtas, in the knee Gonagra, in the foot Podagra, for that the hand, hip, knee and foot are in Greek termed, Chir, Pous. When as there is great abundance of humors 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 Gout.

The second cause of the Gout.

The humour causing the Gout is not oft of more known, or easily exprest nature than that which causeth the plague, Lues venerea, or Falling sickness. For it is of a kind and nature clean different from that which causeth a Phlegmon, Oedema, Erysipelas, or Scorbut; as for St. Aetius saith, it never cometh to suppurition like other humors, not for that, as I think, because it happeneth in bloodlesse parts, but through the occasion of some occult malignity. Hereunto may be added, that the humors which cause the foro-mentioned tumors, when as they fall down upon any part, not then truly when they are turned into Pus or matter, do they cause so sharp pains as that which causeth the Gout, for the pain thereof is far more sharp, than of that humor which causeth an ulcerated Cancer. Besides these humors, when they fall upon the joints through any other occasion, never turn into knots, only that which causeth the Gout in the joints, after it hath fallen thither, is at length hardened into a certain knotty, and, as it were, platter-like substance to be amended by no remedies. But seeing it offends not the parts by which it flows down, opened over more or less, the matter which creeping upwards from the lower parts to the brain, causeth the Epilepsie as soon as it falls into spaces of the joynts, it causeth cruel pain, one while with heat, another while with cold.

For
For you may see some troubled with the Gout, who complain that their painful joints are burnt; there are others to whom they seem 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 Gout, that the poyson of the right side will, as it were, burn with heat, but on the left side will be thift with cold; or which is more, the knee in the same side to be tormented with a hot fit, and the ankle troubled with a cold. Lastly, there sometimes happens a succession of pain in a succession of days, as the same joints will be this day troubled with a hot, to-morrow with a cold difference, so that we need not marvel to see Physicians prescribe one while hot, another while cold medicines against the same disease of the same part and body. Alto it sometimes happens that the malignity of this humor doth not only not yield to medicines, but it is rather made worse, so that the Physicians 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 again at certain feasons by fits, and hereupon it is said by Horace:

Quia enim, an medicis, iuxta quam sit demum aut rer,
Ut lippum pilis tubulis, somenta podagrum.

Riches the covetous, and fearful so do please,
As Pictures fore eyes, Bastes the Gout do ease.

Certainly such as have this disease incredibility, can no more be helped and thoroughly freed therefrom, than those in whom the matter of the disease is become knotty, whereof Gout thus speaks:

Talles kebdfam nefit medicina podagrum.

Physick the knotty Gout it cannot heal.

These reasons have induced many to believe, that the essence of this disease is unknown, for there is a certain occult and inexplicable virulence, the author of so great malignity and contumacy, which Avicenna terms to acknowledge, when he writes that there is a certain kind of Gout whose matter is so acute and malign, that it at any time be augmented by the force of anger, it may fall to the party by sudden death. Therefore Galen hath it written that Traction must be used in all Arthritis and gouty affeeds, and as I think for no other reason, than for that it dries, warmeth, and weakens the malignity thereof. Conclusus is of the same opinion, but adds withal, that the body must be prepared and purged before we use Traction. Therefore the matter of the Gout is a thin and virulent humor, yet not so contagious, offending in quality rather than quantity, causing extreme pain, and therefore infisting together with the caliginous and melancholy spirits prepared or ready for defluxion upon the affected parts. Therefore as the leavings of Ale, and fuggings of Walp's caufe cruel pain with fudden swelling and blistering, which is by the heat of the humours which the poyson hath tainted, and not by the simple solution of continuity, feeling that we daily see Shoemakers and Tailors pricking their flesh with awls and needles, without having any such symptom: So the virulence of the Gout causeth intolerable tormenting pain, not by the abundance, because it happens to many who have the Gout, no sign of defluxion appearing in the joints, but only by a malignant and inexplicable quality, by reason whereof these pains do not cease unless abated by the help of medicines, or nature, or both. The recital of the following Histories will give much light to that inexplicable and virulent malignity of the matter causing the Gout. An History.

Whilft King Charles the ninth of happy memory, was at Bordeaux, there was brought to Chappelain and Cordonius the Kings Physicians, and Talfe a Physician of Bordeaux, Nicolas Lamber and my fel, Surgeons, a certain Gentlewoman some forty years old, exceedingly troubled for many years, by reason of a tumor from the knee to the ankle, supposed to be a Gouty tumour, and at length reduced to the bigness of a Pea. From the outside of the joynt of the left hip, One of her tormenting fits took her in her presence, she presently began to cry and roar, and rathly and violently to throw her body this way and that way, with motions and gestures above a woman, yea a mains nature, for the thrust her head between her legs, laid her feet upon her shoulders, you would have said the had been poffeffed of the Devil. This fit held her some quarters of an hour, during all which time I heedfully observed whether the grieved part, sweated any bigger than it was accustomed, whether there appeared any new inflammation, but there was no alteration as far as I could gather. This fit passed, a great heat took her, all her body ran down with sweat, with so great wearines and weakness of all her members, that the could not so much as stir her little finger. There could be no distillation of an Epileptic, for this woman all the time of her agony did perfectly make use of all her fingers, did speak, discourse, and had no convulsions. Yet did the spaire any colt or dillicency, whereby the might be cured of her disease by the help of Physicians or famous Surgeons; the contained all with Witches, Wizards, and Charmers, so both she had left nothing unattempted, but all art was exceeded by the greatness of the disease. When I had threw all these things at our consultation, we all with one content were of this opinion, to apply a potential Cautery to the grieved part, or the tumor. I my self applied it, after the fall of the Eucharist, and the virulent warts flowed out, which freed the woman of her pain and disease. After ever after. Whence you may gather, that the cause of so great evil was a certain venereal malignity, hurting rather by an inexplicable quality than quantity; which being overcome and evacuated by the Cautery, all pain absolutely ceased. Upon the like occasion, but on the right arm, the wife of the Queens Coach-man at Amblys, consulted Chappelain, Cordonius, and me, extremely troubled of a tumor of her arm, for the was so grievously tormented by fits, that through impatience, being careless of her fall, was endeavour to call her self header out of her chamber window, for
Of the Gout.

Of the manifect caufe of the Gout.

Although these things may be true which we have delivered of the occult cause of the Gout, yet there be and are vulgarly alleged others, of which a probable reason may be assigned, wherein this malignity, wherever we have spoken, lies hid and is feared. Therefore as of many other diseases, so all of the Gout, there are alleged three causes: that is, the primitive, antecedent, and conjoint: The primitive is twofold, one drawn from the first origin and their mothers womb, 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 joints. For the said from all the parts of the body, as faith Hippocrates, and Aristotle affirm lib. de gen. animal. Yet this cause not an inevitable necessity of having the Gout, for as many begot of sound and healthful Parents are taken by the Gout by their proper and primary default; so many live free from this disease, whose fathers notwithstanding were troubled therewith. It is probable that they have this benefit and privilege by the goodness of their Mothers feed, and the laudable temper of the womb wherein the one by the mixture, and the other by the gentle heat, may amend and correct the faults of the paternal feed; for otherwise the disease would become hereditary, and gouty persons would necessarily generate gouty: for the feed followeth the temper and complexion of the mother. Hence it is, that in the opinion of the best physicians of all ages, a woman is not troubled with the Gout, and besides also the suppreffion of excrements accu-

The first primitive cause of the Gout.

Lib. de or. loc.

The precedent cause of the Gout.

Lib. 3. fin. 22.

Afphagell. 9.

The antecedent cause of the Gout.

The conjoint.

Lib. 1.ep. 17.

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of the joynts, and it is commonly cold. That which proceeds from the liver is diffufed by the great vein and arteries filled and puffed up, and participates of the nature of the four humors, of which the mafs of the blood consists, more frequently accompanied with an hot temper, together with a gouty malignity. Besides this manner of the Gout, which is caused by distillation, there is another which is by constitution; as, when the too weak digestive faculty of the joynts cannot assimilate the juices sent to them.

CHAP. V.

The signs of the Articular humour flowing from the Brain.

When the distillation is at hand, there is an heavines of the head, a deare to reft, and a dufhness with the pain of the outer parts, then chiefly perceptible, when the hairs are turned up, or backwards; moreover, the muscularis skin of the head is puffed up, as (woth with a certain obdurate tumour) the Patients seem to be much different from themselves by reason of the functions of the mind hurt by the malignity of the humour, from whence the natural faculties are not free, as the crudities of the stomach, and the frequent and acrid belchings may testify.

CHAP. VI.

The signs of a gouty Humor, proceeding from the Liver.

The right Hypochondry is hot in such gouty persons, yea the inner parts are much heated by the bowels, blood and choler carry the sway, the veins are large and swollen, a distillation suddenly falls down, especially if there be a greater quantity of choler than of other humors in the mafs of the blood. But if it is often falls out, the whole blood, by means of crudities degenerate into phlegm and a wheyish humour; then will it come to pass, that the Gout also, which proceeds from the liver, may be putitious or phlegmatick, and participate of the nature of an adema, like that which proceeds from the brain. As if the same mafs of blood decline towards melancholy, the Gout which thence ariseth, resembles the nature of a febph on, yet that can scarce happen, that melancholy by reason of the thickines and slowness to motion may fall upon the joynts. Yet notwithstanding, becaufe we speak of that which may be of these, it will not be unprofitable briefly to distinguish the signs of each humour, and the differences of Gouts to be deduced from thence.

CHAP. VII.

By what signs may we understand this or that humour to accompany the gouty malignity.

You 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 increase of the pain in the morning, noon, evening or night, by the propriety of the beating, pricking, sharp or dull pain; by numbness, as in a melancholy Gout or itching; as in that which is caused by rough phlegm, by the fenible appearance of the part in shape and colour (as for example lake) in a phlegmatick Gout, the colour of the affected part is very little changed from its self, and the neighbouring well parts, in a fungivorous Gout it looks red, in a cholerick it is fiery or pale, in a melancholy livid or blackish, by the heat and bigness which is greater in a fungivorous and phlegmatick than in the rest, by the change; and lastly, by things helping and hurting. And there be some, who for the knowledge of these differences, with us to view the Patients urine, and feel their pulse, and consider their symptoms, which in each particular nature, are accustomed to abound or flow, and are now suddenly and unaccustomedly foppressed. For hence may be taken the signs of the dominion of this or that humour. But more ample knowledge of these things may be drawn from the humors predominate 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 rarer to be found.

CHAP. VIII.

Frugulosity in the Gout.

By the Writings of Physicians the pains of the Gout are accounted amongst 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 malign and inexplicable gouty violence resides. Yet they more frequently invades in the Spring and Autumn; such as have it hereditary are scarce ever thoroughly free therefrom, as neither such as have it knightly: For in the former it was born with them, and implanted, and, as it were, fixed in the original of life; but in the other, the matter is become platable, so that it can neither be resolved nor ripened. That which proceeds from a cold and putitious matter, causeth not such cruel tormenting pain, as that which is of an hot, fungivorous or cholerick cause, neither is it so speedily healed, for that the hot and thin matter is not so readily dissolved, therefore commonly it ceaseth not until forty days be past: Besides also, by how much the substance of the affected part is more dense, and the expulsive faculty more weak, by so much the pain is more tedious. Hence it is, that those Gouty pains which grocket the knee, heel and
and huckle-bone, are more contagious. The Gout which proceeds of an hot matter, rests not before the fourteenth or twentieth day. That which is occasioned by acid choler, by the bitternets of the inflammation of the pain causeth a difficulty of breathing, raving, and fundry times a Congestion of the afflicted part, and laffy death; and healed, it often leaves a pulse behind it. Therefore through all the gouty pains, the Sciatica challenges the prime place, by the greatnesse of the pain and multitude of symptoms; it bring unquietness and watching, a Fever, Diaphoresis, perpetual lameness, and the decay of the whole leg. Now paines and lamens, or decay of the part is that occasioned, for that the decayed humor forceth the head of the thigh-bone out of the cavity of the huckle-bone; this being forth out prefixed the muscles, veins, arteries, and that notable and large nerve which runs along the thigh, even to the further joints of the toes, and by the way is diversely differenced 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 lye in bed for the decay of the veins and nerves are appressid, the nourishment and spirits do not freely flow into the parts there-under, whence proceeds their decay. Yet it fundry times happens, that the head of the thigh being not displaced, many halt because the vital humour, which is naturally implanted in that place, and continually flows stably, both for the nutrition of these parts, and the lubrication of the joint for quicker motion, is hardened by heat and indolence, and the other unprofitable humors which flow down to their concrete, and do intercept the liberty of motion. A gross and vital humour in what joint fever it falth and fysteth, doth the fame. For by concretion it turns into a phlatte-like nature at or near the joint, poffeffing the cavities thereof, and it depopeth the fig-ure of the part, making it crooked and distorted, which formerly was fialt and smooth. Furthermore, every diftember caused by the deflusion of hexors, if it thall yel long upon any part, depraves all the actions, and oft-times wholly abolitheth them; so that there may be three caufes of the lamens or decay of the joint by the Gout, the deflusion or comprefion of the veins, indolences, and an hindre Difpropertie: But two of lamens, deflusion and the concetration of an ad- dendus unquietness and watchfulness, a Fever, Diaphoresis, perpe-tual lamens, and the decay of the whole leg; now lamens and在一个, or decay of the part is that occasioned, for that the decayed humor forceth the head of the thigh-bone out of the cavity of the huckle-bone; this being forth out prefixed the muscles, veins, arteries, and that notable and large nerve which runs along the thigh, even to the further joints of the toes, and by the way is diversely differenced 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 lye in bed for the decay of the veins and nerves are appressid, the nourishment and spirits do not freely flow into the parts there-under, whence proceeds their decay. Yet it fundry times happens, that the head of the thigh being not displaced, many halt because the vital humour, which is naturally implanted in that place, and continually flows stably, both for the nutrition of these parts, and the lubrication of the joint for quicker motion, is hardened by heat and indolence, and the other unprofitable humors which flow down to their concrete, and do intercept the liberty of motion. A gross and vital humour in what joint Fever it falth and fysteth, doth the fame. For by concretion it turns into a phlatte-like nature at or near the joint, poffeffing the cavities thereof, and it depopeth the fig-ure of the part, making it crooked and distorted, which formerly was fialt and smooth. Furthermore, every diftember caused by the deflusion of hexors, if it thall yel long upon any part, depraves all the actions, and oft-times wholly abolitheth them; so that there may be three caufes of the lamens or decay of the joint by the Gout, the deflusion or comprefion of the veins, indolences, and an hindre Difpropertie: But two of lamens, deflusion and the concetration of an ad-
to have the Gout, but especially those who abound with idleness and pleasures: yea, these we have herefore mentioned are very effectual not only for the prevention, but also for the cure of the present disease. Yet we must diligently distinguish the causes, what they be, and when they may proceed, and oppose thereto remedies contrary in quantity and quality. These are absolutely three distinct cases of Gout: A tainture from the Parents; a corruption of the humors by diet and air; a native, or adventitious weakness of the joints. Against these there is a twofold indication: To wit, the truest attention of the present humors, the other the long-standing causes of the weak joints. To these two shall be performed by diet, issuing, and knitting blood, provocation of the héataroids, courses, vomit, sweat, urine, and the application of local medicines. Therefore, when the time shall come, wherein the Gout accustometh to return by courses, the Patient shall have a care of himself by a diligent manner of diet, he shall lessen the matter of the disease by Phlebotomy (if that the Gout shall arise from the blood) from the opposite part, that by the same means revolution and evacuation may be made; as if the upper parts be inflamed, blood shall be drawn from the lower, or in the contrary the lower, out of the upper, always observing the fructitious of the fires. Thus the right arm being troubled with a gouty inflammation, the Saphena of the right leg shall be opened, and to the contrary: but if this general blood-letting being prevented, the pain shall not ease, it will be requisite to open the veins next to the pain, which I have often performed with happy succeed.

Yet Phlebotomy hath not the like effect in all, for it is not available to such as are continually and uncertainly troubled with gouty pains, or whose bodies are weak and cold, wherein phlegm only is predominant. We may lay the fame of purging, for though it be oft-times necessary, yet too frequently re-iterated, it proves hurtful; furthermore, neither of these remedies is usually very profitable to such as observe no order in meat and drink, which unreverently too incomprehensively, who abound with crude and comminatory humors, whose joyntes by the vexation of the disease, have contracted a hectic distemper and weakness, so that they are deprived from their natural constitution, and suffer a great change of their proper substance. Wherefore as often as these greater remedies shall be used, a Physician may be doubtfull, who according to his judgment may determine thereof. For oft-times diet proveth more available than medicines; Therefore the Patient (if the matter of the Gout be hot) shall either drink no Wine at all, or else very much allayed, that is, as much as his custom and the constitution of his stomach can endure. A fit time for purging and bleeding is in the Spring and Autumn, because, according to the opinion of Hippocrates, Gouts reign chiefly in these seasons, in Autumn, for that the heat of the preceding Summer dehideth the digestive faculty, the native heat being disipated : As also the eating of Summer-fruits hath heaped up plenty of crude humors in the body, which easily flow down into the passages of the joynts and dilate the Summers heat: Add hereunto, the inequality or variable of Autumn weakeith all nervous parts, and consequentially the joynts. But in the Spring, for the heat that the stomachs forces, as the coldeude of the Winter, are drawn both from the centre to the circumference of the body, and being attenuated, fall into the joynts 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 facile.

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 brain and stomach, for the phlegmatick, sanguine and cholerick humors, which usually flow from the joynts, are excreted and diverted by vomit, and also there is attenuation of that phlegm, which being more thick and viscid, adhereth to the roots of the stomach: yet you must consider and see, that the Patient be not of too weak a stomach and brain, for in this case vomiting is to be suspected. For the time such as have excrementitious humors flowing down to the stomach through any occasion, as by escape the motion, must vomit before they eat: on the contrary, such as are over-charged with an old-concretion of humors, must vomit after they have eaten something. Certainly, it is safer vomiting after a meal, than it is before. For the dry stomach cannot, unleas with great contusion and framing, from it be vomited the viscid humors impast in the coats thereof: and hence there is no small danger of breaking a vein or artery in the chest or lungs, especially if the Patient be threatened, and long-chast, the feaon cold, and he unaccustomed to such evacuation. I remember that with this kind of remedy I cured a certain Grecollman of Grecia, grievously molestled with a cruel pain in his shoulder, and thereby impotent to use his left arm: the Physicians and Surgeons of Lyons seemed to omit nothing else for his cure. For they had used purging, phlebotomy, hanger, a diet-drink of Guaiacum and China (although his distempe was not occasioned by the Lues no- tices) and divers other topick medicines, neither yet did they any thing avail. Now learning by him that he was not apt to vomit, but that it was difficult to him. I wished him to feed more plentifully, and that of many and frugy meats, as fat meats, onions, lice; with frugy drinks, as Bear, Prifan, and sharp Wine, and he being freed, as it were, over charge his stomach at his meat, and presently after got him to his bed so for to it would happen, that Nature not endur- ing to digest after so great a quantity of meats and drinks, wherefore there was considerable stagnation in the stomach, and other-frone Gout affected at all. Nature not enduring this confusion and perturbation, would easily, and of its own accord provoke the stomach to vomit: which that it might the better succeed, he should help forward Nature's endeavor, by thrusting his finger or a leather into his throat, that so the thick and tenacious phlegm might by the same means be evacuated. And
At the defluxion of fevera humors is very finely divided from the jowts by the urine, by the
use of diuretick medicines. Therefore the roots of Sorrel, Parly, Rosin, Aloes, and
Grass, 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 pain is lefpen. Many have found benefit by affes;
for, for the Arthritis malignity flows forth of these, as by rivulles; experience shows the to such as are
troubled with the Lues, for in thed that you cannot overcome the malignity by the malignity of the
proper antecedent, that is, the quick-drier, they feel no greater ease of the pain, then by application of
Cauteries, and making of affes. They shall be made in fundry places, according to the difference of the pains
joint, to wit, in the beginning of the neck, if the defluxion proceed from the brain, and fall into
the joints of the collar-bones or fhoulder, if into the elbow or hand, under the joint, and
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For the Gout.

The other general remedies for the Gout.

CHAP. XI.

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Where to be

An algebra curre.

Fills.

Common pills

Treats, how ufeful in the Gout.

Cephalick fumigation.

Cephalick bags.

A Mufliciny.
For the body is once fed, they must not return to meat before the concoction be perfectly digested, or the liver be forced to draw by the mediarick veins that which is yet crude and full digested, and as it were forced thence. Whence the depravation of the temperament of the body is, that for the following decoctions do not amend the default of the body, but they are fit for such as are phlegmatick, but boiled for such as are choleric:

Let them make choice of meat of good juice and easy digestion, rolled for such as are phlegmatick, but boiled for such as are choleric: as they shall have much variety one meal, and in that they shall eat the style of pullets, mule-meats, faddles, and sharp things, as veejive, vinegar, the juice of oranges, and citrons. They shall not eat unless they be hungry, and shall detest therefrom before they be fully satisfied. If it be but for this, that whilst the native heat is balanced in the digestion of meat plentifully eaten, it is diverted from the concoction of the noxious humor. The flesh of great fowl, as swans, cranes, peacocks are not of laudable juice, and are with more difficulty digested in the stomach. Some of the ancients have disallowed of the eating of capons, and such like birds, because they are fabled to be troubled with the Gout in the feet. Fishes are to be avoided, for that they heap up excrementitious humors, and are easily corrupted in the stomach, yea and relax it by continual use. Of the flesh of beasts, veal is most to be commendated, for that it breeds temperate blood, and laudable juice, and is easily digested. Neither in the mean time is matter to be found but withall. But the lighter humor or abstinence must not be appointed to all men troubled with the Gout, for such as are of a fanguine and choleric constitution, because they are ended with much, and reach waiting heat, are to be refreshed with more plentiful nourishment; for hunger hardens choleric, and augment their pains neither in the interum must they be fed with too much meat, or too much moisture, besides that it is the author of the putrefaction, will cause depositions, and draw down to the matter to the joints. Therefore the choleric humor must be incarciated and refrigerated by taking things inwardly, and applying things curatively left by its tenacity it should fall down into the grievous parts. To this purpose condite broths alterated with lemons, parsley, forest, and the like herbs, and barley creams made with a decoction of the four cold feeds. Phlegmatick bodies, by reason that they have not so vigorous heat, do as it were carry their provant about them, wherefore they must not be fed, neither with many, nor with heavy meats. All that are troubled with the Gout, must shun those things that are hard of digestion, and which do augment, for that doth not so much offend the head nor joints, and it thins and strengths the nerves of the veiifs, yet it will be more convenient wholly to abstain therefore, and instead thereof to drink an Hydromel made after this manner: & aqua fuis iv. melle opi. & f. haustus ad unguenejunipervm f. bene diglom. adde ad fummmum f. minus f. addere in finem momentum. For cholesterol persors make a sugred water thus: & aqua frescivs siv. suaviter. & aqua for maximam fex oleosum, addenda in fine tuncmmum. For that the stomach shall also be strengthened, alofio he may drink fetum, wherein at the end of the decoction shall be boiled some dried roses, or else some syrup of peconagates added thereto, lest it should offend the stomach; as it focuses from off the fire, let it land and settle; and then strain it through an hypocras bag, or clear linen cloth.

How to strengthen the joints.

It is a matter of much consequence for the prevention of this evil, to strengthen the joints, whereby they may be able to retend the humors prettimately falling down upon them. Wherefore it is good morning and evening to rub with their oleum inamigenum that is sold of olives not come to their perfect matrueity; or with any oil with common fare finely powdered. It may also be mixed with common oil, adding thereto the powder of Heart's-bome, as that which is balfi and drying, and take it as the following leg: R. c. granat. senuum cupress. f. galbsum. simaisb. cordis. quenini. & f. f. faficis. reni. renestr. levandul. laurei. reo arboreatis. sc. 3, 5, 7. f. f. folium. in ul. 1. vis cos. & sterigmag. & lixivio parato ex aqua chalibeata. & cinere querno. Then foment the part with the joinrs.

The faces of fish, and flesh of the Gout, is not amended in the other.
Ere also we must consider the causes whereby this disease proceeds, the temper of the diseased body, the parts affected, and thence from whence it proceeds. For as there are not always alike, to neither can one and the like remedy be useful in every Gout. For infirn cases which proceed of a cold cause require other remedies, than those which arise from a hot, and that which proceeds from any one simple humor, than that which arise from diverse mixed together. For Choler alone causeth cruel pains, but tempered by the admixture of Phlegm, it becomes more gentle. Furthermore some remedies are good in the beginning, forms in the execution, and some at other times. Neither may we use repugnatives in the Scurvy, as we may in the Gout of the feet and other joints; unless peradventure the part be fearfully inflamed. For then we may reasonably consider the palliative cure of that Gout, which cannot absolutely be helped, as that which is hereditary and ineradicable, is performed by four foops. The first is by appointing a convenient diet, in the for urging which are termed natural. The second by evacuating and diverting the antecedent matter, both by purging and phlebotomy. The third by topick medicines according to the condition of the morbid humor and nature. The fourth by correcting the symptoms, but especially the pain, wherein these affects there is oft-times so great excess by reason of the insensible and invincible malady of the violent quality, so corrosive to the humor that it alone is oft-times insufficient to kill the patient. And because the variety of morbid humor causes, brings a variety of remedies, fitted to these four intentions, therefore it behoves a Physician to be most attentive in the distinction of the causes. For he may be easily deceived and mistake one for another; for arrestick pains proceeding from a cold matter, if they be mitigated by the application of Narcotics and cold medicines, it may induce us to believe that the material cause to be hot, though really it be not so; for Narcotics affwage pain, not for that they are contrary to the cause thereof, but because they take away the sense by inducing a numbness; on the contrary, the material cause may seem cold, which notwithstanding is hot, for that it becomes better by application of hot medicins, that is, by taking an argument from that which helps, because contraries are cured by contraries, and the like preferred by the like. But herein consists the error, for that hot medicines profet not by their contrariety, but by the attenuation of the grous matter, by the rarefaction of the skin, and dissipating them into air. Whence you may gather, that an argument drawn from that which helps and hurts, is very deceitful: moreover it may happen that a large quantity of cold matter flowing down from the brain, may cause great pain by reason of the violence, and a small quanticity of choler mixed theraewith, which serves for a vehicle to carry down the tough and flow phlegm into the joints, whence the patient becomes thirsty and feverish by reason of the heat and inflammation of these parts, wherein such are less cautious and heedful will easily be induced to believe that some hot matter is the occasion of this Gout. Now when it is not one simple humor, but different by reason of mixture, causeth the Gout, the yellowish colour of the part may deceive one, as, if the evil matter should proceed from choler only, which by the tenacity of its substance leaving the center, easily filllofeth the circumference of the body or part: and notwithstanding much phlegm being as it were contrariety to the admixture of a little choler, may be the chief cause of the disease, and may peradventure be discovered by the occurrence of pain in the night feason. A fever arising by means of pain and watching may excrave the conceived opinion of choler, which attestuating and diffusing the humors, drives them into the joints, and causeth fiery urines, tinctured with much choler, and a quick pulse. Yet notwithstanding the Physician shall be well cautious, if he receives this argument, 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 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 fornice of the affected part, because the coldness of the body may cause the sweat to remain in the joints, and the force of applied Narcotics may have destroyed the color of the juices lying thereunder, and as it were imprinted a certain blackness. It also happens that the body being overcharged with a great quantity of grous and viscid humors the expulusive faculty may discharge some portion thereof unto the joints, but leave the rest impadn in the cavity of some entrail, whereau that is lost, the belly being hot, the bloody being hot, and possibly by the admixture of certain which with a great multipicity of signes may be given to such as have the Gout. That judgment must be given to such which are accustomed in the Gout of the feet and other joints, becaufe the coldness of the body may cause the sweat to remain in the joints, and the force of applied Narcotics may have destroyed the color of the juices lying thereunder, and as it were imprinted a certain blackness. It also happens that the body being overcharged with a great quantity of grofs and viscid humors the expulusive faculty may discharge some portion thereof unto the joints, but leave the rest impadn in the cavity of some entrail, whereau that is lost, the belly being hot, the bloody being hot, and possibly by the admixture of certain which with a great multipicity of signes may be given to such as have the Gout.
of the Gout

Book XVIII.

Of the Gout.

these things that help and hurt, the patients familiar and usual diet, temper, age, region, fation of the year, propriety of pain, the exacerbation or excess thereof, in what days, and in what hours of the day, the length of these lies, the urine and other excrements coming from the patients body. But for that not a few are in that horfe, that they think that we must neither purge nor let blood in the Gout, we must borrow this opinion. For fearing that phlegm is the addition of that which wants, and the taking off those things that are superfluous, and the Gout is a distempe which hath its excellence from the plenty of abounding humors, certainly, without the evacuation of them by purging and bleeding, we cannot hope to cure, either it, or the pain which accompanies it. Mercurius, in his Treatise of the Gout makes, that it must be cured by purging, used not only in the declaration, but also in the height of the distempe, which we have found true by experience, and is conformable to this saying of Hippocrates: In pains we must purge by the stool. Besides alfo, Galen profeth that in great inflammations, fevers and pains, 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 phlebotomy conveniently perscribed, than it happens by the means of drunkenness, gouty, and the like, delightful. For hence abundance of crude humors are heaped up, which by their contumacy yield themselves left obedient to medicines. Therefore such gouty persons as are intemperate and given to glutony and venery: may hope for no health by use of medicines.

CHAP. XV.

Of local medicines which may be resorted to a cold Gout.

It is not to be resorted to a cold Gout before purging.

An affection of the Gout.

Treatife of the Gout writes, that it must be cured by purging, used not only in the declination, but in his bleeding, we cannot hope to cure, either it, or the pain which accompanies it; for seeing that physick is the addition of that which ufe purging and phlebotomy conveniently perscribed, then it happens by the means of drunkenness, gouty, and the like, delightful. For hence abundance of crude humors are heaped up, which by their contumacy yield themselves left obedient to medicines. Therefore such gouty persons as are intemperate and given to glutony and venery: may hope for no health by use of medicines.

After repercussives, we must use those medicines which evacuate the contained humor by evacuating or redressing it. For every defluxion of humors remaining in any part requires evacuation.

Neither must we marvel thereat, if the digested humor do not vanilh at the first time, for we must have regard to the cold phlegm which is thick and viscous, as also of the part which is ligamentous and nervous, and consequently more diffie than flither parts. In rad. fyr. sagittifl. best. Marie. su. viv. bullion in lixivio, pora ta, & colourant per fasciati, adendo f monuments of hygine to the part, aifwage pain: dried Oranges boiled in vinegar, beaten and applied, for the same purpose make the formam punctis fatis liuidis, for that defluxion of humors remaining in any part requires evacuation. This Cataplasm may be applied with good success, not only to phlegmatic and cold, but also to any gout, at any time to mitigate the extremity of the pain in men of any temper, and it must be changed twice or thrice a day.

One partly astringent and partly diffufing.

Why the gouty humor doth not vanilh upon use of medicines.

A cataplasm good for any Gout at any time.

Diffufing emplasters.
Ointments.

Remedies must be often changed in the Gout.

An Anodyne

What reper- cussions are here required.

An excellent althrogynum for the conjuct of the mast.

What reper- cussions are here required.

Chap. XVI.

Of the Gout.
was taken /jowi/iftheGovernour ofthe hither-Spain, as he overlooked the winnowing of his corn, 
oleirofati,
oxycrati quantum caquanturfimuf fiat cataplafma. Another^ K'.mucilag. cent.pfi-
§ii.
fwage pain,
have done in many with good fuccefs, opening the vein which was mod fwellcd and nigh to the af-
and fo was eafed, his feet being wonderfully dryed and he afterwards ufed his kind of remedy. It
5i.
omphacinilni. vini granat.li.vitellos ovor. cum albumine nu.iii. camphors
incorporentw fmul^ fiat It-
Book
feded part s for the pain was prefently affwaged. Neither mud we too long make ufe of repercuf- KrTa"nd S'""'
by reaibn of the abundance of blood impad in the parts wherefore it muft be evacuated: which I Phlebotomy
is note-worthy, which often happenefh, that the pain cannot be altogether eafed by fuch remedies, 
reporteth that
!.
lii.
croci
ol. rofati acet.
Pliny
3
|iv.
|iv.
rofat. omphacini ^
Or elfe, R'. fl/.

concrete into knots and plaster-Iike-stones: refolving medicines are to be mixed with repercuifives
length it will alfwage the inflammation. Some think the brain of a hog mixed with white thurcs,
and prelfed out again and applied thereto doth the fame. Or elfe, R.fol. cauallum rub.
coquan-
and prelfed out, and of thefe incorporated with oil of rofes and barly-meal make a cataplafm.
In winter-time, when as thefe things cannot be had green, you may ufe

The water of Snails
Snail, "A cerate with
epites.

What reperc-
cultives are
here required:

A particular

The history

An history

A particular

flour.
and to keep it for use, adding thereto in the time of anointing, some few drops of aqua viva. It may be anointed twice or thrice in a day, long after meat. Moreover the roots and leaves of Dane-wort boiled in water, beaten and applied affwage pain; the oil thereof chymically extracted performs the same.

But if the contumacious pain cannot be mitigated by the described remedies, and becoming intolerably hot and raging, make the patient almost to swoon then must we fly to Narcotics. For although the temper of the part may be weakened by thefe, the native heat diminished or rather extinguished; yet this is a far les inconvenient than to let the whole be wasted by pain. These things have a powerful refrigerating and drying faculty, taking away the fcale of the pain; and furthermore, lacerate, thin acrid and biting humour, such as cholerick humour.

Wherefore if the matter which causeth the pain be thick, we must abstain from Narcotics, or certainly use them with great caution. R. nicius ficulini purum colli in lacte, &c. vitri solv. aqua, &c. fermentum lactis, hysta quiac, mandragora, &c. postelae, vegetorum, & c. let them be mixed together and applied, and often changed. Or else, R. sol. balsam. &c. externa, & c. R. sol. vitri solv. aqua, &c. animantium &c. &c. &c.

A cataplasm with opium.

How to use the same.

How to use the same.
CHAP. XIX.

What is fit to be done after the fit of the Gout is over.

It is convenient when the pain is allayed, that you strengthen the joints. Now, to strengthen them is not only to bind and dry, but wholly to amend the weakened parts left in the part by the disease, that is to diffuse the humor, if any supererogation thereof remain in it, to the benefit of the part, the more to be exhausted and dried up. But such as are troubled with the Gout, after they are freed from this pain, have, notwithstanding their impotency of their joints that they cannot go a long time after for that the nerves and tendons which are in greatest number in the feet, being moistened with much Phlegm, are so relaxed, that they can no more function nor bear themselves upon their feet, than paper when it is wet can be made firm. Wherefore, that they may recover the use of their feet, your medicine must by all means be diffused, and with great force to fomentation, crucifying, drying up the sum and tult, and adding thereto a little quantity of fulphur vitrius; then the following emplaster shall be applied thereto. R. nig. emplast. contra reperalter, cum contra reperalter, cum. 

CHAP. XX.

Of the Tophi, or knots which grow in the joints of such as are troubled with the Gout.

One that are troubled with the Gout, have knotty bunches growing in their joints, which by the ancients were called Tophi. These are generated by the adventitious and burning heat caused by pain, and the gouty malignity, their more subtle part is dispersed, but the greater quantity firm.

Yet sometimes the next application of reparative or diffusive medicines is a cause of the generation of these Tophi. For by the former, the impact matter is inculcated and gathered together; but by the latter, the subtle part being diffused, the remnant that falsifies, concreted into tophi. These medicines which are made of a mollifying, ought to have a moderately heating, and humifying virtue, the nature of which follows. [This is a long section on the use of various remedies, which is beyond the scope of this transcription.]
Of Flatulencies contained in the joints, and counterfeiting true Gouts, and of the remedies to be used thereof.

In what joints flatulencies are chiefly generated. Signs of flatulencies.

How flatulencies may make matter. Why flatulencies may make pus, or there is matter.

Why hard to cure. The nature of flatulencies, and the cause of flatulencies.

F

Or that the hip-gout is the greatest of other causes, bitterness of pain, and vehemency of other symptoms, call this the kind 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 cartilaginous of the huddle-bone, with the head of the thigh-bone, is more deep than the rest; because also the phlegmatic humor which caufeth it, is commonly more plentiful, cold, greed, and violent, that flows down into this joint: and lastly, because the Sciatica commonly succeeds fome other chronic difeafe, by reason of the transiency and falling down thither of the matter, become malighe and corrupt by the long continuance of the former difeafe. But the pain not only troubles the hip, but entering deep, is extended to the muscles of the buttocks, the groins, knees, and very ends of the toes, yea often times it vexeth the patient with a fenfe of pain in the very vertebra of the loins, and also oft-times the very Physicians and Surgeons to think it the wind or stone-colic. The cause of such wandring and difperfed pain is to be referred to the manifold distribution of the nerves which come to that joint from the loins and hips--hence, and applying them, it shall be finallly twaughter up. Yet it great pain tall more cruelly vex the part, then neglecting for a time the proper cure of the difeafe, you fhall withstand the symptome by rubbing the part, and anointing it with fome difculling oil laying thereon fome moift wool, and other remedies.
The Scolica be commonly occasioned by tough phlegm, yet if the patient be strong, and abound with blood, and all things else content, it shall be good to draw blood by opening a vein, for phlegm is equally evacuates all humours: therefore the falling down of the humours into the part affected, is thereby hindered or retarded. Vener. I have known no such remedy to asswage the pain of inflammation, than blood-letting, being thus made on the As if within the grieved side for revivification of the matter, and then, for evacuation of the distemper any other, or the least, the head of the thigh-bone is ease driven out from hence, so that it may never be re Sofia again, if it remain so for any time. Whether in the thigh and leg, but at length of the whole body, and lastly, all the ligamentous bodies mentioned with this excrementious humor become more loose and weak, whereas fancied many and most grievous symptoms: as lamenets, and the decay not only of the thigh and leg, but at length of the whole body, and lastly, a flow and redundant fever, which in continuation of time will consume the Patient for the caufes formerly mentioned. Therefore let Physicians and Surgeons have care that they refitt it at the first, and, with such powerful remedies as are mentioned in the following Chapters, hinder the springing up and growth of the formerly mentioned symptoms.

Why we must open a vein in the Scolica.

When the vaue Thesicles and Sophicitas must be opened in the Scolica.

Scolicae, or Sour-pains, and Groans.

The cure of the Scolica.
The inner

may be raised by applying the inner rind of Travellers-joy to the weight of some two drams; a little

vulnery.

beneath the grievéd part: you must have a care that the ulcers that remain after the skin of the bili-

ters is taken off, and be kept open for some time after, and moreover of the humor contained in

The use of

cauterizes in the 

the part may be drawn away. But if we cannot avail by these means, we must according to Hippo-

nerve. In

pus, a little

cramp is.

Cætus. It is the last (faith he) of all the caufes, come to the laft and extreme remedy.

Chap. XCVI.

Such

crates

and most effectual

we have alfo read the fame approved by Celsus. It is the laft (fayth he) and muft effential

who fubjeft

to causeth many to be drowned, though excellent swimmers, and pull the part whereinto they run,

time, oft-times the neck, arms, and legs are either extended, or contraded into themfelves with

and centre of the body, whence it is that flatulencies may be generated, which will fill up, diftend

and their loosening helped, and by this means the whole part is notably corroborated.

C H A P. XXIV.

The Gout.

BOOK XVIII.

The end of the Eighteenth Book.

BOOK XIX.

Of the LUES VENEREA, and those Symptoms which happen by means thereof.

CHAP. I.

What the Gout is.

The cause

thereof.

Who suffers

thereof.

The cure.

The French call the Lues Veneria the Neapolitan diffafe; the Italian and Germans (call-fo the English) term it the French diffafe; the Latins call it Pudendagia: others name it otherwise. But it makes no great matter how it be called, if the thing it feel be under

What the Lues Veneria is.

What hurt it doth to the Body.

The end of the Lues Veneria.

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What the Lues Veneria is.

What hurt it doth to the Body.

The end of the Lues Veneria.
boke a great portion of their eye-lids, other boke look very gally, and not like themselves, and boke become fquint-eyed. Some boke their hearing, others have their noses full flat, the palt of their mouths perforated with the lobs of the bone Echondritis, so that instead of free and perfect utterance, they fafler and hissy in their speech. Some have their mouthes drawn away, others their yards cut off, and women a great part of their privities tainted with corruption. There be some, who have the Uterine or offage of the yard obstructed by swelling caruncles, or inflamed putules, so that they can make water without the help of a Catheter, ready to die within a short time, either by the corruption of the insir, or by a gangrene arising in these parts, unless you succour them by the amputation of their yards. Others become lame of their arms, and other some of their legs, a third grow frowy by the contraction of all their members, so that they have nothing left them found but their voice, which serveth for no other purpose but to bewail their miseries, for which it is faftly sufficient. Wherefore though I trouble you with mention of those that can hardly draw their breath by reason of an Asthma: or those whose bodies wake with an hebbitfe fever, and flow conflagmation? it fays far with those, who have all their bodies deformed by a leprofe arthritis there-hence, and have all their throats and throats even with putrid and cancerous ulcers: their hair falling off from their heads, their hands and feet cleat with teeters and feally clinks: neither is their eaffe much better, who, having their brains tainted with this difeafe, have their whole bodies taken by fits of falling-ficknefs, who troubled with a filthy and cursed flux of the belly, do continually call forth flinking and bloody fift. Laitly, there are no kinds of difeases, no forts of symptoms, whereof this difeafe is not complicate, never to be taken away, unless the viruleny of this miasm be wholly taken away, and impugned by its proper antidote, that is argentineurinum.

CHAP. II.

Of the caufes of the Lues Venerae.

These are two efficient caufes of the Lues venerae; the firft is, a certain occult and specifick quality which cannot be demonstrated; yet it may be referred to God, as by whose command this hath afflicted mankind, as a scourge or puifhment to retrain the too wanton and licentious lusts of impure whoresmongers. The other is an impure touch or contagion, and principally, that which happeneth in copulation, whether the man or woman have their privies troubled with virulent ulcers, or be molefted with a virulent ffrangury (which difeafe crafty Whores commurrain be wholly taken away, and impugned by its proper antidote, that is, little child may be altered, infesred, and by little and little corrupted by receiving of filthy and in-

The Leprocus sometimes the off firing of the Lues Veneræ.

The Lues Veneræ; the caufe of Whoresmongers.

The Lues Veneræ, all Veneræal biforms returning in again, occa-

The Lues Veneræ may be got by the only

How nurses may infect children, and they their nurses.

This following history is very memorable to this purpofe. A certain very good Citizen of this City of Paris granted to his wife, being a very chaste woman, that conditionally the thould nurse her own child, of which the was lately delivered, the thould have a nurce in the houfe to cufe her of some part of the leuker; by ill hap, the nurce they took was troubled with this dis-

An history.

This following history is very memorable to this purpofe. A certain very good Citizen of this City of Paris granted to his wife, being a very chaste woman, that conditionally the thould nurse her own child, of which the was lately delivered, the thould have a nurce in the houfe to cufe her of some part of the leuker; by ill hap, the nurce they took was troubled with this dis-

The Lues Veneræ; the caufe of Whoresmongers.
the one was three, the other four years 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 off-spring by malign contagion from the hired nurse. I had them in cure, and by God's help healed them all, except the fucking child, which died in the cure. But the hired nurse was boundly 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.

CHAP. III.

Of the Lues Venerea. Book XVIII.

In what humor the malignity of the Lues Venerea resides.

Though in the opinion of many of the antecedent cause of this disease be the miasms of blood containing the four humors, yet I had rather place the matter, and primary and chief seat thereof in geys and vital phlegm infected with the malign quality of the venereal wound, and from this beginning and foundation, I think by a certain contagious growth, it sooner or later infects the other humors, as each of them is disposed or apt to suffer: Of which opinion there are many arguments, but this chiefly, That by the evacuation of a phlegmastic humor, whether by the mouth and salivation, or by food, urine, or by the excretion of the lungs for what temper so ever, whether cholerick, sanguine or melancholick, the disease is helped or cured. Secondly, for that the excess of pain is more by night than by day, because then the phlegm bearing sway, severs the night, than acrimony of its malignity. Thirdly, because the patients are hurt by the use of cold or drawn into the body, so lieeth hid for the space of a year, that it shows no sign thereof, sometimes lies or disease roots of China, Lues Venerea is shewn. By this it appeareth that the provost, if after it be cicatrized, it retain the same callous hardness in the buboes or swellings. The most certain and easy sign of the Lues Venerea is that humor which carrieth the chief sway. For being opened, you shall find them stuffed with a certain plaster-like and tophous matter, or else with rough phlegm, or vitious pus; whereas if the leaf be taken up, or by force extruded upon the bones, if not from phlegmastic humors there were pushed up and concrete. Fifthly, for that the spleen and cold parts do primarily and principally feel the harm of this disease.

Sixthly, for that the ulcers which overspread the body, by reason of this disease, admit of no cure; and these two signs, which also bewrayeth itself by other manifester; as ulcers and pustules in the groin to return back into the body without coming to suppuration or other manifest disease; these two signs, if they concur in the same patient, you may judge or foretel that the Lues Venerea is either present, or at hand; yet this disease happeneth to many without the concourse of these two signs, which also bewrayeth it by other manifest signs, as ulcers and pustules in the groin to return back into the body without coming to suppuration or other manifest disease; these two signs, if they concur in the same patient, you may judge or foretell that the Lues Venerea is either present, or at hand; yet this disease happeneth to many without the concourse of these two signs, which also bewrayeth it by other manifest signs, as ulcers and pustules in the groin to return back into the body without coming to suppuration or other manifest disease; these two signs, if they concur in the same patient, you may judge or foretell that the Lues Venerea is either present, or at hand. But when as the disease becometh inveterate many become impotent in venery, and the malignity and number of the symptoms increase, their pains remain fixed and stable very hard and knotted phlegm grow up in the bones, and off-times they become rotten and foul, as also the hands and feet by the corruption of the phlegm are troubled with ulcers or chafis, and their heads are filled upon by an aphasia and alopexia, which disturbs tumours with roots deep fatned in, arise in sundry parts of the body, filled with a matter like the meat of a chitin, or like a tenden; if they be opened they degenerate into divers ulcers, as purulent, eating and other fistula, according to the nature and condition of the affected bodies. But why the pains are more grievous on the night than the day, this may be added to the true reason we endure in the precedent Chapter, that, for that the venereal virulence lying as it were asleep is stirred up and enraged by the

Why the pain is worse upon the night than on the day.

The disease sometimes lies long hid in the body before it shews itself.

The most certain signs of the Lues Venerea.

Two other causes of the excess of pain in the night.

When the Lues Venerea is lately taken, malign ulcers appear in the privities, swellings in the groins, a virulent strangury runs off-times with filthy pus, which proceeds either from the prostate, or the ulcers of the arborosa; the patient is troubled with pains in his joints, head, and shoulders, and as it were breakings of his arms and all his members, they are weary without a cause, so that neither the foot nor hand can easily perform his duty, their mouths are inflamed, a swelling troubles their throats, which takes away their freedom of speaking and swallowing, yea of their very spittle; pus rôle over all their bodies, but chiefly certain gardens of them engirt their temples and heads; the shedding of tears, and leanness deformeth the rest of the body; yet all of these not to appear in all bodies, but some of them in some. For there are scarce any tumors which proceed from a simple humor, and that of one kind, but as in tumors, so here the denomination is to be taken from that humor which carrieth the chief sway.
by the warmth of the bed and coverings thereof; secondly, by reason of the patient's thoughts which on the night before are wholly turned and fixed upon the only object of pain.

**CHAP. V.**

Of Prognosticks.

If the Disease be lately taken, associated by a few symptoms, as with some small number of pustules and little and wandering pains, and the body besides was young and in good case, and the constitution of the season be good and favourable, as in the Spring, then the Cure is facile, and may be happily performed. But on the contrary, that which is invented and managed by the fellowship of many and malignant symptoms, as a fixed pain of the head, knots and rottenness of the bones, inflamed ulcers in a body very much fallen away and weak, and whereas the cure hath been already dry days times and by habit Physicians, but in vain; 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, it is to be thought incurable, especially if to these many evils this be added, that the patient be almost waited with a consumption and thick黏 lees, by reason of the decay of the natural moisture. Wherefore you must only attempt such as a palliative cure, yet be wary here in making your Prognosticks: for many have been accounted in a desperate case, who have recovered; for the benefit of God and Nature, wonders oftentimes happen in diseases. 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 constitution. For as not all who are conversant with such as have the Plague, or live in a pestilent Air, are alike affected: So neither all who lie or accompany with such as have the Lues Venerea, are alike infected or tainted. The pains of such as have this disease, are far different from the pains of the Gout. For those of the Gout return and torment by certain periods and fits, but the other are continual and almost always like themselves; Gouty pains poffess the joints, and in their considered a phlegmatic matter into knots; but those of the Pox are rather filled in the midst of the bones, and at length dissolve them by rottennesses and ulcers. Venereal ulcers which are upon the body, are hard to cure, but if being healed, they shall remain hard and callous, they are signs of the disease lying hid in the body.

Generally, the Lues Venerea which now reigneth is far more mild and easy to be cured than that which was in former times, when as it first began amongst us: besides, each day it seemeth to be the Gout. For those of the Gout return and torment by certain periods and fits, but the other are

**CHAP. VI.**

How many, and what means there are to oppose this Disease.

Any sorts of remedies have been found out by many to oppose and overcome this Disease. Yet at this day there are only four which are principally used. The first is a decoction of Guaiacum, the second by Undidh, the third by Emplasters, and the fourth by Fomentations. Yet that is not sufficiently strong and powerful for experience hath taught, that the decoction of Guaiacum hath not sufficient strength to extingush the venom of the venereal virulence, but only to give it ease for a time; for because it heats, attenuates, provokes Sweat and Urin, which the excrementitious humour by drying them, it feemeth to ease the disease, for that thereupon for some time the pain and all other symptoms feem more remiss: But these remedies are weak and deceitful, as whereby that only which is more subtile in the humours in transit, is exhausted and diffipated by Sweat. But Hydromyrum is a certain high power, contains therein all the power of Guaiacum, yet much more efficacious; for besides that it heats, attenuates, cools, refolves and dries, it provokes Sweat and Urin, and besides it expels noxious matter upwards and downwards, by the Mouth and Stool. By which evacuations not only the more subtile, but also the more gross and incontinent excrements, wherein the seat of the disease is properly fixed, are diffipated and evacuated; by which the Phisician may be enabled to affiame himself of certain victory over the disease. But after the use of the decoction of Guaiacum, both pains and rotundities of the more gross and incontinent humour left in the cavities of the enteral, but Hydromyrum leaves no reliques behind it.

**CHAP. VII.**

How to make choice of the Wood Guaiacum.

That is preferred before the rest which is of a great length, of a dusky colour, new, gummy, with a fresh gowing smell, an astringent and somewhat biting taste, the bark cleaving very close to the Wood. It hath a facility to heat, rattle, attenuate, more to cause Sweat, and more to soften Urin.
The parts.

Urin, and bedes by a specifick property to weaken the virulence of the Lues Venerea. There are three substances taken notice of in this wood, the first is the bark, the other is a whitish wood which is next to the bark, the third is the heart of the wood, that is, the inner, blackish, and more dusky part thereof. The bark is more dry, wherefore you shall use it when as you would dry more powerfully, the middle substance is more moist, because it is more succulent and fat; that which lies between both, is of a mild temper: wherefore the two last are more convenient for delicate Natures and rare Bodies, which require less drying. Furthermore, the bark must be given to diseased and strong Natures, that by the more fiery force thereof, the humours may be made more fluid, and the passages of the body more passable. But I would have this be understood to mean such bark as is not putrid and rotten with age, to which fault it is very subject, for that long before it be shipped by our people, the wood lich in heaps upon the shore in the open air, until they can find Chapmen for it; when it is brought aboard, it is flowed by the Sea through the chinks of the boards, and above by the Mariners, it usily gathereth much dirt. When it is brought hither to us, it is bought and sold by weight, wherefore it may keep the weight, the Droogills lay it up in Vaults and Cellars under ground, where the furface thereof bedewed with much moisture, can scarce escape mouldiness and rottenness. Wherefore, I do not like to give the decoction either of the bark or wood which is next thereto, to feck people.

CHAP. VIII.

Of the preparation of the decoction of Guaiacum.

Left you must have your Guaiacum branded to small pieces, and to every pound of them, add of fair waters eight, ten, or twelve parts, more or less, as the nature of the party, and condition of the diseafe shall seem to require, according to the rule of the formerly mentioned Indications. Let the Water be hot or warm, especially if it be in Winter, that it may the more easily and throughly enter into the body of the wood, and draw into it the faculties thereof in the space of twenty four hours, wherein it is macerated, then boil it in Iaffins, to avoid Empyema, and, boiling with a tube of fine fire, which it will contract, but not suffer any hall, yet for nothing regard this, but think the Patient sufficiently served, if they make a decoction in an earthen pot well glared over a gentle fire, so that no part of the liquors mayrun over the mouth of the vessel, for that thus so much of the strength of the decoction might vanish away. Howsoever it be made, let it be boiled to the consumption of half, or fourth part, as the nature of the Patient and Diseafe shall seem to require. There be some who mix divers Simples therewith, which have an occult and proper sympathy with that part of the body which is principally hurt by the Diseafe, which at the leat may serve in stead of a vehicle to carry the faculties of the decoction to the place where the diseafe moft reigneth. Others add thereto purging Medicins, through judgment I cannot approve of; for that I think it is not for the Patients good to attempt two evacuations at once; that is, to expel the humours by Sweat by the habit of the body, and by purging by the belly; for that as much Urin, so much Sweat flews little evacuation by Stool. For these two motions are contrary, which Nature cannot be at once: For Purging draws from the Circumstances to the Center, but Sweat runs a quite contrary course, and this is the opinion of many and great Physicians. This first decoction being boiled out and strained, the like quantity of Water shall be put to the flux, or mal, that so being boiled again without any further infusion, and strained, with the addition of a little Cinamon for the strengthening of the Stomach, the Patient may eat or take his meals, and between his meals (if he be not sound) for ordinary drink. The quantity of the flux decoction to be taken at once, ought to be some five or six ounces, and it shall be drunk warm, that so it may be the sooner brought into action, and let the actual colleys should offend the stomacies and then the Patient being well covered, shall keep himself in bed, and there expect sweat, which if it come flowly on, it shall be helped forwards with these bottles filled full of Water, and put to the Soles of the feet. If any parts in the interna shall be much pained, they shall be comforted by applying of Swines bladders half filled with the fame decoction heated. Neither will it be unpreitable before the decoction be drunk, to rub over all the body with warm linen cloths, that by this means the humours may be attenuated, and the pores of the skin opened. When he shall have sweat some two hours, the parts opposite to the grieved places shall be wiped, then presently, but more gently, the grieved parts themselves, left a greater conflux of humours flow thereto. These things being done, he shall keep himself in bed, shunning the cold air until he be cooled and come to himself again, some two hours after he shall be dry, as the deficate and his former cutton shall fenn to require for few hours after, before he sett to his bed, he shall drink the like quantity of the decoction, and order himself as before. But if he be either weak, or weary of his bed, it shall be sufficient to keep the house without lying down; for although he shall not sweat, yet there will be a great dissemination of the vapours and venereal spirits, by insensible transpiration, common for the Lues Venerea. If he be very weak, and this will not be, you may think, that you have given the quantity of the flux Vains by a Clyster, or laxative Medicine taken either in fifteen or sixth day. But for the use of it, we must warmly observe, taking indication not only from the malignity and contumacy of the diseafe, but also from the particular nature of the Patient; for such as have their body wasted by hot and feverish diseases, and their skin dry and feak (whereas you may gather a great suction of the humours, and as it were, a certain incineration of the whole body) must more sparingly...
make use of these things, but rather temper the body by humecting things taken inwardly, and applied outwardly, as Bath, Ointments without Quicksilver, and other such like things: and then a very weak decoction of Grasparill shall be used for a few days before your unction with Quicksilver. A more plentiful diet, as it draws forth the disease, which of its own nature is long, to a more sparing and thinner diet makes the ulcers more rebellious and contaminous, by a luckless draught.

Therefore a middle course must be kept, and meats made choice of, which are fit and naturally cold, gender good and laudable juice in the body. For it is not only great ignorance, but much more rarity to go about to contain all Patients without any difference, within the straight allowance of four ounces of Ship-hester, and twelve damask Prunes; for I judge it far better to diet the Patient with Lamb, Veal, Kid, Pullets, fat Larks, and Black-birds, as those which have a greater familiarity with our bodies, than Prunes and the like Junckes. Let his bread be made of white wheat well leavened, neither too new, or tough, neither too old or hard. Let his drink be made of the masts or strainings of the first decoctions of Grassparill boiled with more water, as was formerly mentioned; yet if these arise any great weaknes of the face, you may permit the use of some little Wine, drinking especially before each, a cup of the last mentioned decoction. Let him void sleep presently after meat, for to the head is filled with gods vapors. Pallor or perturbations of the mind must also be avoided, for that by which the spirits are inflamed and dispirited, all the delights of honest pleasure are to be defired, but venery wholly avoided, as that which weakens all the nervous parts. Many in head of a decoction of Grassparill, use a decoction of China. Now this China is the root of a certain Rhus, knotty, rare, and heavy when it is fresh, but light when it is waxed old; it is also without smell, wherein many judge it void of any effectual quality, it is brought into use out of India, it is thus prepared, it is cut into thin round slices, boiled in Fountain or River Water, and is given to Patients to drink morning and evening after this manner. R. Rad. chin. in tabulis, &c., 2 ps. acce, fim., 2 x., infusion: datur per hor. xij. & cooponatur ad consumptiones, ter tertia partis. Let him take 3 vj. in the morning, and to much at night, lest he expect a sweat in his bed: a second decoction may be made of the masts remaining in the masts, but with a little quantity of water put thereto, which also by longer boiling may draw forth the strength remaining in the masts, and be used at meals for ordinary drink. There are some who make a third decoction thereof, but this is wholly imprudent and unseemly. Sera popularis, Of Sera popularis, is prepared also after the same manner.

CHAPEL IX.
Of the second manner of curing the Lues Venerea, which is performed by Ointion or Unction.

He Cure of the Lues Venerea which is performed by Unction and Friction is more certain, yet not in every kind, condition, and leason thereof. For if the disease be in a fea of an humour, tough, gross, viscous, and more tenaciously mixed in the fold parts, as you may gather by the knotty tumours of the bones; for then we are so far from doing any good with a Friction used at the first, that on the contrary, it may bring the Patient in danger of his life, unless we shall have first prepared the tumour to expulsion, by emollient and digesting things first used. But if it be lately taken with moveable pustules, putulles, ulcers in the jaws, throat, and pvty parts, then may be softly cared without such preparatives, especially if the humour be sufficiently obedient, and so it were prepared of it, and it is its own nature. Therefore ilt using general medicines, you may afterwards come to use the Unction with Hydrargyrum.

CHAPEL X.
Of the choice preparation and mixing of Hydrargyrum.

Hydrargyrum which is clear, thin, white, and fluid, is the bost: on the contrary, that which is bid, and not to fluid, is thought to be adulterated, by the admixture of some Lead. That it may be the purer, strain it through some hops-leather, for by preening it when it is bound up, it passeth through by its fluidity, and leaves the solid and leavened flesh behind it on the inside: Then it may be boiled in Vinegar, with Sage, Rosemary, Thyme, Camomil, Mulock, and strained against so many ways cleared; it may enter into Ointments and Plasters. To kill it more furly, it shall be long wrought, and as it were ground in a Mortar, that it may be broken and separated into molt small particles, by which this means it may not be able to gather it self into the former body: to which purpos you may also add some pulver of Sulphure, as we shall hereafter. It is most usually mixed with Hogs-grace, adding thereto some Oil of Tertunipine Nutmegs, Cloves, Sage, and Galen Tincts. It's Lauma phlogiuniun together with the Lues Venerea affick the body, then both attenuating, cutting and drying things shall be added to the Medicine, which shall be provided for Unction, the same being done when as we would have it to enter into the substance of the bones. But if the Patient be of a choleric temper, and his blood too hot to be inflamed, you shall make choice of leas hot attractive and discouraging things; as when the body shall be replenished with knotty and tumorous circumcasion, or posited by excessive drincks, then shall emollient and humecting things mixed therein: but that such Ointments may have a better confidence, I will add to each part thereof, four, five, or six yolks, of hard Eggs. Therefore this shall be the form of the Ointment called Vigi cus. Ch. Azumb, pere., 2 x., olei oemurn, aromatrici, taberni, 2 x., sippa, liquida, 2 x., rodentis in, Cn, uncinum purum tinct., & chello, sto., 2 x., pul. euphorbi., 2 x., vij., vij. & c. v. n. & co. var. magist. &c., 2 x., ref. pin., 2 x., c. t., winter. vici., 2 x., writt. vin., 2 x., agomi, 2 x., &c., c. albe, 4 x., &c., &c., 

Of the second manner of the Lues Venerea. To whom, and what manner of Wine may be allowed.
Of the Lues Venerea. Book XIX.

expexit, it, iva pernum ubi corium colorem, iii, ali, or, um, & scerni, an, is in theer, note, &

To make the

How to make

How to prepare the hogs-grease before you mix the argentum vivum to which

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Argentum vivum it. (hall be finely powdered, then some part of the and Hogs-grease put to them, then

ArgentummAcquires a more attenuating faculty, and conso-

r'm'dbrJ boiled with the hot herbs good for the sinews, as Sage, Rosmary, Thyme, Marjoram, Lavender, and

argentum dating of those parts which the afflidts. Besides, when unguments are made for this pur-

virulency may be drawn from within outwards, by sweats and transpiration through

bled with the Fire fide, so to keep away the cold air from him. Yet it is thefafeft to set, and

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The Patient, if it is may be con-

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gain the Un-

H e shall be anointed crumblc over with the Ointment in the morning, the concoction

and distribution of the meat being perfected, which functions otherwise would not be

well performed, the powers of Nature being dillatered into feveral operations: Yet if

the Patient shall be weak, you may fome hour before the unction give him fome Celly, the pole

of an Egg, or fome Broth made of Meat boiled to pieces, but very fparingly, lefc Nature intent

the Patient (hall be weak, you may fom^ hour before the untSion give him fome Geliy, the yolk


W hat cautions to be obfind in rubbing or anoining the Patient.

The Patient, if

is may be con-

veniently done, must be anointed falling.

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ces the body must be a-

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Where to be-

gain the Un-

He body and humours apt to caufe or nourish a putrid or inflammation, being prepared by
digestive fyrmp, and encounted by pasging and bleeding as is fitting, according to the
direction of some Physician, the Patient shall be ftill up in a Parlor or Chamber, hot either

by Nature or Art , and free from cold blasts of wind; for cold is most pernicious in this difeafe,
both for that it hurts the nervous parts, already ill-affected by reason of the difeafe, as alfo for that

in keeping the efficacy of Medicins. Wherefore many do ill in this, who, whether in Winter or Som-

mer anoint their Patients in a large room, expofed on every fide to the winds. They deal fome-

what more wisely, who put a cloth fained like half a Tent prefently behind the Patient, though

anointed by the Fire fide, fo to keep away the cold air from him. Yet it is thefafeft to set, and

anoint the Patient either in a little Room, or elfe in some corner of a large Room, expofed from the

part of the Room by fonie hangings, and building a (love, or making fome fire therein, for fohe may

be anointed, and the whole fpine of the back > yet having much care, and always (hunning the

pores of the skin, no man need doubt but that they ought to be furnilhed with relaxing and

strengthens the nervous parts. But Argentum vivum is the proper antidote of the Lues Venerea, as

that which cures it howsoever used, drying by the fubtiky of the parts, and provoking fweat. Ve-

rily Treacle and Methidure fenonewhat conduce to retund the virulency of this difeafe, but unless

argentum vivum affall as a ferret to hunt, and an Atlaniterium to impugn the difeafe, they can do

no great matter.

CHAP. XI.

How to ufe the Unlion.

Cold unofh

hurtful to fuch

as arc trou-

bled with the

Lues Venerea.
number of the frictions. Which consideration, together with that which is of the degrees of the temperatures of the whole body, and each part thereof, much troubles the minds of good Physicians, and makesthe Art conjectural. It is far from being attained to by Empiricks; yet we must endeavour by Method and Reason, that by the Rule of Indications to frequently mentioned, we may attain to the knowledge thereof, as near as may be: for to have perfect knowledge hereof, and to say that there need only four, others five, and others six, or more or fewer frictions at the beginning, which Empiricks, commonly do, is a thing both impossible and vain. All this must be changed and ordered according to the malignity and continuance of the disease, and the condition of the afflicted bodies. Verily we must to long use frictions and unctions, until the violent humours be perfectly evacuated by Spitting and Salivation, by Stool, Urin, Sweet, or inflinble transpiration. Which you may understand by the falling away and drying up of the Pustules and Ulcers, and the ceasing of the pains and other symptoms proper to this disease. In many, by reason of the more delicate and compact habit of the body Nature is more flux in evacuation. Yet have I seen by long experience, that in it be to anoint and chafe twice in a day, to wit Morning and Evening, six hours after meals. For so you shall profite more in one day, than by the single friction 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 days rest to recolect their strength, by which the too much diffusion of their spirits becoming too weak, were not sufficient to expel the relapses of the morbid fluxing matter. And certainly about the end of the appointed friction, especially when as the Patient begins to flux at the mouth, the bodies, together with the noxious humours are made fluid by the means of the precedent friction, that one friction is then more efficacious then two were at the beginning. Therefore as Galen bids, when as the disease is great, and the strength of the Patient inferme, that we should part our blood-lettings, and draw a little and a little at once; fo allo here, when as we shall observe Nature stirred up, and ready bent to any kind of evacuation by the Mouth, Stool, or other like; you ought not to use any Unction or Friction oftener than once in a days yea, certainly, it will be better to intermit for some few days. For thus Maffa reports, that there was a certain man who almost walked with a Confumption, being continually afflicted with the most grievous pains of this disease, and refused in a desperate case by other Physicians, was notwithstanding at length recovered by him, when as he had annointed him thirty seven times, putting some time between the recovery of his strength. If any have observed others, who thus, by the interpolation of one or two days, being rubbed over for fifteen or seventeen times, have perfectly recovered. Where you must take this course to relive and vivify bodies, yet in the interior must you have a care that the frictions be not too weak, and so few, that the morbid flux be not touched at all: for in this kind of disease Nature doth not of it itself endeavour any effa, or excision: it requires the auxiliary forces of Medicins, by whose abstinence it may expel all the malignity. There be signs of such a effa, either at hand or already present, if the Patient be for the first time, so hitherto all things, that he cannot remain in one place either fasting or lying; he cannot eat nor drink, if be be appeased with a continual wearinefs, almost ready to swooned, yet have a good and equal pulse, and gripings in his belly afflicts him, with bloody and viscous dejections, until at length Nature after one or two days portion of the morbid flux being spent, be somewhat freed, and all pains and symptoms fo much abated, as the exacerbations have proceeded. But whereas Medicins are not sufficient in number or strength, there follows an imperfect effa, which leaves behind it some relics of the morbid flux, which like leaven do by little and little infect the whole mass of the humours, that oftentimes after ten years space the disease riffs as of an unbreakable, or lurking-hole, and becomes far worse than before. But we must in like manner have a care lest these Medicins, 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 consumption. In others for did and putrid ulcers have thence arisen in the mouth, which having eaten a great part of the Palace and Tongue, have degenerated into a deadly Cancrum. In others hereupon the tongue hath so swellinged, that it hath filled the whole capacity of the mouth, so that it could not be opened to any part of the mouth for chewing, whereas before they have by little and little, been vanquished. In other some other hath been caused to great colliquation of humours, that for a whole month after tough and thinny flavours 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 jaw, have lost some of their teeth. But you must not always go long anoint and chafe the body, until a flux of the mouth or belly appear: For you may find sundry persons, who if you should anoint or rub them to death, you cannot bring them to flux at the mouth, yet there will recover notwithstanding, excision being made either by inflinble transpiration, or evacuation of Urin, or some gentle flux of the belly, either produced by the Art, or coming of itself. In which case I have observed that many have received much good by a purging decollation of Guainiacum, administered according to the quantum of the quantity of the pectoral humours, and given for some days in the morning, adding thereto white Wine, if the body abounded with tough and vitious humours. Dysenteries, or bloody Fluxes caused by Leprosies, may be helped by Clysters, wherein much Hops-grate is dissolved to retund the armony caused by the Medicins and humour which nouriseth the Dysentery. Also new Treacle dissolved in new milk, it thought wonderfully to mitigate this symptom.
Of the third manner of Cures, which is performed by Cerates and Emmplasters, as failigates of Ulcers.

The cure by Emmplasters more flow.

In what oil they are chiefly useful.

The description of an Emmplaster.

To avoid the ulcers of the mouth.

To cure the ulcers of the mouth.

Gargarifms.

To dry the ulcers of the mouth.

For that fundry by reason of the name, abhors the use of friction, which is performed by the forcible fricative Ointments, therefore there is found out another manner of cure by Cerates and Emmplasters, as substitutes of frictions, that but usually is somewhat flow for which purpose it is not needful only to use the things which are described by Figo, but you may also devote other, which are more or left anodyne, emollient, attenuating, difcuffing, or drying, according to the condition of the present disease, symptoms, humours, and Patient, never omitting Hydragangins, the only antidote of this disease. Such Emmplasters mitigate pains, and knots, and resolve all hard-reeds, and are absolutely very efficacif; for continually sticking to the body, they continually operate; whereby they are of prime use in relapses of this disease, or when the humours are thick and viscous, or otherwise lie deep in the body, and very difficult to root out. But for that they work more slowly off-times, fuch as use them are forced at length to use some frictions to intimize Nature, and cause the speedier excitation. Yet in flow, whole bodies and humours have been fluid, either by Nature or Art, the applied Emmplasters have in three days space procured evacuation efficacious for the disease, so that if they had not been taken away, they would have caus'd a colligation, like that which we lately mentioned in too violent friction: Wherefore you shall use the like discretion in taking of fuch, as you use in your exudations and friction. In heed of Emp. de Figo, this following may be fully used in Mex. Em. meil. & conj. ac. lb. 4. argo. vivi extin. 5 & qu. les lavant. & de fiis redadu Ion. ad formam emplastri. These Plasters must be equally spread upon leather, and laid upon the same plaits of the joints, as were formerly mentioned in the cure by frictions. Yet fome there be who cover with the platter all the arm, from the hand even to the shoulder, and all the leg from the top of the knee, even to the ends of the toes, which thing I do not disallow of, if it be that the places or the joints be covered over with a thicker Plaster. They must be left itching therin to longanid Nature be fupped up and provoked to cause excretion of the virulent humours. Yet if in the interim of the great itching flat up in the parts, you may take them off for long parts until the parts be fomented with a decoction of the flowers of Camomil, Melilot, red Roses, and the like, made in Wine, to dotiduct that which caus'd the itching, and then you may lay them on again. Some to hinder the rising of any fuch, lay not the bare Plaster but the part, to cover it over with Sarcevet, fo to keep it from itching, and thus intercept the transpiration of the part, the cause of itching. They shall be stronger or weaker, and lie to the part a long or shorter space, as long as the indications so often formerly mentioned, shall feem to require. The effects of Emmplasters are the same as of frictions: for they cause excretion, one while by infensible tranpiration, other times by a Diarrhoea, or flux of the belly, sometimes by Urins, but most frequently (which Cnjir is almost certain) by Salivation. Seal'd and violent ulcers often breed in the Mouth, Tongue, Palate, and Gums by Salivation, for reason of the acridity of the virulent humours adhering to the fide of the mouth: to hinder the growth of which excretion, many inject Clyfters made of emollient 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 fells may endure them.

There are alfo fome, who to the fame end give a purging Medicin at the very time when as the humours are ready to move upwards, the which I think is not a safe course. The cure of fuch ulcers is far different from the cure of others for they ought by no means to be corrected or expelled, how inflamed fome they be, but eafily to be mitigated by garganings, fo only to leffen the heat, and that by this frequent washing of the mouth, you may hinder the itching or souring of vivid humours to fuch like ulcers. A decoction of Barley, Cows milk warm, held and gargled in the mouth, the mucilages of the seeds of Mallow, Marsh-mallows, Plantain, Lettuce, Linseed-extracted in the Water of Barley, Mallow, and Pettoriny of the Wall, are good for this purpose; for thus the ulcers become more mild, and the acuity of the adherent humours is lesse. You must at the first beware of frong detergent Medicins, for almost all fuch have acrimony joint with them, which will create the pain, but chiefly in the state of the dafate: for fo, the ulcers gentry clariffed by frequent gargling, would become worse by the eft of acrid things. Therefore it shall be fufficient to make use of the for-mentioned Medicins, if to hinder the increafe of the itch, and inflammation of the ulcers, if to be that fuch ulcers be not too exceeding maling and burning. For if it shall happen either by the powerful efficacy of the applied Plasters, or by the violence of Nature in its motion of the ill humours upward, that fuch flow of vifcus and grofs humours are carried to the mouth, that it wants litle, but that the part it falls is overlaid by the most black matter, fo that by the violence and continuance of the flux, the Mouth and Jaws become to swell'd, that a garrang is to be feared, by binding the entrance of the spirits, and extinguifbing of the native heat of these parts. In this cafe we are forced to leave the proper cure for to withstand the accidents, and for this purpose we use repellent and repelling things, fuch as Barley Water, Plantain, or any other Night-flade, Water-lilies, Wood-bind, &c. Also it is convenient to procure fweats by Stoves, or the application in any hot and 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 stop, and the humours of ulcers begin to leffen, then nothing hinders, but that we may use gently detergent things, as Syrup. refirum feces, &c.; Diarrhoea; Diarrhoea, &c. But when it is time to dry the ulcers, they may be lightly touch'd with Alum-water, or with Aqua fortis, fuch as Golden-flet have ufed for the perparation of Metals. They may also frequently use drying Gargarifms.
Gargans made with addition of the water of Rosin, Plantain, Night-shade, Shepherd's-purse, Knot-grass, and Dogs-tongue, boiling therein balanced, myrths, juniper, almon, melast, berberis, salvia, and the like. During the time of flushing or evaporation, you must diet and feed the Patient with liquid meats, and those of good juice and easy digestion, for that then he can neither chew, swallow, nor digest hard things: For Nature wholly intent upon the exertion of the humors, and subsequent to a great resolution of the spirits, cannot infest powerfully upon the work of digestion. Therefore he shall be fed with fresh new-laid Eggs, Bawdy-crumbs, Balnestis made of a decocation of Worms of Ven; and a Copon, and Gelles, and with these in small quantity, but frequently administered, always gargling his mouth before he eat. For his drink he shall use a decoction of Ginosane aromatized with a little Cinamon, but if any desire that the drink shall become nourishing, for that then the Patient cannot feed on solid meats, you may give them old Wine, Glaret and thin, mixed with some记者了解-crater. Some there are who keep some crumbs of pure Manchet in the fore part, and make i heif, in such a manner, always gargling his mouth before he eat. For his drink he shall use a decoction of Guaita in Wine for the space of a night, then they distill it all over in balnest Maris; the liquor which comes over is more flushing and hot, but that which flows out afterwards, more mild, and such as the Patient may use to mix with his Wine without any danger, for his better nourishment, and the recovery of his strength.

For to refresh the spirits in fear of fainting, Mufeadine, Hippocras, Ros Viniagaret, and the like, put to the nofe to smell to, will be sufficient, unless peradventure the Patient should naturally abhor such things, for so they would rather depict the powers and spirits. In the interim you must have care of the belly, that you keep it open by gentle and emollient Clysters.

CHAP. XIV.
Of the Fourth manner of Curing the Lues Venerea.

One have devised a fourth manner of curing the Lues Venerea, which is by Salpitos, or Fumigations. I do not much approve hereof, by reason of sandy malign symptoms which thence arise, for they infed and corrupt by their venomous contagions, the Brain and Lungs, by whom they are primarily and fully received, whence the Patients during the repletion of their breas, have a tendency to fainting. Yeas many while they have been thus handled have been taken hold of by a convulsion and a trembling of their Heads, Hands, and Legs, with a Distemper, Apoplexy, and latter, more formidable death, by reason of the malign symptoms of Sulphur and Quicksilver, whereby Cinabaries con-fists, drawn in by their mouth, nose, and all the rest of the body. Whereas I can never approve for that the Patients cannot feed on more solid meats, you may give them old Wine, Glaret, and thin, mixed with some记者了解-crater. Some there are who keep some crumbs of pure Manchet in the fore part, and make i heif, in such a manner, always gargling his mouth before he eat. For his drink he shall use a decoction of Guaita in Wine for the space of a night, then they distill it all over in balnest Maris; the liquor which comes over is more flushing and hot, but that which flows out afterwards, more mild, and such as the Patient may use to mix with his Wine without any danger, for his better nourishment, and the recovery of his strength.

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The common manner of using them.

The fourth manner of Fumigations, by reason of the admixture of argentum vivum, have an attenuating, cutting, refolving, and colliquating faculty. Those who prepare these Fumigations for the cure of the whole diabolic, and body rake this course. They put the Patient under a Tent or Canopy made clofe on every side, let any thing should expire, and they put into him a Veil filled with hot coals, whereupon they plentifully throw Cinabaries, that so they may on every side enjoy the rising fume, just after the same manner as Fernars use to fmoak their Horses for the Glanders; they repeat this every day fo long, until they begin to flux at the mouth. The principal matter or base of such Fumigations, as we have already noted, is Cinabaries consisting of Sulphur and argentum vivum, mixed together: there is added also, Radicis inus, flor, obfium, myrrha, jucca odorata, affunanthes, mastic teretissimae & laceratae, all which have a faculty to refolve and strengthen the Speris and Nature, and correct the feath and evil quality of the argentum vivum. There are also other Fumigations made after another manner, but that also when the argentum vivum is excited, and as it were taken after this manner, let some Lead be melted, and let there be poured or put therein some argentum vivum, then let it all be powdered, adding thence Antimony, Aloe, Matich, Copern, Orpiment, and Benjamin made into Powders, and framed into Trochises with some Turpentine. Or else & Cinabaris 3, & sfyacis lif, & cemic, multis mochi, et, 3 & belladonna 3 & f, etae trochei, flaut rothots, ponderis 5, for the abovefei 0. The trocheis is added to incorporate the dry things, and the guns are added to yield more Trochises for the same use. But virulent ulcers of the Lues Venerea shall not be fumigated before they be cleansed, fumigated, fed; also this following Fumigation is good. & Cinabaris, & belladonna, & myrthra, & sfyacis, obfium, oppa- rantes, et, 3 & pulex trochei, etae trochei, ponderis 6 & 3 trocheis, etae trochei, ponderis 5 & 3 trocheis, etae trochei, ponderis 5 & 3 trocheis, equitatis, etae trochei, ponderis 6 & 3 trocheis, etae trochei, ponderis 5 & 3 trocheis, etae trochei, ponderis 6 & 3 trocheis, equitatis.

CHAP. XV.
The Cure of the symptoms, or Symptomatica, affects of the Lues Venerea: and sills, of the Ulcers of the Yard.

Allours and malign ulcers in this diabolic may grow all over the Yard; but these are far more malign which arise upon the Prepuce, than those that grow on the Glans or Nut of the Yard. Now they are rebellious to the common Medicins of Ulcers, which happen elsewhere, and they are also subject to turn into a Gangrene, so that funding who have not in time provided for them selves by the use of argentum vivum, are forced for their negligence, to suffer the los of their Glans, and oft times of their whole Yard. Yet I am of opinion, that I think we must begin the cure of Ulcers.
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 we shall find that we do no good by this means, and that the disease, notwithstanding grows worse and worse, then must we come to make use of such things as receive argumen venenum, that by these we may reject the virulence which is ready to dissipate itself over all the body; yet it is absolutely necessary that all these things be ended with such faculties as may return the malign acrimony of this venom, such as is this following ointment of Lapis.

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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 follows, 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 palsy of the retentive faculty of these parts; as it is delivered by Galen, lib. de loc. effect. This disease befalleth others by the collection of the blood and seminal matter by the Vessels 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 matter, like to put, or matter not well concocted, oftentimes fretting and exalting the passage with the acrimony, andcausing a painful erection of the Yard, and diffusion of all the genital parts. For in this erection there is caused as it were a convulsive contraction of these parts. And hence it is that the Patients complain thus: that they feel as if it were a fiery trenched ill to these parts, which draws the Yard and it was downwards.

The cause hereof is a gross and flatulent spirit, filling and descending by its plenty, the whole channel of the Yard, and dilating the whole porous substance of the Yard. If to these symptoms this be added, that the urinary passage be exulcerated, a grievous pain afflicts the Patient whilst he makes water, for that the Ulcers are irritated by the hot Urin paffing that way. This a virulent Strangury, or Running of the Seed, cannot endure so long, but that it will bring the body to an extreme and deadly leanness, for that the matter of the Seed is of the more benign and laudable portion of the whole body to the genitals, by reason of the resolution and palsy of the retentive faculty of these parts; and the urine and semen by the Vessels of the whole body, which not turning into fat and good flesh, takes its course to the genitals, by reason of the resolution and palsy of the retentive faculty of these parts, as it is delivered by Galen, lib. de loc. effect. This disease befalleth others by the collection of the blood and seminal matter by the Vessels 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 matter, like to put, or matter not well concocted, oftentimes fretting and exalting the passage with the acrimony, and causing a painful erection of the Yard, and diffusion of all the genital parts. For in this erection there is caused as it were a convulsive contraction of these parts. And hence it is that the Patients complain thus: that they feel as if it were a fiery trenched ill to these parts, which draws the Yard and it was downwards.

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CHAP. XVI.

Of the Caufes and Differences of the Scalding or Sharpnefs of the Urin.

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Here heat or scalding of the Water, which is one kind of the virulent Strangury, arises from some one of these three Caufes to wit: Scalding, Inanition, and Contagion. That which proceeds from Repletion, proceeds either from too great abundance of blood, or by a pastoral and tedious Journey in the hot Sun, or by feeding upon hot, acid, diuretic, and flatulent Meats causing tension and heat in the urinary parts, whence proceeds the inflammation of them and the genital parts; whence it happens that not onely a feminal, but also much other moisture may flow into those parts, but principally to the Preputium, which are Glandules situated at the roots, or beginning of the neck of the bladder, in which place the generative vesicles end, and also abundance from Venery causeth this plenteous in forme which have usually had to do with Women, especially the expendable faculty of the feminal and urinary parts being weak, so that they are not of themselves able to free themselves from this burden: For then the suppurred matter is corrupted, and by its acrimony contaminated, by an adversitious and putridinous heat, it causeth heat and pain in the passages forth. The Preputium swelling with such inflamed matter, in process of time become ulcerated, the ulcers being broken. The purulent juerum dropping and flowing hence along this urinary passage causeth the Yard acrimony, which the Urin falling upon, exasperates: whence if any pain which also continues for some time after making of waters, and together with the sensation, the pains attraction, and the vaporous spirits diffusion, the Yard standeth, and is continued with
with pain, as we noted in the former Chapter. But that which happens through inanition, is acquired by the immediate and unfruit of Venery, for hereby the oily and radical moisture of the for-mentioned Glandules is exhausted, which, waited, and spent, the Urin cannot but be troublesome and sharp by the way to the whole Urinary. From which fince of sharp pain, the felling of the Urin hast its denomination. That which comes by contagion, is caused by impure copulation with an unclean person, or with a woman, which some while when before hath received the tainted feed of a violent pueris, or else hath the Whites, or her Privy Parts troubled with hidden and secret ulcers, or carrieth a violent spirit that up or hidden there, which heated and reinfated by copulation, preferently infects the whole body with the like contagions ; no otherwise then the thing of a Scorpion or Phthalamum, by casting a little poison into the skin, preferently infects the whole body, if the force of the poison spreading farther than one would believe, so that the party falls down dead in a short while after. Thus therefore the seminal 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 feith, whence fol- lows an abscess, which casting forth the virulence by the urinary passage, caufeth a violent Strangury, and the malign vapour carried up with some portion of the humour unto the entrails and principal parts, caufeth the Lues Venerea.

CHAP. XVIII.

Prognosticks in a virulent Strangury.

We ought not to be negligent or careless in curing this affection, for of it proceed pernicious accidents; as we have formerly told you, and neglected, it becomes uncurable, fo that some have it run out of their urinary passage during their lives, oftentimes to their former life; it is added a suppurpate of the Urin, the prostate and neck of the bladder being inflamed and unmeatnasily swollen. Copulation, and the use of acid or flatulent meats increase this inflammation, and also together therewith cause an infuric or stoppage of the urin, they are worst at the change of the Moon: certain death follows upon such a stoppage; as I observed in a certain man, who troubled for ten years space with a virulent Strangury, at length died by the stoppage of his wa- ter. He used to be taken with a stoppage of his urin as often as he used any violent exercise, and then he helped himself by putting up a silver Catheter, which for that purpose he had carried about him: it happened on a certain time that he could not thrust it up into his bladder, wherefore he fent for me, that I might help him to make water, for which purpose when I had used all my skill, it proved in vain; when he was dead and his body opened, his bladder was found full, and very much dilated with urin, but the prostate preternaturally swollen, ulcerated, and full of matter resembling that which formerly used to run out of his Yard, whereby you may gather that this virulence flows from the prostate, which runs forth of the Yard in a virulent Strangury, and not from the Reins, as many have imagined. Certainly a virulent Strangury, if it be of any long continuance, is to be judged a certain peculiar Lues Venerea, so that it cannot be cured unlefe by frictions with Hydrargyrum but the ulcers which poiffe the neck of the bladder are easily discerned from thefe which are in the body or capacity thereof. For in the latter the fath comes away as the Patient makes water, and is found mixed with the Urin, with certain firings or membranous bodies coming forth in the urin: to thofe may be added, the far greater fench of this ill, which proceeds from the capacity of the bladder. Now must we treat of the Cure of both thefe Difeafes, that is, the Gonorrhoea and the virulent Strangury.

CHAP. XIX.

The chief heads of curing a Gonorrhoea.

Let a Physician be called, who may give direction for purging, bleeding, and diet, if the affec- tion proceed from a fulnefs and abundance of bloud and seminal matter; all things shall be thrown out which breed more bloud in the body, which increafes the feed, and fur to venery. Where-fore he must abate from Wine, undils it be weak and alfringent, and he must not only ecchew fexu- lity with women, but their very pictures, and all things which may call them to his remembrance, especially if he love them dearly: but ftong exercifes do good, as the carrying of heavy burdens even until they sweat, fwimming in cold water, little fleep, refrigerations of the body and mental parts, by anointing them with ammonium reformam reflexorum euleni & nutrinum, putting thereupon a double cloth fpread in oxycrane, and often renewed. But if the resolution or weakness of the retentive faculty of thefe parts be the caufe of this difafte, controulled by too much ufe of venery before they arrive at an age fit to perform fuch exercifes in this cafe strengthening and diftinguithing things must both be taken inwardly, and applied outwardly. But now I haften to treat of the virulent Strangury, which is more proper to my purpose.

CHAP. XX.

The General Cure both of the feeling of the Water, and the virulent Strangury.

We must diversly order the Cure of this Difafte, according to the variety of the Caufes and Diet. Accidents thereof. First, care must be had of the diet, and all fuch things that may inflame the bloud, or caufe windifnes of which nature are all diuretick and flatulent things, as also throng and virulent exercifes. Purging and bleeding are convenient, especially if ful-
The proper Cure of a virulent Strangury.

In first, we must begin with the mitigation of pain, and staying the inflammation, which shall be performed by making injection into the Urethra with this following decoction warm.

An injection to stay inflammation.

\[ \text{R \ Vin. albi odoriferi, j. \ Aurea \ auripigmenti, j. \ Viridis \ eris, j. \ Aloes opt. \ Alum. \ j. \ Rose. \ j. \ Amygdal. \ j. \ Linum \ j. \ Cinamon. \ j. \ Turpentine.} \]

To make these things well, let them be taken after the first deep. And the following Pills are also convenient.

Masse pilulae finesq.; rhei nodulorum, 1.; aloes opt., 1.; cinamomi, 1.; turpentinum, 1.; aliiq. trifoli et trifoli fructuum medicis, 3.; aloes opt. 1.; cinamomi, 1.; turpentinum, 1.

It will be good to anoint with Cerat. refriger. Galeni, addita camphora, to make the decoction well. The decoction for to make injection withal. You may keep it for an injection to be often injected into the Urethra, with a little Cinamon, or that which is termed Hydrofaccarum. If there be any who cannot take it in form of a Bole, you may easily make it potable, by dissolving it in a Mortar with the Yolk of an Egg, and some white Wine, as I learned of a certain Apothecary, who kept it as a great secret. If the disease come by iniuration or empysem, it shall be helped by fatty injections, oily and emollient potions, and inwardly taking and applying these things which have the like faculty, and thinning these things which caused the disease. How to cure that which happens by contagion, or unpure copulation, it shall be abundantly thewed in the ensuing Chapter.
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Sharp humour which flows from the Glandules termed Preputia, and continually runs through the urinary passages, in some places by the way it affects, and exalates by the actinomy the urine to grow forth of the Seed and Urin by their appropriate and common passage, whence many matchless things do ensue, wherein is that such ulcers as have caruncles growing upon them must be diligently cured. But if we must know whether they be new or old. For the latter are more difficultly to be cured than the former, because the caruncles that grow upon them become callous and hard, being oft-times extricated. We know that there are caruncles, if the Carboli be freely laid upon the passages of the Urin, but finds so many thorns in the way, as it meets with caruncles that stop the passage's, it the Patient can hardly make water, or if his water run in a very small stream, or two streams, crookedly, or easily by droptop drop, with such tormenting pain, that he is ready to let go his excrements, yet and oft-times death so, after the same manner as such are troubled with the stone in the bladder. After making water, is also after copulation, some portion of the stone and feed thays at the rough places of the caruncles, so that the Patient is forced to press his Yard, to press forth such reliques. Sometimes the stone is wholly stopped, whence proceeds such distension of the bladder, that it causeth inflammation, and the stone flowing back into the body, hastens the death of the Patient. Yet caruncles in the stone thus stopped, frees forth percutaneously in findy places, as at the Fundamentum, Perineum, Cod, Yard, Gruins. As soon as we, by any of the fore-mentioned signs, shall suspect that there is a caruncle about to grow, it is expedient forthwith to make means for the 5

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Particular defects of the Lues Venerea not to be curedd unless by the general remedy of the virulence.

Carcuncles, if callous, must first be loosened. If you suspect that these Caruncules come or are occasioned by a virulent 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 Guatocaum, and let the privy parts 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 willed to hold between his legs a stone-bottle filled with hot water, or else a hot brick wrapped in linen cloths moistened in Vinegar and Aqua vitæ, 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 loosened, they must be continued with convenient Medicines. Wherefore first, if they become callous, or cataractized (which you may suspect if they call forth no excrementitious matter) they shall be exasperated, excoriated, and torn with a leaden Catheter having a rough bottom at the end like a round nail. He shall let the powder put into the Catheter, thrust it up and down the same way so long and often as he shall think fit for the breaking and tearing the Caruncles; he shall permit them that 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 oft thrusting it in and out it may wear and make plain the Caruncles. Very by this mean I have helped many much perplexed with the feared danger of this disease. Some better like of the Catheter marked with the letter B, 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 again.

The Caruncle thus torn shall be freed over with the following powder, being very efficacious to waft and consume all Caruncles of the Privities without much pain.

**A Powder to waft Caruncles.**

To make it, let the following drugs be well ground and mixed: 1. Herba fummar. in umbra exstincta. 2. Herba antiqua. tinct. prepar. aq. 3. A. sinapis. 4. Anthracis viridi. 5. Virid. lutea. 6. Aqu. vitæ. 7. Sulphur. 8. Tartar. 9. Succorum portulac. plan. 10. Frumentum. You may also make use of another injection, which is formerly prescribed. Neither will it be unprofitable to apply repertories to the genitals to hinder pain and inflammation.

**How to apply it.**

The Catheter having holes in the sides thereof, the which is formerly prescribed. Neither will it be unprofitable to apply repertories to the genitals to hinder pain and inflammation. You may also use other Medicines, having a faculty to consume the Caruncle, amongst which the following are excellent: 1. Frumentum. 2. Anemone à rode. 3. Arum. salpullus. 4. Helianthus in quo marmora in formæ redact.
Book XIX.
Of the Lues Venerea.

which will be commonly in eight days space. Then let the root be cut off, and the same way, as above, the "equivucator ad

asque curam in emptolis. sed ipsa tum semi: addo pulvis. prædici. 

let them be mixed with a Spaniel, and put it upon the fire until it come to a hard consistence, that it will stick fast to a Wax Candle, or Lead Wier, so that it may not come off by handling with your hands. The Surgeons of Montpelier use this Medicine. This following is another; In Paste exactum, 3 yij. antimonii, 3 yij. calomelos. 3 yij. floribus. 3 yij. urinam. 3 yij. anguinae. 3 yij. gumma. 3 yij. pulvis. 3 yij. spiritus. 3 yij. alba, 3 yij. aloes. 3 yij. scillae. 3 yij. corallum. 3 yij. granatum. 3 yij. incinere. 3 yij. pulvis. 3 yij. alu'minum. 3 yij. aluminii aëris, 3 yij. constringuntur ad pulvorum in mortarium plumbum, et add agitentur: let a very fine rag be spread over this ointment, and wrapped about a Wax Candle, and so thrust into the Venera, and then draw forth the Candle by twining it a contrary way; so let the end of the rag hang out of the Yard so that it may not come off by handling with your hands. A caution in making water.

Another Easier To apply the Yard.

in hand, by the following Medicines, let the Patient be careful that he so ING. diapompbolygos, &c. let them be all made into powder: then, let them be mixed with a Spaniel, and put it upon the fire until it come to a hard consistence, that it will stick fast to a Wax Candle, and so thrust into the Venera, and then draw forth the Candle by twining it a contrary way; so let the end of the rag hang out of the Yard so that it may not come off by handling with your hands. A caution in making water.

Sighs that the Venera is worn away.

of venereal Baboes, or swellings in the Groins.

The virulence of the Lues Venerea is sometimes communicated to the Liver, which it if...
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excrementitious, the author of the rottenness, as the alimentary: For thus it remains without blood and nourishment, and consequently life also; whence it must of necessity fall off, being deficient 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 Catatomatic powders are prepared to amend the corruption which is very superficially. As Powders, Catatomatic Powders, etc. 

But if the rottenness be more deep, and the bone more hard, either by Nature or Accident, as by the occasion of too long admission of the air, then the rotten scales shall be cut off by the instruments described in wounds of the head, driving them into the bone with leaden mallets, lest the part should be too much or too little taken away; the signs that all the rottenness is taken away, are the stiolness of the bone, and the bloody moisture spewing out thereat.

CHAP. XXVII.

Of actual and potential Caureties.

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 Caureties. But I should rather approve of actual, because by strengthening the part they consume the excrementitious humours with which it is overcharged, to wit, the matter of the Caries which is not to be effecually performed by potential caureties. Yet are we oft-times forced to use them, to please the Patients which are termed at, and afraid of hot irons. Potential Caureties are Aqua foris, Aqua vitrioli, boiling Oil, melted Sulphur and boiling, and the like; in pouring on of which I would have the Surgeon to be prudent and industrious, lest he should rashly violate the neighbouring sound parts by the burning touch of these things, which his temerity would cause vehement pains, inflammations, and other horrid symptoms. For actual Caureties, their variety in figure is so great, that it cannot be defined, much less set down in writing; for they must be varied according to the largeness of the rottenness, and the figure and conformation of the fouled bones. Such as are more usual I have thought good to delineate unto you, content only to admonish you that such parts in viability, that form of the work by pricking, done by cutting, done flatly, and other force with their points made to the form of an Olive-leaf.

Oq 9

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B
Sundry forms of all sorts of Canturies fit in all necessary cases of all parts.

The following figure of a Cantury 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 form, divided as it were into three branches, that you may so make use of which you please.
The Cauteries whose forms are hereafter expressed, take place in rotten bones that lie deep in, wherein you cannot make use of the formerly described, without touching of the neighbouring sound parts. To avoid which danger, you shall put your cautery even to the bone through an iron pipe, which may keep the neighbouring and fleshly parts from burning.

Great discommodities ensue upon too rash, that is, too frequently applied Cauteries, or too long adhering to the bone; for by this immediate and fiery heat not onely the excrementitious humidity of the rotten bone is consumed, but also the radical and substantial moisture of the part is exhausted, wherein alone Nature endeavours to cast off the corrupt scales, and fever the found from the rotten bone, and to substitute flesh, hands and consistence. Therefore, the measure of applying of cauteries ought to be taken from the greatness of the rottenness, and the excrementitious, or alter a manner, from the humidity sweating through the pores of the bone. But before you press your cautery into the rotten bone which lies very deep in, as that which happens in the thigh-bone, and upon other very fleshly parts, you must diligently defend the neighbouring sound and fleshly part, as it were with a covering, for that the humour diffused by the touch of the fire, burns the other places wherein it diffuseth itself like scalding oil. After the cauterization, you must help forwards the falling away of the scales by sometimes dropping in our Oil of Whelps, being made scalding hot. This Oil, though very fit for this purpose, yet do I not judge it fit to use so often, it may suffice to have dropped it in bone twice or thrice: for at length it may violate the sound bone that lies under the rotten, by the oily, subtle and moist substance. Furthermore, a bone is the most dry part of the body, therefore unctuous and moist Medicins are contrary to its temper and consistence. But it conduceth often and gently to move the scales already beginning to separate themselves, and to avert the flaccidness of Nature in casting them off. Yet may you not use force, unless peradventure when as they hang by a slender thread, otherwise if the unwary Surgeon forcibly plucks away the scales before that Nature hath put a cover upon the sound bone, he shall give way to moving the scales already beginning to separate themselves, by the onely force of Nature, or by the force of Nature expelling it. Furthermore, after the corrupt scale is falling off, by the force of Nature expelling it, you must have a diligent heed that you put not eating or corroding Medicins upon the bone that is under it, for thus thou shalt confume or waste the flesh which Nature hath generated therupon, which composed of newly concreted blood, is like in softness to newly curdled milk, which otherwise in time would grow into a more solid and hard consistence. This under-growing flesh by little and little thrusts the rotten bone above it, out of its place, and is the cause of the falling thereof; it is at the first gathered together like the grains of a corngranat, with a red, smooth and equal face, and not stinking, and at length it calls forth a white matter. Therefore then we must rather strew thereon Cephalick powder composed of such things as have faculty to dry without biting, such as are Orris-root, washed Aloes, Mastic, Myrrh, Balsam flower, and the like. Lastly, it must be cicatrized, it is better that scales of bones fall away of themselves, by the onely force of Nature, than to be plucked away by the force of Medicins or Instruments, because such as are too violently and forcibly plucked away, leave corners like to fistulous ulcers.

Neither ought the corrupted membranes when they are turned into pus, to be plucked away too violently, or to be touched by too acid Medicins; for pain hereupon arising, such drives time wasted inflammation, convulsions, and other pernicious symptoms. Therefore it is better to commit this business to Nature, which in succefs of time, by making use of the expulsive faculty, will easily free it from this rotten substance, for that which is quick as far as it is able, will full put away that which is dead from it.
Of a Vulnerary Potion.

B

E

If the contiguous rottenness of the bone, and also a rebellious ulcer shall not yield to the
described remedies, it will be convenient to prescribe a Vulnerary Potion to the Patient. For
Nature helped by such a Potion, hath to my knowledge fundry times done wonderful things
in amendment of corrupt bones, and consolidation of ulcers. For these potions, though they do not
purge the nodose humours away by flux, yet are they wondered effectual to cleanse ulcers, and free
them from the excess of excrementitious humours, to cleanse the blood, and purge it from all impu-
ritv, to agglutinate broken bones, and knit the fibres. I have here thought good to speak of them,
and chiefly, for that they were much commended by the Ancients, but neglected by the mo-
dern Physicians and Surgeons. But if the cure of Wounds and old Ulcers be performed by detection,
and the repulsion of the lost abundance, what Medicin can sooner or rather do it than that, which by
its admirable and almost divine force, to purgith the blood, that thereof, as from a fit and laudable
matter, the flesh or any other lost substance may be fitly restored, and the part recover its former
union? But if flagitious Ulcers, Cancers, Gouts, and the like diseases be offended by the use of fat,
salted, acid meats, and others which are of subtil parts, as Mustard, Onion, and Garlic, or any other
excess in meat or drinks, why may they not become mild and gentle by medicated and contrary
meats and drinks, or at least be reduced to a more equal temper? Therefore that Surgeons may
know of what things such compositions may arise, I have here thought good to reckon them up,
that you may learn what they are.

Scabious. Centary.
Sorrel. Advers-tongue.
Basil. Betony.
Borage. Carduus-brediaun.
Branes. The Cordial Flowers.
Madder. Argifolchia, or Birth-worts.
Tanier. Spin-威尔.
Tarloe. Agrimony.
The Capillaries. The Cordial Flowers.
Yarrow. Herb-R Oprah.
Dyers-mure. Daisies-
Sorts. Dog-tongue Arrows.
Adders-tongue. Fumitory.
Vervain. Ofmand.
Bastard Comfrey. Clary.

Of all these the Surgeon shall make choice according to the mind and judgment of the Physician,
such as he shall think 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 kind or nature of the dis-
 ease. You may make drinks not only of the decoctions of these, but also of their juices in white Wine, or
spiced, acrid meats, and others which are of subtil parts, as Mustard, Onion, and Garlic, or any other
of these the Surgeon shall make choice according to the mind and judgment of the Physician,
such as he shall think 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 kind or nature of the disease.
You may make drinks not only of the decoctions of these, but also of their juices in white Wine, or
spiced, acrid meats, and others which are of subtil parts, as Mustard, Onion, and Garlic, or any other

The use of
Vulnerary Potions.

The form of
a Vulnerary Potion.

In what time
of the disease
they are chiefly
by to be used.

U

The cure of the Lues Venerea, usually Tetters and Chops happen thereupon, which
makes furrows in the palms of the hands and soles of the feet. They acquire their matter
from fat phlegm, or adult choler, or the relics of the venereous virulent first thither.
The cure, especially when the disease is grown old, is difficult, by reason that the humour hath
long accustomed to flow that way, and for that it hath corrupted the habit of the part by the conti-

Of Tetters, Ring-worms, or Chops occasioned by the Lues Venerea. Book XIX.

C H A P. XXIX.

Of a Vulnerary Potion.
por. cbamxm. temperemur omnia m vino albo, & diJiiUantur in vafe vitreo: referve the water for ufe •, p. ij. acetof. puleg. card. ben. an. rad. gram, m. ij. rectw. after this manner: f iij. m. iij. riacalu theriac. vet. formed,let them be boiled, put up in glafs bottles clofely flopped for fome three or four hours fpace Allied. Give ^ iv. of jhis diftilled liquor at once, being aromatiied with 5 j. of Cinamon, and 3 j. in a large Kettle hlled with boiling water •, then let them be put into a Glafs Alembick, and fo di-
twelve hours, and the refidue of the things in that which remains, of the fame Wine and Waters
siuaiacnm be intuled in equal parts of Wine, and the fore-mentioned waters for the fpace of ^"king ic,

The manner after the following manner. Let ij. diftil them all in 5 campi theriac. vet. & mthrid.an.

The cure of Ulcers ariie in the mouth, and fpread therein, thevshallbe touched with the formerly deferibed

of its Nurfe, let the Nurfe be prefently changed, for it being otherwife nourithed

the Cures here-nder defcribed, for the space of twenty or more days, that to the may the better arm her

left the vindocly that the child breaths out at his mouth, be impaid in the little holes of the teat

through which the milk flows out. Now the pufjeles of little children shall be anointed with fome

Aqua Theriacalis, or 'I'reacle-mater formerly mentioned;

The cure of Lues Venerea.

Of the Money of the Body must bee corrected, which by the occurrence of the former difeafe and remedies, ape to inflame the blood, cannot but much dierve from their native temper. This may be done by diet conveniently appointed, by purging and al-

A Water dry-

The cure of Old Tetters and

The cure of

The cure of

the Liver, and habit of the Body muft becorreded which
twenty or more days, that so flie may the better arm her

on. v^'

The cure ef

neither:

Of curing the Lues Venerea in Infants, and little children.

Infants of-times conceive the feeds of this difeafe in the wombs of their mothers, and are born

infected therewithall, putses presently arting over all the bodies, infieeting with the like difeafe as

many Nurfe as give them facks; they feeare ever recover thereof, that for they contracted the
difeafe from their firt conformation. But fuch as are somewhat bigger, if they chance to catch

difie after they are born, by ficking fome infected Nurfe, or by any other occaifen or kind of

contagion, oftemtines receive cure. For firft, you fhall caufe the Nurfe to ufe the

QntimentumHlatum cum mer-

ulcers to arife in the mouth, or elfe falivation; If any

1 jV it fet be swathed or bound up in swaths and cloths aired with the

Cur-
Of the Small Pox, Book XX.

Of the SMALL POX and MEAZLES: As also of WORMS, and the LEPROSIE.

CHAP. I.

Of the causes of the Small Pox and Meazles.

Or that the Small Pox and Meazles are diseases which usually are fore-runners and fore-tellers of the Plague, not only by the corruption of humourous, but oftentimes by the air. Moreover, for that Worms are oftentimes generated in the Plague, I have thought good to write of those things, to the end that by this Text of the young Surgeon, who may be more sharply and perfectly informed in that pestilential disease. Alfo I have thought good to treat of the Leprosy, as being the off-spring of the highest corruption of humourous in the body. Now the small Pox are pustules, and the Meazles spots which arise in the top of the skin by reason of the impurity of the corrupt blood sent thither by the force of Nature. Most of the Ancients have delivered that this impurity is the relics of the menstruous blood remaining in the body of the Infant, being of that matter from whence it drew nourishment in the womb, which being 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 mass of the blood, spread or threw 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 flow itself but content to set upon some one, it commonly feeth upon more: now commonly there is as much difference between the Small Pox and Meazles, as there is between a Carbuncle and a pestilent Bubo: for the Small Pox are extuberating pustules, and the Meazles of a more gross and viscid matter, to wit of a Phlegmatic humour; but the Meazles of a more subtle and clear matter than that, is a choleric matter, therefore this yields no mark, but certain small spots without any tumour, and these either red, purple, or black. But the Small Pox are exsudating pustules, white in the midst, but red in the circumference, an argument of blood mixed with chyle, but they are force known at the beginning, that is, on the first or second day they appear but on the third and fourth day they burst and rise up into a tumour, becoming white before they turn into a scab; but the Meazles remain still the same. Furthermore, the small Pox pride like needles by reason of a certain acrimony, and cause an itching: the Meazles do neither, either because the matter is not so acrid and biting, or else for that it is more subtle, it easily exhalts, neither is it kept shut up in the body, but it penetrates more speedily, by reason of its subtilty of parts, and also expels the dolorick matter.

The End of the Nineteenth Book.
The symptoms of the Small Pox and Measles.

Of the Cure of the Small Pox and Measles.

The Cure of this Disease ought to be diverse, according to the condition of the humour first. For if it partake of malignity, and the child be a sucking child, such things shall be given to the Nurse as may restore and overcome the strength of the malignity, as we shall shew more at large when we come to treat of the Cure of children which are sick of the Plague; howsoever it be, the child must be kept in a warm room free from wind, and must be wrapped and covered with flarlet cloths, until the Fever come forth. There shall be provided for the Nurse medicated Broths, with Purslain, Lettuce, Sorrel-Succory, Borage, and in stead of Wine, drink a decoction of Licorice, Raisins, and Sorrel-roots. She shall also take purging Medicines, as if the were sick of the same disease, that so her milk may become medicinal. Lately, she shall observe the same diet as is usually prescribed to such as have the Plague. You shall give the Child no Bread, or if you give it any, let it be very little. But if the child be weakened, let him abstain must have no from flesh until the Fever have left him, and the Fox be fully come forth; in stead of flesh let him Pap.

The Child shall observe the same diet as is usually prescribed to such as have the Plague. You shall give the Child no Bread, or if you give it any, let it be very little. But if the child be weakened, let him abstain must have no from flesh until the Fever have left him, and the Fox be fully come forth; in stead of flesh let him Pap.

The Cure of this Disease; as that which is carried to the surface and circumference of the body, such bleeding must be stopped, unless you fear it will cause swelling. The matter shall be drawn forth with a * of this decoction, * the fume of Violets, but not of Roses or any other astringent Syrup, lest we hinder the couple and inclination of the humour outwards. Let his flea be moderate, for too sound sleep draws back the matter to the center, and increaseth the Fever; you must neither purge, nor draw blood, the diaphore increasing or being at the height, unless peradventure there be a great phlegm, or else the disease complicate with other, as with a Pluritic inflammation of the eyes, or a rigmarine which require it; let the motion of Nature be disturbed; but you shall think it sufficient to loose the belly with a gentle Clyster; but when the height of the disease is over, and the declension thereof, you may with Coffee or some stronger Medicin evacuate part of the humour, and the relics of the disease. But in the state and increasement, it is better to use Sudorificks, which by arresting the humours and relaxing the pores of the skin may drive the cause of the disease from the center to the circumference, which otherwise residing in the body might be a cause of death. As I and Richard Havens observed in two Maidens, where one was four, and the other seventeen years old, for digesting them both being dead, found their entrails covered with scabby or crustled pustles, like those that break forth upon the skin. We must not think that a bleeding at nose at the beginning of the disease, or in the first four or five days, should carry away the matter and original of the disease, for nevertheless the Fox will come forth; but fear that this is a true and natural cause of the Fox, as that which is carried to the surface and circumference of the body, such bleeding must not be stopped, unless you fear it will cause swelling. The matter shall be drawn forth with a decoction of Figs, husked Lentils, Citron-seeds, the Seeds of Fennel, Parly, Smallnag, roots of Grapes, Raisins, and Dates. For such a decoction, certainly if it have power to cause Sweat, both also a facility to send forth unto the skin the morbifick humour; the Seeds of Fennel, and the like opening things relax and open the pores of the skin; Figs lengthen the cermony of the matter, and gently cleanse; the Lentils keep the jaws and throat, and all the inward parts from pustles, and hindres a flux by reason of their moderate astringency, but having their hunks on, they would burst more then is required in the disease; Dates are thought to confirm the lotharms, and Citron Seeds stomach the heart from malignity; Licorice to smooth the throat, and hinder hoarsness and cause Swell. But these things shall be given long after meat, for it is not fit to sweat patiently after meat, some there be who would have the child wrapped in linen cloths steeped in this decoction being hot, and afterwards hard wrung forth. Yet I had rather to use bladders or sponges, or hot boces for the same purpose, a decoction of Miller Figs and Raisins, with Ferre Sugar,caufeth Sweat powerfully. Neither is itsmith whilst the Patient is covered in all other parts of the body, and sweats, to fan his face, for this the native heat is kept in, and its strengthened, and freezing hindered, and a greater exception of excrementious humours causeth. To which purpose you may also put now and then to bed with a Nettrew made with a little Vinegar and Water of Roses, Camphire, the Powder of Sanders, and other odoriferous things which have a cooling quality; this will also keep the note from pustles.

CHAP. II.

Of the cure of the Small Pox and Measles.
How to defend the Eyes.

When the Eyes must not be defended by repercussional liniments.

How to defend the Nose.

How the Mouth.

How the Lungs.

How to prevent Pock-arrs.

Remedies for excoration.

For the ulcers of the mouth and jaws.

To help the ugly and fears of the Face.

Of the Small Pox and Measles.

CHAP. III.

What parts must be armed against, and preferred from the Pox.

The eyes, nose, throat, lungs, and inward parts ought to be kept free from the eruption of pustules than the other parts, for that their nature and constitution is more obnoxious to the malignity of this virulence, and they are easier corrupted and blentned. Therefore left the eyes should be hurt, you must defend them when you first begin to suspect the diseased, with the eye-bright, also moistening them withRose-water, Verveine or Vinegar, and a little Camphire. There are some also who for this purpose make a decoction of Sumach, Berbery-seeds, Pomegranate-pills, Aloes, and a little Saffron, the juice of flower Pomegranats, and the water of the Whites of Eggs dropped in with Rose-water are good for the same purpose, also Worms milk mixed with Rose-water and often renewed, and hastily all such things as have a repercussive quality. Yet if the eyes be much swollen and red, you shall not use repercussives alone, but mix therewith diffusers and cleanfers, such as are fit by a familiarity of Nature to strengthen the sight; and let them be tempered with warm Fennel or Eye-bright water. Then the Patient shall not look upon the light, or red things; for fear of pain and inflammation; wherefore in the state of the diseased, when the pain and inflammation of the eyes are at their height, gently drying and diffusive things properly conducing to the eyes, are most convenient, as walked Aloes, Turp, and Antimony, in the Water of Fennel, Eye-bright, and Roses. The formerly mentioned Nodules will preserve the nose, and linen cloths dipped in the fore-aid astringent decoction, put in the nostrils, and outwardly applied. We shall defend the jaws, throat, and throile, and preserve the integrity of the voice by a gargle of oxycrate, or the juice of fower Pom-

To iragacanth.

Let them.

The Pox are left in the Face, if they

Vaguent. citrin.

Amyli triticei & amygdalar. excorticatarum an.

To dianoron.

or a little Cinnaharis.

But if notwithstanding all your application of unguentum album camphorat. adding thereto a little Powder of

malignity of this virulence, and they are easiuer corrupted and blemished. Therefore let

puftules than the other parts, for that their nature and constitution is more obnoxious to the

Comb, with Barley-flower, and therewithal anoint the puftules so to dry them; being dried up like a scar or scab, they anoint them with Oil of Roses, Violets, Almonds, or else with some Cream, that they may the sooner fall away, the puftules being broken; tedious itching incites the Patient to

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the flower of Barley and Lupines are diffolvd and mixed with Rose-water, and the affected parts anointed therewith in a fine linen rag; some anoint them with the fward of Bacon boiled in Water and Wine, then presently frow upon them the flower of Barley or Lupines, or both of them. Others mix crude How many newly taken from the Corn, with Early-flower, and therewithal anoint the puftules to dry them; being dried up like a scar or scab, they anoint them with Oil of Roses, Violets, Almonds, or else with some Cream, that they may the sooner fall away, the puftules being broken; tedious itching incites the Patient to

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Cerufs, Litharge, Aloes, and a little Saffron in Powder; for these have not only a faculty to dry, but also to regenerate flesh; for the fame purpofe the flower of Barley and Lupines are diffolvd and mixed with Rose-water, and the affected parts anointed therewith in a fine linen rag; some anoint them with the fward of Bacon boiled in Water and Wine, then presently frow upon them the flower of Barley or Lupines, or both of them. Others mix crude How many newly taken from the Corn, with Early-flower, and therewithal anoint the puftules to dry them; being dried up like a scar or scab, they anoint them with Oil of Roses, Violets, Almonds, or else with some Cream, that they may the sooner fall away, the puftules being broken; tedious itching incites the Patient to

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A Discourse of certain monstrous Creatures which breed against Nature in the bodies of Men, Women, and little Children, which may serve as an Inducement to the ensuing Discourse of Worms.

As in the Macrocosmos or bigger World, so in the Microcosmos or lesser World; there are Winds, Thunders, Earthquakes, Showers, Inundations of Waters, Sterilities, Fertilities, Stones, Mountains, and sundry sorts of Fruits and Creatures thence arise. For who can deny but that there be Winds contained and shut up in subterraneous abscesses, and in the guts of those that are troubled with the Colic? Flatulencies make so great a noise in divers women's bellies, if you be so near them that you would think you heard a great number of Frogs croaking in the night time. That Waters is contained in wetery abscesses, and the belly of such as have the dropsie, is manifested by that emit which is performed by the letting forth of the water. In ills of Agues the whole body is otherwise shaken and trembles, than the Earth when it is heard to bellow, and felt to quake under our feet. He which shall for the Stones which are taken out of the bladder, and come from the kidneys and divers other parts of the body, cannot deny but that Stones are generated in our bodies. For therefore we see both Men and Women, who in their Face or some other parts show the impression of an imprinted figure of a Cherry, Plum, Service, Fig, Mulberry, and the like Fruits; the cause hereof is thought to be the power of the Imagination concerning the formative faculty, and the tendency of the yielding and wax-like substance, easy to be brought into any form or figure, by reason of the proper and native humidity. For you shall find that all their Mothers whilst they went with them have carelessly defiled or lounged for such things, which, whilst they have too carelessly agitated in their minds, they have transferred the shape unto the child, whilst that they could not enjoy the things themselves. Now who can deny but that the Hands of the Back and large Wens resemble Mountains? Who can gainsay, but that the Equal Sterility may be alluded to the thick and clumps of waitid and confirmed persons? and Fertility disposed by the body distended with much flesh and fat, for that the legs can scarcely stand under the burden of the belly? But that divers Creatures are generated in one Creature, that is in Man, and that in sundry parts of him, the following Histories shall make evident.

Histories that a certain Italian by frequent smelling to the Herb Basil, had a Scorpion bred in his Brain, which caused long and vehement pain, and at length death; therefore I have here express the figure of that Scorpion, found when his brain was opened.

The Figure of a Scorpion.

It makes Historians conjecture of the cause and original of this Scorpion probable, for that Cleophas, Diphates, and Pliny write, that of Basil beaten between two stones, and laid in the Sun, there will come Scorpions. 

Fernelius writes that in a certain Soldier who was flat noosed, upon the too long restraint of fluxes and passage of a certain filthy matter that flowed out of the nose, that there were generated two hairy worms of the bigness of ones finger, which at length made him mad; he had no manifest Fever, and he died about the twentieth day. This was their shape, by as much as we can gather by Fernelius his words.

The Efigies of Worms mentioned by Fernelius.


down, a man of great learning and credit, told me that he had a certain History come forth with his Urin, after a long and difficult disease, a quick Creature, of colour red, but otherwise in shape like a Millepes, that is, a Che-lop, or Hog-louse.

Count Charles of Mansfield last Summer troubled with a grievous and continual Fever, in the Duke of Guise's place came forth a filthy matter at his Yead, in the shape of a live thing almost just in this form.
Of Worms.

Book XX.

The shape of a thing cast forth by Urin.

Monstrous Creatures also of sundry forms are also generated in the wombs of women; sometimes alone, other times with a Mate, and sometimes with a Child naturally and well made; as Frogs, Toads, Serpents, Lizards: which therefore the Ancients have termed the Lombards 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 wombs, for that they always more respected the dressing of their bodies than they did their diet. For it happened whilst they fed on Fruits, Weeds and Trash, and such things as were of ill juice, they generated a putrid matter, or certainly very subject to putrefaction and corruption, and consequently opportune to generate such unperfect creatures. Tiberius tells that there were two Italian women that in one month brought forth each of them a monstrous birth; the one that married a Tailor, brought forth a thing so little, that it resembled a Rat without a tail; but the other a Gentlewoman, brought forth a larger one, for it was of the bigness of a Cat; both of them were black, and as soon as they came out of the Womb, they ran up high on the wall, and held fast theron with their nails. Lycojihenes writes that in the street which taketh name from the Holy Ghost, was delivered of a dead child who had a Serpent fastned upon his back, which fed upon this dead child, as you may perceive by this following Figure.

The Figure of a Serpent fastned to a Child.

Leibnius Lemnis tells a very strange History to this purpose. Some few years ago (saith he) a certain woman of the Isle in Flanders, which being with child by a Sailor, her belly develped up so speedily, that it formed the would not be able to carry her burden to the term prescribed by Nature; her ninth month being ended, she calls a Midwife, and presently after strong throws and pains, she brought forth a deformed lump of flesh, having as it were two handles on the sides, stretched forth to the length and manner of arms, and it moved and panted with a certain vital motion, after the manner of Sponges and Sea-nettles; but afterwards there came forth of her womb a monster with a crooked nose, a long and round neck, terrible eyes, a sharp tail, and wonderful quick of the feet: it was shaped much after this manner.

The shape of a Monster that came forth of a Womans Womb.

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 smothered it with cushions; at length the poor woman wearied with long travel, was delivered of a Boy, but so evily entertained and handled by this Monster, that it died as soon as it was christened.
Of Worms.

Cornelius Gemma, a Physician of Louvain, tells that there were many very monstrous and strange things cast forth both upwards and downwards out of the belly of a woman in Maid of Louvain, of the age of fifteen years. Amongst the rest, the cast forth at her fundament, together with her excrements, a living creature some foot and half long, thicker than ones thumb, very like an Eel, but that it had a very hairy tail. I have here given you the figure of the Monster, as it was express'd by him.

The Figure of a Monster that came forth of a Maid's Belly.

Peter Barque and Claude de Grand, Surgeons of Verdan, lately affirm'd to me, that they cured an History, the wife of a certain Citizen of Verdan, which out of an Abbe's broken in the belly, call forth a great number of Worms, together with the quittures, and that were of the thicknes of ones finger, with sharp heads, which go'd round her guts, that the excrements for a long time came forth at the uker, but now they are perfectly recovered.

Anthony Revenue a Physician of Flowers, tells that one John Monsieurs, a man of forty years of an History, age, troubled with continual pains at his stomack, was often at the point of death, neither found he any help by the counsel of many Physicians which he used. At length coming to have his advice, he gave him a vomit, by means whereof he call'd up a great quantity of corrupt and putrid matter, yet was he not thereby eased of his pain. Therefore he gave him another vomit, by force whereof he call'd up such matter like to the former, and together therewith a Worm of four fingers long, having a red round head, of the bigness of a great Pease, covered over the body with a sort downiings, with a forked tail in manner of a half Moon, going upon four feet, two before, and two behind.

The Figure of a Worm cast forth by Vomit.

Why should I mention the prodigious bodies which are found in Abbeys, as Stones, Chalk, Sand, Coal, Snail-sells, Straw, Hay, Horns, Hairs, and many kinds of living and dead creatures? For there is nothing in the generation of these things caus'd by corruption, preceded by much alteration which may make us admire, or hold us in Fears; 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 compouded into this Microcosmus, or little World, Man's whereby he might the rather seem to be made to the resemblance and form of the greater. Wherefore it doth appear here, that it may counterfeit and re semble all the actions and motions which it useth to perform in the image of the greater World in this little one, if so be that matter be not wanting.

Chap. IV.

Of the Worms which are bred in the Guts.

A Grosf viscid and crude humour is the material cause of Worms, which having got the beginning of corruption in the Stomachs, is quickly carried into the Guts, and there it multiplies, having not acquired the form of insalubile Cystor in the first conception. This, for that it is viscid, tenaciously adheres to the Guts, neither is it easily evacu'd with the other excrements, therefore by delay it further permeates, and by the efficacy of heat, it turns into the matter and nourishment for Worms. This alimentary humour being consumed, unless some fresh supply doth come to the Guts with great Violence, they cause grievous and great pains, yea, and oft-times they creep up to the Stomachs, and so come forth by the Mouth, and sometimes they alend into the holes of the Palat, and come forth at the Nose. Worms are of these sorts; some are round and long, others broad and long, others short and slender. The first are called by the Ancients Teneas, that is round, for that they are round and long. The second are termed Aferes, for that they commonly wrap themselves up round. Other differences of Worms are taken from their colours, as red, white, black, alco-coloured, yellowish. Some also are hairy, with a great head like the little Fish which the French call Cachar, we a Miller Thumb, in some diseases many worms are generated and cast forth by the Fundament, as well as hairs, and usually of colour white, and those are which are called Cacharides. The diversity of colours in Worms proceedeth not from the like distinct diversity of humour whereof they are generated. For the melanocholic and choleric humour by their qualities are wholly unfit to generate Worms. But this manifold variety in colour, is by reason of the different corruption of the slyne or phlegmatic humour whereof they are bred. The long and broad Worms are often-times stretched along all the Guts, being like to a mucous or albuminous substance, and
An History.

An History.

Book XX

Virtually the same as the text provided, this page discusses the nature of worms. It includes information on the length of worms, their generation in the gut, and their effects on the body. The text also mentions the signs of worms in the small and great guts, as well as the causes of these worms.

The Figure of a Worm, generated in, and cast forth of the Gut.
Book XX.

CHAP. V.

Of Worms.

Indications of curing the Worms.

IV this disease there is but one Indication, that is, the exclusion or casting out of the Worms, either alive or dead forth of the body, as being such that in their whole kind are against Nature; all things must be thinned which are apt to heap up putrefaction in the body by their corruption, such as are crude Fruits, Cheesfs, Milk-meats, Fiddles and lally fish things as are of a difficult and hard digestion, but prone to corruption. Pap is fit for children, for that they require moist things; but these ought to answer in a certain mixture to the constiution and thicken of Milk, that so they may be the more easily concocted and assimilated, and fish only is that pap which is made with Wheat-flower, not blade, but baked in an Oven, that the Pap made therewith may not be too viscid nor thick, if it should only be boiled in a Pan as much as the Milk would require, or else the Milk would be too terrestrial or too watery, all the fatty portion thereof being resolved, the cheefe and yahfilly portion remaining, if it should boil to much as were necessary for the full boiling of the crude meat; they which use meal otherwise in pap, yield matter for the generating of goods and viscid humours in the stomack, whence happens obstrucion in the first veins and fulbstance of the liver; by obstrucion worms breed in the gatts, and the stone in the kidneys and bladder. The Patient must be fed oft, and with mixtures of good juice, but the worms through want of nourishment shou'd know the subsistance of the gatts. Now when as such things breed of a patrid matter, the Patient shall be purged, and the putrefaction represt by Medicine mentioned in our Treatise of the Plague. For the quick killing and casting of them forth, Syrup of Succory or of Limmons with Rhubarb, a little Teetle from Michiandate, is a singular Medicine, if there be no Fever. You may also for the same purpoe use this following Medicine. Take a Corne cura, pul. raure, chor, an, 3 j.; fon. tan¬ nate, & contra verma, an, 5 j.; fun decis, pro paro daf, in eaux, infunde rh. op. scop, 3 j., cin, & diu diftere

Suppository against the Worms.

D. Of Worms.

Wherefore, and where-with such as have the Worms must be purged.

A Fever sometimes a symptom, and sometimes it affects.
Of the Leprofe.

BOOK XX.

A short description of the Elephantiasis or Leprofe, and of the Causis thereof.

This diseafe is termed Elephantiasis, because the skin of {hich are troubled therewith is rough, fubftru{h, wrinkled, and unequal, like the skin of an Elephant. Yet this name may seem to be imposed thereon, by reason of the gremine of the diseafe. Some from the opinion of the Archaws, have termed it Lepros or Leprofe (but improperly, for the Lepros is a kind of fub and difcife of the skin, which is vulgarly called Madum facuis manis) which word for the present we will use, as that which prevails by custom and antiquitie. Now the Leprofe (according to Euclidus) is a Cancer of the whole body, the which (as Allibeds adds) corrupts the composition, form and figure of the members. Galen thinks the caufe arifeth from the error of the swallowing faculty, through which default the alimentation in the fith and habit of the body is depraved, and much changed from it felf, and the rule of Nature. But alld(Albemnon) he defines this diseafe, an effufion of turbid blood or sanguineous blood into the veins and habit of the body. This diseafe is judged great, for that it partakes of a certain venenate virulency, depraving the members and condifidens of the whole body. Now it appears that the Leprofe partakes of a certain venenate virulency by that, this fuch as are melancholicks in the whole habit of their bodies, are not leprous. Now this diseafe is composed of three differences of Diseafes: First, it confifts of a diftemper againft Nature, as that which at the beginning is hot and dry, and at length the equalitation of the humours cea{hing, and the heat difperfed, it becomes cold and dry, which is the consequent caufe of this fymptom. Alfo it confifts of an evil composition or conformation, for that it depraves the figure and beauty of the parts. Alfo it confifts of a folution of continence, when as the fith and skin are cleat in divers parts with ulcers and chops. The Leprofe hapt for the most part three general caufes, that is, the Primitive, Antecedent, and Conjunftive. The Primitive caufe is either from the firft conformation, or comes to them after they are born. It is thought to be in him from the firft conformation, which was conceived of depraved and menfuration blood, and fuch as are inclined to melancholy, who was begot of the leprous feed of one or both his Parents, for leprous perfons generate leprous, becaufe the principal parts being tainted and corrupted with a melancholick and venenate juice, it muft necififally follow, that the whole mafs of blood and meaf that falls from it, and the whole body fhould alfo be vitiated. This caufe happens to thole that are already born, by long flaying, and inhabiting in Maritime Countries, whereas the goods and malignity are, in fucces {s of time, induced the like fault into the humours of the body, for that, according to Hippocrates, fuch as the air is, fuch is the fpirit, and fuch the humours. Alfo long abiding in very hot places, becaufe the blood is torrifled by heat, but in cold places, for that they increafe, and as it were burn the blood. But the retenfion of the superfluitis, happens, becaufe the corrupt blood is not evacuated, but regurgitates over the whole body, and corrupts the blood that fhould furnish all the members, wherefore the aflimilative faculty cannot well afлимilate by reafon of the corruption and deftroye the mafs of the blood with a melancholick dro{{ and fìlth. Now you muft under¬ tand, that the caufe of the Leprofe by the retention of the fuperfluitis, happens, becaufe the corrupt blood is not evacuared, but regurgitates over the whole body, and corrupts the blood, which is common to all the members; wherefore the aflimilative faculty cannot well afсимilate by reafon of the corruption and deftroye the mafs of the blood with a melancholick dro{{ and fìlth. Now you muft under¬ stand, that the caufe of the Leprofe by the retention of the fuperfluitis, happens, becaufe the corrupt blood is not evacuared, but regurgitates over the whole body, and corrupts the blood, which is common to all the members; wherefore the aflimilative faculty cannot well afсимilate by reafon of the corruption and deftroye the mafs of the blood with a melancholick dro{{ and fìlth. Now you muft under¬ stand, that the caufe of the Leprofe by the retention of the fuperfluitis, happens, becaufe the corrupt blood is not evacuared, but regurgitates over the whole body, and corrupts the blood, which is common to all the members; wherefore the aflimilative faculty cannot well afсимilate by reafon of the corruption and des...
Book XX

Of the Leprosoy.

strength must needs be more languid. The increas is, when as the viscidency comes forth, and the The increas of signs and symptoms succeed every day increas in number and strength. The face is, when as the ment the scars are excoriated. The dejection is, when as the aspect of the Face is horrid, the increse parts The decline fall away by the profligacy and malignity of the ulcers, to that none, not of the common foure of them.

Of People, can doble of this disease. According to the doctrine of the Ancients, we must in search
out of the signs of this disease being present, have chief regard to the head. For the signs of disease are more properly and truly those themselves in the Face by reason of the fretted and rarity of the substance thereof, and the tenacity of the skin that covers it; wherefore a black and adult humour diffused thereunder, easily flaws it iett, and that not only by the mutation of the colour, but also of the character, and bulk, and oft-times by manifest hurting it. Wherefore you muft observe in the head, whether it have scars, and whether in the place of those hairs that are fallen away, others more tender, short and rare grow up, which is likely to happen through defect of its nourishment to preserve and generate hairs through corruption of the hairy scalp that should be forred with fish nourishment, and of the habit it fell, and through the umbrell thereof to contain hairs; fully, by the acrimony of the vapours fast up from the adult humours and excrists, fretting afunder the roots of the hairs. But if not occy 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 Leprosoy. A second and very certain sign, is a monstrous and manifest circumzercion of round and hard puffs or pustules under the eyes-brows, and behind the ears, in several places of the Face, refulbling round and hard kereds, occasioned by the defcendence of the inflaming faculty. The cause of this defect is the grezvness of the flowing nourishment, by which meets itself being impacted, and stopping in the trunks of the way, it grows round, as it were compartment about the place where it sticks, and by the means of the cracy, for that it is not annihlated, and by delay, it is further hardened. The third sign is, the more constant and exact roundness of the ears, their grezvness, and as it were gravity gaitude or denseness, the cause of their roundness is the conformation of the lips and thin part through want of nourishment, and excess of heat but the occasion of their gravity gaitude is the flexibility of the earthly nourishment flowing thinner.

The fourth sign is a lion-like wrackling of the fore-head, which is the reason that some term this disease Marasmus Lecanid, the cause hereof is the great diminution of the habit of the body, which also is the reason that the bark of an old Oak is rough and wrinkled. The fifth is, the exact roundness of the eyes, and their fixt and immovable fixlines: very the eyes are naturally about round, yet they appear hallow, and somewhat round on the forehead, but ced in a Conus on the back part, by reason of the concorde and figure of the muscles and fat investing them. Therefore these being confirmed either through defect of laudable nourishment, or else by the acrimony of the flowing humour, they are restored to their proper figure and roundness. Now the muscles which moved the eyes being confirmed, and the fat which facilitated their motion wasted, it comes to pafs that they stand fliff and unmoveable, being definite of the parts yielding motion, and the facility thereof. The sixth sign is, the Noftrils flat outwardly, but inwardsly straight and contracted, that is, an earthy and gross humour forced from within outwards, which false the sides or edges of the Noftrils wherever is, that the paflages of the Nofe appear as it were obstructed by the thickness of this humour, but they are diured and darted by reason of the rest of the Face and all the neighbouring parts swollen more than their wont: add hereeto that the partition is confused by the conformation of the corrodery and ulcerating humour. The seventh is, the lifting up, thicknes and swelling of the lips, the lips, the mouth and corc of the gums by acid vapours rising to the mouth; but the lips of leprous perform are more swollen by the internal heat burning and incrusting the humour, as the outward heat of the Sun doth in the Moors. The eighth sign is, the yellow and blackness of the Tongue, and as it were various veins lying under, because the Tongue being by nature spongy and rare, is easily filled with excrementitious humours, sent from the inner parts unto the habit of the body: which same is the caufe why the glands placed about the Tongue above and below, are swollen hard and round, no otherwise then flesh composed or mele Swine. Lastly, All their Face and their mouth, their nostrils, and as it were grainy spissitude of the ears, their grainy spissitude of the ears, and as it were roundness of the Head.

Book XXI.

Why it is called Leprosy.

Leprous.

Lecanid.

Leprous.

Marasmus.

Lecanid.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

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Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.

Leprous.
Leprosy is a disease which passes to the skin, as contagious almost as the Plague, scarce curable at the beginning, incurable 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 thereon, it is judged incurable. Furthermore, the remedies which to this day have been found out against this Disease are judged insufficient and unequal in strength thereto. Besides, the signs of this Disease do not outwardly show themselves before that the bowels be filled upon, polluted and corrupted by the malignity of the humour, especially in such as have the white Leprosy, fundry of which you may see about Bonaire, and in Labou-labou, who notwithstanding inwardly burn with great heat, it will suddenly wither and wither an Apple held a short time in their hand, as if it had lain for many days.

Why the Leprosy is incurable.

The Leprosy is a disease which passes to the skin, as contagious almost as the Plague, scarce curable at the beginning, incurable 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 thereon, it is judged incurable. Furthermore, the remedies which to this day have been found out against this Disease are judged insufficient and unequal in strength thereto. Besides, the signs of this Disease do not outwardly show themselves before that the bowels be filled upon, polluted and corrupted by the malignity of the humour, especially in such as have the white Leprosy, fundry of which you may see about Bonaire, and in Labou-labou, who notwithstanding inwardly burn with great heat, it will suddenly wither and wither an Apple held a short time in their hand, as if it had lain for many days.

Why the Leprosy is incurable.
Of Poysons, and of the Biting of a Mad Dog; And the Bitings and Stinging of other venomous Creatures.

The Cause of writing this Treatise of Poyson.

For Reasons have principally moved me to undertake to write this Treatise of Poysons, according to the opinion of the Ancients. The first is, that I might instruct the Surgeon what remedies must presently be used to such as are hurt by poisons, in the interim whilst greater means may be expected from a Physician. The second is, that he may know by certain signs and notes such as are poisoned or hurt by poisons, and so make report thereof to the Judges, or to such as it may concern. The third is, that those Gentlemen and others who live in the Country, and far from Cities and store of great means, may learn something by my labour, by which they may help their friends bitten by an Adder, mad Dog, or other venomous creatures, in so dangerous, hidden and unusual a case. The fourth is, that every one may beware of poisons, and know their symptoms when present, that being known they may speedily seek for a remedy. 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 do not here so much arm malicious and wicked persons to hurt, as Surgeons to provide to help and defend each man's life against poisons, which they did not understand, or at least feared not so to do, which taking this my labour in evil part, have maliciously interpreted my meaning.

But now at length, that we may come to the matter, I will begin at the general division of Poysons, and then handle each severally; but first let us give this Rule. That poisons are what is to be

wherewith they are applied or mixed with, or inwardly taken into the body, hath power to

kill it, no otherwise than these well drown in it. For Galen writes that the properties of Poyson are contrary to nourishments in their whole substances; for as nourishments are turned into blood, and in each part of the body wherein it is applied, to nourish, by perfect assimilation diffublubled in the place of that substance which filleth away each moment. Thus they confer Poyson turns our bodies into a nature like it filleth and vitriolates, for as every agent imprints the force and qualities thereof in the foul patient, thus Poyson by the immediate operation of faculties in their whole nature contrary to us, changeth our substance into its nature, so otherwisc when fire turneth dull in a moment into its own nature, and so consumes it. Therefore it is truly delivered by the Ancients, who have diligently prised into the faculties of Natural things, that it is poyson that may kill men by destroying and corrupting their temper, and the composition and constitution of the body. Now all poisons are said to proceed either from the corrupt Air, or from living Creatures, Plants and Minerals, or by any artificial malignity in distilling, fashioning, and diversly mixing of poisons and fuming things. Hence wise men find differences of Poysons, neither do they all work after the same manner; for some corrupt our nature by the unctuousness of the manifest and elementary qualities whereof they consist, others from a specifick and occult property. Hence it is that
All poisons have not a peculiar appetite with the heart.

that some kill sooner than others; neither is it true that all of them paffively affail the heart, but others are naturally at deadly strife with other parts of the body; as Cantharides with the bladder, the Sea-Hare with the Lungs, the Torpedo with the hands, which it penetrates, though the Filithers never be hurt by them. Thus of Medicins, there are some which are apt preferably to comfort and strengthen the heart, others the brain, as Fherrens others the Stomach, as Cinnamon. Also there are some poisons which work both ways; that is, by manifest and occult qualities; as Ephedrums; for that both by the effective heat and the whole substance, or the diffused of the whole substance with curae, corrupts our nature. An argument hereof is, that Treacle, which by its quality is manifestly hot, insinuates the force thereof, as all of all others of an occult property. Poisons which work by an occult and feptic kind, do not therefore do it, because they are too immediately hot, cold, dry, moist for that they are absolutely fishy, and have that effect from the Stars and celestial influences, which is apt to diffusive and deftroy the strength of men body, because being taken but even in a small quantity, yet are of so pernicious a quality that they kill almost in a moment. Now Poisons do not only kill being taken into the body, but being some put or applied outwardly, neither do venomous creatures only harm by their flinging and biting, but also by their excrements, as Spittle, Blood, the Touch and Breath.

### CHAP. II.

How Poisons being small in quantity, may by their only touch cause so great alterations.

Of Poisons, &c.

Book XXI.

It seemeth strange to many how it may come to pafs, that poison taken or admitted in small quantity, may almost in a moment produce so pernicious effects over all the body, and all the parts, faculties, and actions, to that being admitted but in a little quantity, it swells up the body into a great bigness. Neither ought it to seem far strange, how Antidotes and Counter-poisons, which are opposed to poisons, can so suddenly break and weaken the great and pernicious effects thereof, being it not at all likely that so small a particle of poison or antidote can divide itself into so many, and so far feparate particles of our body. There are some (faith Galen) who think that some things only, by the power of their quality, may alter those things which are next to them; and that this appears plainly in the Fish Torpedoe, as that hath so powerful a quality, that it can fend it along the Fibhers rod to the hand, and to make it become torpid or numb. But on the contrary, Philofophers teach that accidents, such as qualities are, cannot alter our faculties, but may move and diffuse themselves into other subjeéts. Therefore Galen’s other answer is more agreeable to reaſon, that so many and great afts of poisons, and remedies arise either from a certain spirit or fulbtl humidity; not truly, for that this spirit and subtil humidity may be diſpafed over fo many, and fo far feparate particles of our body. There are some things only, by the power of their quality, may alter those things which are next to them; and that this appears plainly in the Fifth Torpedoe, as that hath so powerful a quality, that it can fend it along the Fibhers rod to the hand, and to make it become torpid or numb. But on the contrary, Philofophers teach that accidents, such as qualities are, cannot alter our faculties, but may move and diffuse themſelves into other subjeéts.

The true reaſon of the wondrous effects of poisons.

Therefore the propounded Question; Whether there may be Poisons which within a certain and deinite time (put cafe a Moneth or Year) may kill men? Theophrastus thus answers; of Poisons some more feepidly perform their parts, others more slowly; yet may you find no fuch as will kill in feet limits of time, according to the will and defire of men: For that fome kinds fooner or later others they do not this of their own or proper nature. Physicians rightly judge, but because the subjeéft upon which they light, doth more or lefs yield to their efficacy. Experience fheweth the truth thereof, for the fame fport of poison in the fame weight and meafure, given to fundry men of different tempers and complexion, will kill one in an hour, another in fix hours, or in a day, and on the contrary, will not fo much as hurt fome third man. You may also obferve the fame in purging Medicins. For the fame Purge given to different men of the fame proportion, will purge fome fooner, fome later, fome more fparkly, others more plentifully, and otherfome not at al, all with thefe it will work gently, with othertimes with pain and gripings. Of which diercy, there can be no other caufe allowed, than more or lefs currents in the proportions and temper, which no man can fo exactly know and comprehend, as to have certain knowledge thereof, of how much and how long the native heat can refist and labour against the through of poisons, or how percius or open the paffages of the body may be, whereby the poisons may arrive at the heart and principal parts. For in this (for examples fak) have the paffages of their arteries more large, the poisons more readily and feepidly enter into the heart, together with the air that is continually drawn into the body.
Whether such Creatures as feed upon poisons, things, be also poisons? and whether they may be eaten safely and without harm.

Ducks, Storks, Herons, Peacocks, Turkeys, and other Birds, feed upon Toads, Vipers, Afs, Snakes, Scorpions, Spiders, Caterpillers, and other venomous things: Wherefore it is worthy the questioning, whether such like Creatures nourished with such food, can kill or poison such poisons as shall afterward eat them? Matthioli writes, that all late Authors, who have treated of Poisons, to be abfolutely of this opinion, That men may safely and without any danger feed upon such Creatures, for that they convert the Beasts into 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. Dispariter and Galen form to maintain this opinion, whereas they write that the milk, which is nothing else but the rounded blood of such beasts as feed upon Scammony, Helstone, and Spurge, purge violently. Therefore Physicians deferous to purge a stinking child, give Purges to the franticks they are troubled with cold sweats, their Faces become blackish or yellowish, always unquenchable thirst in the belly is so-bound, that so much as the urin cannot have free passage forth, that dryness is predominant in them: such things make the tongue and throat dry and rough, with unhallowed gestures and antick tricks with their mouths, eyes, arms, and legs, like as such are frantick; they are troubled with cold sweats, their Faces become blackish or yellowish, always ghastly, all their bodies are benumbed, and they die in a short time, unless they be helped, poisons of this kind are Hemlock, Poppy, Mignonette, Henbane, Mandragora, and all other venomous things. Common signs of such poisons are known.

The occasion of hidden death upon poisons.

Therefore I do not allow that the flesh of such things as feed upon venomous things, should be eaten for food, unless it be some long space after they have diffused their poison, and that all the venom be digested and overcome by the efficacy of their proper heat, so that nothing thereof may remain in taint, smell, or substance, but he all vanquished away. For many die suddenly, the cause of whose deaths is unknown, which prodigiously was from nothing else but the sympotamies and antipathy of bodies, for that these things cause death and death to some, not to others (according to our vulgar English Proverb, That which is one mans meat, is another mans poison.)

CHAP. V.

The general signs of such as are poisoned.

We will first declare what the general signs of poisons are, and then we will defend to particulars, whereby we may pronounce that one is poisoned with this or that poison. We certainly know that a man is poisoned, when as he complains of a great heaviness of his whole body, so that he is weary of himself, when as some horrid and loathsome tastes sweats out from the orifice of the mouth to the nose and tongue, ghastly different from that rate that meat, howsoever corrupted, can feed up: when as the colour of the Face changeth suddehely, sometimes to black, sometimes to yellow, or any other colour, much differing from the common custom of man; when nauseous smells with frequent vomiting trouble the Patient, and that he is moulded with great uneasiness, that all things seem to be turned upside down. We know that the poison works by the proper, and from the whole substance, whereas without any manifest sense of great heat or coldness the Patient sweats often with cold sweats, for usually such poisons have no certain and distinct part wherewith they are at enmity, as Cantharides have with the bladder. But as they work by their whole substance, and an occult propriety of form, so do they presently and directly affect the heart, our essence and life, and the fortress and beginning of the vital faculty. Now will we show the signs whereby poisons that work by manifest and elementary qualities may be known. Those who exceed in heat, burn or make an impref- Such things as poisons may be eaten without danger.

The Book of Poisons, Cc.
Signs of poisons. 

Poisons induce a perpetual sleep, a flux or scouring, the resolution of all the nerves and joints, so that not only poisons are not cold. Why such as Lues venomous serpents as affirmeth for dying thereof, when as his servant, desirous to awaken or slung, are poisen'd. All poisons are not cold. Why such as are poison'd or thing, are cold. 

What such as fear poising must observe in their diet. 

When and where with which shall be purged.

An History. 

The last venomous kills by excess of moisture. 

All poisons are not cold. Why such as are poison'd or thing, are cold.

To thefe and such poisons which work by a manifest and elementary faculty, as when they shall be received into the body after what manner forever, you shall forthwith oppose their contraries; and if by chance it be not manifest what, and of what d ifficult kind of poison 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 only by Experience. Therefore to those you must oppose their like Antidotes, which may by their whole substance strengthen the heart and vital faculty, and withfind the strength of the poison. But to this our distinction of poisons, working by a manifest and elementary quality, their opinion is contrary, who affirm that the venom of all poisonous Beasts are therefore cold, for that such as are bitten or flung with them, are forthwith felt to be colder than a flame. And that Serpents for fear of cold, when as Winter is at hand keep themselves in holes and dens under ground, or else as Vipers use to do, lie under stones, under which you may often find them stiff and numb, and so unapt for motion, that you may easily take them up in your hand. But the coldness that is perceived or felt in such as are bitten or flung, is not occasioned by the coldness of the poison, but by the absence of the natural heat, withdrawing it in the very instant of the frosth, from the surface 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 to much dissipates, or to much oppresses the vital heat as poison (of what kind ever it be) doth.

CHAP. VI.

Hom., or by what means to please or allure Poisons. 

It is a matter of much difficulty to avoid 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 do qualitie their ingrate taste and smell, by the admixture of sweet and well smellen things, that they cannot easily be perceived even by the skilful. Therefore such as fear poising, ought to take heed of meats cooked with much Art, very sweet, salt, sour, or notably endued with any other taste. And when they are oppressed with hunger or thirsk, they must not eat nor drink too greedily, but have a diligent regard to the taste of such things as they eat or drink; besides, before meat let them take such things as may weaken the strength of the poisons, such as is the first broth of good nourishing flesh meats; in the morning let them arm themselves with Trench or Mithridate, and conserve of Roses, or the leaves of Rose, a Walnut, and dry Figs besides, let him profusely drink a little draught of Muscadine, or some other good Wine; when one suspects he hath taken any poison in meat or drink, let him forbear sleeping. For besides that the force of poison is oft-times so rapid, that it consumes our life in a short space, as Fire doth Stubble, as also for that it is drawn more inwardly into the secret passages of the body by sleep. Wherefore in such a case it is better to procure Vomit by drinking, Hydrocolcum warm, or Batter dissolved in warm Oil, or a decoction of Lin, or Fenugrec seeds, or hot Broth, for thus the received poison is also cast forthwith, or else the acrimony thereof returred, and the belly loosed. 

You may fee this by daily experience, for Causticks, Venticatories, and the like druggs being applied to the anointed part, will not blister nor excrurate the same. Neither doth the Vomit conduceth only in this, that it extinguisheth the poison, but it flushes either by the Taffe, Smell, or Colour, the kind of the taken poison; so that then by using the proper Antidote, it may be the more easily and speedily reliev'd, yet notwithstanding, if you conceive that the poison being given, prepared and charged with this, you may proceed deeper into the Guts, you may wash a greater 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 resist poisons, such as are Against, Aloes, the lesser Cantharides, Rubains, and other things, according to the direction of the learned Physician. Then shall you administer Clysters made with
with Gaffa, fatty decoctions, Sheep's Suet, or Butter, or Cows Milk, with the mustard and Linseed, Fennel seeds, Quince seeds, and other such things as are usually given in a Dysentery, or bloody flux, that such things may hinder the admission of the poison to the coats of the guts, and by their unctuousness retard the serenity of the poison, and mitigate if any thing shall already be absorbed, and absolutely defend the found parts from the maliqens effects of the poison. But let this be a peremptorv rule, that the poison be speedily drawn by the same way it entered into the body, as if it entered by mingling, in at the Neuris; let it be drawn back by freezing; if by the mouth into the stomacm, let it be excluded by vomiting; if by the fundament into the belly then by clystering; if by the Privies into the Womb, then by metrenchymes or injections made therein; if by a bite, stings, or wound, let revulsion be made by such things as have a powerful attractive faculty: thus we make diversions, that by them we may not only hinder the poison from ascending the heart, but also prevent it from spreading to the other parts of the body. Thus let us take care to vomit into the belly, or, if by the mouth, let it be excluded by vomiting; if by the fundament let it be emculated; if by the Privies let it be injected; if by the cut or stung part let it be emculated or injected. Allo baths of warm water, with a decoction of such things as refit Poison, Southern-wood, Calamint, Rue, Betony, Horehound, Pennyroyal, Bays, Scordium, Smallage, Scabious, Mint, Valerian, and the like, are good in this case. Allo Sweats are good, being provoked as much as the strength of the Patient can endure. But if he be very weakly, whom we fulfill poisoned, it will be fitter to put him into the belly of an Ox, Horse, or Male, and then preferably into another as soon as the former is cold, that so the poison may be drawn forth by the gentle and vaporous heat of the new killed Beast; yet do none of these things without the advice of a Physician, it may conveniently be had.

The care of Poisoned wounds.

He Air is infected and corrupted by the admixture of malign vapours, either arising from the unburied bodies of such as are slain in great conflicts, or exhaling out of the earth after Earthquakes; for the air, long pent up in the cavities and bowels of the earth, and deprived of the freedom and commerce of the open air, is corrupted, and acquires a malign quality, which it acquires on the top of which it is, which it accompanies Thunders and Lightnings, which favours of a fulphurous vileness, so that whenever wild Beasts shall devour the Creature killed therewith, they become mad, and die immediately; for the fire of Lightning hath a far more rapid, subtil, and greater force than other fires, so that the Air is corrupted, and acquires a malign quality, which it steds. The Are of Lightning hath a far more rapid, subtil, and greater force than other fires, so that it may fire the Air. This reason is fallly assigned to the destruction of the lives of careless people, for fulphurous brands kindled at a clear fire, do notwithstanding call forth a fulphurous vapour. Whether do not Lignum aloes and Juniper, when they are burnt in a flame, smell sweetly? Pope Clement, the seventh of that name, the Uncle of our Kings Mother, was poisoned by the flame of a poiy^onous Torch that was carried lighted before him, and died thereof. Matthiolus saith, that there were two Mountebanks in the Market-place of Sinna, the one of which but smelling to a poisoned pomander, was presently taken with a Vertigo, and all his face swelled, and whilst that he had gotten speedy help by Scramatories and other means, he had died shortly after of the same kind of death that Pope Clement did.

The safest preservative against such poisons is, not to smell to them; moreover from afar, that there are prepared some Poisonous of such force, that being anointed but on the Saddle, they will kill the Rider and others, that if you but anoint the Stirrups therewith, they will fend to deadly poisonous 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 Tarpan feeds on Narcissus, and certainly deadly force into the arm, and so into the body of the Filler, the cords of the Net being between them.
S Poisons are distinct in species, so each species differs in their Signs and Effects: neither is it possible to find any one kind of poison which may be accompanied with, or produce all the Signs and effects of all poisons, otherwise Physicians should in vain have written of the Signs and effects of each of them, as also of their proper remedies and antidotes. For what kind of poison shall be in force, which shall cause a burning heat in the Stomach, Belly, Liver, Bladder, and Kidneys, which shall cause a distempering, 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 pulvinar faciety, which shall incipient the freedom of breathing, which shall rupture and cut into a dead sleep, which shall together and at once cause a Vertigo in the head, dismell in the sight, a strangling or stoppage of the urine, perpetual vomiting, redness, lividity, and paleness of the face, refolutions of the powers, and many other things, all which are caused by all sorts of poisons. Lately, No body will deny but that hot poisons may kill more speedily than cold, for that they are more speedily averted by the native heat.

CHAP. IX.
The Effects of Poisons from particular venomous things, and what Prognosticks may be made.

It is the opinion of Cornelius Celsius, and almost of all the Ancients, that the bite of every Beast hath some virulence, but yet some more than other. They are most virulent that are inflicted by Venemous Beasts, Apes, Vipers, Water-Snakes, and all kinds of Serpents, Bats, Bats, Horses, Cats, Dogs, Scorpions, Spiders, Bees, Wasps, and the like. They are less virulent, which are of Creatures waiting Venom, as of Horses, Apes, Cats, Dogs not mad, and many other things, which though of their own nature they are without poison, yet in their bites there is something more doloris and ill-natured than in common wounds inflicted by other occasions. I believe, that in their flavor or genus, there is something. I know not how to term it, contrary to our nature, which imprints a malignity on the ulcer, which also you may observe in the tearings or scratchings of such Creatures as have sharp claws, as Lions and Cats. Moreover many affirm, that they have found by experience, that the bites of Men are not altogether without virulence, equally of such as are red haired and freckled, chiefly when they are angered: it is probable that the bites of other poisons want this malignity, feeling that their bites will not cause small ulcerations. Wherefore if there shall happen difficulty of care in a wound, caused by a man's biting, which is neither red haired, nor freckled, nor angry, this happens not by means of the spine, nor by any malign quality, but by reason of the continuance, caused by the handheld of the teeth, not cutting, but bruising the part; for being not sharp, they cannot so easily enter the flesh, unless by bruising and tearing, after the manner of heavy and blunt swords and weapons, wounds being occasioned by such Creatures as have sharp claws, as Lions and Cats. Moreover many affirm, that they have found by experience, that the bites of Men are not altogether without virulence, equally of such as are red haired and freckled, chiefly when they are angered: it is probable that the bites of other poisons want this malignity, feeling that their bites will not cause small ulcerations. Wherefore if there shall happen difficulty of care in a wound, caused by a man's biting, which is neither red haired, nor freckled, nor angry, this happens not by means of the spine, nor by any malign quality, but by reason of the continuance, caused by the handheld of the teeth, not cutting, but bruising the part; for being not sharp, they cannot so easily enter the flesh, unless by bruising and tearing, after the manner of heavy and blunt swords and weapons, wounds being occasioned by such Creatures as have sharp claws, as Lions and Cats.

The bite of a red-haired man is virulent.

CHAP. VIII.

Then every kind of Poison hath its proper and peculiar Signs and Effects.

Hot poisons kill sooner than cold.

The bites of all wild Beasts are virulent.

Combined wounds harder to heal than such as are cut.
Cure of the proper disease for a time, we must labour to correct the symptom.

But in this case you must observe this, that you let no blood, give no medicine to bring a Gangrene by the dissipation of the spirits; stop in its progress, and cleanse the ulcer; if necessary, or for the purpose of the disease, you may apply either the powder of Alum, or a caustic beaten to powder. But you must always observe this, that with the powder of Alum, or a caustic beaten to powder, it is by their heat, whereby they do not only digest and expel the vitious humours, but also wear asunder and soften the stones and other venemous things, but also wear asunder and soften the stones and other venemous things in their gizzards, wherefore we must think them very convenient, if the part affected will permit, to apply hot drawing plasters to the wound hot, for that they giveth thefe refill: poison to the fundament. There be others which had rather apply to the bites and stings of venemous beasts, because in the purple flowers that grow amongst the leaves, there is a resemblance to the head of a Viper or Adder. Another reason is, because it heals the bites of a Viper, not only applied outwardly, but also helped such as are bitten being drunk in Wine, yea and will not lessen those things that have lately drunk thereof to be bitten at all. Wild Vyne hath the like effect, though thev oft-times agree with the poison in quality as in heat, yet do they help in diffusing and resolving it, yea, as much as we may, we must labour to have evacuation and alteration together. It is most convenient, if the part affected will permit, to apply large Cupping-plasters with much flame and horn; also fucking is good, the mouth being gashed in Wine wherein some Trecule is dissolved, and with Oil, lett any thing should adherethereunto, it will hinder it, so if to the mouth be no where ulcerated. It is good also to apply Horse-leeches, some with to apply to the wound the fundament of Hers or Turks that lay Eggs, for that such be open behind, but putting pale upon them that they may goe the wider, lacerating their backs and opening them now and then, let them be filled, and ever and anon to fabulous others to heed such as do are suffocated for this is thought the poison is drawn forth, and pullet into the Eas by the fundament. There be others which had rather apply to the wound five good cutting plasters in the midst, and laid to the wound hot, for that they giveth thefe redolent poisons by a natural dint. But certainly it is by their heat, whereby they do not only digest Toads, Ags, Vipers, Scorpions, and other venemous things, but also wear aunder and loosen Stones, Stones, and most dry and thirsty foods in their gizzards, wherefore we must think them very good to draw out the poison and distilte it. But nothing is so forcible to dissolve and retard the venom, as the impression of Cauteries, especially actual, for a hot iron works more effectually and speedy, and caueth an ulcer which they may remain longer a time. Wherefore to caueth the especial falling away of the Efchar, you shall cleanse it to the quick, and then plentifully anoint the place. For this the poison will the sooner pass forth. But this must be done before the poison enter into the body, for otherwise Cauteries will not only do no good, but further torment the Patient, and weaken him to no purpose. Let drawing plasters be laid to the wound and neighbouring parts, made of Galbanum, Turpentine, black Pitch, and other gummy and venefious things. After the falling away of the Efchar Balsam shall be applied quickened with a little Precipitate, for it is very effectual in such a case, for that it draws forth the virulent juices out of the bottom of the wound, neither doth it suffer the wound to be closed speedily. To which purpose they put in a piece of sponge, or a root of Gentian or Hermodochyl, or some acid Medicin, as Eryngium or Precipitare mixed with the powder of Alum, or a caustic beaten to powder. But you must always observe this, that with your ownsetemps you must always mixe some Trecule or Mitredrake, or the piece of Hyson, or things are not the like, which have power to atrect and displace the poison, and cleanse the ulcer; you will very conveniently here shall cause such pain as is likely to bring a Gangrene by the diffusion of the spirits, then neglecting the cure of the proper disease for a time, we must labour to correct the symptom. But in this case you must observe this, that you let no blood, give no purging Medicin nor

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**BooK XXI.**

**OF Poisons, &c.**

as conflict of a simple nature: such as hefe which come from Venenous Creatures, Plants, and Medicinals, and which are not prepared by the detestable Art of empowers.

**CHAP. X.**

What Cures must be used to the bitings and stings of venenous Beasts.

The must speedily be used without any delay to the bites and stings of venenous Beasts which may by all means disperse the poison, and keep it from entering into the body; for when the principal parts are polluted, it boots nothing to use Medicins afterwards. Therefore the Ancients have prescripcted a double Indication to lead us to the finding out of Medicins in such a case, to wit, the evacuation of the virulent and venenous humour, and the change or alteration of the same and the affected body. But (ecing evacuation is of two forts, to wit, Univer-

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**Trecule outwards applied and inwards taken good against venomous bites.**

**Lotions fit for venomous bites.**

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**The force of Echinus.**

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**The efficacy of Cantharides against venenous bites.**
Clowns, nor Venoms, nor Ie of Bath, nor other things that may procure heat, unless three hours be past after the bite or sting. In the mean While at the Patient in all manner of labour, but chiefly Venery, lest by occasion of an irritation of the humours, the poison get sooner to the heart. Therefore then it is in time to use universal evacuations, when as you shall suspect that the poison is diffused over the veins and whole inner part of the body before. Before you shall give nothing, unless Medicines of Tonic and Mithridate, and the like things, which have a faculty to refill poison, and strengthen the whole body by their bringing them to an evil, although their substance go not further than the stomach. This Fells when they are swallowed, though they go no further than the stomac, yet do they make matter out of the hands and head, and clowns, though they pass no further than the guts, yet by their quality diffused further with the vapour, they draw from the most distant parts; yet you must give an Antidote, not only more powerful than the poison in quality, but also greater in quantity, that so it may the more easily overcome and expel the poison. Wherefore you must give it twice in a day, and continue it so long until you shall know that the strength of the Antidote is weakened and overcome by the remission and decay of the malign Symptoms. Yet in the mean while you must not neglect the distemper caused in the part by the poison, but must rather correct it by the application of the remedies contrari to the distemper, as by cold things if great heat afflicts the affected part and whole body by hot things on the contrary, if it seem as cold as a stone, which oft-times happens. And let us thus much suffice for the general care of Poisons: now will we come to their particular Cure.

CHAP. XI.

Why Dogs become mad than other Creatures, and what be the figure thereof.

Dogs become mad sooner than any other Creatures, because naturally they enjoy that temper and condition of humours which hath an eafe inclination to that kind of distemper, and as it were a certain disposition, because they feed upon Carrion, and corrupt, putrid and smelling things, and lap Water of the like condition; besides the trouble and vexation of losing their Manners makes them to run every way, painfully fevering and fleeing to every thing and neglecting their meat. An heating of the blood ensues upon this pain, and by this heat it is turned into a melancholy, whence they become mad. But yet Dogs do not always become mad by means of heat, but also by occasion of cold, that is, by contrary causes; for they fall into this distemper not only in the Dog-days, but also in the depth of Winter. But such humours as in the Summer through excess of heat, so in the depth of Winter by contrariety and the suppression of fluidious excrements, they easily turn into melancholy. Hence follows a very burning and continual Fever, which causeth or bringeth with it a madness. Add hereunto, that in the depth of Winter the heat which is contained within is redoubled, and in like manner as the burning heat in Summer, it breeds and turns the humours into melancholy. Also Dogs become mad by contagion, as such as are bitten by another mad Dog. A mad Dog hath stare Ing and fiery eyes, with a fixed look, cruel and sullen, he carries his head heavily, hanging down towards the ground, and somewhat on one side, he gazes and thrusts forth his tongue, which is livid and blackish, and being short breathted, calls forth much phlegm at his nose, and much foaming matter at his mouth; if he be as it were, if he is 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 drunk, he oft-times falleth down on the ground; he violently affails whatsoever he meeteth with, whether it be Man, Tree, Wall, Dog, or any thing else; other Dogs shun and presently get him at arm's length. But if another quavars chances to fall foul upon him, he yields himself to his mercy, favons upon him, and privily labours to get from him, though he be the stronger and greater. He is unmindful of eating and drinking, he barks not, yet bites he all he meets, without any difference, not sparing his Master, as who at this time he knows not from a stranger or enemy. For it is the property of melancholy to disturb the understanding, so that such persons as are melancholic, do not only rage against, and use violence to their Friends and Parents, but also upon themselves. But when as he sees Water, he trembles and shakes, and his hairs stand up on end. It is not so easy at the first to know that a man is bitten with a mad Dog, and principally for this reason, because the wound made by his teeth causeth no more pain than other wounds usually do, contrary to the wounds made by the fleg or bite of other noxious Creatures, as those which presently after they are inflicted, cause sharp pain, great heat, swelling, and abundance of other malign accidents according to the nature of the poison; but the malignity of the bite of a mad Dog appears not before that the venom shall invade the noble parts. Yet when you are suspicious of such a wound, you may acquire a certain knowledge and experience thereof by putting a piece of bread into the quittance that comes from the wound. For if a hungry Dog neglected, yet more by self, and dare not so much as let it, it is thought to be a certain sign that he was inflicted by a mad Dog. Others add, That if any gave 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 a jot the worse. Wherefore I think the former sign to be the more certain, for Dogs have a wonderful and fine feeling of the parts, whereby they easily feel and perceive, the malignity of the like Creatures. But when as
the raging virulence hath invaded the noble parts, then the patient, becoming faint, and forebodings by rows of, think of many things, and at the beginning make a noise with their teeth; they make no answer to the purpose, they are more talk than ordinariness, and in their sobs they utter their plights, and fearful visions; and lastly, they become afraid of the water. But after that the poison hath fixed itself into the substance of the noble parts, then all their faculties are disturbed, all the light of their memory, senses, reason, and judgment is extinguished. Wherefore therefore becoming stark mad, they know not such as stand before them, nor their friends, nor nor themselves, falling upon such as they meet withal, and themselves with their teeth and nails and feet. Often twitchings like convulsions do suddenly rise in their limbs: I judge them occasioned by extraordinary drinks, which hath as it were drunk up all the humility of the nervous parts, there is a great division of the mouth with intolerable thirst, yet without any desire of drink, because the mind being troubled, they become unmindful and negligent of such things as concern them, and are needful for them, the eyes look fiery and red, and all the face is of the lime colour; they think of dogs, and fear to see them, yea and delve to bark and bite just after the manner of dogs. I conjure the violent humour hath changed all the humours and the whole body into the like nature, so that they think themselves also dogs, whence their voice becomes horrid by much evocating to bark, having forgot all decency, like impatient dogs, to the great horror of the beholders. For their voice grows horrid by reason of the great division of the arteria carotis; they thrust the light, as that which is enemy to melancholy, whereas the whole substance of the Brain is replenished, on the contrary they divide darkness, at that which is like and friendly to them. But they are afraid of the water (though good to mitigate their great dirriture of heat and drink) and they cry. Looking-glasses, because they imagine they see dogs in them, whereas of they are much afraid, by reason whereof they the water and all polite and clear bodies which may supply the site of a Looking-glass, so that they throw themselves on the ground, as if they would hide themselves therein, lest they should be bitten again; for they affirm that he which fallen by a mad Dog, always hath a dog in his mind, and so remains fixed in that full cognition. Wherefore thinking that he sees him in the water, he trembles for fear, and therefore dines the water. Others write that the body by means of becomes woody and dry, whereas they hate the water, as that which is contrary thereto, being absolutely the most eleventh, and so they say that this is the reason of their fearing the water. Raffauf writes that insensible is a kind of melancholy, and that fear is the proper symptom thereof, according to Hippocrates, whereof this is written: \textit{after a dog's bite, the water, as that which is contrary thereto, being absolutely the most eleventh, and so they say that this is the reason of their fearing the water.}\footnote{Raffauf writes that insensible is a kind of melancholy, and that fear is the proper symptom thereof, according to Hippocrates, whereof this is written: \textit{after a dog's bite, the water, as that which is contrary thereto, being absolutely the most eleventh, and so they say that this is the reason of their fearing the water.}} Whensoever they can know their face in a glass, for hence you may guess that the animal faculties are not be

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The bite of a mad dog some or many symptoms, and overcome by the bitters of pain, die fraiments, by reason that Medicine have not been specially and rily applied. For few of those who have used remedies in time, have been more or less efficacious.

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drinks. Finally, the principal parts being poffeffed, there is no recovery or life to be hoped for. Men may well fall mad, though they be not bit by a mad dog. For as the humours are often in¬
flamed of themselves, and caufe a Cancer or Leprofe, fo do they also Madnefs in melancholick per¬
sons. The bites of Vipers and other venemous creatures caufe not like symptoms to thofe that come by the biting of a mad Dog, because they die before the fuch can come forth or show themselves. Great
wounds made by mad Dogs are not equally dangerous as little, for from the former great plenty of
venemous matter flows out, but in the latter it is almost all kept in.

CHAP. XIV.

What care must be ufed to fuch as are bitten by a mad Dog.

His cafe also requires fpeedy remedies; for fuch things are in vain which come long after the
hurt. The Lawyer Baldwin experienced this to his great harm, for being by chance
lightly bit in the lip by a little Dog wherewith he was delighted, not knowing that he was
mad, and neglecting the wound by reason of the fulnefs thereof, after fome four moneths
pace he died mad, having then in vain afayed all manner of Medicines. Wherefore observing
these things both for evacuation, as fo for alteration, which we have formerly mentioned in the
general Care of Wounds inflicted by the bite or sting of venemous Creatures, and by all the means
thereof, we mufl draw forth the venom, and if the wound be large, then fuffer it to bleed
long, and much, for fo fome part of the poifon will be exhausted if it be not great it fhall be
enlarged by blaftration, or an occult cautery, neither shall it be heated or chofen up at the foot
neft till forty days be palled. Sorrel beaten and applied to the wound, and the decoction there¬
of taken inwardly, is very fefidal in this cafe, as Actin affirms. To the fame purpofe you may
with good effect make a lotion and folution with Muftrand diffolded in Urin or Vinegar, leaving
upon the wound a double cloth moistened in the fame decoction: lately, all acrid, biting, and very
attractive Medicines are convenient in this cafe. Wherefore others apply Rocket boiled and bea¬
ten with Butter and Salt, others take the flower of Orzech, and temper it with Honey, Salt, and
Vinegar, and apply it hot. Horfe-dung boiled in Sharp Vinegar, or Brimfpone beaten to powder,
and tempered with ones fpitile, is good. Alto black pitch mixed with fome falt, and a little Em¬
phedrion mixed therewith, and fo applied, is good. Some write that the brains of the Dog which
bite caufed the madnefs, applied by themselves, by their Sympathy or fimilitude of Subftance, draw
the venom from within outwards, for to a Scorpion beaten and applied to the place whereas it
flung, by drawing out the poifon that it fed in, refuffles the Patient to health, though by of¬
ten experience are affirmed to have certain events. Others chew unground Wheats, and lay it up
in the wound, other roaring Beans under hot Embers, then break them and chase them, and fo apply
them. Also the wound may be wholly waited and forfed with a defcription of Docks, and then
the herb beaten may be applied thereto; alo the Patient may drink the defcription and by
this one remedy Actin affirms that he hath recovered divers; for thus it moves Urine plentifully,
which is thought much to condufe to the cure of this difaffe. Those he fome who apply the leaves
of Betony and Nettles beaten with common Salt, others make a Medicin to the fame purpofe, and
after the fame manner, of an Onion, the leaves of Rue, and Salt. Yet the reft are exceed¬
ced in Agree with infom or Screened Wine, and rubbed hard upon the place, fo that blood may
follow, laying upon the wound when you have wiped it, clothes dipped in the fame Medicin is
then prefently apply Garlic or Onions beaten with common Salt and Turpentine. By this onely
remedy I fed one of the daughters of Madame call de Grou from the symptoms of madnefs, and
healed the wound, when as a mad Dog had bit her grievously in the calf of the right leg. Alto it
is good prefently to eat Garlic with bread, and then to drink after it a draught of good
Wine, for Garlic by its Spirituous heat will defend the noble parts from the poifon. There be fome who with
to eat the roasted liver of the Dog that hurt them, or elfe the liver of a Goat, which remedies, as
yet I have had no experience. Others prefcribe a dram of the feeds of Agave caflus to be drunk with
Wine and Butter. Others the powder of River-Crabs burnt and drunk in Wine. Or, B. Radigan.

CHAP. XV.

What care must be ufed to fuch as are bitten by a mad Dog, Viper, Toad, or any other fuch venemous Creature, if it be that it be pre¬
emptly wiped or walked clean away.

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Such as have not their animal facuity as yet overcome by the malignity of the raging venom,
must have ftrong purgations given them. Wherefore if in any cafe Antony is ufed, then
thereby it is in this, as that which caufeth fweats, loofeth the belly, and procures vomiting. For it is a
part of extreme and dangerous madnefs to hope to overcome the miffary of this poifon already
admitted into the bowels, by gentle purging Medicins. Affuredly, Sucb and great danger
is never overcome without danger. Bath also conduces, which may dipere and draw forth the poifon
Of Poisons, 

Book XXI.

Of the Biting of a Viper, and the Symptoms and Cure thereof.

The remedies that were formerly mentioned against the bitings of mad Dogs, the same may be used against all venemous bites and stings, yet nevertheless each poison hath his peculiar antidote. Vipers or Adders (as we vulgarly term them) have in their jaws, or the fisses, the bites of between their teeth, little bladders filled with a virulent (fum, which is pressed out into the parts how that they bite with their teeth. There forthwith arises a pricking pain, the part at the hurt is much irritated, and then the whole body, unless it be hindered: grofs and bloody fluids swells out of the throat, wound, little bladders filled round about it, as if it were burnt, the wound gnaws, and as it were feeds through the body, great inflammation possesseth the liver and the guts, and the whole body becomes very dry, becoming of a pale or yellow colour, with thirst unquenchable: the belly is griped by the cholerick vomiting molesteth them, the stomach is troubled with a hickeing, the patients are upon the flesh, great inflammation possesseth the liver and the guts, and the whole body becomes very dry, of a pale or yellow colour, with thirst unquenchable: the belly is griped by the cholerick vomiting molesteth them, the stomach is troubled with a hickeing, the patients are taken with often sweats, with cold sweat, the fore-runner of death, unless you provide by such medicines for the noble parts, before the poison shall invade them.

Machiavel tells, that he saw a Courtier, An History, who then was mowing a Meadow, by chance cut an Adder in two, which he thought it was dead, he took the one half, whereon the head remained, without any fear in his mouth, and sucked out the blood and poison, and presently fell down dead. This man, who as he was mowing a Meadow, by chance cut an Adder in two, which he thought it was dead, he took the one half, whereon the head remained, without any fear in his mouth, and sucked out the blood and poison, and presently fell down dead. When as Charles the ninth was at Montpeliom, I went into the shop of one Forger an Apothecary, An History, who then made a solemn declaration of Treacle, where not satisfying my self with the looking upon the Vipers that were there in a glass, ready for the composition, I thought to take one of them in my hands, but whisked that I too curiously and fearfully handled her teeth which were in her upper jaw, covered with a skin, as it were a cafp to keep the poison in, the head caught hold of the very end of my fore-finger, and bit me in the face between the nail and the fitch, whence before those were scarce great pain, both by reason of the part endued with most exquisite fine, as also by the malignity of the poison: forthwith I exceeding wildly bound my finger above the wound, that so I might press forth the blood and poison, lest they should diffuse themselves further over the body. I discharged old Treacle in Aqua vitae, wherein I dipped and moistened Cotton, and so put it to Remedies for the wound, and within a few days I thoroughly recovered by this only Medicine. You may use in the bite of a head of Treacle, Mistletoe, and sundry other things, which by reason of their heat are powerful Viper drawres, as a Quill roast in hot Embros, Garlic and Leeks beaten and applied, Barlefs flourtempered with Vinegar, Honey, and Gout's-dung, and so applied like a poultie. Some think it sufficient forthwith to wash and foment the wound with Vinegar, Salt, and a little Honey. The patient inflicted by the bite of a Viper, may be drawn forth by the applying to the wound the head of a Viper, but other-dome apply the whole Viper beaten to math.
CHAP. XVII.

Of the Serpent called Hemorrhous.

The Serpent Hemorrhous is so called, because by biting he causeth blood to drop out of all the passages of the wounded body: he is of a small body, of the bigness of a Viper, with eyes burning with a certain fiery brightness, and a most beautiful skin. The back of him (as Aristotle writes) is spotted with many black spots, his neck little, and his tail very small: the part which he bites forthwith grows blackish, by reason of the extinction of the native heat, which is distinguished by such poison which is contrary thereto in its whole substance. Then follows a pain of the thorax and heart, these parts being touched with the pestiferous quality of the poison. These pains are increased by vomiting, the office of the ventricle being released by a Diuresis, the retentive faculty of all the parts of the belly being weakened, and the veins which are spread through the guts, not being able to retain the blood contained in them. For the blood is seen to flow out, as in streams, from the Nose, Mouth, Ears, Fundament, Privities, corners of the Eyes, roots of the Nails, and Gums, which putrefy, the Teeth falling out of them. Moreover there happens a difficulty of breathing, and stoppage of the urin, with a deadly convulsion. The Cure is forthwith to farifie and burn the bitten part, or else to cut it quite off, if that it may be done without danger of life, and then to use powerfully drawing Antidotes.

CHAP. XVIII.

Of the Serpent called Seps.

The reason of the name, and description of the Seps.

The Serpent Seps is so called, because it causeth the part which it bites, forthwith to putrefy by reason of the cruel malignity of its poison. It is not much unlike the Hemorrhous, but that it curls or twines up the tail in divers circles. Faustus writes that this Serpent is of an ash-colour, abroad head, small neck, big belly, white skin, and as he goes he runs aside like a Crab; but his skin is variegated and spotted with several colours, like to Tapestry. By the cruelty of his caustick and putrefying venom he burns the part which he hath hit, with most bitter pain; he causeth the shedding of the hairs, and as Aristotle adds, the wound at the first causeth forth manifest blood, but within a little while after, flaming flux. The putrefied affected parts wax white, and the body all over becomes of the colour of that sear which is termed Althos, so that by the wickedness of this putrefactive poison, not only the spirits are resolved, but also the whole body consumed, as by fire, a pestilent carbuncle, and other putrid tumors, arising from an hot and humid or suffocating constitution of the air. Now for the remedies, they must be such as are formerly prescribed against the bitings of a Viper.

CHAP. XIX.

Of the Basilisk, or Cockatrice.

The efficacy of the poison of the Basilisk.

The Basilisk far exceeds all kinds of Serpents in the curstness of its poison. Therefore it is affirmed by Nicander, that into what place ever he comes, other venomous creatures do forthwith flee thence, for that none of them can so much as endure his bittings: for he is thought to kill all things even with this, and not with his biting and touch only; besides, if any of them
Book XXI.

Of Psephins, &c.

Of the Salamander.

The Salamander kills not only such as it bites, by making a venemous impression, but it also infects the Fruits and Herbs over which it creeps, with a subtle or gross moisture which fowets out all the body, 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 the 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 poison, wherein it yields not to Antiquity.

Actius writes, that such as are infected with the poison of a Salamander, certain parts of their body grow hvid, so that they fall away often, being putrefied. At the first there appear white spots over the body, then red, afterwards black with putrefaction, and the falling away of the hairs. The Cure is to procure vomit, to lose the belly with a Clyster, and to give them Treacle and Mithridate in potions. Actius prefers the same things against this kind of poison as against Opium, by reason of the cold nature of them both; the proper Antidote is Tartar, Smyrn, Nettle-seeds, and Cypres-leaves. Distarctius writes, that the Salamander is a kind of Lizard, dull, variegated, and which is fully reputed, not to be burnt by fire. But Pliny affirms it is so cold, that the extinguishing the fire by the hand only, being laid upon hot Coals. On the contrary, Manlius faith, that call into a great flame they are quickly consumed. It is cause out of Actius to reconcile these differing opinions. This creature faith, puffeth through a burning flame and is not hurt, the flame dividing it self, and giving its way, but if it continue any time in the fire, the cold humour is so far being consumed in her, she is burnt. Now the Salamander is black, variegated with yellow spots into the fire.

The malignity of a Salamander.

The temper of her.

Symptoms.

The Cure.

How a Salamander may be said to live in the fire.

The Figure of a Basilisk.
CHAP. XXI.
Of the Torpedo.

The Figure of a Salamander.

The Torpedo hath his name from the effect, by reason that by his touch and power the members become torpid and numb. In muddy shores it lives upon fish, which the catcheth by craft. For lying in the mud, the fo flupifies thick that are nigh her, that the currly preyeth upon them. She hath the same power over men, for the sends a numbness not only into the arm of the Fisher-man, but also over all his body, although his Fishers pole be between them.

CHAP. XXII.
Of the biting of Afps.

The Figure of a Torpedo.

The wound which is made by an Afp is very small, as if a needle were thrust into the part, and without any swelling. Thse symptoms follow upon her bite, sudden darkness clouds their eyes much agitation in all their bodies, but gentle notwithstanding; a moderate pain of the stomach troubles them, their fore-heads are continually troubled with convulsions twitchings, their cheeks tremble, and their eye-lids fall gently to rest and deep, the blood which flows from the wound is little, but black, death no longer deferred then the third part of a day will take them away by convulsions, unless you make resistance with fitting remedies. The male Afp makes but two wounds, the female four, as it also happens in the bitings of Vipers. Now for that the poison of Afps consumeth the blood in the veins and arteries, therefore you must use against it such things as are hot and violent of parts, as Mithridate or Treacle dissolved in Aqua Vite, and the same poured into the wound; the Patient must be warmed by baths, frictions, walking and the like. When as the hurt part becometh purple, black, or green, it is a sign that the native heat is extinct and facned by the malignity of the venom. Therefore then it is best to amputate the member, if the Patient be able to endure it, and there be nothing which may hinder. Figo writes that he saw a Mountebank at Florence, who that he might sell the more of his Antidotes, and the better rate, let an Afp to bite him by the finger, but he died thereof some hours after. To the same purpose you may read Matthiolus, whereas he writes that those Impostors or Mountebanks to cozen the better and deceive the people use to hunt and take Vipers and Afps long after the Spring, that is, then when as they have cast forth their most deadly poison then they feed them meats formerly unusual to them, so that by long keeping and care, and at length they bring it off, that is, after a great part of their venomous nature is cast off, they force them sometimes to bite upon pieces of flesh, so that they may cast forth in them their venom which is contained in the membrane between their teeth and gums. Lately, they force them to bite, lie, and swallow down an astringent medicine, which they compose and carry about for the false purpose, that so they may obstruct 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 a most false remedy against all venomous bites. Chrysiqforus Andredus in his Book called Oeconomia, writes, that the Islands of Spain are everywhere full and stored with Serpents, Afps, and all sorts of venomous Beasts; against which bites they never observed or found any benefit in Treacle. But the efficacy of the following Antidote is so certain and excellent, and approved by so manifold experience, that in the coastland of

Against the bites of what Serpents, Treacle doth no good. A certain remedy against the biting of Afps.
sharp Vinegar and the Urin of a sound man, and therewith foment 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 ounces of this decoction falling two hours before.

CHAP. XXIII.

Of the being of a Snake.

I have thought good in a true History to deliver the vintinent malignity of the bite of a Snake, and the remedies thereof. When as King Charles the ninth was at Monfort, Monfort in France the Kings Physician and I were called to cure the Queen of the Lady of Castelforte, who gathering Hops in a hedge to make a Saler, was bit on the hand by a Snake that there lay hid, he putting his hand to his mouth, sucked the wound to ease the pain by sucking forth the venom, but his Tongue forthwith swelled to big, that he could not speak his mind: besides, his whole arm, even to his shoulder, was in like fort much swelled, his pain was so vehement, that it hath made him fwan twice in my presence, his face was wan and livid like to a dead body, and though I deprived of his recovery, yet not foftilling him to be quite forsaken, I washed his mouth with Treacle dissolved in good Wine but in conclusion to digest it by Baths, Stoves, and much and great exercise.

Book XXI.

Of Poisons, &c.

The Cure

CHAP. XXIV.

Of the being of Toads.

Though Toads want teeth, yet with their hard and rough gums they do finitely preff or pinch over the whole body by the pores of the prefixed part. Moreover they call forth their venom by urin, fipett, and vomit upon herbs, but chiefly upon Strawberries, the which they are reported greatly to affect. Hence so muchas and ignorantly catch their deaths.

I heard from a man of very good credit, that there were two Merchants not far from the City of Nomafhe, who whilst dinner was providing, walked into the Garden that belonged to the Inn, where they gathered some Sage leaves, and unwashed as they were, put them in their Wine. They had not as yet dined, when being taken with a sudden Vertigo, the whole Inn crowded to run round, then losing their sight, they fell into a fwan, intoxicated now and then with convulsions. But they hammer'd with their lips and tongues becoming black, a froward and horrid look, with continual vomiting and a cold sweat, the like manner of death, which presently fainted upon them, their bodies becoming exceedingly much swollen. But the justices of the place difcovering that they were poisoned, made the Inn keeper and the guests to be apprehended; being examined all con-sequently and with one voice, answered, That the dead parties are of the same meat and drink which the still did, but only they put Sage into their Wine. A physician was asked the question whether Sage might be poisoned? he answered it might: but to come to the purpose, it must appear whether any venomous Creature hath poisoned the Plant with her fipett or venomous fances. This which was highly pronounced, and only by conjecture, was by the eye found to be true. For at the root thereof there was found a hole in the ground full of Toads, who out of putting in of warm Water, made it credible that the Plant was poisoned by their sipett and urin, where- by you may understand how univisly they do, who devour herbs and fruits newly gathered without walking. Also we must take heed lest falling asleep in the fields, we lie not near the holes which Toads or other venomous beasts of the same nature, have made their habitation. For thence a venomous or deadly air may be drawn into the Lungs. For the fame cause we must abstain from eating of Frogs in the month of May, because they engender with Toads. Often in feeding sometimes lick up small Toads together with the Gras, which presently will breed their great harm, for therupon the Oxen swell to big, they often burn withall. Neither is the venom of Toads deadly only being taken inwardly, but even sprinkled upon the skin, unless they withfoth the place, and wash it with urin, water and Salt. Such as are poisoned by a Toad turn yellow, swel all over their bodies, are taken with an Althmatick difficulty of breathing, a Vertigo, Convulsion, Swomming, and lately by death it falt. Thefe do horrid Symptoms are judged inherent in the poifon of Toads, not only by reason of the elementary qualities thereof, coloures and mole- tions, which are chiefly predominant therein, but much rather by the occult property which is apt to puncture the humour of that body where it will happen. Therefore it will be convenient to procure vomits, especially if the poifon be taken by the mouth, to give Clysters, and to wean the strength of the poifon by hot and assaturning Antidotes, as Treacle and Mithridate dissolved in good Wine, but in conjunction to digest it by Baths, Stoves, and much and great exercise. Randleman in his Book De FyZakor, affirms the fame things of the cursed venom of Toads, as we have formerly delivered: yet that they seldom bite, but that they call forth either their urin, the which they gather in a great quantity in a large Bladder, or else their venomous fipett or breath, against such as they meet withal or fall: besides the herbs which are tainted by their poisonus breath,
Antidotes against the poison of Toads.

Antidotes are juice of Botony, Plantain, Mugworth, as also the blood of Tortoises made with Blood into Pills, and forthwith dissolved in Wine with Brimstone. Play writes, that the hearts and Pills of Toads resist poison. The vulgar opinion is false, who think that the Toad-fume is found in their heads, that is good against poison.

CHAP. XXV.

Of the stings of a Scorpion.

A Scorpion is a small creature with a round body, in form 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 it calls, in some two, hollow and replete with cold poison, the which by the Sting, it casts into the obvious body; it hath five legs on each side forked with strong Claws not unlike to a Crab or Ledeater, but the two foremost are bigger than the rest; they are of a blackish or foory colour, they go slide, slide; and off-times taken themselves with their mouths and feet to fall to them, that they can force be buckled there. Hence there be some who have wings like the wings of Locusts, waiting the Corn and all green things with their biting and burning. Such are unknown in France. Thee fly in divers Countries, like winged Ants. This is likely to be true by that which Matthiæus writes, That the Husband-men in Capita in Spain, in digging the Earth off-times find a swarm of Scorpions, which beateth themselves this- three against Winter. Play writes, that Scorpions hide wait a certain part of Ethiopia, by chasing away the Inhabitants. The Ancients made divers kinds of Scorpions, according to their variety or difference of colours, some being yellow, others brown, reddish, all-coloured, green, white, black, dusky; some have wings, and some are without. They have wings, and some are without, according to the Countries they inhabit. In Tarentum and Smyrna they are absolutely deadly, but at Trent, and in the Island Paphos their stinging is harmless. The place sting by a Scorpion presently begins to be inflamed, it waxeth red, grows hard, and swells, and the Patient is again pains; he is one while hot, another while cold: he sweats and shakes as if he had an Ague, his hair stands upright, pale, as one while hot, another while cold; he sweats and shakes as if he had an Ague, his hair Hands straight, pale, and cold, and at length his blood is congealed; his members are without. They are more or less deadly, according to the Nations they inhabit. Thefe fly in divers Countries, like winged Ants.

The description of a Scorpion.

His Tail.

Winged Scorpions.

Symptoms.

Chap. XXVI.

Of the stings of Bees, Wasps, &c.

Bee, Wasps, Hornets, and such like, cause great pain in the skin wounded by their stinging, by reason of the curdnels of the venom which they fend 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 thus they have sometimes been the death of Horses: Wherefore because such as are stung by thiefs, 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 down what signs follow upon their stings.

Great pain presently arises, which continues, until the sting left in the part is taken forth; the part becomes red and swollen, and there redness is a path or little blisters. The Cure is, forthwith to buck the wound very hard, and thereby to draw forth the stings, which if they cannot thus be gotten cut, the place, if nothing hinder, is to be cut, or else temper Altes with Leven or Oil, and to apply them; the part also may be very conveniently put into hot Water, and there fomented for an hour (pace), and at length washed in Sea water. Griffs beaten and applied, all loose the pain and diffuds the humour causing the tumor. 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 chewed and laid to the part allwise pain. Vinegar, Honey, and Salt, appliedocreed, are good, it besides, you dip a cloth therein, and lay it upon the place; Sulphur Virose tempered with spittle hath the same effect. The milky juice of unripe Figs incorporat

Symptoms.

The Cure.
find a Viper dead, to dip her sting in the others poison, and thence he used to embosom the heads of their arrows. The rough and hairy Worms, which are commonly called Bear-worms, especially those which breed about a Pine-tree, cause great itching, redness and swelling 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 always make a lurking hole to lie in wait to catch the intrapped Flies, and so to prey upon them. There are many sorts of Spiders, one is termed Rapsinx, round and like a Blackberry; whence it taketh the name; it hath a very small mouth under the midst of the belly, and mortal feet, as if they were imperfect, her bite is so painful as the stinging of a Spider. Another is called Lyciscus, the Wolf-Spider, because the doth not only lie in wait to catch Flies, but also Bees and Wasps, and all such things as may lie in her Web. The third is named Myrmeenara, it is larger than an Ant, but headed like one, the body thereof is black, and hath white spots or streaks running towards the back. The fourth kind may be called Vepetorum, in other things resembling a Wasp, but that it wants the wings; a redcoloured and living on herbs. The Ancients have thought their bites to be venomous. Now their poison is therefore thought to be cold, because the symptoms thence arising are, wind in the belly, lethargy of the extreme parts of the body, nausea in the hinder part, with fente of cold and shivering. The wound must forthwith be washed with very hot Vinegar, then must you lay thereto Onions, and such like things beaten, then procure sweet by art, as by Bars and Stones; yet nothing is more effectual than Treacle and Murther.
her whole face was deformed with red, fiery, and filthy pustules, so that all shunned her company as if she had been troubled with a Leprode, and were ready to forbid her the society of men, for the case was come to Paris, and calling for Helicon and Catosus and General Physicians, my friend Cadmus being Surgeon, he made a grievous complaint, and besought us earnestly for some remedy against so great a deformity of her face: having diligently considered her case, we pronounced her free from a Leprode, but we judged it fit to apply to her whole face a verticatory of Cantharides, three or four hours after the application, and recall the Medicin being come to work its effect, her bladder began to burn exceedingly, and the whole of her womb to swell with gripings, continual vomitings, making of water and forcing, a troublesome agitation of the body and members, a burning and abnormally fiery Fever. I forthwith called the Physicians, it was decreed that she should drink Wine plentifully, and that it should be injected by the fundament into the guts, and by the urinary passage into the bladder and the neck of the womb, and that she should keep her cell, until the pain were mitigated, in a warm bath made of the decoction of Lime-feeds, the roots and leaves of Mallowes, Marsh-mallows, Violets, Henbane, Purflain, and Lettuce; and her loins and genitals should be anointed withuguammenraffafions and po- pilion turred and incorporated with ointment. By these means all the symptoms were mitigated. Her face in the interim rose all in a blister, and much purulent matter came out thereof, and so the deputies. The reason of the name. What Horse-leeches most virulent. Divers remedies according to the diversity of the parts. The description of the Lampron. The natural friendship of the Lampron and Viper.
Of the Draco marinus, or sea-Dragon.

The sea-Dragon, called by the French *vinae*, for his vivacity (and by the English a *Viper*, or as some say, a *Serpent*) became being taken in fishing, and drawn out of the sea, the is said long to survive. Her pricks are poisonous, but chiefly those that are at the edges of her gills. Which is the reason that Goths cut off their heads before they leave them up to the tables; and at Rome the fishermen lay them not upon the tables before they have cut off their head. The wounded part of each as arc hurt, pain them much with inflammation, a fever, swelling, Sympotoms gangrene and deadly mortification, unless it be quickly with a medicine. Nor very long ago the wife of An hystory, Madam fromaget, Secretary of the request, was wounded by the middle finger, there followed a swellings and redness of the part, without much pain, but perciving the swelling to increase, being made more wary by the mischief of her neighbour the wife of Monsieur Bargeanneau, Lietenant particular in the Challete of Paris, who died not long before by the like accident being neglected, sent for me; I understanding the cause of her difcube, laid to her pointed finger and her whole hand, besides a pulvis made of a great Onion rolled under the coals, leaven, and a little treacle. The next day I wished her to dip her whole hand into warm water, so to draw forth the poison, then I divided the skin about it with a hair and a little treacle dissolved in *aqua viva*. The next day the swelling was affolved, and the pain eased, and within a few days she was perfectly well. *Dissection* writes, that this fish divided in the middle, and applied to the wound, will cure it.

Of the Pastinaca Inactia, or Sting-Ray, which some call the Fierce-claw.

Such as are flung by a Sting-Ray (as *Acinus* hath written) the place of the wound doth manifestly appear there evidences thereof lasting pain and the numbness of the whole body. And feeling that it hath a sharp and thin sting, whereby the nerves by the depthness of the stroke may be wounded, it is happeneth that some die forthwith, their whole bodies suffering convulsions. Moreover, it will kill even the very trees into which it is stung. Yet *Pliny* affirms, that it is good against the pain of the teeth, if the gums be fastened therewith, yea, and it being made into powder with white Hellebore, or of it fell, 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 things, other-three but one of these things are sharp like a few with the teeth turning towards their heads. *Oppianus* writes, that their things are more poisonous than the Persian arrows, for the force of the poion remaineth, the fish being dead; which will kill not only living creatures, but plants. Other thing also, fishermen, when they catch this fish, presently food him of his things, lest they should be hurt therewith. But if by chance they be 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 the shore, upon the fishes that he hunteth and carreth with his things, having the teeth thereof turned towards his head for the same purpose. He is not unlike a Ray, and have here given you his figure.
Of Poisons, &c.

Of the Lepus Marinus, or Sea-hare.

The description of the Sea-hare.

Pliny calls the Sea-hare, a mass or deformed piece of fish. Galen faith it is like a Snail taken forth of the shell. It is exceedingly poisonous in the judgment of the Ancients, whereas it is not unable to fet down the description of it, lest we might eat it at unawares, too carefully view it, or smell the same. So that we may use it against the poison thereof; it is an inhuman not only of the sea, but also of lakes of sea-water, especially such as are muddy; it is of the same color as the hair of the land-hare; it hath a whole in the head, out of which he putteth a certain piece of fish, and plucks it back again when he is seen. Pausan. Artist. Flays. Galen and Nicanor are of one opinion, and agree in this, that if a woman big with child do too carefully look upon one, she will vomit, and presently after abort. They which have drunk this poison, faith Dioscorides, are troubled with pain in the belly, and their urine is stopped. If they do make water, then is it bloody; they run down with sinking sweat, which flesh is fish; and often vomit sometimes mixed with blood even therein. If the hair of the land-hare is, it hath a whole in the head, out of which he putteth a certain piece of fish, and plucks it. Galen calls the Sea-hare, a mass or deformed piece of flesh. Galen faith it is like a Snail taken forth of the sea, but also of lakes of sea-water, especially such as are muddy; it is of the same color as the hair of the land-hare. An history.

A wonderful antipathy between a man and a Cat.

The Antidote against the brains of a Cat. Cats dangerous for children.

The breath of a Cat most hurtful to the lungs.

No only the brain of a Cat, being eaten, is poisonous and deadly to man, but also their hair, their breath, yes and their very presence to some prove deadly. For although any hair devoured unawares, may be enough to choke one, by flopping the instruments of respiration : yet the hairs of a Cat by a certain occult property, are judged most dangerous in this case. Besides also, their breath is infected with a certain hurtful malignity. For Mathias faith, that he knew some, who being so delighted with Cats, that they would never go to bed without them, have by so often drawing in the air with their breath, fallen into a consummation of the lungs, which occasioned their death. Moreover, it is manifest that the very sight of their eyes is hurtful, which appears by this, that some have feeling or hearing them, presently fall down in a fwoon; 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 Matthiæus, a certain German in winter-time, came with us into a snow, and whereas were divers of our acquaintance, a certain woman, knowing this man nature, left that he should fee her kids, which he kept, and so should go away in chase, that she her up in a cup-board in the same chamber; But such as have eaten the brains of a Cat, are taken with often Vertigines, and now and then become foolish and mad: they are helped by procuring vomit, and taking the Antidote against this poison, that is, half a scruple of Musk, dissolved and drunk in wine. There be some who prescribe the condensation Dianisium 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 harm children, for lying to their mouths with the weight of their whole bodies, they hinder the passage forth of the filiginous vapors, and the motion of the chills, and infect and stifle the spirits of tender infants by the pedilicious air and exhalation which they feed forth.

The figure of a Sea-hare.
Of certain Toyfonous Plants.

Having described the poisons that come from living creatures, I come to speak of those are from Plants, beginning with the Sardanian herb, which is also called Apion Apis, also Aphis Apis, is a kind of Luminatus, or Crow-foot: (and, as it is thought, the round Kawed water Crow-foot, called Mush-Crow-foot, or Speer-wort) it taketh away the understanding of fish as if they had eaten thereof, and by a certain dilation of the nerves, contracts the cheek, so that it makes them look as if they laughed: from this affect came that proverbial speech of the Sardanian farmer, taken in evil part. His Reason, as one may term it, is the juice of Balm. The juice, fruit, and substance of Napellus taken inwardly, killeth a man the same day, or at the farthest in three days: yea and such as escape the deadly force thereof by the speedy and convenient use of Antidotes, fall into an hickick feaver, or consumption, and become subject to the falling-sickness, as Artists affirmed. And hence it is, that barbarous People puton their arrows therewith: For the lips are forthwith inflamed, and the tongue fo swells, that by reason thereof, it cannot be contained in the mouth, but hangs out in a bloody flux. And forth from their head, and they are troubled with a Vertigo and swoundlings: they become so weak that they cannot tire their legs, they are swollen and puffed in their bodies, the violence of poisons is so great. The Antidote thereof is a certain little creature like a * Moule*, which is bred, and lives on the root of Napellus, being dried and drunk in powder, to the weight of two drams. In want of hercog thereof you may use the seed of Balthas or Turnips to drink, and anoint the body also with oil of Scorpions.

The Greek word μαλάκας and instead thereof read μαλεϊας for a File, a Moule: for there is no Moule to be found, but white forms of Flies, which feed thereon, you may find the description of an Antidote made with them in Arist. Stip. adver. Fic. p. 822.

Dorinimum and Solanum Minus, or deadly Night-shade, are not much different in their mortal symptoms or effects. Dorinimum being drunk, reframbles milk in taste, it causeth continual hickick-tingling, it toucheth the tongue with the weight of the humor, it causeth blood to be cut forth of the mouth, and certain mucous matter out of the belly, like that which cometh away in the bloody flux. A remedy hereto are all fish-fishes, as well crude as roasted, also Sea-bolters and Crabes, as the broth or liquor wherein they are boiled being drunk. Now the root of Solanum Minus drunk in the The symptome, weight of one dram in wine, causeth vain and not unpleasing imaginations, but double this quantity causeth distraction or alteration of the mind for three days, but four times so much kills. The remedies are the same as those prescribed against Dorinimum.

Hen-bane drunken, or otherwise taken inwardly by the mouth, causeth an alienation of the mind Hen-hane. of like drunkenness; this also is accompanied with an agitation of the body, and expelolation of the spiritus like swirling. But amongst others, this is a notable symptom, that the patients do, that they think themselves to be whipped: whence their voice becomes so various, that sometimes they bray like an Ass or Mule, neigh like an Horse, as Aven writes. The Antidote is Sk The Ancidote eaten in great plenty, treacle also and mithridate dissolved in sack, also wormwood, and milk. Of mushrums, some are deadly and hurtful of their own kind and nature, as those, which broken Muschrumo, preferably become of divers colours, and petrifieth: (fish, as Artists faith, those are which be bound of a grayish or blicwish colour) others though not hurtful in quality, yet cause in greater measure than is fitting, become deadly; so for being by theyre they are very cold and moist, and consequently abound with so small viscoity, as the excrementitious phlegm of the earth or trees wherein they grow, they suffocates and extinguisheth the heart of the body, as overcome by their quantity, and strangle as if one were hanged, and lathy kills. Verily I cannot chuse, but pity Governmenters, who though they know that Muschrum are the fermenti and gate of death, yet do they with a great deal of do, most greedily devour them. I say, pitying them, I will show them, and teach them the art how they may feed upon this so much desired dish, without the endangering of their health. Know therefore that Muschrum may be eaten without danger, if that they be first boiled with wild pears: but if you have no wild pears, you may supply that defect with others which are the most hardy, either newly gathered, or dried in the Sun. The leaves, as also the bark of the same tree, are their Antidote: yet Conciliator gives another, to wit, garlic eaten crude, whereunto in like sort vinegar may be mildly added, so to cut and attenuate the tough, visous and groff humors, hipped up, and in danger to strangle one by the too plentiful eating of Muschnums, as it is delivered by Galen.

Ephedrum, which some call Colchicum or Balbus sforitric, that is, dewy faffron, being taken inwardly, causeth an inflaming all over the body, on otherwise than those that are cutted, or rubbed with the juice of a Squill. Inwardly they cause gnawings, their himach is troubled with a great heaviness, and in the disease increasing, there are fluxes of blood mixed with the excrementa. The Antidote thereof is woman milk, Affir or Cows-milk drunken warm, and in a large quantity. Mandrag taken in great quantity, either the root or fruit causeth great hepetissa, fuldness, redufion and languishing of the body, so that after many ferches and gripings, the patient falls asleep in the pain poure that he was in, just as if he was in a Lichangy. Wherefore in times past they gave Mandrag to such as were to be dismembered. The apples, when as they are ripe, and their feeds taken forth, may be safely eaten, for being green and with their feeds in them, they are deadly. For their anfeh and intolerable heat, which burns the whole surface of the body, the tongue and mouth wax dry, by reason whereof they gape continually, so take in the cold air; and in which
The cure.

The antipodean antidote.

The symptoms.

Hemlock.

The symptoms.

The antidote.

Acenite good against the poision of Scorpions.

The differences.

The Yew.

* This is true in some countries in Favan, Italy, Greece, but is not so here as in England, in both land and daily experience can refine.

The Antidor.

The Walnut tree.

Trees also are not without poison, as the Yew and Walnut tree may wines: but they may easily be helpful, if they shall presently drink such things as are convenient therefore. Amongst which, in Conslitudes opinion, excel reddish-brown eaten with salt and bread for the space of three days. Squeezing shall be procured, if the former remedy do not quickly refresh them, and a decoction of Cotanbier or Penny-royal in fair water shall be given them to drink warm.

The ungrateful taste of the juice of black poppy, which is termed Opium, as also of Mandrag, greatly hinders them from being put into meat or drinks, but that they may be dissolved, and chiefly for that neither of them can kill, unless they be taken in a good quantity. But because there is danger, lest they be given in greater quantity than is fitting by the ignorance of Physicians, or Apothecaries, you may by these signs find the error.

There ensues heavy sleep, with a vehement itching, so that the patient oft-times is forced thereby to call off his dull sleep wherein he lay, yet he keeps his eye-lids that being unable to open them, by this agitation there flows out sweat, which smells of opium, the body waxeth pale, the lips burn, the jawbone is relaxed, they breathe little and febdom. When as their eyes wax blind, unless they be drawn aside, and that they are deprived from their rest, we must know that death is at hand. The remedy against this is two draughts of the powder of Coltorum given in wine.

Hemlock drunken, causes Vertigo, troubles the mind, so that the patients may be taken for mad men: it darkneth the fight, causeth hicketting, and benums the extreme parts, and hath strangles with convulsions, by suppressing or stopping the breath of the Artery. Whereas at the first, in other poisons, you must endeavour to expel it by vomit: then inject the little ones, to expel that which is gone into the guts: then use wine without mixture, which is very powerful in this case. To Apotheiores.

As in the midift of Summer, for waking, he had a vehement itching, so that the patient oft-times is forced thereon, there ensue heavy sleep, a sense of cold over all his body, a heaviness or straitness of the chest and parts about the heart, it intakes them, rupeth the humors and biteth the guts. The remedy of the same is, cast thou, a certain ungrateful taste of the juice of black poppy, which is termed as also of Mandrag, eateth therewith.

It is not so here, if they eat it, they are taken with a bloody flux, and a coldness over all their bodies, and a kind of shivering or flapping of their breath. All which things the Yew causeth, not so much by an elementary and cold quality, as by a certain occult malignity, whereby it corruption the humors and biteth the guts. The same things are good against this, as we have set down against Hemlock: Nicander affirms, that good wine being drunken, is a remedy thereof. There is also a malignity in a Walnut-tree, which Germain affirms that he found by experience, whilst he unawares fate under one, and slept there in the midst of Summer: For waking, he had a sense of cold over all his body, a heaviness of his head, and pains that lasted six days. These remedies are the same as against the Yew.
For that we have made mention of Bezoar, in treating of the remedies of poisons. I judge I what poisons
shall not do amiss, if I tell you, what the words mean, and the reason thereof. Poison is
absolutely taken is that which kills by a certain specick antipathy contrary to our nature.
So an Antidote or Counter-poison is by the Aramians in their mother tongue, termed Redexteroh, as the
prefervers of life. This word is unknown to the Greeks and Latins, and in use only with the
Arabians and Persians, because the thing it self first came from them as it is plainly shewn by Gar-
cius ab hono, Physician to the Vice-roy of the Indies, in his history of the Spices and Simples of the
East-Indies.
In Persia (faith he) and a certain part of India is a certain kind of Goat called Pauzain
(wherefore in proper speaking, the stone should be termed Pauzain of the word Pauzain, that signified a
Goat, but we corruptly term it Bezoar or Bezoar) the colour of this stone is commonly reddish, the height
thereof indiffierent, in whose thorax concretes the stone called Bezoar it 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 as
the first scale is taken off, the next appears more smooth and shining as you still take them away,
the which among others, is the good stone Bezoar and not adulerator. This stone is found in fam-
dry thamps, but commonly it refembles an Accon or Date-stone; it is sometimes of a fragrant
and otherwheres of a honey-like or yellowish colour, but most frequently of a black or dark green,
refembling the colour of mad apples, or cie of a Gier-Cat. This stone hath no heart or kernel
in the midle, but powder in the caviety thereof, which is also of the same faculty. Now this stone is
light and not very hard, but so that it may easily be traped or split like Alabafhe, 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 easy rate. But after that the ex-
cellent thereof were found out, it began to be more rare and dear, and it was prohibited by an Edict
from the King, of the Country, that no body should sell a Goat to the stranger-Mercannts, unless he
first killed him, and took forth the stone, and brought it to the King. Of the notes by which the
stone is tried, (for there are many counterfets brought hither) the first is already declared; the other
is, it may be blown up by the breath, like an Otes shell; for if the wind break through, and do
not lay in the density thereof, it is accounted counterfeite. They use it induced thereby in our ex-
ample not only against poisons, but also against the bites of venemous beasts. The richer sort of
the Country dwelle purly twice a year, to wit, in March and September; and then, five days 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 think their youth is preserved, as also the strength of their members.
There be some who take the weight of thirty Grains; yet the more that exceed not twelve
grains. The same Author addeth that he ufed it with very good success in invertebrate malachol-
dick distilles, as the rach, feals, terrors and lepafs, therefore by the same reason it may well
be given against a quarant feveres. Besides he affirmeth for certain that the powder contained in the
midle of the stone, put upon the bites of venemous beasts, preferably fet the patient without the
danger of the poyster, as also applied to the pellet Caruncules, when they are opced, it draws
forth the venoms. But because the small pox and mazelles are familiar in the Indies, and of-
times dangerous, it is there given with good success, two grains each day in Rose-water. Master
John Antidote or Countr-POISON is by the Arabians in their mother tongue, termed Bezoar,
and not adulterate. This stone is found in sun-
doors in the middle, 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 traped or split like Alabafhe, 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 easy rate. But after that the ex-
cellent thereof were found out, it began to be more rare and dear, and it was prohibited by an Edict
from the King, of the Country, that no body should sell a Goat to the stranger-Mercannts, unless he
first killed him, and took forth the stone, and brought it to the King. Of the notes by which the
stone is tried, (for there are many counterfets brought hither) the first is already declared; the other
is, it may be blown up by the breath, like an Oites shell; for if the wind break through, and do
not lay in the density thereof, it is accounted counterfeite. They use it induced thereby in our ex-
ample not only against poisons, but also against the bites of venemous beasts. The richer sort of
the Country dwelle purly twice a year, to wit, in March and September; and then, five days 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 think their youth is preserved, as also the strength of their members.
There be some who take the weight of thirty Grains; yet the more that exceed not twelve
grains. The same Author addeth that he ufed it with very good success in invertebrate malachol-
dick distilles, as the rach, feals, terrors and lepafs, therefore by the same reason it may well
be given against a quarant feveres. Besides he affirmeth for certain that the powder contained in the
midle of the stone, put upon the bites of venemous beasts, preferably fet the patient without the
danger of the poyster, as also applied to the pellet Caruncules, when they are opced, it draws
forth the venoms. But because the small pox and mazelles are familiar in the Indies, and of-
times dangerous, it is there given with good success, two grains each day in Rose-water. Master
John Antidote or Countr-POISON is by the Arabians in their mother tongue, termed Bezoar,
and not adulterate. This stone is found in sun-

Some years ago, a certain Gentleman who had one of these stones which he brought out of Anhidorv
Spain, brought before King Charles then being at Clermont in Anhedor, of the most certain effica-
cy of this stone against all manner of poysions. Then the King asked of me, whether there were
any Antidote which was equally, and in like manner prevalent against all poisons? I an-
swered, that nature could not admit it for neither have all poisons the like effects, neither do they
arise from one cause; for some work from an occult and specick property of their whole nature, others
from some elementary quality which is predominant. Wherefore each must be withholding with
its proper and contrary Antidote as to the hot, that which is cold, and to that which affails
by an occult property contrary, another which by the same force may oppugn it, and that it was
an ease matter to make trial hereof on such as were condemned to be hanged. The motion
pleased the King, there was a Cook brought by the Jayelor who was to have been hanged within
in a while after for tainting two dillers dyes out of his masters house. Yet the King desired
first to know of him, whether he would take the poyster on this condition, that if the Antidote
which was predicated to have singular power against all manner of poisons, which should be
previously given him after the Poyster, should free him from death, that then he should have his
life fixed. The Cook answered cheerfully, that he was willing to undergo the hazard, yet, and greater
matters, not only to save his life, but to shun the infamy of the death he was like to be adjudged to.
Therefore he then had poyster given him by the Apothecary then there was nothing, yet and pertaining
after the poyster, some of the Bezoar brought from Spain, which being taken down, within a while
after he began to vomit, and to avoid much by fluid with grievous contents, and to cry out that
his inward parts were burnt with fire. Whereas being thirsty, and defiring water, they gave him
water; an hour after, with the good leave of the Jayelor, I was admitted to him I find him on the

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ground going like a beast upon hands and feet, with his tongue thrust forth of his mouth, his eyes hery, vomiting, with force 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 no good, for it came too late. Wherefore at length he died in great torment and exclamation, the seventh hour from the time that he took the poison being fiercely puffed. I opened his body in the presence of the sayer and four others, and I found the bottom of his stomach black and dry, as if it had been burnt with a cautery; whereby I understood he had sublimated given him, whole force the Spanish

CHAP. XXXVII. Of Mineral Poisons.

Minerals or metals are either to be taken forth of the bowels of the earth, or else from hence.

Of those many are po infamous, as arsenic, fulminate, plagers, ceruss, litharge, verdigrase, orpiment, filings of iron, brass, the lead-dine, lime and the like. Such as have taken sublimate, the tongue and jaws become strained and rough, as if they had drank the juice of usurp ferreus; you cannot amend this affinity with lenitive gargarisms but with labour and time, for as soon as it descends into the stomach, it thickeneth to it. Therefore presently after it is taken, and excrecesces, it causeth unquenchable thirst, and unexplicable torments; the tongue is swoln, the heart faints, the urine is suppressed, the chett can scarce perform the office of breathing, the belly is griped, and doth pains happen to other extreme parts, that unless they be helped, patient will dye; for presently will grow upon them, unless it be speedily hindered, the devorings and fiery turnd of the poison, resting or eating into the guts and stomach, as if they were feared with hot iron, and blood floweth out of the ears, nose, mouth, urinary pale and fundament, and then their cause is desperate. Thee who and elle mower shall take any concomitant poyson, shall be cured with the same remedies, as those that have taken Causibares.

Litharge. Litharge causeth a heaviness in the stomach, suppresseth urine, makes the body swollen and livid. We remedy this, by giving a vomit presently, then afterwards purging them, to give oil of sweet almonds and nuts. Alfo it is good to give relaxing and humecting clysters, and to anoint the belly with fresh butter or oil of lilie.

Arsenic, Rufe-aker or Rats-bane. Because it is of a most hot and dry nature, induces thirt, and heat over all the body, and doth great colliquation of all the humor's, that although the patients by medicines freely given escape death, yet can they not during the residue of their lives, use their members as they formerly did, being deftitute of their strength, by reason of the great diners and contraction of the joints. The antidote thereof is oil of Pine-kernels speedily given, and that to the quantity of half a pinte; then procure vomits, then give much milk to drink, and clyes, and the fare, and let them sup up fat broths. Unquenchled Lime and Orpiment. Lime and orpiment drunk, give the stomach and guts with great tormenting pain, and cause unquenchable thirst, an affinity of the jaws and throat, difficulty of breathing, stopping of the urine, and a bloody flux. They may be helped by oil, fat, humecting, and relaxing things which restrain the acrimony by lenitive potions, and such as lubricate the belly, as also by ointments, and the mucilages of some feeds, as with a decoction of the seeds of Lwe, mallows, marshmallows and other things set down at large in the cure of Caesibares.

Of Unquenchled Lime and Orpiment, Unquenchled Lime is Rufe-aker or Rats-Bane, because it is of a most hot and dry nature, induces thirst and heat over all the body, so that the patients by medicines freely given escape death, yet can they not during the residue of their lives, use their members as they formerly did, being desitute of their strength, by reason of the great diners and contraction of the joints. The antidote thereof is oil of Pine-kernels speedily given, and that to the quantity of half a pinte; then procure vomits, then give much milk to drink, and clyes, and the fare, and let them sup up fat broths. Unquenchled Lime and Orpiment. Lime and orpiment drunk, give the stomach and guts with great tormenting pain, and cause unquenchable thirst, an affinity of the jaws and throat, difficulty of breathing, stopping of the urine, and a bloody flux. They may be helped by oil, fat, humecting, and relaxing things which restrain the acrimony by lenitive potions, and such as lubricate the belly, as also by creams, and the mucilages of some seeds, as with a decoction of the seeds of Lwe, mallows, marsh-mallow and other things set down at large in the cure of Caesibares.

Those exceeding scald and thiny waters wherewith Goldsmiths and Chyrstists separate Gold from Silver, being taken into the body, hurt burning the throat and stomach. Yet it may be helped by the means prescribed against unquenchled Lime and Orimpiment.

Ceruss, because it causeth hicketting and a cough, makes the tongue dry, and the extreme parts of the body numb with cold, the eyes heavy to sleep. The patients very often in the midst of the day for some vain phantauus or apparition, which indeed is nothing, they make a black and fhitless bloody water, they die strangcl unless they be helped. The Antidote in the opinion of Avicen, is Scarmony drank in new wine, or honey and wine, and other diuretic things, and such things as procure vomit, and purge by food.

Poison, because it concocteth and becometh fhowy in the stomach, causeth inflammation, by fracturing and stopping, the instruments that serve for breathing. The patients receive cure by the same remedies as those who have eaten mushroom, or drank Ceruss: you must add Goose-gras in Clites, and anoint the belly with oil of lilie and butter.
Quick-silver is so called because it resembles silver in the colour and kind of its reflection, and it is so called from things helping and hurting, besides from this, that it is of such subtle parts, that it penetrates, diffuses and performs all the actions of heat upon dense and hard metals, as water, it actuates, dissolves, dries up, causes salivation by the mouth, purges the body, moves urine and feces over all the body: neither doth it stick up thinner humors than the same, and it is said to be good for the gout, and very efficacious thereunto. And this which have the Lues venerea lied by experience, using it either inointments or Plasters.

Others affirm it very cold and moist, for that put into ointments and so applied, it alleviageth pain by infiltration, hindering the acrimony of purges and colicky inflammations. But by its humidity it foareth scirrhus tumors, diffolves and dissipates knots and syphoem knots, besides, it caueth the breath of such as are annotated thereof to stink, by so other reason than that it postricketh the obvious humor by its great humidity. Avicenna's experiment confirms this opinion, that, affirmeth, that the blood of an Ape that drank Quick-silver, was found concrete about the heart, the carcass being opened. Mattisson moved by their reasons, writes that Quick-silver killeth men in a little time, by the executive and humid quality: it is taken in a large quantity, because it corrupts the blood and vital spirits, and at length the very substance of the heart, as may be understood by the history of a certain Apothecary, let down by Conclusions, who, for to quench his feverish heat, in need of wa.

But it doth drink a glass of Quick-silver, (for that first came to his hands;) he died within a few hours after, but full he evacuated a good quantity of the Quick-silver by soil, the reft was found in his stomach 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 is confizt of Lead and other cold metals. But this argument is very weak. For unquenchable Lime is made of flints and foreign matters, which is cold, yet nevertheless it exceeds in heat. Paracelsus affirmeth, that Quick-silver 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 be lost as it is prepared by art, and heat only to appear and be left therein, so that it may serve instead of a tincture in the tranformation of metals. And verily it is taken for a Rule among Chymists, that all metals are outwardly cold, by reason of the watry substance that is present in them; but that inwardly they are very hot, which then appears when as the coldness together with the moisture is sequestered, for by calcination they become caustic. Moreover many account quick-silver poison, yet experience denies it. For Montanus Santius Bravalectus tells that he saw a woman, who for certain causes was to be in danger of death, and effects, would at several times drink one pound and a half of quick-silver, which came from her & of it again by soil without any harm. Moreover he affirmeth that he hath known many who in a desperate Colic (which they commonly call misereur morti) have been freed from imminent death, by drinking three pounds of quick-silver with water each time: For by the weight it opens and unfolds the twisted or bound up gut, and thumps forth the hard and stopping excrement: he addeth that others have found this medicine effectual against the colick, drunk in the quantity of three ounces. Fattorino Magia writes, that he usually giveth Quick-silver to children ready to die of the womens. Avicenna confirmeth this, averring that many have drunk Quick-silver without any harm, wherefore he mixeth it in his ornaments against scales and feals in little children; whose care took that common medicine amongst country people to kill lice by anointing the head with quick-silver mixed with butter, or vinegar. Mattisson affirmeth that many think it the last and chief remedy to give to women in travell that cannot be delivered. I protest to satisfie my self concerning this matter, I gave to a whelp good for women in travel.

Certainly before Guido, Galen much commended Quick-silver against malignt ulcers and cancers: Lib. 4. ch. 9. Neither doth Galen affirm that lead is poisonous (which many affirm poisonous, because it consists of much Quick-silver) but he only faith thus much, that water too long kept in leaden pipes and cisterns by reason of the dross that sticketh thereto, gather in lead, causeth bloody fluxes, which latter is familiar to brass and copper. Otherwise many could not without danger bear in their bodies leaden bullets during the space of so many years, as usally they do. It is reported, it is declared by Tho. Herbert in the following histories, how powerful Quick-silver is to dissolve and affwage pain and inflammations. Nor long since, (thafs he) a certain Doctor of Physick his boy was troubled with the pyrites, with great swelling, heat, pain and burning; to him by the common custom of the Physicians thereunto, I applied an Antidotum medicine, whose force was so great, that the tumor instantly subsided at the first dressing, and the pain was much asswaged. And in the same colicky dressing all the symptoms were more mitigated. At the third dressing, I wondered, at the so great effect of
The kinds or flowing in the veins and bowels of the earth, and amongst metals, and in the stone of silver—
as it is in—and of the powder of Ivory. Also thereof. mines. The Artificial is made of Vitruvius minium and flies, &c. are two sorts of Quick-filver, the one natural, the other artificial. The natural is found running

Against lice and fleas, &c. are two sorts of Quick-filver, the one natural, the other artificial. The natural is found running

How to purifie

The best Quick-filver of all is pure, clear, thin, and very white: it may be cleansed with the drosses. Unicorns are often sought after all things which were rare and so excellent, if anywhere in any corner of the

Unicorn, the third, whether there be any such thing really and truly so called. For the first, that is, the name, it is somewhat more obscure what the word (being Latin) in French may signify; but it is so clear and manifest, that this word Unicorne amongst the Latins signifyeth 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 think that beast that is vulgarly called and taken for an Unicorn, is rather a thing imaginary than really in the world. I am chiefly induced to believe thus, by the 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 conquered the world, and being most diligent searchers after all things which were rare and so excellent, if anywhere in any corner of the world this beast could have been found, they would have found it out, and ingraven it upon their coins, or arms, as they did Crocodiles, Elephants, Eagles, Panthers, Lions, Tigers, and other creatures unknown to the world. For those that have written of the Unicorn, either that they have heard, or that which has been delivered by tradition, or what they in their minds and fancies have conceived, you shall scarce find 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 an horse; that is, as Cardan interprets it, of the bigness of an Horse, with the head of a Hart, the feet of an Elephant, the tail of a Bear, with one black horn in the midst of his forehead, of the length of two cubits. Manso, who (as Manlius tells us) never saw Unicorns before painted ones, doth on the contrary affirm them not to be of the bigness of an Horse, but of an Hand-calf of three months old, not with feet like an Elephant, but of such a bigness that he was legged and footed like an Afl, but longer handed, and had ears not much unlike the Ruminant, a beast not unknown in the Suburbs or Northern countries.
Thus variously is the report concerning the shape of this Beast. Neither is there left difference concerning her nature and conditions. For Pliny writes, that the Unicorn is a man like person, and hath a great bellowing voice, and that she cannot therefore be taken alive. Corda's renders a reason of this inconsistency, because (Saih he) it inhabits the deserts of Ethiopia, a region infamcd, and filthy, abounding with Snakes, and fed with venomous creatures. Others on the contrary affirm her to be of a most mild, amiable, and gentle nature of all the rest, unless one purposely offend her or other too hastily, for seeing the feed not by looping her head to the ground, because she is hindered thereby from the length of her horn, the mast receivably find upon the fruit that hangeth upon trees; out of cattles or mens hand the feafably and hardly taketh all manner of fruits, herbs, leaves of corn, apples, pears, oranges and pales. And herein they have proceeded to far, that they foli thus: they will love Virtues, enticed by their beauty, so that they are not in the contemplation of them, and allured by their crottements, they by these means are often taken by hunters. In this opinion is

Lactantius, who denies that Unicorns are wild or fierce; for he faith, that he few two, which were sent out of Ethiopia to the Sultan, who kept them that up in Parma, in Modena, a city of Ardelia of the se

Thea, and being so handled, they sell them for Unicorns horn. Yet this is not the proper name of any beast in the world, and that it is a thing only signified by Painters, and Writers of natural things, to delight the readers and beholders. For as there is but one right way, but many ways, and winds, so the true way of truth is but one: and always that that proceeds not, and that he like it well, but that of a lie is divers, and which may easily reced it fell, by the repugnancy and incorrigibility of opinions, one should say, nothing. What others are of this opinion, I shall not name, of what creatures, these hornes, which we fee wholly different from others, if they be not Unicorns? These think them nothing else than Elephants bones turned and made into the fashion that we see them in the Eastern Countries, sorne crafty merchants and cunning companions turn, hollow, and being formed, draw to what length those plese the teeth of the 10th Roland, which lives in the Red and Etlickrann Sea, and being so handled, they tell them for Unicorns horn. Really that which is termed Unicorns horn, being burnt, finds forth a smell like to Ivory. Now Corda affirms that the teeth and bones of Elephants made hot by art, may be drawn forth, and brought into that form your please like as Ox-bones are. For what is in the world which the thinking desire of gold will not make men to adulterate and counterfeit? But it is strange, that they come to the third scope. Grant there be Unicorns; mutt 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 proc to this much, that I have often made trial 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 be tried by writers and authorities, a great part of the Physicians of better note have long since bid it adieu, and have detracted the divine and admirable virtues in which it was formed so much desired. And they have done, moved thereby by many jolts, but two especial reasons. The first is it Rerodelatin, who in this case affirms that horns are ended with no talcous small, and there fore have no effect in Physick, unless it be to dry: neither (faith he) am ignorant that such as have them, much prejudice their worth, so to make the greater benefit and gain by them, as of the hairs or splinters of Unicorns horn, which they fold for the weight in gold, as that which is singular good against poisons and worms, which things, I think, Horse-horn and Ivory do not less effectually perform which is the case why, for the same effects, and with the like forces, I prehende to IVory to such as are poor, and Unicorns horn to the rich, as that they much desere. This is the opinion of Rerodelatin, who, without any difference was wont, for Unicorns horn, to prescribe not only Harts-horn or Ivory, but also the bones of Horses and Dogs, and the bones of Myrobalans. Another reason is, that he afferts, that the horn itself of Unicorns horn is coal'd, that is, to strengthen the heart, which is chiefly affected by poisons, but is not in common to strengthen the heart, unless it be by hodaible blood or fpirit, which two are only familiar to the heart, as being the workhouse of the artesous blood and vital spirits. For all things are preferred by their like, as are destroyed by their contraries, for all things that generate, generate things like themselves. But Unicorns horn, as it contains no small, do here hath it any very parts, but is wholly earthy and dry, neither can it be converted into blood by the digestive faculty, for as it is without juice, so is it without fhit: For as it cannot be turned into Clyph, to neither is it to become Clyph, that is, juice or blood. Therefore it is joined to the heart by no familiar, or familiar familiarity. Furthermore there is not a word in Hipposcopers and Galen concerning the Unicorns horns, who notwithstanding have in so many places, commended Harts-horn. Therefore D. Chapletis, the chief Physician of King Charles the ninth, many 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 scarce be imposed by reason. Besides (he said) if such a superfluous medicine do no good, so certainly it doth not harm, unless it be to their desires that buy it with gold or cly by accident, because Princes, whilst they sell more than is fitting upon the magnified vertue of this horns, neglect to arm themselves against poisons by other more convenient means, so that their death oft-times takes them at unawares. When as upon a time I inquired of Lucre Dutreit the Kings Physician and Professsor (by reason of the great opinion that all learned men gave him of his learning and judgment) what he thought of this horn: He answered that he attributed no virtues to it, other than for the confirmation whereof he rendered the second reason I have formerly given, but more largely and elegantly; neither feared he to affirm it aloud, and in plain words to his auditor of learned men, coming from all parts to hear him. But if at any time (converse by the fault of In what cause, the timespace) he prescribed this horn, that he did it for no other intent, than to help the good.
Of the \textit{Idgue}.

Book XXII.

Injuries or woundings that happen by the abundance of febaceous humors floating in the orifice of the ventricle, which makes men ill disposed, because this mixed with other things endowed with the like faculty, hath power to drink up the waterish humidity by its earthy drieess. But some will reply, that neither the Lusitan, nor Armenian earth, have any place in them, neither any smell, nor acry spirit. It is granted neither truly are such things truly and properly called cordial, but only by event and accident, for that by the excellent and efficacious faculty they have, and stopping the passages of the vessels, they hinder the poison from entering into the heart. This is my opinion of the Unicorns horn, which if any do not approve of, he shall do me a favour, if for the publick good, he shall freely oppose his; but in the interim take this in good part which I have done.

The end of the one and seventeenth Book.

\textbf{BOOK XXII.}

\textbf{Of the PLAGUE.}

\textbf{CHAP. I.}

The description of the Plague.

Plague is a cruel and contagious disease, which everywhere, like a common disease, invading Man and Beast, kills very many being attended, and as it were associated with a continual Fever, Bothes, Carbuncles, Spots, Nauscentnes, Vomiting, and other such malign accidents. This disease is not so pernicious or hurtful, by any elementary quality, as from a certain poisonous and venenate malignity, the force whereof exceeds the condition of common putrefaction; Yet I will not deny, but that it is more hurtful in certain 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 increased, or diminished, according to the condition of the elementary qualities concurring with it; but not the whole nature and essence thereof to depend thereon.

This pestiferous poison principally affails the vital spirit, the store-house and original 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 back into the fortress of the heart, by the like contagion infecting the heart, and so the whole body, being spread into it, by the passages of the arteries.

Hence it is, pestiferous feavers are sometime simple and solitary; other whilst assi
diated with a troop of other accidents, as Bothes, Carbuncles, Blanes and Spots, of one or more colours.

The original of botches, carbuncles, &c. in the plague.

It is probable such accidents have their original from the expulsive faculty, whether strong or weak, provoked by the malignity of the raging matter; yet affi"erly drives symptoms and changes artifically, according to the condition of the body of the patient, and conditions of the humor in which the virulence 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 scarce comprehend it in a proper definition. For although the force thereof be definite, and certain in nature, yet it is not altogether certain and manifest in most minds, because it never happens after one sort: so that in so great variety, it is very difficult to set down anything general and certain.

\textbf{CHAP. II.}

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 assails the life of man, are often sent by the just anger of God punishing offenders. The Prophet Amos hath long since taught it, saying, \textit{Shall there be affihition 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; 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 we cannot well without the first cause go about or attempt, much less perform any thing.

For from hence they borrow their force, order, and constancy of orders, 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
Wherefore all causes of a plague is not to be attributed to these near and inferior causes or beginnings, as the Episcopal and Lucanists commonly do, who attributing too much, yea all things to Nature, hath left nothing to God's providence. On the contrary, we ought to think, and believe in all our doings, That even as God by his omnipotent Power hath created all things of nothing, so he by his infinite wisdom governs the same, leads and inclines 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, so here we will not profecute it any further, but think it to leave it to Divines, because it exceeds the bounds of Nature, in which I will now contain my self. Wherefore let us come to the natural causes of the Plague.

CHAP. III.

Of the Natural cause of the Plague, and chiefly of the Seminary of the Plague by the corruption of the air.

The general causes of the Plague are absolutely two, that is, the infection of corrupt air, and a preparation and fitness of corrupt humors to take that infection: for it is noted before, out of the doctrine of Galen, that our humors may be corrupted, and degenerate into such an infection as may equally seize upon all, so that the constitution of into pestilence, presently receiving the tainture of the plague, to which they had before a certain community, as that which partakes of a certain malignity, and wholly contrary to our lives, is putrefaction. Wherefore in time of the Plague, I would advise all men to shun such exceeding rhe air, all diseases, and other such diseases, raised by the peculiar default of the humors, easily degenerate in a pestilential corruption, which at the first wanted virulence and contagion, as Ulcers, putrefaction and the like, as the Plague itself, that there may be no preparation in our bodies, or of which we cannot easily give a plain and manifest reason. Yet that vulgar putrefaction whereof we speak, and which the Later learned physicians call Arsenis, does sometimes happen in the air, and beget no banks of the earth, or sinks and such like places being opened: for the sea often overflowing the land in some places, and leaving in the mud or holowest of the earth (caused by earth-quakes) the huge bodies of monstrous fishes, which hide in its waters, hath given both the occasion and matter of a plague. For thus in our time, a Whisk caught upon the Tuscan shore, profently caused a plague over all that country.

But as fishes infect and breed the air in the soil, so the air being corrupted often causeth a pestilential infection in the sea among fishes, especially when they either swim on the top of the water, or are infect- ed by the pestilent vapors of the earth lying under them, and rising into the air through the body of the water, the latter whereof Aristeus, faith, happereth but seldom. But it often chanceith, that the plague raging in any country, many fishes are cast upon the coast, and may be seen lying on great heaps. But sulphurous vapors, or such as partake of any other malign quality, sent forth from places under ground, by gaspings and guls opened by earth-quakes, not only corrupt the air, but also infect and taint the seeds, plants, and all the fruits which we eat, and so transfer the pestilential corruption into us, and these banks on which we feed, together with our nourishment. The truth whereof Empedocles made manifest, who by shutting up a great gulf of the earth, opened in a valley between two mountains, freed all Sicily from a plague caused from thence.

But neither is the air only corrupted by these superior causes, but also by patrid and filthy thinking vapors spread abroad through the air encompassing us, from the bodies and carcases of dead birds, not buried, gaspings and hollownesses of the earth, or sinks and such like places being opened: for the sea often overflowing the land in some places, and leaving in the mud or hollowness of the earth (caused by earth-quakes) the huge bodies of monstrous fishes, which hide in its waters, hath given both the occasion and matter of a plague. For thus in our time, a Whisk caught upon the Tuscan shore, profently caused a plague over all that country.

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If winds rising suddenly shall drive such filthy exhalations from those regions in which they were pestilential, into other places, they also will carry the plague with them thither. If it be thus, some will say, it should seem that wherever thinking and patrid exhalations arise, as about standing pools, sinks and hollows, there should the plague reign, and straight suffocate with its noyseous poison the people which work in such places: but experience finds this false.

We do asweer that the Putrefactions or the Plague is far different, and of another kind than this common, as that whereof we speak, which arises from the corrupt air, and which we cannot easily give a plain and manifest reason. Yet that vulgar putrefaction whereof we speak, doth very easily and quickly entertain and welcome the pestilential contagion, as often as, putrefaction and the like, as the Plague itself, that there may be no preparation in our bodies, or in the air, all diseases, and other such diseases, raised by the peculiar default of the humors, easily degenerate into pestilential, presently receiving the tainture of the plague, which to them had before a certain preparation. Wherefore in time of the Plague, I would advise all men to shun such exceeding thinking places, as they would the plague itself, that there may be no preparation in our bodies, or in the air, all diseases, and other such diseases, raised by the peculiar default of the humors, easily degenerate into pestilential, presently receiving the tainture of the plague, which to them had before a certain preparation. Wherefore in time of the Plague, I would advise all men to shun such exceeding thinking places, as they would the plague itself, that there may be no preparation in our bodies, or in the air, all diseases, and other such diseases, raised by the peculiar default of the humors, easily degenerate into pestilential, presently receiving the tainture of the plague, which to them had before a certain preparation.
How the air may be fatal to the health.

But when we say the air is pestilent, we do not understand that sincere, elementary, and simple, as it is of its own nature, for such is not subject to putrefaction rising from the earth, standing waters, vaults, or sea, and degenerates, and is changed from its native purity and simplicity. But certainly amongst all the constitutions of the air, it fits to receive a pestilent corruption, there is none more fit than an hot, moist, and still season; for the excess of such qualities easily causes putrefaction. Wherefore the fourth wind, reigning, which is hot and moist, and principally in places near the sea, there death cannot long be kept, but it frequently is tainted and corrupted.

Further, we must know, that the pestilent malignity which raiseth from the carcases or bodies of men, is more easily communicated to men, that which riseth from oxen, to oxen, and that which comes from sheep, to sheep; by a certain sympathy and familiarity of Nature: no other wise than the Plague which shall feize upon some one in a Family, doth spread more quickly amongst the rest of the Family, by reason of the similarity of temper, than amongst others of another Family, disagreeing in their whole temper. Therefore the air thus altered and change from its goodness of nature, occurrently drawn in by inspiration and transpiration, brings in the seeds of the Plague, and so consequently the Plague it self, into bodies prepared and made ready to receive it.

CHAP. IV.

Of the preparation of bodies to putrefaction, and admission of pestiferous impurities.

Having showed the causes from which the air doth putrefy, become corrupt, and is made partaker of a pestilent and pestiferous constitution; we must now declare what things may cause the humors to putrefy, and make them so apt to receive and retain the pestiferous air and venenum quality.

Humors putrefy either from taints, which breed obstruction, or by disseminating excess; or lastly, by admission of corrupt matter and evil jucies, which ill feeding doth specially cause to abound in the body; for the Plague oftentimes follows the drinking of dead and rancid oil, or the drinking of standing waters, which receive the sinks and filth of a City; and fruits and pulse eaten without discretion in scarcity or other cases, as Peas, Beans, Lentils, Vetches, Acorns, the roots of Fern, and Grass made into Bread: For such meats obstruct, heap up ill-suited humors in the body, and weaken the strength of the faculties, from whence proceeds a putrefaction of humors, and in that putrefaction a preparation and disposition to receive, conceive, and bring forth the seeds of the Plague: which the filthy feabs, malignant forces, rebellious ucters and putrid feavers, being all fore-runners of greater putrefactions and corruption, do settle. Vehement passions of the mind, as anger, sorrow, grief, vexation and fear, help forward this corruption of humors, all which hinder nature's diligence and care of concoction: For as in the Dog-days, the dews of wise, alluding 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 certain chal挖tion, or working; so melancholic humors, being the dregs or least of the blood, filtered by the passions of the mind, dole or taint all the blood with their fetulent impurity.

We found, that many years ago by experience, at the battle of S. Donnis. For all wounds, by what weapon soever they were made, degenerated into great and filthy putrefactions and corruptions, with feavers of the like nature, and were commonly determined by death, what medicines and how diligently forever they were applied; which caused many to have a false suffocation that the weapons on both sides were poisoned. But there were manifest signs of corruption and putrefaction in the blood the fame day that any were hurt, and in the principal parts disfigured afterwards that it was from no other cause, than an evil constitution of the air, and the minds of the Soldiers perverted by hate, anger and fear.

CHAP. V.

What signs in the Air and Earth prognosticate a Plague.

We may know a plague to be at hand and hang over us, if at any time the air and seasons of the year swerve from their natural constitution, after those ways I have mentioned before; if frequent and long continuing Meteors, or sulphurous Thunders inflate the air; if fruits, seeds, and pulse be worm-eaten: if birds forsake their seats, eggs, or young, without any manifest cause; if we perceive women commonly to abort, by continual breathing in the vaporous air, being corrupted and hurtful both to the Embryon and original of life, and by which it is swelled, and is presently cast forth and expelled. Yet notwithstanding those airy impurities do not solely corrupt the air, but there may be also others raised by the Sun from the filthy exhalations and pestiferous vapors of the earth and waters, or from dead carcases, which by their unnatural mixture, easily corrupt the air, subject to alteration, as that which is thin and moist, from whence divers Epidemical diseases, and such as are every where feized upon the common fort, according to the several kinds of corruptions, such as that famous Contagium, with difficulty of breathing, which in the year 1510 went almost all over the world, and raged over all the Cities and Towns of France, with great levend of the head (whereupon the French started it Contagia) with a instantaneous of the heart and lungs, and a cough, a continual fever, and sometimes raving.

This, although it feizes upon many more than it killed, yet because they commonly died who were either blood, or purged, it is thought it fol pestilent by that violent and purgative and unheated kind of malignity. Such
Of the Plague.

As soon as this pestilent distemper entred into any City, suddeily two or three hundred fell sick one day, then it departed thence to some other place. The people ran from this to that, linting, fell down in a fouw, and lieing in their beds, sweat continually, having a fever, frequent, quick, and unequal palls, neither did they leave sitting, till the distempe left them, which in one or two days at the most: yet freed of it, they languished long after, for they all had a beating or palpitation of the heart, which held on some two or three years, and others all their life after.

And at this beginning it killed many, before the force of it was known: but afterwards very few, when it was found out by practice and use, that those who fleeing and continued their sweats, and strengthened themselves with cordials, were all restored. But at certain times many other popular distempers fining up, as pestil. fevers, fluxes, bloody- fluxes, catarrhs, coughs, phreneses, febricides, phlegmasies, phlegmasies, inflammations of the lungs, inflammations of the eyes, apoplexies, lycuries, small pox and measles, febiles, carbuncles, and malign pustules. Wherefore the Plague is not always, nor the distemper of every where of one and the same kind, but of divers: which is the cause that divers names are imputed upon it, according to the variety of the effects it brings, and symptoms which accompany it into strange and kinds of pestrlications, and hidden qualities of the air.

They affirm, when the Plague is at hand, that Multitudes grow in greater abundance out of the earth, and upon the surface thereof many kinds of pestiforous insects creep in great numbers, as Spiders, Catterpillars, Butterflies, Grashoppers, Beetles, Horns, Wasps, Flies, Scorpions, Spiders, Ticks, Worms, and such things as are the off-spring of pestrlications. And all wild beasts and birds flee the vaporous malignity of their dens and caves in the earth, forfake them, and Mole, Touds, Vipers, Snakes, Lizards, Alpids and Crocodiles are seen to be out of the way, and remove their habitation in great troops. For these, as also other creatures, have a manifest power by the gift of God, and the instinct of Nature, to preface changes of weather, as rains, showers, and fair weather, and feaons of the year, as the Spring, Summer, Autumn, Winter, which they tellise by their flying, chirping, crying, playing, and beating with their wings, and such like things: so that they flee the Plague. And moreover, the carcases of some of them which took left dead of themselves, suffocated by the pestiferous poison of the Air contained in the earth, may be every where found, not only in their dens, but also in the plain fields.

These vapors corrupted not by a simple purgation, but an occult malignity, are drawn out of the bowels of the earth into the air, by the force of the Sun and Stars, and thence conduced into clouds, which by their falling upon corn, trees and grases, infect and corrupt all things which the earth produce, and also kills those creatures which feed upon them: yet beats beasts fooner than men, as which flee and hold their heads down towards the ground (the maintenance and breeder of this pox) they may get ther food from thence. Therefore at such times, skilful husbandmen, taught by long experience, never drive their Cattel or Sheep to pasture, before that the Sun, by the force of his beams, hath wafted and dispirited into air, this pestiforous dew hanging and abiding upon the boughs and leaves of trees, herbs, corn and fruits.

And on the contrary, that pestilence which proceeds from some malign quality from above, by reason of evil and certain conjunction of the Stars, is more harmful to men and birds, as those who are nearer to Heaven.

Havinc declared the signs foreheving a Pestilence: now we must shew by what means we may than the imminent danger thereof, and defend our selves from it. No prevention founded more certain to the Antients, than most faceditly to remove into places far distant from the infected place, and to be most flow in their return thither again. But those who, by reason of their busines or employments, cannot change their habitation, must principally have a care of two things. The first is, that they strengthen their bodies, and the principal parts thereof, against the daily imminent invasions of the pestilence, or the pestiferous and venerean Air. The other, that they abate the force of it, that it may not imprint its malignity in the body, which may be done by correcting the excesses of the quality inclining towards it, by the opposition of its contrary. For if it be hotter than its 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 and purge the corruptions of the venerean malignity diffused through it, by feecils and perfumes reftrining the pestiferous thereof. The body will be strengthened and more powerfully refit the infected Air, if it want excrementious humors, which may be procured by purging and bleeding; and for the refit a convenient diet appointed, and thrumming Diet for pre- much variety of meats, and hot and mult things, and all flesh which are easily corrupted in the bowels, and caufe obstructions, such as those things which be made by Confit-makers: we must than eatery and drunkemets, for both of them weaken the powers, which are preserved by the moderate use of meats of good price.

Let moderate exercises in a clear Air, and free from any venemous tainture, precede your meals. Let the belly have due evacuation either by Nature or Art. Let the heart, the seat of life, and the root of the bowels be strengthened with Cordials and Antidotives applied and taken (as we shall hereafter shew) in the form of empcins, chronments, emplasters, waters, pills, powders, tablets, opiates, latices, and fitches like.

Make choice of a pure air, and free from all pollution; and far remote from flinking places, for
Of the Plague.

Book XXII.

Discommodities of a cold or foggy Air.

Why the South wind is pernicious.

The efficacy of fire against the Plague.

Moderate relations good for prevention.

A strange Air to drive away the Plague.

The antipathy of poisons with poison.

Why the Moon is to be fummed.

Garlick good against the Plague.

What water to be made choice of in the Plague time.

Utica cannot eat without much labour, exercise and hunger, and who are no lovers of Breakfast, having devoured their excrements, before they go home; must afterwards refresh themselves with some Antidote against the virulence of the infection. Amongst which $\mathit{Utica}$, or Trecle-water, two ounces, with the like quantity of Sack, is much commended being drank, and rubbing the Noliirens, Mouth and Ears with the same; for the Trecle-water strengthens the vitals, and is not only good for a preventive, but also to cure the distemper it self; For by sweat it drives forth the poxion contained within. It should be made in June, at which time all simples medicines, by the vital heat of the Sun, are in their greatest efficacy.

The
The composition whereof is thus: Take the roots of Gentians, Cypresses, Tormentil, Dietram, or Elecampane, of each one ounce; the leaves of Mullet, Carduus Benedictincns, Devils-bit, Burnet, Scabious, Shervit-fool, of each half a handful of the tops of Rce a little quantity of Myrtle-berries one ounce; of red Rose-leaves, the flowers of Baglfs, Borage, and St. John's wort, of each one ounce, let them be allcleaned, dried and macerated for the space of twenty four hours in one pound of white wine or Malmedie, and of Rose-water or Sorrel-water, then let them be put in Balne Maria, and let the distilled water be received in a Glass-Vial, and let there be added thereto of Saffron two drams, of Bole-Armencinc, Terra Sigillata, yellow Sander, thistles of Ivory and Harts-horn, of each half an ounce, then let the Glass be well stopped, and let it in the Sun for the space of eight or ten days. Let the preferred quantity be taken every morning fo oft as shall be needful. It may be given without hurt to sick children, and to Women great with child. But that it may be the more pleasant, it must be strained through an Hippocrene-bag, adding thereto some sugar and cinnamon.

Some think themselves sufficiently defended with a root of Elecampane, Zedoary, or Angelica, rowed in their mouth, or chewed between their teeth. Others drink every morning one dram of the root of Gentians boiled, being macerated for the space of one night in two ounces of white wine. Others take Wormwood-wine. Others sip in a small draught of Terra Sigillata, or of Harts-horn, with a little Saffron, and drink two ounces of wine after it.

There be some that do inule Bole-Armencinc, the roots of Gentian, Tormentil, Dietram, the berries of Juniper, Cloves, Mace, Cinnamon, Saffron, and such like, in aqua vitae and living white wine, and to distil it in Balne Maria.

This Cordial water that followeth is of great virtue. Take of the roots of the long and round Cordial Willow, yellow Sander, of each one ounce; the leaves of Sorellum, St. John's-wort, Sorrel, Rose, Sarsaparilla and every half an ounce, of Bay and Juniper-berries, of each three drams, Citron-feeds one Dram, Cloves, Mace, Nutmegs, of each two drams, Malick, Olibum, Bole-Armencinc, Terra Sigillata, thistles of Harts-horn and Ivory, of each one ounce, of Saffron one druple, of the Converves of Roses, Baglfs-flowers, waters-lilies and old Treacle, of each one ounce, of Camphire half a dram, of aqua vitae half a pint, of white wine two pints and a half; make thereof a distillation in Balne Maria: The use of this distilled water is even as Treacle water is.

The following is a Cordial mixture. Take of the half Treacle three ounces, Juniper-berries a Cordial Elder and Garden-feeds of each one dram and a half, of Bole-Armencinc prepared half an ounce; of Bay, powder of the Elder de Comania and Dianmargina friptum, the powder of Harts-horn, and red Coal, of each one dram; mix them with the syrup of the rinds and juice of Pome-Citrons as much as is sufficient, and make thereof a liquid Elecampan in the form of an Opiate, let them take every morning a quantity of a Filbert, after after it two drams of the water of Sabinus, Cherries, Cardui Benedictincis, and of some slike cordial thing, or of strong wine.

The following Opiate is also very profitable, which also may be made into tablets. Take of the Opiate: roots of Angelica, Gentian, Zedoary, Elecampaige, each two drams; of Citron and Sorrel-seeds, of each half a dram; of the dried rinds of Citron, Cinnamon, Bay and Juniper-berries, and Saffron, of each one druple; of conserve of Roses and Baglfs, of each one ounce; and free 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 meat, or make thereof an Opiate with equal parts of conserve of Baglfs and Med Anthostium, and to adding all the red dry and in powder. Or take of the roots of Valerian, Tor-Another, Dietram, of the leaves of Rue, of each half an ounce of Saffron, Mace, Nutmegs, of each half a dram, of Bole-Armencinc prepared half an ounce, of conserve of Roses and Syrup of Limes, as much as will be sufficient to make thereof an Opiate liquid enough. Or take of the roots of both: another: the Arbutus, of Gentian, Tormentil, Dietram, of each one dram and a half; of Ginger three drams, of the leaves of Rue, Sage, Mints and Penny-royal, of each two draams of Bay and Juniper-berries, Citron-seeds, of each four druples; of Mace, Nutmegs, Cloves, Cinnamon, of each two drams: of Liquor alis, and yellow Sander, of each one dram, of Milk-Frankincense, a Oleum, Malick, thistles of Harts-horn and Ivory, of each two druples: of Saffron half a dram of Bole-Armencinc, Terra Sigillata, red Cord, Pearl, of each one dram; of conserve of Roses, Baglfs-flowers, waters-lilies and old Treacle, of each one ounce of Ledo-figur one pound and a quarter: a little before the end of the making it up, add two drams of Convolus Althorii, and of Camphire diffolved in Rose-water one druple, make thereof an Opiate according to the dose thereof is from half a dram, to half a druple.

Treacle and Mithridate faithfully compounded, excel all Cordial medicines, adding for every half ounce of them, one ounce and an half of Converves of Roses, or of Baglfs, or of Violets, and three drams of Bole-Armencinc prepared: Of these being mixt with striking, and incorporated together, make a conserve: it must be taken in the morning, the quantity of a Filbert. You must chuse that treacle that is not left than four years old, nor above twelve: that which is somewhat new, is judged to be most meet for cholericke persons: but that which is old, for phlegmatick and old men. For at the beginning the strength of the Opiate that enters into the composition thereof, remains in its full vertue for a year: but afterwards the more years it waxeth, the strength thereof is more abasched, so that at length the whole composition becometh very hot.

The composition of Althorii is very effectual both for a preservative against this disease, and also for the cure.

The quantity of a Filbert of Rubarb, with one Clove chewed or rowelled in the mouth, is diabolical.
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to repel the coming of the pestilent air: as also this composition following.

A Confection to be taken in the morning against the pestilential Air.

Take of preferred Citron and Orange pills, of each one dram; of Coccus of Roses, and of the roots of Bugloss, of each three drams; of Citron-seeds half an ounce; of Annis-seeds and Fennel-seeds, of each one dram; of Angelica-Roots four fcruples; sugar of Roses as much as sufficient: Make a Confection, and cover it with leaves of Gold, to take a little of it upon a spoon before you go abroad every morning.

Of what manner the medicine outwardly to be used ought to be.

A March-pow.

Or take of Pine-apple-kernels, and Pistach-nuts, infused for the space of six hours in the water of Sabious and Roses, of each two ounces; of Almonds blanch'd in the fore-said waters half a pound: of preferred Citron and Orange pills, of each one dram and a half; of Angelica-root four fcruples: make them according to art, unto the form of March-pow, 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 Dianthus, Tormen-
til, Valerian, Elecampane, Worm-wood, of each half a dram; of Eule-Armanum, Terra Sigillata, of each one fcruple; Camphire, Cinnamon, Sorrel-seeds, and Zedoary of each one fcruple, of the juice of the elecutary Thunamararia frigidum, two fcruples; of coccus of Roses, Bugloss preferred, Citron-pills, Mirtirritis, Trecate of each one dram; of fine Sugar dissolved in Sabious and Cardua-water, 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.

The pills of Raffier are accounted most effectual preservatives, so that he Raffier himself faith, that he never knew any to be infected that used them: the composition of them is thus.

Take of the best Aloes half a dram, of Gum-Armamentium two drams, of Myrrh two drams and an half, of Mutitch two drams, of Saffron seven grains; put them all together, and incorporate them with the piece of Cinnamon, and the syrup of Limones, and make thereof a mafs, and let it be kept in Spirit, Let the patient take the weight of half a dram every morning two or three hours before meat, and let him drink the water of Sorrel after it, which through its taste, and the thinnets of its parts, doth infringe the force and power of the malignity or putrefadion: For experience hath taught us, that Sorrel being eaten or chewed in the mouth, doth make the pricking of Scorpions unnoticeable. And for those ingredients which do enter into the composition of these pills, Aloes doth cleanse and purge, Myrrh refists putrefadion, Myrrh strengthens, Saffron exhilarates and makes lively the spirits that govern the body, especially the vital and animal.

Other pills, which are much approved. Take of Aloes one ounce, of Myrrh half an ounce, of Saffron one fcruple, of Agarick in Trochisces two drams, of Rubini in powder one dram, of Cinnamon two fcruples, of Mutitch one dram and a half, of Citron-seeds twelve grains: powder them all as is requisite; and make thereof a mafs with the syrup of Maidenhair: let it be used as aforesaid.

If the mafs begin to wax hard, the pills that must presently be taken, must be mollified with the syrup of Limones.

Other pills.

Take of worm Aloes two ounces, of Saffron one dram, of Myrrh half an ounce, of Armamentium dissolved in white wine one ounce, of hony of Roses, Zedoary, red Sanders, of each one dram, of Cola-Armanum prepared two drams, of red coral half an ounce, of Camphire half a fcruple: make thereof pills according to art. But those that are subject or apt to the haemorrhoids ought not at all, or very seldom to be infected with these kinds of pills that do receive much Aloes.

They say, that King Nimbidas was allowed by his own writing, that whofoever took the quantity of an hazel-nut of the preservative following, and drank a little wine after it, should be free from poy-
son that day. Take two Walnuts, those that be very dry, two Figs, twenty leaves of Rau, and three grains of salt: bear them and incorporate them together, and let them be used as is aforesaid.

This remedy is also said to be profitable for those that are bitten or sting by some venomous beast, and for this only, because it hath Rau in the composition thereof. But you must forbid women that are with child the use of this medicine; for Rau is hot and dry in the third degree, and therefore it is said to purify the womb, and provoke the flowers, whereby the nourishment is drawn away from the child. Of such variety of medicines, every one may make choice of that is most agreeable to his taste, and as much thereof as shall be sufficient.

G H A P. VIII.

Of local medicines to be applied outwardly.

Those medicines that have proper and excellent virtues against the pestilence, are not to be neglected to be applied outwardly, or carried in the hand. And such are all aromatical, altrigent, or frtititious things, which therefore are ended with verse to repel the veno-

cious and pestilential air, from coming and entering into the body, and to strengthen the heart and brain. Of this kind are Rau, Bahi, Rosmarini, Strodam, Sag, Worm-wood, Cloves, Nard, Nupfer, the roots of Angelica, and Lovage, and fuch like, which must be macerated one night in thirp Vingar and Agua vitae, and then tied in a knot as big as an egg, or rather let it be carried in a sponge made wet, or loaked in the said infusion. For there is nothing that doth sooner and better hold the ftititious virtue and strength of aromatical things than a sponge. Whereof it is of principal use ei-

ter to keep or hold fweet things to the nofe, or to apply Epithems and fotherations to the heart.

Thofe fweet things ought to be hot or cold, as the feafon of the year, and kind of the pestilence is:

As for example, in the Summer ye ought to infule and macerate Cinnamon and Cloves, beaten to-
gether; with a little Saffron in equal parts, of vinegar of Roses, and Rau-water, into which you must dip a sponge, which rowled in a fair linen cloth, you may carry in your hand, and often find to.
Take of Wormwood half a handful; ten Cloves, of the roots of Gentian and Angelica, of each two drams; of Ripe and Rose-water, of each two ounces; of Must and Mithridate, of each one dram; beat and mix them well all together, and let a sponge be dipped therein, and used as above said. They may also be inclosed in boxes made of sweet wood, as of Juniper, Cedar, or Cypress, and so carried for the same purpose.

But there is nothing more safe to be carried than Pomanders: the form of which is thus: Take of yellow Saffron, Mace, Citron-pills, Rose and Myrtle-leaves, of each two drams; of Benzoin, Lavatera, of each half a dram; of Cinnamon and Saffron, of each two spoons; of Camphire and Amber-Ogreece, of each one spoonful; of Musk three grams. Make thereof a Pomander, with Rose-water, with the infusion of Targarcuta. Or take red Rose-leaves, the flowers of Water-lilies and Violets, of each one ounce; of the three Saffrons, Coriander-seeds, Citron-pills, of each half an ounce; of Camphire, one dram; let them all be made into powder, and with Water of Rose and Targarcuta make a pomander.

In the Winter it is to be made thus. Take of Saffron, Benzoin, of each one dram and a half; of Musk half a dram, of Cloves, Lavender and Cinnamon, of each two drams; of the root of Orris, &c. Flower-de-lies, and Calamus aromatics, of each two drams and a half; of Amber-Ogreece, three drams; of Gum-Targarcuta dissolved in Rose-water and aqua vitae, 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-Ogreece, Saffron, Orris, Nutmegs, Cinnamon, Mace, Cloves, Saffron, Benzoin, Musk, Camphire, Ripe, Violets, Juncus sedoisis, Marjoram, and such like, of which being mixed together, Powders may be composarded and made.

Take of the roots of Orris two drams; of Cipress, Calamus aromatics, red Rose, of each half an ounce, of Cloves half a dram, of Saffron, one dram, of Musk, eight grains: mix them, and make a powder for a bag; or take the roots of Orris two ounces; red Rose-leaves, white Saffron, Saffron, of each one dram; of Citron-ammatics, one ounce; of Marjoram, half an ounce; of Cloves, three drams; of Lavender, half a dram; of Coriander-seeds, two drams; of good Rose, half a spoonful; of Ladanum and Benzoin, of each a dram; of Nutmegs and Cinnamon, of each two drams; Make thereof a fine powder, and low it in a bag.

It will be very convenient also to apply to the region of the heart, a bag filled with yellow Saffron, Mace, Cloves, Cinnamon, Saffron and Targarcuta taken together, and incorporated, and sprinkled over with strong vinegar and Rose-water in Summer, and with strong wine and Muskade in the Winter.

The sweet aromatick things that are so full of spirits, smelling sweetly and strongly, have admirable virtues to strengthen the principal parts of the body, and to fit up the excusive faculty to expel the poison.

Contrariwise, those that are linking and unbeneficial, procure a desire to vomit, and dissolution of the resources, by which it is manifest how foolish and absurd their pernicious is, that count as such as things to be of evil and prejudicial, and especially in the morning.

But it will not suffice to carry these preparatives 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 decoction of Juniper and Bay-berries, the Roots of Gentian, Marigolds, S. Johns-wort, and such like, with Targarcuta or Mithridate also dissolved in it. For vinegar is an enemy to all poisons in general, whether they be hot or cold; for it refetheth and hindereth putrefaction. Neither is it to be feared, that it should obtitudinate 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.

Nevertheless, let him wash the whole body therewith, let him wash only his arm-holes, the region of his heart, his temples, groins, parts of generation; that they being moistened with the principal and noble parts.

If any malle catholic, let him accustom himself with the following Unguent. Take oyl of Rose, an Unguent; four ounces; oyl of Spixe, two ounces; of the powder of Ginruntan and Cloves, of each, one ounce and a half of Benzoin, half an ounce; of Musk, six grains; of Targarcuta, one dram and a half; of Wax, as much as shall suffice; make thereof a solid Unguent.

You may also drop a few drops of oyl of Mustard, of Sage, or of Cloves, and such like, into the ears, with a little Civet or Musk.

CHAP. IX.

Of other things to be observed for prevention in fear of the Plague.

Every is chiefly to be eschewed, for by it the powers are deluded, the spirits dispirituated, why venery and the breathing places of the body diminished, and lastly, all the strength of nature weakened, is to be feared. A sedentary life is to be shunned, as also excess in diet, for hence proceeds obstruct an, the corruption of the juices, and preparation of the body to putrefaction and the pestilence.

Women must be very careful that they have their courses quickly, for flowing besides the custom, they only acquire corruption, and draw by contagion the rest of the humors into their society. Such as have inflations, or otherwise old ulcers, must not heal them up in a pestilen t season; for if then more convenient rather to make new ones and these in convenient and declining places: that as by these channels, the flux of the humors of the body may be emptie.~

The Hemorrhoids, bleedings, and other like accutemoned evacuations, must not be stoppoxan-9497

118 3
Places to be hunged in time of plague.

What companies to be avoided.

You must do nothing in a pestilential situation whereby you may grow too hot.

Why dogs and cats must be killed in a Plague-time.

Why Bulls and hogs-houses are not then to be allowed.

Such as die of the Plague do quickly putrefy.

In Head hereof is used in a Plague-time, to

The villany of some base people.
CHAP. XI.

What caution must be used in choosing Physicians, Apothecaries and Surgeons, who may have a care of such are taken with the Plague.

It is the part of Magistrates in the greatest necessity of the afflicted Commonwealth, to appoint learned, skilful and honest Physicians, Surgeons, and Apothecaries, and such as have more regard to the Law of God than to gain, to have the care and cure of such as are visited: But principally let them not take Surgeons and Apothecaries called by proclamation with found 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 as necessity urges, but also after the plague is over. For such fervant-Surgeons and Apothecaries as are called by proclamation, so to gain freedom, are most commonly unknown and inexperienced Dances, who, conscious of their own ignorance, and fearing to undergo the examination of the Masters of their Companies, refuse no hazard, however dangerous, with desire to obtain their freedom.

It is far worse and more dangerous to fall into the hands of such, than into the hands of thieves and murderers; for these, by providence of strength, we may chance to escape; but we fear for and embrace the other, and having found them, lay our throats bare unto them, so by their unskillfulness to be butchered. Certainly by the fault of the times, and the neglect of Magistrates, it is almost come to this pass, that if any honest and learned Physicians and Surgeons shall undertake this cure, they are commonly forced thence by the Magistrate, for fear of blushment or injury: Therefore because they do it against their wills, they shew themselves les vigilant, cheerful and painful about the sick.

They come unwillingly, and compelled thence, because by the memory of the fore-part time, they sufficiently know, how fordid and badly Magistrates, when the Plague hath been over-past, have been in paying the promised reward to men of their condition, who have fleetly run into danger, for thence it happens, that during the rest of their lives they may yet idle at home, for that they are infamous, and feared by the people only for this, that a while ago they visited such as had the Plague. Therefore I would have Magistrates prudently, faithfully, and free in choosing honest, learned and skilful men, who may undergo this so difficult and dangerous a charge.

CHAP. XII.

Hence such as undertake the cure of the Plague singh to arm themselves.

First they must think and hold for certain, 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 life, 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, left by the neglecting the gifts of God, they may learn to neglect him also that is the giver of so many good and excellent benefits. Therefore, let them by purging and bleeding, evacuate the humors subject to putrefadion, and to conceive the seeds of the pestilence. Let them wash their whole bodies with the following lotion.

R. aqua ref. seci refini, ana maltoscati, a. rub. vi. rad. eunda camp. angelica, gentian, bezoar, an. xii. karan. juniper, & bolder, an. xii. fulve, ruf-fan. officina. rute, an. ci. ciner. vitri, s. prox. aqua aq. distillata, ac quasi aqua simplicissima, finale bezoar ad infinitum ante comminationem. The epithems, ambros and Bays formerly described shall be applied to the region of the heart. I have read it noted by Tyler Bapquil Thesaur. exp. 8. 21, 22, that amongst other things, Arsickly may be profitably applied to the region of the heart, so it may be little and little accustom it to potions, that afterwards it may be less harden by their incision, still making them affaius upon it.

Let their garments be made of Chamlet, Dutch Serge, Satin, Taftaty, or the like. Or else if they cannot of these, let them be of some other handsom Stuff, but not of Cloths, these because in the like, that they may take the venome air, and carry it with them to the infection of the found. They shall oft-times change their cloaths, shoes and other linen, and perfume them with aromaticke things, let them warily approach the sick, more warily speak unto him, with their faces looking away from how to visit him rather than toward him, so that they may not receive the breath of his mouth, neither the way your patient, pour nor smelled of his excrements.

When as I upon a time being called to visit one that lay sick of the Plague, came too near and by history, heedfully to him, and profity by hidden calling off the cloaths he hid bare, that so I might the better view a Bubon, that he had in his right groin, and two Carbuncles that were on his belly, then preferably a thick, filthy and putrid vapour arisit from the broken abslces of the Carbuncles, as out of a raised paddle, ascended by my nostrils to my brain, whereupon I fainted, and fell down from the ground, raised up a little after, all things formed to me to run round, and I was ready to fall again, but that I stayed my self by taking hold of the bed-post. But one thing comforted me, that there appeared no figns that my heart was affected, either by pain or panting, or the strong and contagious failing of my powers. An Argument that the animal spirits were only dissipata by a venenate vapor, and that the substance of the heart was no way wronged, was a feeding which took me so violently, that I licked ten times, and then fell a bleeding at the nose.
The cause of vomiting in such as have the Plague.

Their looks are suddenly changed.

Why some that are taken with the Plague are sleepy.

Why their urines are like those that are found.

Of the Plague.

CHAP. XIII.

Of the signs of such as are infected with the Plague.
There are some which at the very beginning have ulcerous and painful wounds, pricking under the skin, with great torment of pain; the eyes look cruelly and strangely, the tongue rough and flitting, and the understanding declining the patient sore and taketh of frivolous things. Truly those are very dangerously sick, no otherwise than those whose urine is pale, black, and troubled like unto the urine of carriage-beasts, or else, with divers coloured cloud or con
tents, as blew, green, black, fatty and oily, as also resembling in these, a Spiders web, with a round body swimming on the top.

If the flesh of the carbuncle be dry and black, as it were burnt with an hot iron, if the flesh about it be black and blew, if the matter do flow back, and turn in, if they have a labor with greatly thinking, liquid, thin, clammy, black, green or bluish odour; if they avoid fweets, by reason of the great corruption of the humors, and yet for all this the patient is never the better; if the eyes wax often dim, if the sores be contracted or drawn together, if they have a grievous cramp, the mouth be drawn aside, the muscles of the face being drawn or contracted equally or unequally, if the nails be black; if they be often troubled with the Hiccup, or have a Convulsion and revolution over all the body, then you may certainly prognosticate that death is at hand, and you may use cordial medicines only, but it is too late to purge, or let blood.

CHAP. XV.
Signs of the Plague coming by contagion of the air, without any fault of the humors.

On shall understand, that the Pestilence proceeds from the corruption of the air, if it be very contagious, and disperseth it itself into empty places in a moment. It first quickly and many, so that whilst sundry persons go about their usual business, walk in the places of common resort, and through the streets, they suddenly fall down and die, no sign of the diseased or harm appearing, nor any pain oppressing them; for the malignity of the corrupt air is quick and very speedy in infecting our spirits, overthrowing the strength of the heart, and killing the Patient. The Patients are not troubled with great agitation, because the spirits dispirited by the rapid malignity of the poisons, cannot endure that labour; besides they are taken with frequent vomiting, and few of them have Buboes, few have Blains come forth, and by the same reason their urines are like that of those of found men.

CHAP. XVI.
Signs of the Plague drawn into the body by the fault and putrefaction of humors.

Formerly we have reckoned up the causes of the corruption of humors from plenitude, obstruc
tion, dissipation, diarrhœa, and the ill juice of meats. Now must we deliver the signs of each corrupt humor which reigns in us, that it may be reduced to soundness and perfection of nature, by the opposition of its contrary, or else be evacuated by Physick. Therefore if the body be more yellow than usual, it is a sign of choler offending in quantity and quality. If more black, then of melancholy; if more pale, then of phlegm; if more red, with the veins blown up and full, then of blood. Also the colour of the riting blains, tumors and spots, express the colour of the predominant humor, as also the excrements cast forth by vomit, stool, and otherwise; the heavy and cheerfulness of the affected body; the manner of the present Fever; the time of the year, age, region, diet. Such things as have a cutting, penetrating, attenuating, and cleansing faculty, take away obstruc
tions. By means of obstructions, Fevers oft-times accompany the Plague, and thefe not only con
tinual, but also intermitting, like tertians or quartans. Therefore that Plague that is fixed in the body, then you may certainly prognosticate that death is at hand, and you may use cordial me

When the skin, with great torment of pain, the head, much pains in the head, a deep and small pulse. But the most certain sign of the Plague residing in the corruption of the humors, is to be taken from the urine. For the signs of the vitiated humors cannot but flow themselves in the urines: therefore troubled urines, and such as are like that of carriage-beasts, as also black and green, give certain notice thereof. But some are much troubled with thirst, others not at all; because choler or phlegm sometimes only pollutes the stomach 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 Fever happen by the default and infection both of the air and humors; then will there be a great confution of the forementioned signs and symptoms:

CHAP.
Of the Plague.

CHAP. XVII.

Of the Prognostication that is to be instituted in the Plague.

Out 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 grievous parts: Although that this may be spoken in general, that there is no certain prediction in pestilent 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 breaths in the venomous air, as he is going about any of his necessary affairs, having pustules rising in the skin with sharp pain, and as though the whole body was 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 conformed to such that the accidents that were very vehement and raging a little before, are suddenly allayed, and the patients do think themselves better, or almost perfectly found. Which happens to Mary one of the Queen-mother her maids, in that notorious pestilential contamination of the air, that year when Charles the French King lay at the Castle of Rossignon: for when the was infected, a great tumor or Buoe arose in her groin, and suddenly it went in again, so that the third day of her sickness, she said she was without any grief or disease at all, but that she was troubled with the difficulty of making water; and I think it was because the bladder was inflamed by the reflux of the matter, that she was found mised and body, and walked up and down the chamber on the same day that he died. The strangeness of which thing made the King so fearful, that he hastened to depart hence.

Although this disease doth spare no man of what age, temperature, complexion, diet and condition ever, yet it afflicts young men that are cholerick and languid, 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 ways, pustules and pores of the skin, whereby the venomous air should enter and pierce in, are more fast and narrow. And moreover, because old men do always stay at home, but young men for their necessary business, and also for their delight and pleasure, are always abroad in the day time, in the air, where-hence the pollution of the Pestilence cometh more often.

That pestilence which comes by the corruption of the humors, is not so contagious as those that cometh by the default of the air. But those that are Phlegmatick and Melancholick, are most commonly grieved with that kind of Pestilence because in them the humors are more clammy and gross, and their bodies more cold and less peripharable, for which causes the humors fcorer and more readily putrefy.

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 humors unto putrefaction: You may know it by this, that when the Pestilence reigneth, there are no other diseases among the common people, which have their original of an ill juice, but they all degenerate into the Plague. Therefore when they begin to appear and wander up and down, it is a token that the Pestilence will shortly cease or is almost at an end.

But here alfo I would have you to understand those to be of an ill juice, which have no pores in their skin, by which, as at by rivers, the evil juice which is contrary to nature, may be evacuated and purged. And I have noted and observed, that those are less in danger of the Pestilence which have Cancerous Ulcers and flaming fores in their Noses, and such as are infected with the French-Pox, and have by reason thereof, tumors and rotten Ulcers, or have the Kings evil running upon them, the Leprok or the Scab: and to conclude; all those that have Humours and running in their bodies.

I think those that have quartane Fevers are the better privileged for the same, because that by the fit causing sweat, that comes every fourth day, they avoid much of the evil juice that was engendered.

This is more like to be true, than to think that the poyson that cometh 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 precluded from their accustomed evacuations, are very apt to take this disease, and so seldom recover after they are infected.

Black or blew impoflumes, and spots and pustules of the same colour, dispersed over the skin, argue that the disease is altogether incurable and mortal.

When the swelling or sore goeth or cometh before the Fever, it is a good sign; for it declareth that the malignity is very weak and tresh, and that nature hath overcome it, which oft oft is able to drive so great portion thereof from the inner parts. But if the sore or tumor come after the Fever, it is a mortal and deadly sign, for it is certain that it cometh of the venomous matter not translated, but dispersed; not by the victory of nature, but through the multitude of the matter, with the weight whereof nature is overcome.

When the Moon decreaseth, those that are infected with the Pestilence, are in great doubt and danger of death, because then the humors that were collected and gathered together before the Full of the Moon, 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 inequality of the native heat, which before was nourished and augmented by the light, and so consequently by the heat of the Full Moon: For as it is noted by Aristotle, the Warnings of the Moon are more cold and weak: and thereby it is that women have their menstrual fluxes chiefly, or commonly, at that time.

In a grog and cloudy air, the pestilential infection is less vehement and contagious, than in a thin and
and fabric air, whether that eminence of the air proceed from the heat of the Sun, or from the North wind and cold. Therefore at Paris, where naturally, and also through the abundance of the fields, which is about the City, the air is dark and grofs, the pestilent infection is left fierce and contagious than it is in Provence, for the facility of the air diffuseness or helps toward the Plague.

But this dispute is mortal and pernicious whereby it be, because it suddenly affail the health, which is the Mansion, or as it were the fortress or castle of life: but commonly not before the signs and tokens of it appear on the body: and yet you shall scarce find any man that thinketh of calling the Physician to help to preserve him from so great a danger, before the signs thereof be evident to be seen and felt, but then the heart is assaillèt: And when the heart is so assaillèd, what hope of life is there, or health to looked for? Therefore becaufe medicines come oft-times too late, and this malady is as it were a sudden and winged messenger of our death, it cometh to pass, that so many die thereof. And moreover, because of the swift suspicion of this to dire and cruel a disease, the imagination and mind (whole formed in the diversely mixing up of the humors, is great and almost incredible) is so troubled with fear of imminent death, and delirium of health, that together with the putrid humors, all the strength and power of nature falleth and finketh down. Therefore in a close and quitted place that is not subject to the entrance of the Air, I would wish the Patient to make the wind, and shut up in a close place, or to procure Air with a thick and great cloth, dipped or macerated in water and vinegar mixed together, or a great fign of the Plague or pestilential Fever, if presently at the first, with no labour, nor any expectation worth the speaking of, their strength fail them, and they become exceeding faint. You may find the other signs mentioned in our preceding discourse.

This heat diffusèd over the body by the arteries, together with a malign quality, taints all, even the solid parts of the bones, with the pestilential venom, and besides, caueth divers symptoms, according to the nature thereof, and the condition of the body and the humors wherein it is. Then is the conflict of the malignity affailing, and nature defending, manifest; in which, if nature prevail, it using the help of the expulsive faculty, will lead and drive it far from the noble parts, either by tears, vomits, bleeding, evacuation, by fever or urine, baboes, carbuncles, pustules, spots, and other such kinds of breaking out, over the skin, but on the contrary, if the malignity prevail, and nature be too weak, and yield, and that first he be troubled with often panting, or palpitation of the heart, then presently after with frequent faintings, the patient then at length will die. For this is a great sign of the Plague or a pestilential Fever, if presently at the first, with no labour, nor any expectation worth the speaking of, their strength fail them, and they become exceeding faint. You may find the other signs mentioned in our preceding discourse. What effects fear and consternation produce in the Plague.

ISC about the City, the air is dark and grofs, the pestilent infection is less fierce and contagious than it is in Provence, for the facility of the air diffuseness or helps toward the Plague.

He Plague oft-times findeth fuel in our bodies, and oft-times allurements, to vit, the purification of humors, or aptness to putrefy; but it never threateth him its first original, for that comes always from the dèliled air; therefore a pestilential Fever is thus bred in us: The pestilential air being diffusèd in the lungs, and transpiration into the unform mouths of the veins and arteries spread over the skin, the blood or else the humors already putrefying or apt to putrefy therein, are infected or turned into a certain kind of malignity resembling the nature of the agent thereof. These humors, like unquenchèd lime when it is furnèd with water, send forth a putrid vapor, which carried to the principal parts and heart especially, infecteth the spirituous blood boiling in the ventricles thereof, and therewith also the vital spirits; and heart proceeds a certain feverish heat.

The original of the Plague always from the air.

Thefe humors, like unquenchèd lime when it is furnished with water, send forth a putrid vapor, which carried to the principal parts and heart especially, infecteth the spirituous blood boiling in the ventricles thereof, and therewith also the vital spirits; and heart proceeds a certain feverish heat.

The original of the Plague always from the air.
The materials for sweet fires.

Sweet trees may be made of little pieces of the wood of Juniper, Broom, Ald, Tamarisk, of the kind of Oranges, Lemons, Cloves, Benzoin, Gum-Arabick, Oris roots, Myrrh, grosly beaten together, and laid on the burning coals put into a chafing-dish. Truly the breath or breath of the wood or berries of Juniper, is thought to drive serpents a great way from the place where it is burnt. The virtue of the Ald-tree against venom is so great, as Pliny testifieth, that a Serpent will not come under the shadow thereof, nor not in the morning, nor evening, when the shadow of any thing is long great and long, but he will run from it. I may well prove, that if a circle or compass be made with the boughs of an Ald-tree, and a fire made in the midst thereof, and a Serpent put within the compass of the boughs, that the Serpent will rather run into the fire than through the Ald-boughs.

There is also another means to correct the Air. You may make Vinegar of the decoction of Rue, Sage, Rosmary, Bay-berries, Juniper-berries, Cypress-nuts, and such like, on bricks or brick red hot, and put in a pot or pan, that all the whole chamber where the Patient lieth, may be perfumed with the vinegar thereof.

Also Fumigations may be made of some matter that is more gross and clammy, that by the force of the fire the fire may continue the longer. As of Ladanum, Myrrh, Muscat, Robin, Temperance, Star-ras, Olbasum, Benzoin, Bay-berries, Juniper-berries, Cloves, Sage, Rosmary, and Marjoram, laid together, and such like.

Theode that are rich and wealthy, may have Candles and Furnes made of Wax, or Tallow mixed with some sweet things. A sponge macerated in Vinegar of Roses, and Water of the same, and a little of the decoction of Cloves, and of Campiphire added thereto, ought always to be ready at the Patients hand, that by often fumming into it, the animal spirits may be recreated and strengthened.

The water following is very effectual for this matter. Take of Orris four ounces, of Zedoary, Spongmar, of each fix drams; of Storax, Benzoin, Cinnamon, Nutmegs, Cloves of each one ounce and half; of old Treacle, half an ounce; bruife them into grofs powder, and macerate them for the space of twelve hours, in four pound of white and strong wine; then distil them in a Lembick of glafen bot-athes, and in that liquefet a sponge, and then let it be tied in a linen cloth, or closed in a box, and fo often put into the nofe. Or take of the vinegar and water of Roses, of each four ounces; of Campiphire, fix grains; of Treacle, half a dram, let them be diffolved together, and put into a viol of glass, which the patient may often put into his nose.

This Nodula following is more meet for this matter. Take of Rose-leaves, two pogs; of Orris, half an ounce; of Calamus aromatim, Cinnamon, Cloves, of each two drams; of Storax and Benzoin, of each one dram and a half; of Cypress, half a dram; beat them into grofs powder, make thereof a Nodula between two pieces of Cambrick or Lawns of the bigness of a hand-ball', then let it be macerated in eight ounces of Rose-water, and two ounces of Rose-vinegar, and let the patient fim some of the nofe. Thofe things muft be varied according to the time; For in the Summer you muft ufe neither Musk nor Civet, nor fuch like hot things: and moreover women that are subject to it often. Thofe things muft be varied according to the time; For in the Summer you muft ufe neither Musk nor Civet, nor fuch like hot things: and moreover women that are subject to

Sweet candles.

Why such as have the Vague may need more fully.

The manner of Diet.

To be fed with such meat as may be easily concocted and digested, and may con-
Book XXII.  Of the Plague.

gender much laudable juice, and very little excremental, as are the flesh of Wether-Lamb, Kids, Le-  
terre, Pullets, Partridges, Pigeons, Thrushes, Larks, Quails, Black-birds, Turtle-doves, Moor-Hens,  
Phasians and such like; a avoiding Water-Fowls. Let the flesh be moistened in Verjuice of Grapes, Vinegar,  
or the juice of Limmom, Oranges, Citrons, Tart Pomegranats, Barbaries, Gooseberries, or red Corrans,  
or of Garden and Wild Sorrel; for all these. rawe things are very wholesome in this kind of diseases;  
for they do fir up the appetite, refit the venomous quality and putrefaction of the humourous, refrain the  
best of the Fever, and prohibit the corruption of the meats in the stomack. Although these have a  
more week stomack, and are indued with a more exact fenti,  

and are subject to the Cough and diseases of the Lungs, must not woe the patient be they mingled with  
Sugar and Cinamon.

If the Patient at any time be fed with stuffed meats, let the broths be made with Lettuce, Purflain,  
Sorrel, Borage, Sorrel, Hop, Baglogs, Greces, Burnet, Marigolds, Chevell, the cooling Seeds, French-  
Barly, and Out-mical, with a little Saffron. For Saffron doth engender many spirits, and refiteth  
pois. To these opening roots may be added, to avoid obftrudion yet much broth muft be refused  
Grapes, Vinegar, or the juice of Limmons, Oranges, Tart Pomgranats, Barbaries, Gooseberries,  
or red Corrans, or of Garden and Wild Sorrel: for all these coarse things are very wholesome  
and are subject to the Cough and diseases of the Lungs, and woe the patient be they mingled with  
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Sugar and Cinamon.
The use of the Julip following is also very wholesome. Take of the juice of Sorrel well clarified half a pint, of the juice of Lettuce so clarified four ounces, of the leaf hard Sugar one pound, boil them together to a perfection; then let them be strained and charred, adding a little before the end a little Vinegar, and let it be used between meals with boiled Water, or with equal portions of the Water of Sorrel, Lettuce, Scallions and Bugloss: or take of this former described Julip clarified and clarified four ounces; let it be mixed with one pound of the forenamed Cordial waters, and boil them together a little. And when they are taken from the fire, put thereto of yellow Sanders one dram, of beaten Cinnamon half 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 been 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 and drowsy drink doth not only engender gross humours, but also crudities, windiness, and obturations of the lust region of the body, whereas comes a Fever.

Oxycrate being given in manner following, doth affuage the heat of the Fever, and repels the purges of the humours, and the fences of the venem, and also expelleth the Water through the Veins, so be it that the Patients are not troubled with spitting of blood, cough, yezing, and altogether weak of stomatch, for such must avoid tart things.

Take of fair Water one quart, of white or red Vinegar three ounces, of fine Sugar four ounces, of Syrup of Roses two ounces: boil them a little, and then give the Patient thereto to drink. Or take of the juice of Limmons and Citrons, of each half an ounce, of the juice of four Pomagranates two ounces, of the Water of Sorrel and Roses of each an ounce of fair Water boiled, as much as shall suffice; make thereof a Julip, and use it between meals. Or take the Syrup of Limmons and of red Currants of each one ounce, of the Water of Lillies four ounces, of fair Water boiled half a pint: make thereof a Julip. Or take the Syrups of Water-lillies and Vinegar, of each half an ounce, dissolve it in four ounces of the Water of Sorrel and Rofes of each an ounce, of fair Water boiled half a pint: make thereof a Julip.

But if the Patient be young, and have a strong and good stomatch, and choleric by nature, I think it not unmeet for him to drink a full and large draught of Fountain water, for that is effectual to retrain and quench the heat of the Fever; and contrariwise, they that drink cold water often, and a very small quantity at a time, as the Smith doth sprinkle Water on the Fire at his Forge, do increasenonely engender gros humours, but also crudities, windiness, and obturations of the lust region of the body, whereas comes a Fever.

Some do not drink so much thereof as may cause them to vomit, but do drink even into faftiness, and so use it for a cooling Medicine: but when either of these is done, the Patient must be covered with many cloths, and so placed that he may deep into his hands and his face, for that doth recreate his strength. If the flux or lask trouble him, he may very well use to drink freed Water, and also boiled milk wherein many bones, red hot out of the fire have been many times quenched. For the drinks or roughnes of the mouth, it is very good to have a cooling, moistening, and leavishing lotion of the mucilaginous water of the infusion of the seeds of Quinces, Feulatum, lec delf, Philament, adding thereto a little Caffearum, with the Water of Plantain and Roses, then cleanse and wipe out the niph, and then moisten the mouth by holding therein a little Oil of sweet Almonds mixed with a little Syrup of Violets. If the roughnes breed or degenerate into Ulcers, they must be touched with the Water of the infusion of Jalisume, or Acepuris.

But because we have formerly made frequent mention of drinking of Water, I have here thought good to speak somewhat of the choice and goodness of Waters. The choice of Water is not to be neglected,
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 think that rain-water which falls in Summer, and is kept in a Gihern well placed and made, is the wholesomest of all. Perhaps therefore they judge that Spring-water which runs out of the Feet of Hills; also the River-water is good, that is taken out of the middle or stream. The wholest of all. Then next thereto they judge that Spring-water which runs out of the tops of Mountains, through Rocks, Cliffs, and Stones: in the third place they put Well-water, or that which riseth from the foots of Hills; also the River-water is good, that is taken out of the middle or stream. Lake or Pond-water is the worst, especially if it stand still, for such is fruitful of and stor'd with many venomous 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 earthly nature. But of Spring and Well-waterst hereaf are to be judged the best which are inside without fixed and colour, such as are clear, warmeth in Winter, and cold in Summer, which are quickly hot and quickly cold, that is, which are most light, in which all manner of Pulfe, Lumps and the like, are easily and quickly boiled. Lastly, When as such as offally drink thereof, have clear voices and shrill their chests, and a lively and fresh colour in their faces.

Of Antidotes to be used in the Plague.

Now we speak treat of the proper cure of this disease, which must be used as soon as may be possible, because this kind of poison, in swiftnes excedeth the celerity of the Medicines. Therefore it is better to err in this, that you should think every disease to be pestilent in a pestilential feaons, and to cure it as the Pestilence: because that so long as the Air is polluted with the feds of the Pestilence, the humour in the body is too infected with the vicinities of such an Air, so that then there happeneth no disease void of the Pestilence, that is to say, which is not pestilent from the beginning by its own nature, or which is not made pestilent.

Many begin the cure with Blood-letting, some with Purging, and some with Antidotes. We take beginning a consideration of the substance of that part that is affaulted, first of all begin the cure with an Antidote, because that by its specific property it defends the heart from poison, as much as it is defended therewith. Although there are also other Antidotes which preferve and keep the heart and the Patient from the danger of Poison and the Pestilence, not only because they do 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 give it in greater quantity than needeth, let it be observed to use, for preference only it is used therefore that which cannot be taken together 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 being nothing to be feared. Some of those Antidotes consist of parts of venomous 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 feth of Vipers, that it being thereto mixed may serve as a guide to bring all the Antidote unto the place where the venomate malady hath made the chief impression, because by the similitude of Nature and Sympathy, one poison is suddenly snatched and carried into another. Whereof there are other absolutely poisonous, which nevertheless are Antidotes one unto another: as a Scorpio himself cureth the pricks of a Scorpion. But Treacle and Mithridate excell all other Antidotes, for by strengthening the noblest part, and the mansion of life, they repair and recreate the wasted spirit; and some Antidote, but yet as moderately as he can; not like unto many, which when they perceive themselves to be infected, do not cease to cause and run up and down, until they have no strength to sustain their bodies: for so they disfigure Nature, so that it cannot suffice to overcome the contagion. After moderate walking the Patient must be put warm to bed, and covered with many cloaths, and warm Brick-bats or Flats applied to the sides of his feet, or in Head thereof you may use Swine's bladders filled with hot Water, and apply them to the goutes and arm-holes, to provoke sweat; for sweating in this disease is a most excellent remedy, both for to evacuate the humours in the Fever, and also to drive forth the malady in the Pestilence, although every sweat brings not forth the fruit of health. For George Agricola faith, that he saw a Woman at Misnia, of health. For George Agricola faith, that he saw a Woman at Misnia, of health. For George Agricola faith, that he saw a Woman at Misnia, of health. For George Agricola faith, that he saw a Woman at Misnia, of health. For George Agricola faith, that he saw a Woman at Misnia, of health.
two drams, of the filings of Harrs-born one ounce, of Junipe-rberries three drams: put them into a viol of glafs that will contain fix quarts, put thereto four quarts of running or river-water that is pure and clear, macerate them for the space of one whole night on the athes, and in the morning boil them all in Balnea Maria until the half be confum'd, which will be done in the fpace of fix hours, then let them be drained through a bag, and then strained again, but that he with fix ounces of Sugar of Roses, and a little Treacle: let the Patient take eight ounces or fewer of that liquor, and it will provoke sweat. The Powder following is alfo very probable. Take of the leaves of Ditnmum, the Roots of Tormentii, Betony, of each half an ounce, of Bose-Armencik prepare one ounce, of Terra Sigillata three drams, of Alces and Myth, of each half a dram, of Saffron one dram, of Maflich two drams, powder them all according to Art, and give one dram thereof diftilled in Rose-water, or the water of wild Sorrel, and let the Patient walk to foon as he hath taken that Powder, then let him be laid in his bed to sweat, as I have before faid.

The Water following is greatly commended against poifon. Take the roots of Gentian and Cyp-ter of each three drams; of Cardamum Bondante, Burnet, of each one handful; of Sorrel feeds, and Devils-bit, of each two pugils; of Ivy and Juniper-berrys, of each half an ounce; of the Flowers of Baloget, Violets, and Red Rose, of each two pugils: Powder them fooner or later, then let them be made into a viol ftill, and let the diftilled liquor be vaided of, and clofe-ftopped for your ufe: let the Patient take fix ounces thereof with Sua-ger and a little Cinnamon and Saffron: then let him walk, and then sweat as is aforefaid; the Treacle and Cordial water formerly prefcribed, are very probable for this purpose. Alfo the Water following is greatly commended. Take of Sorrel fix handfuls, of Rue one handful, dry them and macerate them in Vinegar for the fpace of four and twenty hours, adding thereto four ounces of Treacle: make thereof a diftillation in Balnea Maria, and let the diftilled water be kept for your ufe: and fo foon as the Patient doth think himfelf to be infected, let him take four ounces of that liquor, then let him walk and sweat. He muft leave sweating when he beginneth to waste faint and weak, or quando, the heat that runs down his body begins to wax cold, then his body muft be wiped with warm clothes, and dried. The Patient ought not to sweat with a full ftomach, for the heat is called away from performing the office of coagulation, alfo he muft not flee when he is in his fweat, leak the malignity go inwardly with the heat and fpirits unto the principal parts: but if the Patient be much inclined to flee, he muft be kept from it with hard rubbing, and bands tied about the extreme parts of his body, and with much nofe of that of them 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 keep him from flee, diftille Caffiron in tart Vinegar, and Aqua Pherica, and let it be injected into his noftils; and let him be kept continually walking the firft day, and on thefecond, and third, even unto the fourth: that is to fay, unto the perfect expufion of the venom; and let him not flee above three or four hours on a day and a night. In the mean time let the Phyfician that fhall be prefent confider all things by his strength's for it is to be feared that great watchings will difturbe the ftrength, and make the Patient weak: you muft not let him eat within three hours after his fweating: in the mean fente, as his ftrength fhall require, let him take the root of a Preferved Citron, Conflave of Roses, Bread toasted and steeped in Wine, the meat of Preferved Myrabolane, or fome fuch like thing.

CHAP. XXIII.
Of Epiftomes to be used for the ftrengthening of the principal parts.

Wherefore they must be made

Repuoffeiles not fit to be applied to Carduiaces,

T

Here are alfo some topick Medicins to be reckoned among Antidotes, which must be ou-
wardly applied as speedily as may be, as cordial and hepatick Epiftomes for the fafety of the noble parts, and ftrengthening of the faculties, as thofe that drive the venefit air far from the bowels: they may be made of cordial things not onely hot, but alfo cold, that they may temper the heat, and more powerfully-repuoffe. They muft be applied warmly with Scarlet, or a Cold Sponge difpuffing cold water; or when the humour that runs down his body begins to wax cold, then his body muft be wiped with warm clothes, and dried. The Patient ought not to fweat with a full ftomach, for the heat is called away from performing the office of coagulation, alfo he muft not flee when he is in his fweat, leak the malignity go inwardly with the heat and fpirits unto the principal parts: but if the Patient be much inclined to flee, he muft be kept from it with hard rubbing, and bands tied about the extreme parts of his body, and with much nofe of that of them 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 keep him from flee, diftille Caffiron in tart Vinegar, and Aqua Pherica, and let it be injected into his noftils; and let him be kept continually walking the firft day, and on thefecond, and third, even unto the fourth: that is to fay, unto the perfect expufion of the venom; and let him not flee above three or four hours on a day and a night. In the mean time let the Phyfician that fhall be prefent confider all things by his strength's for it is to be feared that great watchings will difturbe the ftrength, and make the Patient weak: you muft not let him eat within three hours after his fweating: in the mean fente, as his ftrength fhall require, let him take the root of a Preferved Citron, Conflave of Roses, Bread toasted and steeped in Wine, the meat of Preferved Myrabolane, or fome fuch like thing.

CHAP. XXIV.
Wherefor Purging and Blood-letting be neceffary in the beginning of Pestilent diseases.

O fans as the heart is ftrengthened and corroborated with Cardials and Antidotes, we muft come to philofohy and purging. As concerning Blood-letting in this cafe there is a great controversy among Phyficians. Thofe that with it to be used, lay and affirm, that the
petilent Fever doth infect it in the blood, and therein also the Petilent malignity taketh its fast, and therefore it will soon infect the other humours, unless that the blood be evacuated, and the infection that remaineth in the blood be thereby taken away. Contrariwise, thefe that do not allow phlebotomy in this cafe, alledge that if it oftentimes cometh in the cafe, that the blood is void of malignity, when the other humours are infected with the viruous contumacy. Many men requiting the argument in this doubtful question, I say, that the petilence sometime doth depend on the default of the air: this default being drawn through the passages of the body, doth at length pierce unto the intestines, as we may understand by the affections which break out, one while behind the ears, sometimes in the arm-holes, and sometimes in the gums, as the blads, heart or liver are infected. And hereto also come Carbuncles, and other collections of matter, and eruptions, which are seen in all parts of the body; by reason that Nature using the strength of the expulsive facultie, doth drive forth whatsoever is noisom or hurtful. Therefore if the Physician will follow this motion of Nature, he must neither purge nor let blood, left that by a contrary motion, that is, by drawing in from without, the motion of Nature which proceeds outwardly from within, should be troubled. So we often fee in those that are purged or let blood for such Baboes as come through unlawful copulation, that the matter is thereby made contagious, and by drawing it inwardly, it speedily causeth the French Pox. Wherefore when Baboes, Carbuncles, and other petilent eruptions appear, which come through the default of the air, we ought to abstain from purging and phlebotomy; but it is sufficient to foresee, the heart inwardly and outwardly with Antidotes that are indeed with a proper virtue of reforming the position. For it is not to be doubted, but when nature is debilitated with both kinds of evacuation, and when the spirits together with the blood, are exhausted, the viruous air will fill piece, and be received into the empty body, where it exerciseth its tyranny to the utter destruction thereof.

In the year of our Lord 1566, in which year there was great mortality throughout all France, An Historie, by reason of the Petilence and petilent difeases, I earnestly, and diligently inquired of the Physicians and Chirurges of all the Cities (through which King Charles IX. paffed in his progress unto the air), to give counsel in such a case to open the vein that is between the fore-finger and the thumb, the hand waxed weaker and weaker, and at length died; but others which were not let blood nor purged, but took cordial Antidotes inwardly, and applied them outwardly, for the most part escaped and recovered their health: for that kind of Petilence took its origin in the primitive and local di-ease of the air, and not of the corruption of the humours. The like event was noted in the horse in that we spake of before; that is to say, that the Patients waxed worse and worse by purging and phlebotomy; but I do not disallow either of these remedies, if there be great fulness in the body, especially in the beginning, and if the matter have a cruel violence, whereby may be feared the breaking in unto some noble part. For we know that it is confirmed by Hippocrates, that when disease is very dangerous by ulceration, but 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 caused or inflicted upon man body by reason or occasion of the petilence, but of the diseased bodies, and diseases themselves commixed together with the petilence: therefore then endearment it is lawful to purge strongly, and to let a good quantity of blood, left that the pestilential venom should take hold of the matter that is prepar'd, and so infect it with a contagion, whereby the petilence taketh new and far greater strength; especially as Celsus admonisheth us, where he faith, that by how much the sooner those sudden inflammations do happen, by so much the sooner the venomous matter must be eded, yea, or rather rathely applied: therefore if the Veins swell, the face wax nery and red, and the arteries of the Temples beat strongly, if the Patient can very hardly breath by reason of a weight in his stomack, if his spittle be bloudy, or of the Veins fwell, the face wax fiery red, if the arteries of the Temples beat strongly, therefore it ought to be let blood without delay, for the caufes before mentioned. It seemeth be to open the Liver-vein on the left arm, whereby the heart and spleen may be better discharged of their abundant matters, yet blood-letting is not good at all times, for it is not expedient when the body beginneth to wax stiff by reason of the coming of a Fever, for then by drawing back the heat and spirits inwardly, the outward parts being deliriate of blood, wax stiff and cold; therefore blood cannot be let then without great loss of the strength, and perturbation of the humours. And it is to be noted, that when those phlegmaticc cavelies are present, there is one Indication of blood-letting in a simple petilent Fever, and another in that which hath a Babo, idest, a Boch, or a Carbuncle joined therewith. For in one or both of these, being joined with a vehement and strong burning Fever, blood must be letten by opening the Vein that is nearest unto the tumour or swelling against nature, keeping the strainers of the fingers, that this being open the blood might be drawn more directly from the part affected, for all and every action of tainted blood unto the noble parts, is to be avoided, because it is noisom and hurtful to Nature, and to the Patient. Therefore for example, anfwer the Patient be phlethick by repletion, which is called ad Vafa, idest, unto the Veins, and ad Vasa, id est, unto the strength, and therewithall he hath a tumour that is petilent in the parts belonging unto the head or neck, the blood must be let out of the Gyrallies of the left Vein, or out of one of their branches dispersel in the arm on the grieved side. But if through occupation of fat, or any other fish like caye, those Veins do not appear in the arm, there be some that give counsell in such a case to open the vein that is between the fore-finger and the thumb, the hand being put into warm water, whereby that Vein may swell and be filled with blood gathered thither by means of the heat. If the tumour be under the arm-hole, or about those places, the Liver-vein or the Median must be opened which runneth along the hand: if it be in the groins, the vein of the harn, or Suprahe-
or any other vein above the foot that appears well, but always on the griev'd side. And Phlebotomy must be performed before the third day: for this diæse is of the kind or nature of sharp distempers, because that within four and twenty hours it runs with path helping. In letting of blood your method must have consideration of the strength of the Patient. You may perceive that the Patient is ready to vomit when that his forehead warmer melts, with a small sweat suddenly arising by the agony or pain at the stomach, with an appetite to vomit, and desire to go to food, gaping, blackness of the lips, and sudden alteration of the face unto paleness: and lattly most certainly by a small and low pulse: and then you must lay your finger on the vein, and hop it until the Patient come to himself again, either by Nature, or else restored by Arts; that is to say, by giving unto him Bread dipped in Wine, or any other thing like thing: then if you have not taken blood enough, you must let it be go again, and bleed so much as the greatest of the diæse, or the strength of the Patient will permit or require: which being done, some of the Antidotes that are prescribed before will be very profitable to be drank, which may repair the strength, and infringe the force of the malignity.

**CHAP. XXV.**

Of purging Medicines in a Pestilential distemper.

_F_ If you call to mind the proper indications, purging shall seem necessary in this case of diæse, and that must be prescribed as the present cafe and necessity requireth: rightly considering that the diæse is sudden, and doth require Medicines that may as a speed drive out of the body the hurtful humour, wherein the warm quality doth lurk and is hidden; which Medicines are divers by reason of the diversity of the kind of the humour, and the condition or temper of the Patient. For this purpose fix grains of Scarmony beaten into Powder, or else ten grains are commonly minis

Fired to the Patient with one dram of Treacle. Also Pills may be made in this form: Take of Treacle and Mithridate of each one dream, of Sulfur Vivum finely powdered, half a dram, of Digestamion four grains make Pills thereof. Or take three drams of Aloes, of Myrrh and Saffron of each dram, of white Hellebore and four grains s make Pills thereof. Or take three drams of Aloes, of Myrrh and Saffron of each dram, of white Hellebore and four grains s make Pills thereof. Or take three drams of Aloes, of Myrrh and Saffron of each dram, of white Hellebore and four grains s make Pills thereof. Or take three drams of Aloes, of Myrrh and Saffron of each dram, of white Hellebore and four grains s make Pills thereof. Or take three drams of Aloes, of Myrrh and Saffron of each

An officinal fudorific, and also purging Medicine.

_T_ They do take a bundle of Mugwort, and of the alter thereof after it is burnt, they make a lee with four parts of Water, then they do let it over the fire, and boil it in a vessel of Earth well leaded, until the liquor be confirmed, the earthy dregs falling into the bottom like unto salt, whereof they make Trochicles of the weight of a crown of gold: then they divide one or two of these Trochicles, according to the strength of the Patient, in good Muskadene, and give it to the Patient to drink, and let him walk after that he hath drank it for the space of half an hour; then lay him in his bed, and there sweat him two or three hours, and then he will vomit, and his belly will be loosed as it he had thereupon. There be some which infuse one dram of Walwort

The virtues of Mugwort.

_Vid. Reredit. Liber 12Hist._

_A. Poison._

I have heard it most certainly reported by Guillerius Heraldicus Physician of Monpähl, that eight ounces of the pickle of Anchovies drunk at one draught, is a most certain and approved remedy against the Pestilence, as he and many other have often found by experience. For the Plague is no other thing but a very great putrefaction; for the correction and amendment whereof, there is nothing more apt or fit than this pickle or substance of Anchovies, being melted by the Sun and force of the heat that is ftrewed thereon. There be some which infuse one dram of Walwort feed in white Wine, and affirm that it drinks, will perform the like effect as Antimony. Others dissolves little weight of the feed of Rau being bruised in Muskadine, with the quantity of a Bean of Trocheal, and fo drink it. Others beat or bruize an handful of the leaves or tops of Broom in half a pint of white Wine, and fo give it to the Patient to drink, to caufe him to vomit, loofe his belly and make him to sweat. Truly Mugwort is most highly recommended by the ancient Physicians, being taken and appled inwardly or outwardly, against the bitings of venomous Creatures, so that it is not to be doubted but that it hath great virtue against the Pestilence.
The malady be carried into the brain, and Nature be not able to expel it, it inflames hot onely The cauze of the malignity be carried into the brain, and Nature be not able to expel it, it inflames hot onely The cauze of the malignity in the brain, and Nature be not able to expel it, it inflames hot onely The malignity be carried into the brain, and Nature be not able to expel it, it inflames hot onely The malignity be carried into the brain, and Nature be not able to expel it, it inflames hot onely
Of the Plague. Book XXII.

from the head. Frontals may also be made on this manner. Take of the Oil of Roses and Water-lilies, of each two ounces of the Oil of Poppy half an ounce; of Opium one dram, of Rofe Vinegar one ounce, of Camphire half a dram; mix them together. Also Nodules may be made of the flowers of Poppies, Henbane, Water-lilies, Mandrags, beaten in Rofe water with a little Vinegar, and a little Campbire, and let them be often applied to the nostrils: for this purpose Cataplasmis also may be laid to the forehead. As, Take of the maculage of the seeds of Sflianum, i.e. Fleas-wort, and Quince seeds extricated in Rofe water, three ounces; of Early-mead four ounces, of the Powder of Rose-leaves, the flowers of Water-lilies and Violets; of each half an ounce; of the seeds of Poppies and Purpilis, of each two ounces; of the water and vinegar of Roses, of each three ounces: make thereof a Cata-

pilam, and try it warm to the head. Or, take of the juice of Lettuce, of Water-lilies, Henbane, Pur-

pilis, of each half a pint; of Rose leaves in powder, the leaves of Poppy, of each half an ounce; Oil of Roses three ounces, of Vinegar two ounces, of Early-meal as much as shall suffice: make thereof a Catap-

tax in the form of a liquid Pulvis. When the head of the heat is mitigated by thefe Medicinum; and the inflammation of the brain allayed, we must come unto digging, and refolving fomenta-

tions, which may diffuse the matter of the vapours. But commonly in pain of the head, they do use to bind the forehead and hinder part of the head very strongly, which in this cafe must be avoided.

G H A P. XXVII.
Of the head of the Kidiens.

The heat of the Kidiens is tempered by anointing with aquaeat. refrigerans Galeni newly made

addition thereof the Whites of Eggs well beaten, that to the Ointment may keep moist the longer: let this liniment be renewed every quarter of an hour, wiping away the reliques of the old. Or, R ung. refar. F b. jiccum plant. & r. & aq. rof. & aq. rof. an. 3 j. aceti 3 j. iij. mi ce fubf. When you have anointed the part, lay thercorn the leaves of Water-lilies, or the like old herbs, and then presently thereupon a double linen cloth dipped in Oxycrate and wrung out again, and often changed, the Patient shall not lie upon a Feather-bed, but on a quilt withfed with the chaff of Oats, or upon a Mat with many doubled cloths or Chamlet spread therein. To the region of the heart may in the mean time be applied a refrigerating and alexitcrial Medicinum, as this which followeth. R Ung. refar. F b. jiccum plant. & r. & aq. rof. & aq. rof. an. 3 j. jervis 5 j. croce 3 j. Of these melted and mixed together, make a feft Ointment, which spread upon a feft cloth may be applied to the region of the heart. Or, R Thane go a q. F b. fucc. acid. & aq. croce 3 j. & aloes 3 j. cori 3 j. & cor rum & cinna nia 3 j. & cocc. rub. & fern. rof. rub. an. 3 j. & camph. & cret. & camph and let them be all mixed together, and make an Ointment or Liniment.

At the head of the Patient as he lies in his bed, shall be let an Ewer or Cock with a Basin under it to receive the Water, which by the dropping may remelbye rain. Let the soles of the feet and palms of the hands be gently scratched, and the Patient lie far from noife, and so at length he may fall to some rest.

G H A P. XXVIII.
Of the Eruptions and Spots, which commonly are called by the name of Purples and Toxens.

The differen-
tenes of the spots in the Plague. Their several names, and reasons of them. When signs of death.

The skin in pestilent Fevers, is marked and variegated in divers places with spots, like unto the bitings of Fleas or Gnats, which are not always pure, but many times arise in form like unto a grain of Millet. The more spots appear, the better it is for the Patient: these are of divers colours, according to the virulence of the malignity, and condition of the matter, as red, yellow, brown, violet or purple, blue and black. And because for the most part they are of a purple colour, therefore we call them Purples. Others call them LentkuU^ becaufc they have the colour and form of Lentils. They are alfo called Purples, becaufc they do sud-

denly fteer or fall upon divers regions of the body, like unto winged Butterflies, sometimes the face, sometimes the arms and legs, and fomentimes all the whole body; oftemtimes they do not only af-

fect the upper part of the skin, but go deeper into the fefh, fpecially when they proceed of matter that offends in quantity or quality. They are of a purple or black colour, with often fwooning, and fink in fuddcdly without any manifet caufe, they forefaw death.

The caufe of the breaking out of these Spots, is the working or heat of the blood, by reafon of the cruelty of the venom received or admifed. They often arife at the beginning of a pestilent Fever: many times before the breaking out of the Sore, or Botch, or Carbuncle, and many times after; but then they fow to great a corruption of the humours in the body, that neither the fets nor carbun-

cles will receive them; and therefore they appear as fometime of death. Sometimes they break out alone, without a botch or carbuncle, which if they be red, and have no evil fymptoms joined with them, they are not wont to prove deadly: they appear for the most part on the third or fourth day of the difafe. and feventimes later, and fometimes they appear not before the Patient be dead; becaufe the working or heat of the humours being the off-fering of paterfidence, is not as yet retarded and ceafed.

Wherefore then principally the putrid heat, which is greatest a little before the death of the Pa-

tient, drives the excremential humours, which are the matter of the spots, unto the skin; or else becaufe Nature in the lab conflit hath contended with some greater endeavour than before (which 15
book xxii.

of the plague.

is common to all things that are ready to die) a little before the instant time of death, the pestilential humour being peremptory driven unto the skin: and nature thus weakened by these extreme conflicts falleth down prostrate, and is quite overthrown by the remnant of the matter.

chap. xxix.

of the cure of eruptions and spots.

ye must first of all take heed let you drive in the humour that is coming outwards with repetitives: therefore beware of cold, all purging things, phlebotomy, and draufis or found sleeping. for all such things do draw the humours inwards, and work contrary to nature. but it is better to provoke the motion of nature outwards, by applying of drawing medicines outwards, and minimizing medicines to provoke sweats inwardly: for otherwise by repelling and stopping the matter of the eruptions, there will be great danger, left the heart be oppressed with the abundance of the venom flowing back; or else by turning into the belly it suffers a mortal bloody flux: which dicascommodities that they may be avoided. I have thought good to set down this remedy, wholly efficaciously I have known and proved many times, and on divers persons, when of reason of the weakness of the expulsive faculty, and the thickness of the skin, the matter of the spots cannot break forth; but is conformed to lur under the skin, lifting it up into bunches and knotts. I was brought unto the invention of this remedy, by comparison of the like: for when I under

stood, that the essence of the French Pox (and likewise of the Petibocce) consisted in a certain hidden viscidum and venemous quality, I soon defended unto that opinion, that even as by the amounting of the body with the unguent compounded of quicksilver, the grofs and clammy humours which are fixed in the bones, and unmovable, are delivered, relaxed and drawn from the center into the superficial parts of the body, by strengthening and stiring up the expulsive faculty, and evacuated by sweating and fluxing at the mouth: so it should come to pass in pestilent fevers, that Nature being strengthened with the same kind of motion, might unack her self of some portion of the venemous and pestilential humour, by opening the pores and pallates and letting it break forth into spots and pustules, and into all kind of eruptions. Therefore I have assisted many in whom Nature seemed to make pallate for the venemous matter very slowly, first boiling their belly with a Glutet, and then giving them Treacle water to drink, which might defend the vital faculty of the heart, but yet not diffused the stomach, as though they had the French Pox, and I obtained my expected purpose: in stead of the Treacle water you may use the decoction of Ginzamum, which doth heat, dry, provoke sweat, and repel putrefaction, adding thereto also Vinegar, that by the subility thereof, it may pierce the flesh, and within the putrefaction. this is the description of the unguent. take of Hops-grace one pound, boil it a little with the leaves of Sage, Thyme, Rosmarin, of each half an ounce, and in the straining extingush five ounces of quicksilver, which hath been put into Vinegar with the forementioned herbs; of Sal Nitrum three drams, the Yolks of three Eggs boiled until they be hard, of Trench and Methridiate, of each half an ounce, of Venice Turpentine, oil of Scorpyonts and Bays, of each three ounces, incorporate them all together in a mortar, and make thereof an unguent, whereby anoint the Patients arm-holes and groins, avoiding the parts that belong to the head, breast, and back-bone: then let him be laid in bed, covered warm, and let him sweat there for the space of two hours, and then let his body be washed and cleansed; and if it may be, let him be laid in another bed, and there let him be refreshed with the decoction of a Capon, Rer-eggs, and with such like meats of good juice that are liable to be loosened and digested; let him be anointed the second and third day, until the spots appear before. if the Patient thus at the mouth, it must not be stopped: when the spots and pustules do all appear, and the Patient hath made an end of sweating, it shall be convenient to use Dissecting Medicines, for by these the remnant of the matter of the spots, which happily could not all break forth, may easily be purged and avoided by urine.

many noble gentlemen refuse to be anointed with this unguent, let them be incloled in the body of a Mule or Horse that is newly killed, and when that is cold let him be laid in another, until the pustules and eruptions do break forth, being drawn by that natural heat. for fo Matthiolus writeth, in De Peste, lib. 6, that Plavienius the fone of Pope Alexander VI., was delivered from the danger of most deadly poison which he had drunk.

chap. xxx.

of a pestilential Bubo, or Plague-sore.

a pestilential Bubo is a tumor at the beginning long and movable, and in the state and full per

A kernels, by which the brain exoonorates it fell of the venemous and pestiferous matter intro

to 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 the matter is grofs and clammy, so that it cannot be drawn out by spots and pustules breaking out on the skin; and so the matter of a Carbuncle is sharp, and so fervent, that it maketh an Ecchm on the place where it is is

sod. in the beginning, while the Bubo is breeding, it maketh the Patient to feel, as if it were, a cord or rope stretched out in the place, or a hardened nerve with prickling pain: and shortly after the matter is raised up, as it were into a knoll, and by little and little it groweth bigger, and is inflamed, the accidents before mentioned accompanying it. if the tumor be red, and intercalated by little
and little, it is a good and fatal sign: but if it be vivid or black, and come very slowly unto his parts bigbes, it is a deadly sign. It is also a deadly sign, if it increase suddenly, and come to its just
increases, as pain, swelling, and burning. Swells or Sores appear sometemes of a natural colour, like unto the skin, and in all other things, like unto an ordinatory tumor, which notwithstanding will suddenly bring the Patient to destruction, like those that are black; therefore it is not good to trust too much to those kinds of tumors.

CHAP. XXXI.

Of the Cure of Baboes, or Plague-Sores.

S our as the Babo appears, apply a Cupping-glas with a great flame unto it, unless it be that kind of Babo which will suddenly have all the accidents of bursting and swelling in the powers thereof, and foed forth portion of the matter which the Cupping-glas hath drawn therof: in a dead or mofildifying fermentations may be made, and other drawing and suppurgating Medicins, which shall be described hereafter.

A Veficatory applied in a meet place below the Babo proftits them very much, but not above; as for example: If the Babo be in the throat, the Veficatory must be applied unto the thyroid-blade on the same side: if it be in the arm-holes, it must be applied in the midst of the arm, or of the shoulder-bone on the inner side: if it be in the groin, in the midst of the thigh on the inner side, that by the double puzzage that is open for to draw out the matter, the part wherein the venom is gathered together, may be the better exonerated.

A compound Veficatory,

Why Veficatories are better than Caufities in a putrid Babo.

Strong drawing Caufapins.

And to conclude, others have become fo mad, that they have thruft an hot iron into it with their pair of Smiths Pincers: others have digged the flefh round about it, and fo gotten it wholly out.

There are many that for fear of death, have with their own hands pulled away the Babo with a pair of Smiths Pincers: others have digged the 2th round about it, and fo gotten it wholly out. And to conclude, others have become to mad, that they have thrust an hot iron into it with their own hand, that the venom might have a puzzage forth: at all times I do not allow one for such abscesses do not come from without, as the bitines of virulent Bealls, but from within, and more

Against fish as our away Plague-forts.
over because pain is by these means increased, and the humour is made more malignant and dire.

Therefore I think it sufficient to use Medicines that relax, open the pores of the skin, and digest portion of the venom by transpiration, as are those that follow. Take the roots of Marsh-mallows a digestive and Lillies of each of the excess ounces, or Camomil and Melilot-flowers of each half a handful, of Linse-fermentation, feeds half an ounce, of the leaves of Rue, half an handful; boil them and strain them, dip sponges in the dairying, and thence let the venom be fermented a long time. Or take of the juice of Ananas hot bread and sprinkle it with Treacle-water, or with Aqua Vitea, and Cows-milk or Goats-milk, Camelphal, and the yolks of three Eggs; put them all on flax or flax, and apply them warm unto the place. Or, Take of Diaphylon and Estillation of each two ounces, Oli of Lilies one ounce and a half; let them be melted and mixed together, and let it be applied as is above said. When you see, feel, and know according to reason, that the Boce is come to perfect suppuration, it must be opened with an incision, slice, or as usual or potential Cautery, but it is best to be done with a potential Cautery, unless it be

Why is left to open a superficial orifice, that the matter may come forth at once; yet if it be done before the tumor be at its perfect maturity, Pain, a Fever, and all accidents are turned up and out, whereas a malignant ulcer that often degenerates into a Gangrene. For the most part about the tenth or eleventh day the work of suppuration seems perfect and finished; 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 comes forth, you must use a suppuration-mollifying and mollifying Medicines, to maturate the remains thereof in the meantime while cleansing the ulcer by putting medicinal substances into it, as we shall declare in the case of Carbuncles. But if it do not seem to find an orifice, or hinder it itself again, it must be removed and procured to come forth again, by applying an incision to the matter, and with sharp Medicines, yea, and with Cautery, both actual and potential.

When the Carbuncle is applied it shall be very good to apply a Viscatory a little below it, that there might be some passage open for the venom while the Eczar is in falling away. For so they are troubled with the French Pox, so long as they have open and flowing ulcers, so long are they void of any pain that is worth the speaking of, which ulcers being closed and cicatrized, they do perfectly complain of great pain. If you suspect that the Boce is more malignant by reason that it is of a green or black and inflamed colour, as are those that come of a melancholy humour by addition, turned into a gross and rebellious melancholy humour, so that by the more copious influx thereof into the part, there is danger of a gangrene and mortification, then the places about the abscess must be armed with repercussives, but not the abscess itself; and this may be the form of the repercussives: Take of the juice of Houtwits, Purslain, Sorrel, Night-shade, or be applied, each two ounces; of Vinegar one ounce, the Whites of three Eggs, Oli of Oros and Water-Lilies of each two ounces and an half, stir them together, and apply it about the Boce, and renew it often: or boil a Pomegranate in Vinegar, beat it with Vincetum Rosatum, or Populous newly made, and apply it as is afoed. If these things do not stop the influx of other humours, the abscess itself and the places about it must be scarified round about, if the part will permit it, so that the part exonerated of portion of the venom 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 great vessels, for fear of an ignorable flux of blood, which in this case is very hard to be laid or refisted, both because the part it stood is greatly inflamed, and the humour very fierce, for the expulsion whereof, Nature careful for the preservation of the part and all the body besides, with a Sponge according to Art. Also after the abscess scarification, we may put Hens, or Turkeys that lay Eggs (which therefore have their fundaments more wide and open, and for the same purposes put a little falt into their fundaments) upon the sharp top of the Boce, that by thatting their falls at several times they may draw and suck the venom into their bodies, far more thoroughly and better than Cupping-glusses, because they are ended with a natural property against poison, for they eat and convert Toads, Eels, and fish like virent Beasts: when one Hen is killed with the poison that the hath drawn in to her body, you must apply another, and then the third, fourth, fifth, and sixth, within the space of half an hour. There be forms that will never cut them, or else use whips cut funder in the midst, and applied warm to the places that by the heat of the Creature the wound is yet fcarce dead, portion of the venom may be disipated and exhaled. But if nevertheless there be any fear of a Gangrene at hand, you must cut the flesh with a deeper scarification, not only avoiding the great vessels, but also the nerves, for fear of convulsions; and after the scarification and a fcarificating blade, you must wash it with Egyptian, Treacle and Mithridate dissolved in Sea water, Aqua Vitea and Vinegar. For such a lotion hath virtue to purify一切, expel the venoulous infection.
Of the Plague.

Book XXII

What Prognostics may be made in Pestilent Boobes and Carbuncles.

Once having the Pestilence but one Carbuncle, and none more, in diverse parts of their body, and in so many happeneth that they have the Bubo and Carbuncle before they have the Fever; which giveth better hope of Health, if there be no other malign accident therewith: for it is a sign that Nature is the Victor, and hath gotten the upper-hand, which excluded the pestilent venom before it could come to affait the heart. But if a Carbuncle and Bubo come after the Fever, it is mortal: for it is a token that the heart is afflicted, covered and incensed with the bane of the venom, which so pretently cometh to the heart or lung, and corruption of the humour, fear as it were from the center unto the superficies of the body. It is a good sign, when the

What a Carbuncle is.

A Pestilent Carbuncle is a small tumor, or rather a malignant pimple, hot, and raging, consisting of blood vitiated by the corruption of the proper filth. It often cometh to pass through the occasion of this unclean malignity, that the Carbuncle cannot be governed or contained within the dominions of Nature. In the beginning it is scarce so big as a seed or grain of Miller or Peas, sticking firmly unto the part and immovable, so that the skin cannot be pulled from the flesh; but shortly after it increaseth like to a Bubo, unto a round and sharp head, with great heat, piercing pain, as if it were with needles, burning and intolerable, especially a little before night, and while the meat is in congealing, more than when it is perfectly congealed. In the midst thereof appeareth a bladder puffed up and filled with flemious matter. If you cut this bladder, you shall find the same feature, that it seemeth that it took the name of Carbuncles, but the flesh that is about the place is like a Rain-bow, of divers colours, as red, dark green, purple, livid and black; but yet always with a shining blackness, like unto Stone-Pitch, or like unto the true precious stone which they call a Carbuncle, whence some also say it took the name. Some call it a Nail, because theincrement thereof as a Nail driven into the flesh. There are many Carbuncles which take their beginning with a cutty ulcer without a pimple, like to the buming of an hot Iron; and there are of a black colour, they increaseth quickly, according to the constitution of the matter whereof they are made. All pestilent Carbuncles have a Fever joined with them, and the grievous part feemeth to be so heavy, as if it were covered or pressed with lead tied hard with a ligature: There cometh mortal swelling, ulcerous, toasting, tuming, idle talking, raging, gagging and mortifications; not only to the part, but also to the whole body; by reason (as I think) of the opposition of the fecondary of the part, and the inflamation of the matter thereunto, as we see also in many that have a pestilent Bubo: for a Bubo and Carbuncle are tumors of a near affinity, so that the one doth scarce come without the other, confiding of one kind of matter, unless that which maketh the Bubo be more gross and clammy, and that which causeth the Carbuncle more sharp, burning and raging, by reason of its greater fielthiness, so that it maketh an

Against carunculae.

The practice of Egyptian, of the plague.

Liniments

bitten the falling away of the Effchar. Henceforth from the impression of the hot Iron, the Effchar must be cut away even unto the quick flesh, that the venomous vapours and the humour may have a free passage forth: for it is not to be looked for, that they will come forth of themselves. With these mancharges that are wont to hasten the falling away of the Effchar, take of the mucilage of Marigold. As, Take of the meze of Plantain, Water-Betony, and Smalack, of each three ounces, honey of Roses four ounces, Venice Turpentine five ounces, Early three hours, and Aloe two ounces, Oil of Roses four ounces, Tincture three ounces. As, Take of Venice Turpentine two ounces, Syrup of dried Roses and Wormwood, of each an ounce, of the powder of Aloes, Myrrh, Myrrh three ounces, of each one ounce, incorporate them together. The unguent that followeth is very meet for purtrched and corroding

Ulcers.

What a pestilent Carbuncle is. When so called.

The signs of a Carbuncle.

Symptoms of Carbuncles.

How the matter of a Bubo and Carbuncle differ.

Carbuncle.

Poison, and strengthen the part. Presently after the impression of the hot Iron, the Effchar must be cut away even unto the quick flesh, that the venomous vapours and the humour may have a free passage forth: for it is not to be looked for, that they will come forth of themselves. With these mancharges that are wont to hasten the falling away of the Effchar, take of the mucilage of Marigold. As, Take of the meze of Plantain, Water-Betony, and Smalack, of each three ounces, honey of Roses four ounces, Venice Turpentine five ounces, Early three hours, and Aloe two ounces, Oil of Roses four ounces, Tincture three ounces. As, Take of Venice Turpentine two ounces, Syrup of dried Roses and Wormwood, of each an ounce, of the powder of Aloes, Myrrh, Myrrh three ounces, of each one ounce, incorporate them together. The unguent that followeth is very meet for purtrched and corroding

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the Patients mind is not troubled, from the beginning until the seventh day; but when the Bozo or Carbuncle feareth down again shortly after that it is taken, it is a mortal sign, especially if at accidents follow it. If after they are brought to suppuration they prettily wax dry without any rea
tion thereof; it is an ill sign: Thoe Carbuncles that are generated of blood have a greater Eftch than thoie that are made of choler, because that blood is of a gross conformity, and therefore occiput a greater room in the flesh; contrariwise, a cholerick humour is more small in quantity and thick, and it taketh little room in the upper part of the flesh, as you may see in an Eftch. And I have been Carbuncles whole Eftch was as broad and as large as half the body: also I have seen others, which going up by the shoulders to the throat, did so far away the flesh that was under them, that the rough matter or weal-pipe might be seen bare, when the Eftch was taken away. I had once a Car
buncle which was in the middle of my belly, to that when the Eftch was taken away, I might very plainly see the Peritomiun or Riam; and the cicatricie that remaineth is as broad as my hand, but they do not spread themselves so far, without the great danger or death of the Patient. There are some Carbuncles which beginning at the parts under the chin, difperfe themselves by little and little unto the battle-bones, and so draweth the Patient. So in many the Bozos in the Groin arise above a great part of the muscles of the Eftch. Truly of those carbuncles that are large and great in quantity, and to terrible to be seen, there is great danger of death to the Patient, or at least to the graved part, for after the consolidation the part remaineth as if it were leprous, which abateth the action of the part, as I have seen in many. Often-times alfo the corruption of the matter is so great, that the flesh leaveth the bones bare: but Carbuncles often leave the joints and ligaments quite re
touched, through the occasion of the moiiture that is foaked and fink into them; for they often cat
out patent and violent fanguineous matter, whereby eating, and creeping ulcers are bred, many blisters and pustules arising up in the parts round about it; which shortly breaking into one, make a great ulcer. They come very delftand and slowly unto suppuration, or at least to cut out bad matter, especially if they have their original of choler; because the matter is thinner burned with their suppuration. Therefore then, it can they be brought to suppuration by no Medicins, if the tumor remaine black, if when they are opened, nothing at all, or elle a very little thick moist matter doth come forth, they are altogether mortal, and there is scarce one of a thousand who hath thes accidents that recovereth health. Difperfed small blisters, coming of vapours stirr'd up by the matter that is under the skin, and are there ftd and kept from passage forth, do not nec
essarily fore-tiew death in Carbuncles. But if the part be feared or pulled up, it be of a green or black colour, and if it feel neither prickling nor burning, it is a sign of a mortal gangrene. Bozos or Carbuncles Eftch or never come without a fever: but the fever is more vehement when they are in the eminentes or nerv
ous parts, than when they are in the filthy parts; yet it is, and all symptoms are left and more tolerable in a man that is feare nog and of a good temperature: Carbuncles not only affett the out
ward, but also the inward parts, and oftentimes both together. If the heart be vexed in feake foot with a Carbuncle that nothing thereof appeareth forth; or the superficial parts, all hope of life is past, and thefoe suddenly die, eating, drinking, or walking, and not thinking any thing of death. If a Car
buncle be in the Midriff or Lungs, they are soon fuffocated: if it be in the Brain, the Patient be
comes feare and faint, and doth die: if it be in the parts appointed for the passage of the urine, they die of the suppuration of their water, as it happened in the Queen-mothers waiting maid, at the Castle of Roffiun, of whom I spake before: it be in the Stomach, it interfets the accidents that are likewise in this History following.

While I was a Surgeon in the Hospital of Paris, a young and strong Monk of the order of S. Vitus, being overseas of the Woman that kept the sick people of that place, fell into a continual Fever very fearely, with his Tongue black, dry, rough, (by reason of the putridated and corrupted humours, and the vapours rising from the whole body to that place,) and hanging out like unto a Hounds, with un
quenchable thirst, often fwooning and defire to vomit: he had convulsions over all his body, through the vehement and malignity of the difcase, and so he died the third day. Wherefore thote that kept the fide people in the Hospital, thought that he was poifoned, for the certain knowledge whereof the Governors of the Hospital commanded his body to be opened. I therefore calling to me a Phyfician and Surgeon, we found in the bottom of his stomach, a print or impreflion, as it had been with an hot iron or potential Cautery, with an Eftch or crust as broad as one nail, all the rest of his body was greatly contorted and thronged up together, and as it were horty which we confidering, and especialy the Eftch which was deep in the fubftance of the stomach, we all faid with one voice, that he was poifoned with Sublimate or Arfenick. But behold, while I was fawing up his belly, I perceived many black spots difperfed diversely throughout the skin: then I asked my company what they thought of those spots? truly (said I) if Eftch unto that they are like unto the Purple spots or marks that are in the Peltence. The Phyfician and the Surgeon denied it, and faid that they were the blithes of Fies. But I perfwaded them to confider the number of them over all the whole body, and also of their great depth and defcription into the flesh for when we had thrust Needles deep into the flesh in the midst of them, and fo cut away the flesh about the needle, we found the fkin about the needle to be black: moreover his nails, ears, and eyes were leare, and all the conftitution of his body was contrary, and far unlike to the bodies of thoes that died of other Carbuncles. Alfo it was credibly reported unto us by thoe that kept him, that his Face was altered a little before he died, that his familiar friends could hardly know him. We perfwaded by thoes proofs, revered our former opinion and fentence, and made a Certificate to be lent unto the Governors and Masters of the Hospital, letting our hands and feals unto it, to certifie them that he died of a pestilent Carbuncle.
CHAP. XXXIV.

Of the Cure of a Pesteulent Carbuncle.

By the five-named signs of a pestileulent Carbuncle, and especially by the bitterness of the pain, malignity of the venemous matter, and by the burning Fever that is therewithal annexed, I think it manifest, that very hot, emplastic, and drawing Medicins should not be applied to this kind of tumor, because they prohibit or hinder the exhalation, or wafting forth of the venemous malignity, because that by stopping the pores of the skin, they increafe and cause a greater heat in the part than there was before. Therefore it is better to use resolving Medicins which may fiswanage heat, and resolve the pores of the skin. Therefore first the place must be fomented with Water and Oil mixed together, wherein a little Treacle hath been dissolved, leaving therefore tinegotes wet therein: you may also use the decoction of Mallowes, the Roots of Lillies, Linc-feeds, Figs, with Oil of Hipericum, to make the skin thin, and to draw forth the matter; and the day following you must apply the Cataplasm following.

Take the leaves of Sorrel and Horbane, roast them under the hot alhes, afterwards beat them with four yolks of Eggs, two drams of Trecate, Oil of Lillies, three ounces, Barly-meal as much as six times: make thereof a Cataplasm in the form of a liquid Pulpie: this fiswanage heat and further help fuppuration. Or, Take the roots of Marsh-mallows and Lillies, of each four ounces, Lin-feeds half an ounce, boil them, beat them, and then strain them through a Serfe, adding thereto of fresh Butrer one ounce and half, Methfrate one dram, of Barly-meal as much as six times: make thereof a Cataplasm according to Art. These Cataplasm that follow, are most effectual to draw the matter forth, and to make a perfect fuppuration, espeffially when the flux of the matter is not fo great, but that the part may bear it. Take the Roots of white Lillies, Onions, Leavers, of each half an ounce, Mutrid-feeds, Pigfons dunp, Soppe, of each one dram; fix Snails in their shells, of fine Sugar, Trecate and Methfrate, of each half a dram: beat them altogether and incorporate them with the yolks of Eggs: make thereof a Cataplasm, and apply it warm. Or, Take the yolks of six Eggs, of Salt powdered one ounce, of Oil of Lillies and Trecate, of each half a dram; Barly-meal as much as will suffice; make thereof a Cataplasm. Take of ordinary Diaphylen four ounces, of Ungnutum Basilicon two ounces Oil of Violets half an ounce: make thereof a Medicin. Many ancient Profefibrs greatly commend Scabious ground, or brayed between two ftones, and mixed with old Hogs-greafe, the yolks of Eggs, and a little Salt, for it will caufe fuppuration in Carbuncles, also an Egg mixed with Barly-meal, and Oil of Violets doth mitigat pain, and fuppurate. A Raddilh-root cut in slices, and to the slices laid one after one unto a carbuncle or pestileuent tumor, doth mighty draw out the paffage. The juice of Colts-foot doth extinguifh the heat of Carbuncles: the Herb called Devils-leaf being bruifed, worketh the like effect. I have often ufed the Medicin following to the heat of Carbuncles with very good successes: it doth alfo affwage pain and caufe fuppuration. Take of the Soot teraped from a Chimney four ounces, of common Salt two ounces, beat them into small Powder, adding thereto the yolks of two Eggs, and the them well together, until it come to have the conftipation of the pores of the skin, induced by the continual application of Medicins. To remove the itching and inflammation happening in Pestilent Ulcers, and how to cicatrize them.

The falling off the Echarr Notebook
A tea-wood in digestion.

Why the adjacent parts are rounded with itching.
A fomentation for this itch.

Why the ulcers are hard to be cicatrized.
and union of the lips of the ulcer : but in the interim, the lips of the ulcer become callous, which unless they be helped by cutting, or eating Medicines, the ulcer cannot be healed : so that by their death motion they deliver one of a sufficient quantity of the dewy glew, to heal up the ulcer. Now the ulcer being plained and brought equal to the other foth, we make the Epilepticks, that is such things as have a faculty to cicatize Ulcers by condensing and hardening the surface of the foth : Of thofe there are two kinds : for some without much binding, and dry, fuch are Penicranticks, Oal-bleed, Turp., Litt. burnt Bones, by the Selling of Baits, Cocks, Cypre-fruit, Munting, Anti-mon, Bole-Armnecile, the burnt and washed fhefl of Oyls, Lime nine times walked, and many Metalline things. They are next to be had by which proud foth is confirmed : but fuch must be firmly used : Of this kind is washed Vitriol, burnt alum, which excelleth other Epilepticks, by reason of the excellent drying and astringent faculty condensing the foth, which by being mollified by an excrementitious humour, grows thick. For that the fear which is made, is commonly unblifh in this kind of Ulcers, as red, livid, black, fowleris, rough by reason of the great adulation implanted in the part, as by a burning coal : therefore I have thought good here to let down some means by which this deforners may be corrected or amended. If the fear be too big, or high, it shall be plained by making convenient ligation 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 it may be more gentle, and lose the astringency) and incorporated with Oil of Roffe. Some take two pound of Tartrat or Aspel, burn it, and then powder it, put it in a cloth, and let it hang in a moist Vault or Cellar, and for a Veffel under it, to receive the dropping of Liquor, which is good to be rubbed for a good space upon the fear. The fame faculty is thought to be in that moisture of eggs, which fweat through the fhefl, whilst they are roated at the coals, as iflo magnatum citrum

Ointments to be prepar'd into ointments, and pinnatam, de copulis, etc. newly made. The three following compositions are much approved. 

Be Avernius Tinct. must be laid in water and boil'd, and congeal from citri, & alum. umf. an. 3. j. j. 5 j. fis. 

Her>e upon is any means to be used, and make an Ointment: it attenuates the skin, and cleanseth fots. Re

Ox e hyosokism. cucurbit. j.

Emplaji. decemjia

and treat them of the ventricle, deseds the strength, breaks the veffels of the lungs, whence proceeds a deadly (pitting

But Nature muft not be forced, unlefs of

ol. com. 5 vj. § ij. &j. &j. &j. &j. 5 yf. 5 f. 

But Nature must not be forced, unlefs of its own accord it undertake this motion, for forced and violent vomiting, diftends the nervous fibres

To heall the bafel, and by what means we may, to be folked, or amended. If the fear be too big, or high it (hall

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But Nature muft not be forced, unlefs of
Of the Plague.

Book XXII.

CHAP. XXXVII.

Of Spitting, Salivation, Belching, Hicquering, and making of Water.

The effects of Spitting in Febrile diseases.

The force of Salivation.

The force of Sneezing.

The commodities of Belching.

The whole body pitied by urin.

When we ought to abstain from Diuretics.

How to provoke the Courses.

How diuretic things provoke the Courses.

The effects of Spitting in Febrile diseases.

The force of Salivation.

The force of Sneezing.

The commodities of Belching.

The whole body pitied by urin.

When we ought to abstain from Diuretics.

How to provoke the Courses.

How diuretic things provoke the Courses.

That long evacuations may be made by Spitting and Salivation, you may learn by the example of such as have a Pleurisy; for the matter of the Pleurisy being turned into pus, the putrid matter, hack'd up by the rare and spongy substance of the lungs, and thence drawn into the phlegma aerius, is hastily cast out by the mouth. There is none ignorant how much such as have the Lues Venerum are helped by Salivation and Spitting. But those shall be procured by a Majicatory of the roots of Iron, Pellitory officinale, Mullick, and the like; the macillage of Line-feed hold in the mouth will work the same effect. That such as have a mottl brain may expel their superfluous humours by freiowing and blowing their noses; the brain, by the strength of the expulsive faculty, being fill'd up to the exclusion of that which is harmful, may be known by the example of old people and children which are daily purged by their noses; the brain is fill'd up to both kinds of excretion from cædes either internal or external: from the internal, as by a phlegmatik and vaporous matter, which contained in the brain, offends it: externally, as by receiving the beams of the Sun in the noftils, or by tickling them with a feather, or blowing into them the powder of Hellbore, Expectorum, Pysburnum, Mustard-seeds, and the like Sternumtories. For then the brain is straitened by its own expulsive faculty, to the excretion of that which is tedious unto it. Sneezing break'd forth with noise, for that the matter perfects through the air, to wit, by the straining passages of the Os cribrosum, which is fixt at the roots of the noftils. It is not fit to cause sneezing in a body very plethoric, unless you have first premis'd general Medicins, lest the humours should be more powerfully drawn into the brain, and so cause an Appoplexy, Ferrigo, or the like Symptoms.

By Belching the humours contained in the ventricle, being the off-springs of crudity, or flatulent matters, are expelled: theft by their taste and smell, pleasing, stinking, sweet, bitter or tart, shew the condition and kind of crudity of the humours from whence they are raised: now vomiting freeth the stomack of crudities, but the distemper must be corrected by contraries, as altering things to be present to a putrid and venemous vapour, is helped by Treacle and Antidotes; that which is occasioned by acid and acrid things, is cured by the use of grofs, fatty, and cold things. Now the whole body is oft-times purged by urin, and by this way the feventh matter is chiefly and properly accustomed to be evacuated: nor a few being troubled with the Lues Venerum, when as they could not be brought to salivation by urin, have been cured by the large evacuation of urin caus'd by Diuretick Medicins. Diuretics wherewithall you may move urin, are formerly decrib'd in treating of the Stone. But we must abstain from more acrd Diuretics, especially where inflammation is in the bladder: for otherwise the noxious humours are sent to the affected part, whereas there is danger of a deadly Gangrene. Therefore then it is better to use diversion by sweat.

CHAP. XXXVIII.

Of the Menstrual and Haemorrhoidal Purgation.

Nor only Reason, but also manifold experience induceth us to believe that Women by the benefit of their menstrual purgation, escape and are freed from great, pestilent, and absolutely deadly diseases; wherefore it must be procured by remedies, both inwardly taken, and outwardly applied: these may be taken inwardly with good success, Coffee Lagos, Cinnamon, the Bark of the Root of a Mulberrv, Saffron, Agricke, Nutmeg, Sawin, Digitalium, and divers others. But if the afoe require more vehement Medicins, the roots of Strychna, Antimony, Cantharides (taken in small quantity) move the Courses moft powerfully; frictions and ligatures made upon the thighs and legs conduceth hereto, as also Cupping in the inner and middle part of the thighs, the opening of the Vein Sapheora, Leeches applied to the orifice of the neck of the Womb, Pelfarics, Nodulums, Clysters, Bath's, Ecornzations made of odious things, which by the fragrancy of their odor, or rather by their heat may attenuate and cut grofs humours, open the obstructed orifices of the Veins; such are the Roots of Marsh-mallows, Orris, Parly, Fer-net, Kieschel, the Leaves and Flowers of St John Wort, Alspargus, Rocket, Balm, Chervile, Mugwort, Mint, Fever-gale, Sawin, Rosemary, Rose, Tyme, Sage, Bay-berries, Broom, Ginger, Cloves, Pepper, Nutmegs, and the like; the vapour of the boiling water, to wit, the Woman, sitting upon a perforated seat, receive by a funnel into the neck of her Womb, covering her left warm on all sides, that so nothing may otherwise break forth. Of the same things may be made baths, as well general, as particular. Also Pelfarics are good made after this manner: A Theorin, Malabridum, 2 lbs, color.
may return the venenate malignity of the matter, Nature may afterwards more freely free it itself from the noxious humours. In such Cleyveins and guts from obstruction and stuffing is so that by opening, and as it were unlocking of the draw by continuation or succession, from the whole body, but also because they free the Melancholy and a dram of Wormwood water, while doth it succeed to your desire, then must it be helped forward by Art, as by taking a potion of A Potifnum. Pestilent disease, that Nature endeavours to disburden itself by the lower part?, neither in the mean time doth it recover itself as the body, but in the other by Melancholy, that by one and the same labour they may retend the venenate malignity of the matter.

The cause of various and preventing excrements in the Plague.

The whole matter of a pestilent disease, whence are caused Diarrheas, Lierterias, and Pestarias, you may distinguish these kinds of fluxes of the belly, by the evacuated excrements: For if they be thin and fine, that is, retain the nature of one, and that a simple humour, as of Choler, Melancholy, or Phlegm; and if they be call forth in a great quantity, without the ulceration or excoriation of the guts, vehement or fretting pain, then it is a Diarrhoea, which some also call Flatus Humoralis. It is called a Lierteria, when as by the relieved retentive faculty of the stomach and guts cauffed by ill humours, either there collected, or flowing from some other place, or by a cold and moist distemper, the meat is cast forth crude, and almost as it was taken. A Pestaria is, when as many and different things, and off-times mixed with blood, are cast forth with pain, gripings, and an aider of the guts, caussed by acrid choler, fretting in finder the costs of pus isis, the vehicle.

But in any kind of disease, certainly in a pestilent one, fluxes of the belly happen immoderately in quantity, and horridly in the quality of their contents, as liquid, viscous, frothy, as from melted gravel, yellow, red, purple, green, ah-coloured, black, and exceeding thickening. The cause is various and many fort of ill humours, which taken hold of, by the pestilential malignity, turn into diverse species, differing in their whole kind, both from their particulars, as also from Nature in general, by reason of the corruption of their proper substance, whose inseparable lig is fluxch, which is off-times accompanied by Worms.

In the Camp at Amiens, a pestilent disease was over all the Camp, in this the strongest Soldiers purged forth much blood, I diffcutting some of their dead bodies, observed the mouths of the Melanchott veins and arteries, opened and much swollen; and whereas they entered into the guts, were put like little Carycloses, out of which as I sucked them, there flowed blood. For both by the excruciating heat of the Summer Sun, and the minds of the enraged Soldiers, great quantity of acid and choleric humour was generated, and flowed into the belly: but you shall know whether the greater or lesser guts be ulcerated, better by the mixture of the blood with the excrements, than by the fire of the past; therefore in the one you must rather work by Clysters; but in the other by Medicins taken by the mouth.

Therefore, if by gripings, a Tensione, the mummuring and working of the guts, you suspect in a pestilent disease, that Nature endeavours to disburden it itself by the lower parts, neither in the mean while doth it succeed to your desire, then must it be helped forward by Art, as by taking a potion of A Potifnum. A Potifnum, or a dram of Diaphrasm disdolved in Wormwood water. Also Clysters are good in this case, not only for that they all the gripings and pains, and draw by continuance or succession, from the whole body, but also because they free the Melanchott veins and guts from obstruction and stuffing; so that by opening, and as it were unlocking of the pusses, Nature may afterwards more freely feed it itself from the noxious humours. In such Clysters they also sometimes mix two or three drams of Treadle, that by one and the same labour they may retard the venenate malignity of the matter.
V

Ient and immediate fociours for that they resolve the faHashSet, and lead the Patient into a consumation and death: if they should appear to be fresh, they must be laid in time by things taken and injected by the mouth and fundament. To this purpose may a pudding be made of Wheat-flour boiled in the water of the decoction of one Pomgranate, Berberies, Balsam, Terras figura, and white Poppy-seeds. The following Almond-milk strengthens the stomatch, and mitigates the acrimony of the cholerick humour, provoking the guts to action. Take sweet Almonds boiled in the water of Barry, wherein Steel or Iron hath been quenchd, beat them in a marble Mortar, and go with a little of the same water, make them into an Almond-milk, whereby adding 3. of Diaphragn Action, you may give it to the Person to drink.

This following Medicin I learnt of Dr. Chappelam, the Kings chief Phylician, who received it of his Father, and held it as a great secret, and was wont to prescribe it with happy success to his Patients.

It is thus: R Bal. Armen. terre ter. figura, balsam. hemas. an. 3. y. picis navulis, 3. or. cori. trymber, alcalci. cor. turc. 9. bi. & lat. in ac. plant. an. 2. f. faciae 9. 3. ij. fus pulvis. Of this let the Patient take a spoonful before meat, or with the yolk of an Egg.

Clyster for the same purpose, much commended of Doctors, when as the Dog hath for three days, or more, been fed early with bones.

Quincys rooted in Embers, or boiled in a Pot, the Convent of Cornelian Chyrses, Preferred Berberies and Myrasbolas, roasted Nuts, taken before meat strengthen the stomatch and stay the lacs: the Patient must feed upon good meats, and those rather resolved with happy success to the Quinces, Medlars, Services, Mulberries, Brambleberres, and the like things, ended with a faculty to bind and waie the excrementious humidities of the body: these waters must be mixed with Syrup of red Carrets, Jup of Roses, and the like.

Let the region of the stomatch and belly be anointed with Oil of Maflic, Muscatelum, Myrtle, and Quince.

Also cut of bread newly drawn forth of the Oven, and steeped in Vinegar and Rose-water, may be profitably applied, or else a Cataplasm of red Roses, Sumach, Berberries, Myrtles, the pulp of Quinces, Maflic, Bean-flour, and the Honey of Roses made with Calibate-water.

Clyster to stay stomach flux.

Anodyne, abstergent, afftringent, confolidating and nourishing Clysteres shall be injected. These following retund the acrimony of humours, and affwage pain. R Fol. ladinum, byph-acbe, portul. an. m. f. fur. viol. e neph. an. 3. ij. f. cyt. alter. Or, & R Rosb. bard. damnum, fem. plant. an. p. f. f. decodio, in colatura adde alii rof. 3. ij. sacar. rub. Or, & R Decott. capi. cerv. vitell. & capri. vert. etam. com. fol. f. in aqua pouter Am. viol. mala. mercur. plantag. an. m. f. bo. mula. 3. ij. decodio. capri. plantag. an. m. f. bo. com. alii rof. 3. ij. sacar. rub. 3. f. cyt. alter. Or, & R Elter. cham. melil. an. m. f. rof. rub. 3. ij. decodio. in colatura adde boli armen. fang. dracon. amyl. an. 3. ij. secund. & portul. an. 3. ij. bo. com. fang. draco. amyl. an. 3. ij. 3. f. cyt. alter. Such Clysteres must be long kept, that they may more readily mitigate pain. When flowing of the guts appear in the floods, it is an argument that there is an ulcer in the guts; therefore then we must use detergent and confolidating Clysteres, as this which follows:

A Clyster for ulcerated guts.

R Hor. integ. p. f. rof. rub. cham. plantag. papi. an. m. f. f. decodio, in colatura diffive mala. rubat. & f. de adino, an. 3. ij. 3. vitell. alter. 3. This following Clyster confolidareth. R Swei. plantag. anti. & portul. an. 3. ij. bo. com. fang. draco. amyl. an. 3. ij. 3. f. cyt. alter. Also Cows milk boiled with Plantain, and mixed with Syrup of Roses, is an excellent medicin for the ulcerated guts.

A very afftringent Clyster.

If pure blood flow forth of the guts, I could with you ufe stronger afftrivcres. To which purpose I much commend a decoction of Pomgranate palls, of Cypers nuts, red Fruits, and Agarques, Sumach, Alum, and Virtil made with Smiths water, and so made into Clysters, without any oil. It will be good with the same decoction to foment the fundament, prunatum, and the whole belly.

Afftringent Clysteres ought not to be ufed but that the noxious humours be drawn away, and purged by purging Medicines, otherwise by the stoppage hereof, the body may chance to be oppressed. If the Patient be fo weak that he cannot eat or take anything by the mouth, nutritive Clysteres may be given him. R Decott. capi. quins. & cerv. vitell. etal. com. acetal. long. be. lat. lat. pinn. v. 3. m. sup. in aqua diffive vitell. ovum, an. m. f. faciare rubat. & aqua vit. an. 3. ij. buji. recectue non faltum, 3. ij. f. cyt. alter.
Of evacuation by insensible transpiration.

The pestilent malignity, as it is oft-times drawn by the pores, by transpiration into the body, tumors are to oft-times it is felt forth invisibly the same way again. For our native heat, that is oft-times dif- never idle in us, differeth from the noxious humours, attenuate into vapours and air through the use of the unperceivable breathing-places of the skin. An Argument hereof is, we fee that the tumors are advienced against Nature, even when they are come to suppuration, are oft-times resolved and dispersed by the only efficacy of Nature, and Heat, without any help of Art: Therefore there is no doubt ted.

He pestilent malignity, as it is oft-times drawn by the pores, by transpiration into the body: For when as Nature and the native heat are powerful and strong, nothing is impossible to it, especially when the passages are also in like manner free and open.

CHAP. XII.

How to care Infants and Children taken with the Plague.

If that it happen that fucking or weaned children be infected with the Pestilence, they must be cured after another order than is yet described. The Nurfe of the fucking child must the Nurfe govern her self in Diet, and the use of Medicines, as if she were infected with the Pestilence, for she must be disbered of her self: Her Diet consisteth in the use of the six things Not natural. Therefore let it be me- denote, for the better profit of that moderation in Diet cannot be had until the Nurfe is fed, and fo unto the Infant that liveth by the milk. And the Infant it self must keep the same Diet, as near as he can, in deep, waking, and expulsion, or avoiding of superfluous humours and excrements of the body. Let the Nurfe be fed with those things that mitigate the violence of the tooth afeet heat: as cooling broths, cooling herbs, and meats of a moderate temperature; the milk wholly abstinence from Wine, and the meats and broths so as often as the given, the Infant to the child by the pores, by transpiration, by the mouth. For when as Nature and the native heat are powerful and strong, nothing is impossible to it.

Therefore let it be most every time that they fweat, it were very profitable to take a po- tion of Conserve of Roses, with the powder of Harts-horn or Ivory, dissolved in the waters of Bu-}

...
A supply of the defects of Mans Body. Book XXIII.

Of the Means and Manner to repair or supply the Natural or Accidental Defects or Wants in Mans Body.

CHAP. I.

How the life of the Natural or true Eye may be covered, hidden or shadowed.

Having at large treated in the former Books of Tumors, Wounds, Ulcers, Fractures, and Luxations, by what means things dissolved and dislocated might be united, things united separated, and superfluities consumed or abated: Now it remains, that we speak of the fourth Office or Duty of the Chirurgeon, which is to supply or repair those things that are wanting by Nature through the defect of the first constitution, or afterwards by some mishap. Therefore if that through any mishap, as by any inflammation, any mans Eye happen to be broken or put out, and the humours spilt or wasted, or if it be struck out of its place or cavity wherein it was naturally placed by any violent stroke, or if it waste or consume 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 by this means: 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 brightness or gemmy decency of the natural Eye, into the place of the Eye that is lost.

The Forms of Eyes artificially made of Gold or Silver, polished and enamelled, forming 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 a string or wire of Iron bowed or crooked, like unto women's Ear-wires, made to bind the head harder or looser, as it pleaseth the Patient, from the lower part of the head behind above the ear, unto the greater corner of the Eye; this rod or wire must be covered with silk, and it must also be somewhat broad at both ends, lest that the sharpness thereof should pierce or prick any part that it cometh unto. But that end wherewith the empty hollows must be covered, ought to be 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 or portraiture of such a string or wire.
The form of an Iron Wire wherewith 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 being in stead of the Nose that is cut off, another counterfeit Nose may be fixed, or placed in the stead.

When the whole Nose is cut off from the Face, or portion of the Noftrils, from the Nose, it cannot be restored or joined again; for it is not in Men as it is in Plants. For Plants have a weak and feeble heat; and furthermore, it is equally dispersed into all the substance of the Plant or Tree, neither is it easy to be consumed or wasted: for when the boughs or branches of Trees are broken, torn or cut away, the live nevertheless, and will grow again when they are let go, but those and grafted; neither is there any heat for the heart rightly prepared in them from whence the heat of Men cannot must neceffarily run, and diffuse it felt continually into all the parts thereof. But contrariwise, the separated parts of more perfect living Creatures, as of Men, are incontinently deprived of life; because they have their nourishment, life, force, and whole substantiation not of themselves, by faculties flowing or coming 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 before the natural faculty of the liver, another vital faculty commeth unto it from the heart.

Wherefore instead of the Nose cut away or consumed, it is requisite to substitute another made by Art, because that Nature cannot supply that defect: this Nose to artificially made, must be of Gold, Silver, Paper, or linen cloths glewed together, it must be well coloured, counterfeited, and made both of fashion, figure and bigness, that it may as aptly as is possible, resemble the natural Nose: it must be bound or fixed with little threads or laces unto the hinder part of the head or the hat. Also if there be any portion of the upper lip cut off with the nose, you may shadow it with an adjoining some such thing that is wanting unto the nose, and cover it with the hair on his upper lip, that he may not want any thing that may adorn or beautifie the face. Therefore I have thought it necessary to set down the figure or form of both these kinds.

The form of a Nose artificially made, both alone by it self, and also with the upper lip covered with the hair of the Beard.
A strange cure for a cut off Nose.

There was a Surgeon of Italy of late years which would restore or repair the 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 Harelips: then he made a gash or cavity in the muscle of the arm, which is called Biceps, as large as the greatest part of the portion of the Nose which was cut away did require: and into that gash or cavity so made, he would put that part of the Nose so wounded, and bind the Patients head to his arm, as if it were to a post, so that it might remain firm, stable and immovable, and not lean or bow in 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 would take 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 left, and then he would make it even, and bring it, as by licking, to the likeness and form of a Nose, as near as Art would permit. and in the mean while he did feed his Patient with Pandora’s Galleys, and all such things as were easy to be swallowed and digested. And he did this work in the place where the flesh was so cut out, only with certain Balms and 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, and by means of the forefaid 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.

It oftentimes happeneth that the fore-teeth are moved, broken or broken 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 into their former hardness, other teeth artificially made of Bone or Ivory may be put in the place of those that are wanting, and they must be joined one fast unto another, and also fastened unto the natural teeth adjoining, that are whole; and this must chiefly be done with a thread of Gold or Silver, or for want of either, with a common thread of Silk 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.

CHAP. IV.

Of filling the hollows of the Palate.

Any time it happeneth that a portion or part of the bone of the Palate, being broken with a thrust of a Gun, or corroded by the virulence of the Lues Venerea, falls away, which makes the Patients, to whom this happeneth, that they cannot pronounce their words distinctly, but obscurely and stammering: therefore I have thought it a thing worthy the labour, to show the means how it may be helped by Art. It must be done by filling the cavity of the Palate with a Plate of Gold or Silver, a little bigger than the cavity left in it. 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 toward 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 Palate, that the artificial Palate cannot fall down, but stand fast and firm, as if it stood of it self. This is the true Figure of those Instruments, whose certain use I have observed not by once or twice, but by manifold trials in the battles fought beyond the Alps.

The
The Figure of Fusses to fill or supply the defects of the Palate.

The Figure of another Plate of the Palate, on whose upper side there is a button, which may be turned when it is put into its place, with a small Beaver bill, like this below. Figure is here expressed.

CHAP. V.
How to help such as cannot speak by reason of the loss of some part of the Tongue.

Hance gave place and authority to this remedy, as to many other in our Art. A certain a reticely man dwelling in a Village named Troy-le-Chateau, being about four and twenty miles from Bourges, had a great piece of his tongue cut off by some occasion he remained dumb, some three years. It happened on a time that he was in the Field with Reapers, he drinking in a woodden dish was tickled by some of the Handers by, not enduring the tickling, he suddenly broke out into articulate and intelligible words. He himself 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 articulately, that he might be understood by them all. Wherefore a long time following he always carried this dish in his bottom to utter his mind, until at length Necessity, the Mistress of Arts and giver of Wit, inducing him, he caused a woodden instrument to be neatly cut and made for him, like that which is here delineated, which he always carried hanging at his neck, as the only 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 thickness of a Nine-pence, which he did so hold between his cutting teeth, that it could not come out of his mouth, nor be seen. B Sheweth the lower part, as thick as a Six-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 depressed and somewhat hollowed, marked with the letter C, is the inner part of the instrument. D Sheweth the cut-side of the same. He hanged it about his neck with the string that is tied thereto.

Textor, the Physician of Bourges showed me this Instrument; and I my self made trial thereof on a young man whose tongue was cut off, and it succeeded well, and took very good effect. And I think other Surgeons in such cases may do the like.

CHAP.
Of covering or repairing certain defects or defaults in the face.

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A supply of the defects of Man's Body. Book XXIII.

CHAP. VI.

Of covering or repairing certain defects or defaults in the face.

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Book XXIII. A supply of the defects of Man's Body.

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 bomastick 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 by the daily influx 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 urin.

In those that have the strangury, of what cause ever that malady cometh, the urine puffeth from them by drops, against their wills and consent. This accident is very grievous and troublesome, especially to men that travel: and for their sakes only I have invented the instrument here beneath described. It is made like unto a close breech or hose; it must be of Lattine, and to contain some ounces; it must be put into the patient's hole, 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 and into this concavity or hollowness 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 vessel, to stay the urin from going back again when it is once in. But the letters A and D, do signify all the instrument; that, the former part, this the hinder part thereof. Now this is the shape thereof.

The figure of an instrument, which you may call a basin, or receptacle for the urin.

Those that have their yards cut off close to their bellies, are greatly troubled in making of urin, so that they are constrained to fit down like women. For their ease, I have devised this pipe or conduit, having a hole through it as big as one finger, which may be made of wood, or rather of Lattine. A and C do show the bigness and length of the pipe. B showeth the brink on the broader end. D showeth the outside of the brink. This instrument must be applied to the lower part of Os piloris; on the upper end it is encompassed with a brink for the passage of the urin; for thereby it will receive the urine better, and carry it from the patient as he standeth upright.
An History.

Chap. X.

By what means the perverted function or action of a thumb or finger may be corrected and amended.

When a finew or tendon is cut clean asunder, the action in that part, whereof it was the author, is altogether abolislhed, so that the member cannot bend or stretch out itself, unless it be helped by Art: which thing I performed in a Gentleman belonging to Anne of Montmorency, General of the French Horsemen, who in the battle of Dreux received with a Back-sword upon the outside of the wrist of the right hand, that the tendons that did extend or draw up the Thumb were cut clean in asunder; and also when the wound was thoroughly 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; for that he was altogether unprofitable for War, without which he supposed there was no life. Wherefore he consulted with me about the cutting away of his Thumb, which did hinder his gripings, which I refused to do, and told him that I conceived a means how it might be remedied without cutting away. Therefore I caused a case to be made of Lattin, wherein I put the Thumb: this case was so artificially fastned by two lattin rings which 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-skill of Iron or Lattin to lift up or correct the Thumb, or any other Finger that cannot be corrected of itself.

If that in any man the sinews 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 be corrected or lifted up with this instrument, that followeth, being made of an equal, straight, thin, but yet strong plate of Lattin, lined on the inner side with sheets or any such like soft thing, and so placed in the wrist of the hand, that it may come unto the Palm, or the first joints of the fingers; and it must be tied above with convenient stays, and so the commoditie of the depression, or hanging of the hand, may be avoided: therefore this instrument may be called the Erector of the Hand.
CHAP. XI.

Of helping those that are Varus or Valgus, that is, crook-legged, or crook-footed, inwardly or outwardly.

Those that are said to be Varus, whose feet or legs are bowed or crooked inwardly. This de- fault is either from the first conformation in the womb, through the default in the Mother, is, who hath her legs in like manner crooked, or because that in the time when she is great with child, the commonly fits with her legs across; or else after the child is born, and that either because his legs be not well straightened when he is laid into the Cradle, or else because they be not well placed in carrying the infant; or if he be not well looked unto by the Nurse when he learneth to go: for the bones are very tender, and almost as flexible as Wax.

But contrariwise, those are called Valgi 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 also and the knees may be made crooked, which thing whatsoever will amend, must restore the bones into their proper and natural place; so that in those that are varus, he must thrust the bones outwards, as though he would make them valgous: 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 established, would slip back again.

They must be laid in their places, by applying of collars and bolsters on that side whereunto the bones do lean and incline themselves; for the same purposed boots may be made of leather, of the thickness of a trefone, having a slit in the former part all along the bone of the leg, and also under the sole of the foot, that being drawn together on both sides, they may be the better fitted and fit closer to the leg. And let this Medicine following be applied all about the leg. R. Thymus, mistis volat., s. Pluiter & bel. armeni, 1. j. aluminis roch. resin, i. P. This medicine may also add a little Turpentine, lest it should dry sooner, or become more vehemently than is necessary. But you must beware, and take great heed, lest such as were of late varus or valgus, should attempt or strain themselves to go before that their joints be confirmed; for to the bones that were lately set in their places, may slip aside again. And moreover, until they are able to go without danger, let them wear high those nied close to their feet, that the bones may be laid the better and more firmly in their places; but let that side of the sole of the shoe be under-laid whether the foot did incline before it was restored.

The Form of little Boots, whereof the one is open and the other shut.
CHAP. XII.

By what means Arms, Legs, and Hands may be made by Art, and placed in stead of the natural Arms, Legs, or Hands that are cut off and lost.

Necessity oftentimes constrains us to find out the means whereby we may help and imitate Nature, and supply the defect of members that are perished and lost. And hereof it cometh that we may perform the functions of going, standing and handling with Arms and Hands made by Art, and undergo our necessary flexions and extinctions with both of them. I have gotten the forms of all those members made so by Art, and the proper names of all the Engines and Instrumens whereby those artificially made are called, to my great cost and charges, of a most ingenuious and excellent Smith dwelling at Paris, who is called of those that know him, and also of strangers, by no other name than the Little Louis; and here I have caused them to be portrayed, or set down, that those that stand in need of such things, after the example of them, may cause some Smith, or such like Workman, to serve them in the like case. They are not only profitable for the necessity of the body, but also for the decency and comeliness thereof. And here follow their forms.

The form 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 arm or sleeve.
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The form of an Arm made of Iron very artificially.

The description of Legs made artificially of Iron.
A. Showeth the stump or stock of the wooden Leg. 
B B. Showeth the two flaps which must be on both sides of the Leg, the shorter of them must be on the inner side. 
C C. Showeth the Pillow or bolster wherein the Knee must rest in the bottom between the two flaps, that so it may rest the better.
D D. Showeth the thongs or girths with their round buckles put through the two flaps on either side to lay the Knee in its proper firm and immovable, that it slip not aside. 
E. Showeth the thigh itself, that you may know after what fashion it must stand.

It happens also many times, that the Patient that had the nerves or tendons of his Leg wounded, long after the wound is whole and consolidated, cannot go but with very great pain and torment, by reason that the foot cannot follow the muscle that should draw it up. That this malady may be remedied, you ought to fasten a linen band made very strong unto the shoe that the Patient weareth on that his pained foot, and at the knee it must have a slit where the knee may come forth in bowing of the Leg; and it must be tied up fast unto the Patient's middle, that it may the better lift up and correct the foot in going. This band is marked in the Figure following with the letters AA.
Hence it is not only a great deformity, but also very troublesome and grievous. Therefore 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 Nicolas Picard, Chirurgeon to the Duke of Lorain. The Form thereof is this:

A. Sheweth the Staff or Stilt of that Crutch, which must be made of Wood. B. Sheweth the Seat of Iron whereon the thigh refeth, just under the buttok. C. Sheweth a Prop which it swayth up the foot whereas all the weight of the Patients body refeth. D. Sheweth the Shirrup, being made of Iron, and bowing crooked upward, that the foot may stand firm, and not slip off it when the Patients goeth. E. Sheweth the Prop that layeth or holds up the Shirrup to strengthen it. F. Sheweth the foot of the Stilt or crutch made of Iron with many pricks, and compaied with a ring or ferrule, so to keep it from slipping. G. The Cross or head of the crutch which the Patient must put under his arm-hole to lean upon, as it is to be seen in the Figure.

The End of the Three and Twentieth Book.
BOOK XXIV.
Of the Generation of Man.

The Preface.

O, the Creator and maker of all things, immediately after the Creation of the World, of his unsearchable counsel and inimitable wisdom, not only distinguished mankind, but all other living Creatures also into a double sex, to wit, of Male and Female, that so they being mixed and united by the conunction of Lust, might procure Generation, hence to have Procreation. For this beautiful Law hath appointed it in a future unto every living creature against the most certain and fatal necessity of death: then for as much as each particular living creature cannot continue for ever, yet they may endure by their fascs or kind, 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, (whereby God hath chiefly established by the Law of Marriage,) the Male and Female yield forth their seeds, which afterwards by mixed and conjoined, are received and kept in the Female's womb. For the seed is a certain humour or sappy humour, Appendix 3d Printed by the author during the time of the Commonwealth, as printed by Roger Price in 1654, and reprinted in 1671. The text is a reflection on the nature of sexual reproduction, emphasizing the role of the female body in the process, and discussing the consequences of conception. It also touches on the idea of predestination and the role of God in the creation of living beings.
The Yark is given to Men whereby they may cast out their feed directly or frankly into the Womans womb to Women when by they may receive that feed to cast forth, by the open or wide mouth of the same neck for that it may cast forth their own feed through the spermatick vessels unto their testicles those spermatick vessels, that is to say, the Vein lying above, and the artery lying below, do make many fictions or windings, yet one as many as the other, like unto the tendrils of Vines diversely platted or folded together, and in thist and forders the blood and spirit which are carried unto the testicles, are conceived a longer time, and so converted into a white seminal substance.

The lower of these fictions or bowings do end in the Stones or Testicles. But the Testicles for as much as they are loose, thin, and fpongy, receiving the humour which was begun to be conceived in the fore-named vessels, concord it again themselves: but the Testicles of Men concord the more perfectly for the procurement of the issue, and the testicles of Women more imperfectly, because they are more cold, left, weak, and feble, but the Seed becomes white by the contact or touch of the Testicles, because the substance of them is white. The male is called engendered in another, and the female in her self, by the spermatick vessels which are implanted in the inner capacity of the womb. But out of all doubt, unless Nature had prepared so many allurements, lures, and provocations of pleasure, there is scarce any man to be delighted and delighted in various acts, which considering and marking the place appointed for human conception, the foul-fomnes of the fifth which daily falleth down into it, and wherein all it is humected and moistned, and the vicinities and nearnesses of the great gut under it, and of the bladder above it, but would than the enduesse of Woman. Nor would any Woman desire the company of Man, which once pretended or forced with her self on the labour that the should contain in bearing the burden of her child nine Moneths, and of the almost deadly dangers that the stall suffer in her delivery.

Men that use too frequent copulation, oftentimes in fluid of feed cast forth a crude and bloody humour, and sometime meet blood it left and of-times they can hardly make water but with great pain, by reason that the clammy and oily moisture, which Nature hath placed in the glandularities called the Prostate, to make the passage of the urine flippety, and to defend it against the sharpness of the urine that puffeth through it, is waited, so that afterward they shall fland in need of the help of a Surgeon to cause them to make water with ease and without pain, by injecting of a little Oil out of a Syringe into the conduit of the Yark. For in generation it is in the man cast forth his feed into the womb, with a certain impetuousity, but Yark being fliff and deftended, and the Woman to receive the same without delay into her womb being wide open, left that through delay the feed wax cold, and not become fruitful by reason that the spirits are dilipated and consumed. The Yark is diffused or made fliiff, when the nervous, spongy and hollow substance thereof is repli- and pulled up with a fliiffen spirit. The womb allures or draws the malefical feed into it self by the mouth thereof, and it receives the wouman's feed by the horns from the spermatick vessels which come from the Testicles into the hollowness or concavity of the womb, that it may be tempered by conjunction, combination and confusion with the mans feed, and so reduced or brought into a certain equality: for generation or conception cannot follow without the concurrence of two feeds, well and perfectly wrought in the very same moment of time, nor with out a laudable disposition of the womb both in temperature and complexion: if in this mixture of feeds the mans feed in quality and quantity exceed the womans, it will be a man-child if not, a woman-child, although that in either of the kind there is both the mans and womans feed: as you may fee by the daily experience of thofe men who by their fiirt wives have had boys onely, and by their second wives had girls only: the like you may fee in certain women, who by their flrft husbands have had males onely, and by their second husbands females onely. Moreover, one and the fame man is not always like affedled to get a man or woman-child; for by reason of his age, temperature and diet, he doth sometime yield forth feed endued with a malefical virtue, and sometime with a feminine or weak virtue, fo that it is no marvel if men get sometimes men and sometimes women-children.

CHAP. II.

Wherein the quality of the seed is, whereof the male, and whereof the female is engendered.

Children are engendered of a more hot and dry feed, and women of a more cold and moist: for there is much fliiffen in cold than in heat, and likewise in moisture than in dryness; and that is the caufe why it will be longer before a Girl is for med in the womb than a Boy. In the feed both the procreative and the formative power: As for example, In the power of Mecos-feed are fituate the Stalks, Branches, Leaves, Flowers, Fruit, the Form, Colour, Snell, Tafte, Scent and all. The like reason is of other feeds: to Apple-grafs engraten in the stock of a Pear-tree bear Apples: and we do always find and fee by experience, that the tree (by virtue of grafting) that is grafted, doth convert it felf into the nature of the Sire into which it is grafted. But although the child that is born doth receveable or is very like unto the Father or Mother, as his or her feed exceedeth in the mixtures yet forthemoft part it happeneth that the Children are more like the Father than the Mother, because that in the time of copulation the mind of the woman is more fixed on her husband than the mind of the husband on, or towards his wife: for in the time of copulation or conception, the forms or the likenes of those things that are conceived and kept in mind, are transported and impressed in the Child orfetus: for to affirm that there was a certain Queen of the Abhitionists who brought forth a white child, the reason was (as the conflituted) that at the time of copulation with her King, the thought on a marvelous white thing.
Concerning the Generation of Man.  Book XXIV.

CHAP. III.

What is the cause why Females of all brute Beasts, being great with young, do neither desire, nor admit the Males, until they have brought forth their young?

The cause hereof is, that as much as they are moved by food only, they apply themselves unto the thing that is present, very little or nothing at all perceiving things that are past and to come. Therefore after they have conceived, they are unmindful of the pleasure that is past, and do abhor copulation; for the sense or feeling of heat is given unto them by Nature, only for the preservation of their kind, and not for voluptuousness, or delectation. But the Males of brute Beasts, being provoked or moved by the stimulation of lust, rage and are almost burnt with a desire of calling forth its own seed, and receive the mans seed to be mixed together, and wax fervent with a desire of calling forth its own seed, and receive the mans seed to be mixed together.

The Males of brute Beasts, being provoked or moved by the stimulation of lust, rage and are almost burnt with a desire of calling forth its own seed, and receive the mans seed to be mixed together, and wax fervent with a desire of calling forth its own seed, and receive the mans seed to be mixed together.

Therefore when the Husband cometh into the Wifes 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, entertain, and tickle her, and shall not abruptly, the nerves being fadd_opacity, break into the field of Nature; but rather shall creep in by little and little, unles safely the feed of one of the Parents is found doth correct or amend the diffused impression of the other that is diffused, or else the temperate and found womb as it were by the gentle and pleasant breath thereof.

How women may be moved to Venery and Conception.

When the Husband cometh into the Wifes 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, entertain, and tickle her, and shall not abruptly, the nerves being faddopacity, break into the field of Nature; but rather shall creep in by little and little, unles safely the feed of one of the Parents is found doth correct or amend the diffused impression of the other that is diffused, or else the temperate and found womb as it were by the gentle and pleasant breath thereof.

The meeting of the feeds must necessarily for generation.

When the Husband cometh into the Wifes 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, entertain, and tickle her, and shall not abruptly, the nerves being faddopacity, break into the field of Nature; but rather shall creep in by little and little, unles safely the feed of one of the Parents is found doth correct or amend the diffused impression of the other that is diffused, or else the temperate and found womb as it were by the gentle and pleasant breath thereof.

CHAP. IV.

When things are to be observed, as necessary unto generation in the time of copulation.

When the Husband cometh into the Wifes 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, entertain, and tickle her, and shall not abruptly, the nerves being faddopacity, break into the field of Nature; but rather shall creep in by little and little, unles safely the feed of one of the Parents is found doth correct or amend the diffused impression of the other that is diffused, or else the temperate and found womb as it were by the gentle and pleasant breath thereof.
The feed in the time of copulation, or presently after be not spill, if in the meeting of the feeds the whole body do somewhat thake, that is to fay, the womb drawing it itself together, the composition and entertainment thereof, if a little feeling of pain doth run up and down the lower belly, and about the navel, if the be feelp, if the thorow the embrazing of a man, and if her face be pale, it is a token that the hath conceived.

In fourth, after conception sponces or freckles arife in their face, their eyes are deprefled and fink in the white of their eyes wanteth pale, they wax giddy in the head, by reafon that the vapours are rais- ed up from the menstrual blood that is stopped, fluxes and heavines ferve, they have a defire of fweetnife, like as it were hinch, they have a desir---
After the Woman hath conceived, to every one of the aforesaid eminences growth prevent
another vessel, that is to say, a Vein to the Vein, and an Artery to the Artery: these last
and yet thin vessels are framed with a little thin membrane, which being spread under, stick
them to; for to them it is in head of a membrane, and a ligament, and a muscle, or a defence; and it is
doubled with the others, and made of the Vein and Artery of the Navel. Thos new small vessels
of the Infant, with their oriﬁces, do answer directly one to one, to the Cystodones or eminences
of the grombs; they are very small and little; as it were the hairy ﬁbres that grow upon toes that are in
the earth when they have continued to a longer time; they are combined altogether of two they are
made one Vessel; and that by continual connection, all those vessels go and degenerate into two other
great vessels, called the Umbilical vessels or the vessels of the navel; because they do make the navel
and do enter into the child’s body by the hole of the navel. Here Galen doth admire the singular provi-
dence of God and Nature; because that in such a multitude of vessels, and in so long a passage or
length that they go or are produced, the vein doth never confound it self, nor thick to the artery, nor
the artery to the vein; but every vessel joineth it self to the vein of its own kind. But the Umbilical
vein, or Navel vein, entering into the body of the child, doth join it self presently to the hollow
part of the liver; but the artery is divided into two, which join themselves to the two Ilack arte-
ries along the sides of the bladder, and are presently covered with the Peritoneum; and by the be-
neat thereof annexed unto, the parts which it goes unto. These small veins and arteries are as
it were the roots of the child; but the vein and artery of the Navel 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
Plant, and then next the life of a Sensitive Creature: and as the ﬁrst tunicle of the child is called
Chorion in Mammalia, so the other is called Amnion or Agnina, which doth compass the foal or child
about on every side. These membranes are so thin, yea, for their thinness like unto the Spiders
web, woven one upon another; and also connected in many places by the extremities of certain small
and hairy substanccs, which at length by the junction of their like do get strength, whereby you
may understand what is the cause why by divers and violent motions of the Mother in going and
dancing, or leaping, and also of the Infant in the womb, these membranes are not at all broken.
For they are so composed by the knots of those hairy substanccs, that between them nothing, neither
the urine, nor the sweat can come, as you may plainly and evidently perceive in the distension of a wo-
mans body that is great with child, not depending on any other mens opinion, but never so old or
inveterate; yet the strength of those membranes is not so great, but that they may be soon broken in
the birth, by the breaking of the child.

CHAP. VIII.
Of the Umbilical Vessels, or the Vessels belonging to the Navel.

An old opinion once conﬁded.

To what use the knots of the children Navel in the womb serve.

The child in the womb taketh his nutriment by his Mouth, not by his Mouth, but by his Mouth.

As long as the child is in his Mothers womb, he taketh his nutriment only by the Navel, and not
by his Mouth: neither doth he enjoy the use of eyes, ears, nostrils, or fundament, neither needeth he
the functions of the heart. For the spirituous blood goeth unto it by the arteries of the Navel, and
into the Ilack arteries; and from the Ilack arteries unto all the other arteries of the whole Body,
by the motion of the of the infant doth breath. Therefore it is not to be thought that
the air is carried or drawn in by the lungs unto the heart, in the body of the child, but extraneous
from the heart to the lungs. For neither the heart doth perform the generation or working of
blood, or of the vital spirits. For the air or Infant is contained with them as they are made
and wrought by his Mother. Which, until it hath obtained a full, perfect, and whole description
of his parts and members, cannot be called a Child, but rather an Embryo, or an imperfect Bab-

CHAP.
Of the dissolution or forming of the feed in the womb, and of the concretion of the bubbles or bladders, or the three principal entrails.

In the first five days of conception the new vessels are thought to be made and brought forth of the eminences or ortolatas of the mothers vessels, and dispersed into all the whole feed, as if they were fibres, or hairy things. These, as they place the womb, so do they equally and in like manner permeate the uterine Corium. And it is carried thus far, being a paffage not only necessary for the nourishment and conformation of the parts, but also into the veins diversly woven and dispersed into the skin Corium. For thereby it cometh to pass, that the feed it felt bodieth, and as it were fermenteth or swelleth, not only throughout occasion of the place but also of the blood and vital spirits that flow unto it and then it racheth into three bubbles or bladders like unto the bubbles which are occasioned by the rain falling into a channel or channel full of water. These three bubbles or bladders, are certain nodes, or new forms, or concretions of the three principal entrails, that is to say, of the liver, heart, and brain. All this former time it is called feed, and by no other name; but when those bubble 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 navel is formed, it includeth greater blood, that is, of a more full nourishment out of the Corpulenta. And this blood, because it is more goad, easily congeals and curdles in that place, where it ought to prepare the liver falsely and absolutely made. For then is it of a notable great height above all the other parts, and therefore it is called Paranthema, 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 trunk of the hollow vein, called commonly rena eca, which doth disperse his small branches, which are like unto hairs, into all the substance thereof; and then it is divided into two branches, whereas the one growtheth upwards, the other downwards unto all the particular parts of the body. In the mean season the arteries of the navel feed spiritious blood out of the eminences or ortolatas of the mothers arteries, whereas, that is to say, of the more fervent and spiritious blood the heart is formed in the second bladder or bubble, being ended with a more lightly, found, and thick substance, as it behoveth that vessel to be, which is the fountain from whence the heat floweth, and hath a continual motion.

In the right, the root of the hollow vein is intaken or ingrafted, carrying thither necessary nourishment for the heart: in the left is formed the stamp or root of an artery, which preferently doth divide it into two branches; the greater whereof goeth upwards to the upper parts, and the wider unto the lower parts, carrying into all the parts of the body life and vital heat.

Of the third Bubble or Bladder, wherein the head and the brain is formed.

The far greater portion of the feed goeth into this third bubble, that is to say, yielding matter for the conformation of the brain, and all the head. For a greater quantity of feed is thought to go unto the conformation of the head and brain, because those parts are not fatty or guine or bloody, as the heart and liver; but in a manner without blood, bony, marrow, cartilaginous, nervous, and membranous, whole parts, as the veins, arteries, nerves, ligaments, panicles, and skin, are called perimare parts; because they obtain their first conformation almost of feed only; although that afterwards they are nourished with blood, as the other fatty and mucous parts are. But yet the blood, when it cometh unto those parts, degenerateth, and turneth into a thing somewhat perimare, by virtue of the affimulative faculty of those parts. All the other parts of the head form and fashion themselves unto the form of the brain, 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 seat of the senses, and mansion of the mind and reason, is situated in the highest place: that from thence, as it were from a lofty tower or turret, it might rule and govern all the other members, and their functions and actions that are under it; for there the soul or life, which is the rootlets or governs, is dispersed; and from thence it floweth, and is dispersed into all the whole body. Nature hath framed there three principal entrails, as props and sustenations for the weight of all the rest of the body: for which manner also the head framed the bones.

The first bones that appear to be formed, or are supposed to be conformed, are the bones called offi Linum, connexal or united by pondyless that are between them: then all the other members are framed and proportioned by their concavities and hollownesses, which generally are seven, that is to say, two of the ears, two of the eye, one of the mouth, and in the parts beneath the head one of the hand and another of the foot or conduit of the bladder: and furthermore in women, one of the neck of the womb, without the which they can never be made mothers or bear children.
Concerning the Generation of Man.

Book XXIV.

that thereby she be delivered before her natural time, and the child be dead, being first formed in the womb
let him die the death: but if the child hath not as yet obtained the full proportion and conformation of his bo-
dy, and be thereof, let him return in the womb to the state of a child, before the action of the matter working, and pliantness or obedience of the matter whereon it worketh. Neither

life is. It is not to be thought that the life is de-

also. Therefore it is not to be thought that the life is de-

of it cometh that some are endued with wifdom by the fpirit, others with knowledge by the fame

The Ancients have endeavoured
to exprefs the obfeure fenfe thereof by many defcriptions. For they have called it a celeb-

lump of clay one vessel to honor

For it is not meet that the thing formed should fay unto him that formed
man ought to contend or fpeak. It is termed the mind, becaufc it is mind-

9 Cor. c. 12.

Therefore the foul is entred into the body,God endueth it with divers and fundry gifts: here-
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Book XXIV. Concerning the Generation of Man.

But there are three kinds of bodies informed by a soul 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 soul by a nutritive soul; and men by an intellective soul. And as the nutritive soul of
brute beasts is invested with all the virtues of the vegetative soul; so the human intellective
comprehends the virtues of all the inferior, not separated by any division, but by being indivisibly united
with reason and understanding, into one humane form and soul wherein they depend. But because
we have said a little before, that divers functions of the life are resistent, and appear in divers parts
of the body, here in this place, omitting all others, we will profess this only which are accounted
the principal.

The principal functions of the humane soul, according to the opinion of many, are four in num-
ber, proceeding from so many faculties, and consequently from one soul; they are these: The
Common Sense, Imagination, Reasoning, and Memory. And they think that the common or in-
terior 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
go between them; and it serves not only to receive them, but also to know, perceive, and difcern
them. For the eye, wherein the external sense of seeing confineth, doth not know white or black.
Therefore it cannot discern the differences of colours, as neither the tongue tastes, nor the nose fa-
Vours nor the ears heard, nor the feet moved, nor the heart quaked, for fear left that by sudden falling
headlong he should break his neck. Many who never saw a horse, nor heard a trumpet, nor felt
a rope, nor smelt a flower, were yet fo full of the courage of the world's conqueror, by whose various
motion, it would now as it were cause him to run headlong to arms, and then pacify and quiet him, and
so cause him to return to his chair and banquet again. And there was one whom it was, who some few years ago sawing the Turk
for which it is called the common or principal sense; for that therein the primitive power
of beholding or perceiving is situated, for it taketh the ministry or service of the external senses, to
know many and divers things, whose differences it 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 mind, understanding, or reason. For
this was the counsel of nature, that the external senses should receive the forms of things super-
fidally, lightly, and gentry only, like as a glass, not to any other end, but that they should present-
lly lend them unto the Common Sense, as it were unto their center and prince, which he that is to say, the Common Sense delivereth to be collected unto the understanding and reasoning fa-
culty of the soul, which Ancius and Anaximus have supposed to be situated in the former part of
the brain.

Next unto the common sense followeth the phantasia or imagination, so called because of its
arise the forms and Ideas that are conceived in the mind, called of the Greeks Phantasmata. This
Doth never rest but in thofe that deep: neither always in them, for oft-times in them it causeth
dreams, and causeth them to suppute they see and perceive such things as were never percep-
ted by the senses, nor which the nature of things, nor the order of the world will permit. The pow-
er of this faculty of the mind is so great in us, that it often bethought the whole body in subjection
unto it.

For it is related in history, that Alexander the Great sitting at Table, and hearing Timo-
theus the Musician play a Martial Air, so to say, the spirit leaped from the Table, and called for
arms; but when again the Musician mollified his tone, he returned to the Table and sat down as
before. The power of imagination caused by musical harmony was so great, that it subjugated to it
the courage of the world's conqueror, by whose various motion, it would now as it were cause him to
run headlong to arms, and then pacify and quiet him, and so cause him to return to his chair and
banqueting again. And there was one who, so foon as he fancied that he should break his neck, Many
looking down from an high and lofty place, are so fluttered with fear, that suddenly they fall down
headlong, being so overcome and bound with the imagination of the danger, that their own strength
is not able to sustain them. Therefore it manifestly appeareth that God hath dealt most graciously
and lovingly with us, who unto this power of imagination, hath joined 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 overthrowed by them.

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After this, appearance, and approacheth to perform his function, the faculty of Reason, being the Prince of all the principal faculties of the soul, which together, compasseth, jointeth and reduceth all the simple, and divided forms or images or things into one heap, that by dividing, collecteth, and resolveth it might difcover and try truth from falshood.

The faculty of Understanding or Reason is subject to no faculty or instrument of the body, but is free, and penetrateth into every secret, intricate and hidden thing with an incredible faculty: by which a man feeth what will follow, perceiveth the originals and causes of things, is not ignorant of the proceedings of things; he comparseth things that are past with those that are present and to come, decreeth what is to follow, and what to avoid. This bridleth and withholdeth the furious motions of the mind, and admonisheth the feeeler that before the words pass out of his mouth, he ought with diligence and discretion to ponder and consider the thing wherof he is about to speak.

After Reason and Judgment followeth Memory, which keeping and conserving all forms and images that it receiveth of the senses, and which Reason shall appoint, and as a faithful keeper and conserveth all things, and imprints and fasteneth them as well by their own virtue and power, as by the impulsion and adherence of those things in the body of the brain, without any impulsion of the matter, when occasion saeth, we may bring them forth here-hence as out of a treasury or storehouse. For otherwise to what purpose were it to read, hear, and note so many things, unless we were able to keep and retain them in mind by the care and custody of the Memory or Brain? Therefore assuredly God hath given us this only remedy and preventive against the oblivion and ignorance of things, which although of itself and of its own nature it be of greater efficacy, yet by daily and often meditation it is trimmed and made more exquisite and perfect.

The signs of speedy and easy delivery.

Therefore if any of these excrements be stayed altogether, or any longer than it is meet they should, or that it be not by reason that it is apt to receive the forms of things, because of the engraven dryness and hardneath thereof.
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Moreover, when the child is in the womb, he voideth no excrements by the fundament, lest he be when the time of the birth, the proper membranes and receptacles are burst by the thrusting of the infant; for he doth not take his meat at the mouth, wherefore the stomach is idle then, and doth not execute the office of turning the meats into chyle, nor of any other concordation; whereas nothing can go down from it into the guts. Neither have I seldom seen infants born without any hole in their fundament, so that I have been constrained with a knife to cut in under the membrane or tunicle that grew over and stopped it. Moreover, when the child is in the womb, he voideth no excrements by the fundament unless it be when at the time of the birth, the proper membranes and receptacles are burst by the violence of the birth-giver, so that he is nourished with the more laudable portion of the menstrual blood, as it may be seen in kids, dogs, sheep, and other brute beasts; for as much as in mankind the tunicle Chlorion and Allantois or Excrements, be all one membrane. If the woman be great of a man-child, she is more merry, stronger and better colored, all the time of her child-bearing; but if a woman-child, she is ill colored, because that women are not so hot as men.

The males begin to fill within three months and a half; but females after: if a woman conceive a male-child, the birth all her right parts stronger to every work; whereas they do begin to fill forwards their right foot first in going, and when they sit they lean on the right arm, and are not long in spreading, and will sooner swell and wax hard: the male-child fills more in the right side than in the left, and the female-child rather in the left than in the right side.

With what travail the Child is brought into the world, and of the cause of this labour and travail.

When the natural prefixed and preferred time of child-birth is come, the child being then grown greater, requires a greater quantity of food: which when he cannot receive in sufficient measure by his nature, with great labour and thrust he endeavoreth to get forth; therefore then he is moved with a stronger violence, and both the membranes wherein he is contained. Then the words, because it is so able to endure such violent motions, nor fain or hold up the child any longer, by reason that the membranes are broken asunder, is relaxed, and then the child pursing the air which he feeleth to enter in at the mouth of the womb, which then in very wide and gaping, is carried with his head downwards, and so cometh into the world with great pain both unto it, and also unto his Mother, by reason of the elements of his body; and also by reason of the nervous neck of his mothers womb, and separation of the bone called Os Ilium from the bone called Os foramen. For unless these bones were drawn in sunder, how could not only twins that chafe fall together, but also one child alone, come forth at so narrow a passage as the neck of the womb is? Not only reason, but also experience confirmeth it, for I have found the bones of Ilium to be drawn the breadth of ones finger from Os foramen: and moreover, in many unto whom I have been called, being in great extremity of difficult and hard travail, I have not only heard, but also felt the bones to crackle and make a noise, when I laid my hand upon the coccyx or rump, by the violence of the disjunction. Also bond matrons have declared unto me that they themselves, a few days before the birth, have felt and heard the noise of those bones separating, themselves one from another with great pain. Also a long time after the birth many do feel great pain and sigh about the region of the coccyx and Os foramen, so that nature is not able to repair the disjoined continuity of these bones of Ilium, they are constrained to halt all the days of their life after. But the bones of the spine called Os postili, I have never seen to be separated, as many do also affirm. It is reported that in Italy the coccyx or rump in all Maidens is broken that when they come to be married they may bear children with less travail in child-birth, but this is a forged tale, for that bone being broken naturally and in its own accord required, and joined together again with a Callum, whereby the birth of the child will be more difficult and hard.
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I have often found them coming forth with their knees forwards, and sometimes with one of the feet, and sometimes with their belly forwards, their hands and feet being lifted upwards, as the former figure illeuth at large.

Sometimes I have found the Infant coming with his feet downwards, rising sideways, and sometimes leading stretching one of his arms downwards out at length and that was an Hermaphrodite, as this figure plainly declareth.

In the bodies of women that died in travail 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 their knees, with both their hands under the knees, and their toes 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 so soon as she was dead) lying all along stretched out, with his face upwards, and the palms of his hands joined together, as if he was at prayer.

CHAP. XV.

Which is the legitimate and natural, and which the illegitimate or unnatural time of child-birth.

Mankind hath no certain time of bringing forth their young. Why the child is scarce alive in the eighth month.

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 month; sometimes in the tenth month; yet sometimes in the beginning of the eleventh month. Mufonius reports that Lucius Lupinus the Prefect, the second heir commencing a suit, gave the possession of the goods away from him, seeing the Mother of the Child affirmed that she went thirteen months therewith, being there is no certain definite time of Child-birth. The child that is born in the first month cannot be long lived, because at that time all his body or members are not perfectly finished, or absolutely formed. In the seventh month it is proved by reason and experience that the infant may be long lived. But in the eighth month it is seldom or never long lived, the reason thereof is, as the Astronomers supposed, because at that time Saturn ruleth, whose coldness and darkness is contrary to the original of life: but yet the physical reason is more true, for the Physicians say that the child in the womb doth oft-times in the seventh month strive to be let at liberty from the inclosure of the womb, and therefore it contends and laboureth greatly, and so with labouring and striving it cometh weak, that all the time of the eighth month it cannot recover his strength again, whereby it may renew his accustomed use of striving, and that force by such labouring and striving hurt themselves, and die. Yet force strong and lusty women are thought to bring forth their children, being lively and strong, on the eighth month, as Aristotle testifieth of the Egyptians, the Poets of the inhabitants of the Isle of Naxos, and many of the Spaniards. Furthermore I cannot sufficiently marvel, that the womb, which all the time of child-bearing is so closed together, that one can scarce put
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Signs of the birth at hand.

Here will be great pain under the navel, and at the groins, and spreading thenceward to the Foramen of the pubes and the pelvis, and especially when they are drawn back from the Os pubis, the bones Tuba and Coepe are thrust outward, the genitals swell with pain, and a certain Fever-like shaking invades the body, the face waxeth red by reason of the endeavour of nature, armed unto the expulsion of the infant. And when these signs appear, let all things be prepared ready to the child-birth. Therefore take all the woman that is in travail be placed in her bed conveniently, neither with her face upwards, nor sitting, but with her back upwards and somewhat high, that she may breathe 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 feet form what bow'd up towards her buttocks, so that she may lean on a staff that must be placed over-the bed. There are some that do travail in a stool or chair made for the same purpose; others standing on their feet, and leaning on the post or pillar of the bed. But you must take diligent heed that you do not exhort or persuade the woman in travail to drive or labour before the fore-named signs thereof do manifestly show that it is at hand. For by such labour or pains the might be weakened or fo weakened, that when she should strive or labour, the child have no power or strength to do. If all these things do not fall out well in the child-birth, the buttocks are to be committed to nature, and to the Midwife. And the woman with child must only be admonished that when she feels very strong pain, that she doth suffer, because she is born as she was before, and that the birth be more difficult and painful, by reason that the waters wherein the infant lay are flown out before, and the womb be dry, this ointment following is to be prepared.

An unction of

\[\text{fats in aqua arenifice liti, 3\text{ij. unguanis frorum, feminis litii & albis, cum aqua salina crateri, ad\text{.5f.\text{.}}\text{.}}\]
\[\text{alii filium, 3f. make thereof an ointment, wherewith let the Midwife often anoint the secret parts.\}
\[\text{Also this powder following may be prepared,}\]
\[\text{Cinnamomum, corno, cajphi, flijh. di&amni an. f\text{. facch. al\text{.}}\text{.}}\]
\[\text{Also this powder following may be prepared,}\]
\[\text{And the medicine following is commanded for the same purpose.}\]
\[\text{A potion can}\]

\[\text{coffee futil, can now in. m.\text{. boummus cum vino albo & aqua suffuscentis, in ubi accedunt folubus glabri, 5ij. for lamen pro defit addo}\]
\[\text{then he must add a powder, which is to be used.}\]

Many times it happeneth that the infant cometh into the world out of the womb, having his head covered or wrapped about with a portion of the feconium or umbilical when it is included, especially when the birth is difficult and painful, and happy bringing of the mother, he cometh forth together with the water wherein it lieth in the womb, and then the Midwives prophesy or fore-tell that the child shall be happy, because he is born as he was with a blood 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.

Many times it happeneth that the infant cometh into the world out of the womb, having his head covered or wrapped about with a portion of the seconium or umbilical when it is included, especially when the birth is difficult and painful, and happy bringing of the mother; he cometh forth together with the water wherein it lieth in the womb, and then the Midwives prophesy or fore-tell that the child shall be happy, because he is born as he was with a blood 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.

When the birth is difficult and painful, the child never beliegeth that endureth out with him, but it remaineth behind in the passages of the genitals or secret parts, because they are not opened. For even the Snake or Adder when he should cast his skin thereby to renew his age, creepeth through some narrow or frail passage. Presently after birth, the woman is delivered must take two or three spoonfuls of a decoction of mollifying herbs, which is to be prepared, and the ointment following to be applied. When the child be born as it should, it is reduced very conveniently, especially when they are drawn back from the Os pubis, the bones Tuba and Coepe are thrust outward, the genitals swell with pain, and a certain Fever-like shaking invades the body, the face waxeth red by reason of the endeavour of nature, armed unto the expulsion of the infant. And when these signs appear, let all things be prepared ready to the child-birth. Therefore take all the woman that is in travail be placed in her bed conveniently, neither with her face upwards, nor sitting, but with her back upwards and somewhat high, that she may breathe 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 feet form what bow'd up towards her buttocks, so that she may lean on a staff that must be placed over-the bed. There are some that do travail in a stool or chair made for the same purpose; others standing on their feet, and leaning on the post or pillar of the bed. But you must take diligent heed that you do not exhort or persuade the woman in travail to drive or labour before the fore-named signs thereof do manifestly show that it is at hand. For by such labour or pains the might be weakened or so weakened, that when she should strive or labour, the child have no power or strength to do. If all these things do not fall out well in the child-birth, the buttocks are to be committed to nature, and to the Midwife. And the woman with child must only be admonished that when she feels very strong pain, that she doth suffer, because she is born as she was before, and that the birth be more difficult and painful, by reason that the waters wherein the infant lay are flown out before, and the womb be dry, this ointment following is to be prepared.

An unction of

\[\text{Cinnamomum, corno, cajphi, flijh. di&amni an. f\text{. facch. al\text{.}}\text{.}}\]

Also this powder following may be prepared, and the medicine following is commanded for the same purpose.

A potion can

After this, the ointment following is to be applied, whereunto the hand is to be applied, and the bones Tuba and Coepe are thrust outward, the genitals swell with pain, and a certain Fever-like shaking invades the body, the face waxeth red by reason of the endeavour of nature, armed unto the expulsion of the infant. And when these signs appear, let all things be prepared ready to the child-birth. Therefore take all the woman that is in travail be placed in her bed conveniently, neither with her face upwards, nor sitting, but with her back upwards and somewhat high, that she may breathe 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 feet form what bow'd up towards her buttocks, so that she may lean on a staff that must be placed over-the bed. There are some that do travail in a stool or chair made for the same purpose; others standing on their feet, and leaning on the post or pillar of the bed. But you must take diligent heed that you do not exhort or persuade the woman in travail to drive or labour before the fore-named signs thereof do manifestly show that it is at hand. For by such labour or pains the might be weakened or so weakened, that when she should strive or labour, the child have no power or strength to do. If all these things do not fall out well in the child-birth, the buttocks are to be committed to nature, and to the Midwife. And the woman with child must only be admonished that when she feels very strong pain, that she doth suffer, because she is born as she was before, and that the birth be more difficult and painful, by reason that the waters wherein the infant lay are flown out before, and the womb be dry, this ointment following is to be prepared.

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Also this powder following may be prepared, and the medicine following is commanded for the same purpose.
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Chapter XVII.

What is to be done presently after the child is born.

Immediately after the child is born, the Midwife must draw away the seed-cord or after-birth, as gently as she can; but if she cannot, let her put her hands into the womb, and to 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 seed-cord must be taken from the child. Therefore the seed-cord must be tied with a double thread an inch from the belly. Let not the knot be too hard, lest that part of the seed-cord 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 that through it (that is to say, the seed-cord) the cold air should enter into the child's body. When the knot is made, the seed-cord must be cut in the breadth of two fingers beneath it with a sharp knife. Upon the section you must apply a double linen cloth dipped in oil of Roses, or of sweet Almonds, to mitigate the pain; for so within a few days after, which is beneath the knot will fall away being destitute of life and nourishment, by reason that the vein and artery are tied too close, that no life nor nourishment can come unto it: commonly all Midwives do let it lie unto the bare belly of the infant, whereof cometh grievous pain and gripeing, by reason of the coldness thereof which dieth by little and little as destitute of vital heat. But it were far better to sew it in felt cotton or lint, until it be mortified, and so fall away.

The midwives do unadvisedly, who so soon as the infant is born do presently tie the seed-cord and cut it off, not looking thereto for the avoiding of the seed-cord. When these things are done, the infant must be washed, cleansed and rubbed with all the parts and excrements with oil of Roses or Myrtles. For thereby the pores of the skin will be better shrewd, and the habit of the body the more strengthened.

There be some that wash infants at that time in warm water and red wine, and afterwards anoint them with the sweet oiled oils. Others with them not to wine alone, but both therein red Roses and the leaves of Myrtles, adding thereto a little salt; and then using this lotion for the space of five or six days, they not only wash away the filth, but also resolve and digest, if there be any hard or converted place in the infants tender body, by reason of the hard travail and labour inchild-birth. Their toes and fingers must be handled, drawn asunder and bowed, and the joints of the arms and legs must be extended and bowed for many days and often; that thereby that portion of the excrements which remaineth into wind, and by the undiscreefed admittance of the air in the time of the child-birth, the womb and all the secret parts will swell, unless it be prevented with some digesting, repelling or mollifying oil, or by artificial rowling of the parts about the belly.

Chapter XVIII.

Many times in children newly born, there sticketh on the inner side of their mouth and on their tongue, a certain chalky substance, both in colour and in consistence, this effect proceeding from the distemperature of the mouth, the French-men call it the white Cancer. It will not permit the infant to suck, and will shortly breed and degenerate into ulcers that will creep into the jaws, and make his belly loose and slippery, to asswage the roughness of the weapon and gullet, and to dissolve the tough phlegm, which causeth a cough, and sometimes difficulty of breathing. If the eye-lids cleave together, or if they be joined together, or agglutinated to the coats cornea os adnato, then must they be cured by the proper remedies thereby preferred, against such defects.

Many
When the child will not come forth naturally, but must be drawn forth by art. Therefore the midwife having her hand anointed with oil, must put it gently into the womb, and finding out the slips of corruption of blood, tied out of the vessels, and thence cometh inflammation, an abscess or a mortal shock of the womb itself. For by violent attraction some of the vessels, and also some of the loosest slips may draw it out gently; but if it should be drawn with violence, it were to be feared lest by the cotyledons, she might shake and move it gently up and down; that so when it is shaken and taken away, both its shape and the womb that remaineth must be cured according to the general method of wounds.

There are some that suppose the red spots that are raised up into little knobs and bunches, may be washed away and confounded by rubbing and amouthing them often with menstrual blood, or the blood of the fecundine or after-birth. Tho' they be hairy and somewhat raised up like unto a Horse or Mouse, must be pierced through the roots in three or four places, and strictly bound, so that at length being delineate of life and nutriment, they may fall away: after they are taken away, the ulcer that is under them must be cured as other ulcers are. If thence a great suppurative flux remain, it must be taken away by applying Egyptianum, or the powder of Mercury, and such like; but if it be doubted that it comeeth from the root of the tumor that may haply remain, it must be burnt away by the root with oil of vitriol or aqua foris.

There is also another kind or sort of spots, of a livid or violet colour, coming especially in the face about the lips, with a soft, flack, lax, thin, and unpainful tumor, and the veins as if they were various round about it. This kind of tumor groweth greater when it ariseth on children that are wayward and crying, and in men of riper years that are choleric and angry, and then it will be of a diverse colour, like unto a hiper and flap of flesh that hangeth over the Turkey-cocks hill. When they have done crying, or ceased their anger, the tumor will return to his own natural colour again. But you must not attempt to cure it in people that are of these conditions.

**CHAP. XVIII.**

_How to pull away the fecundine or after-birth._

Suppose that they are called fecundines, because they do give the woman that is with child the second time, as if there be several children in the womb at once, and of different sexes, they that have every one their several fecundines, which thing is very necessary to be known by all Midwives. For they do many times remain behind in the womb when the child is born, either by reason of the weakness of the woman in travail, which by contumacy and belaboring for the birth of the child, hath spent all her strength: or by a tumor slaying of the blood of the fecundine or after-birth. Those that are hairy and somewhat raised up like unto a Horse or Mouse, must be pierced through the roots in three or four places, and straitly bound, so that at length being delineate of life and nutriment, they may fall away; after they are taken away, the ulcer that is under them must be cured as other ulcers are. If thence a great suppurative flux remain, it must be taken away by applying Egyptianum, or the powder of Mercury, and such like; but if it be doubted that it comeeth from the root of the tumor that may haply remain, it must be burnt away by the root with oil of vitriol or aqua foris.

Many and grievous accidents follow the slaying of the fecundine; as suffocation of the womb, often swelling, by reason that gross vapors ariseth from the putrefaction unto the midriff, heart and brain; therefore they must be pulled away with speed from the womb, gently handling the navel if slaying of the birth can hardly be 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 slaying of the fecundine; as suffocation of the womb, often swelling, by reason that gross vapors ariseth from the putrefaction unto the midriff, heart and brain; therefore they must be pulled away with speed from the womb, gently handling the navel, if it may be so possibly done. But if it cannot be done so, the woman must be placed as she was wont, and either directed by the waters gone out from them with the infant, so that the birth can hardly be pulled away but by violence; but at the prefixed natural time of the birth it may easily be drawn away.
CHAPTER XIX.

What things must be given to the infant by the mouth, before he be permitted to suck, the teat or dug.

To draw milk from the child's mouth.

Milk soon corrupted in a fllegmatick manner.

Eating the roasted seed of the fllegmatick flower.

The accidents that come of the violent pulling of the womb, together with the fecundine.

The mothers milk is most familiar for the child.

The disease of the Nurfe is participated into the child.

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Neither is there any lea danger of the falling down of the womb. If that there be any knots or clots of blood remaining, together with the fecundine, the Midwife must draw them out one by one, so that not any may be left behind.

Some women have voided their fecundine, when it could not be drawn forth by any means, long after the birth of the child, by the neck of their womb, piece-meal, rotten and corrupted, with many grievous and painful accidents. Also it shall be requisite to provoke the endeavour of the expulsive faculty by menstruations, aromatrick compositions of the neck of the womb, by mollifying injections: and contrariwise, by applying such things to the noftrils as yield a rank smell, to the disease of the womb, that come of long after the birth of the child, by the neck of their womb, unto the child.

To speed from the child by the mouth, and also will be moved or provoked to be vomited up from the stomach, or for the violent many grievous and painful accidents. Also it shall be very requisite to provoke the endeavour of the expulsive faculty by menstruations, aromatrick compositions of the neck of the womb, by mollifying injections: and contrariwise, by applying such things to the noftrils as yield a rank smell, to the disease of the womb, that come of long after the birth of the child, by the neck of their womb, unto the child.

The accidents that come of the violent pulling of the womb, together with the fecundine.

The mothers milk is most familiar nourishment for the infant than that of any Nurfe: for it is nothing else but the same blood made white in the dugs, wherewith before it was nourished in the womb. For the mother ought not to give the child suck for the space of a few days after the birth, but first to expect the perfect expurgation and avoiding of the excremental humors. And in the mean time let her cause her breasts to be sucked of another, or many other children, or of some wholesome or sober maid, whereby the milk may be drawn by little and little unto her breasts, and also by little and little purified.

For a certain space after the birth, the milk will be troubled, and the humors of the body moved: so that by long staying in the dugs, it will seem to degenerate from its natural goodness as the goffa of it is somewhat concealed, the manifelst heat in touching, and the yellow colour thereof evident. Therefore it is necessary that others should come in place thereof when it is fetched out, whereas the infant may be nourished. But if the mother or the Nurfe 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 Nurfe diseased. And moreover, mothers ought to nurse their own children, because for the most part they are far more vigilant and careful in bringing up and attending their children than hired and mercenary Nurfes, which do not so much regard the infant, as the gain 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 the child, as Marcus Aurelius the Roman Emperor was wont to say. For it is a certain unnatural, imperfect and half-kind of 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 womb ( which they neither know nor see) with their own blood, and then not to nourish it when they see it in the world alive, a creature or reasonable soul, now requiring the help and consolation of the mother.

CHAPTER XXI.

Of the choice of Nurfes.

Any husbands take such pity on their tender wives, that they provide Nurfes for their children, that unto the paines that they have sustained in bearing them, they may not also add the trouble of nursing them: wherefore such a Nurfe must be chosen which hath had two or three children. For the dugs which have been already ducked and accustomed to be tilled, have the veins and arteries more large and capable to receive the more milk. In the choice of a Nurfe there is ten things to be considered very diligently, as her age, the habit of her bodily, her behaviour, the
always laughing and Imfinig on her Infant often linging unto it, and fpeaking diltindly and plaint the Nurfe is too grofs and thick; but if it remain ©n the nail fo long as you hold it upright, and fall frbfn it if it ftick to the nail, although the end of the thumb be bowed downwards, it ftieweth that it is fair, if the thumb be not moved, and it run off the nail, it fignifieth that it is watery milk; but before if one drop of the milk be laid on the nail ot ones thumb, being firft made very clean and the milk, it betokeneth the ftrength and vigor of the faculty that engendreth it in the breafts. There- child be fet to the breaft.

than the infant can fpend, it exhaufteth the juice ofthe Nurfes body, and when it cannot all be drawn

between the dugs, efpecially a hot and dry diftemperature. But when it fuperaboundeth, and is more

it cannot be good and laudable, for it argueth fome diftemperature either ofthe whole body or at

hard, the milk is as it were fuffbeated, flopped or bound in, fo that the child in fucking can

maystrikehisnole againft it, and fo hurt it, whereby he may either refufe to fuck, or if he doth

the better becaufr that in firm flefii the heat is more ftrong and compad. You may by touching

wanteth. 

which breedeth impure or unclean milk: but to the conceived child, becaufe it will caufe it to have

ment and increafing of the inlant in the womb •, and the more impure blood goeth into the dugs

realon that the more laudable bloud after the conception remaineth about the womb for the nutri-

her t^th be not foul or rotten, nor her breath ftinking, nor no ulcer nor fore about her body, and

it to abound, than to be defedive, for the fuperabounding quantity may be prelfed out before the

may be very big, they will fo fill all his mouth, that he cannot well ufe his tongue in fucking or in fwal-

hardly take them between its lips, ‘therefore his fucking will be very laborious, df the nfrples or teats

proceed to fuck, by continual fucking, and placing of his nofe on the hard breaft, it may become flat

and hard, the milk is as it were fuffbeated, slopped or bound in, fo that the child in fucking can

ofa middle confiftence, between foft and hards for fuch dugs will concod the bloodfntomilk

reason whether the fle lh be folid and firm, as alfo by the difperfing of the veins, eafily tok feen by

reafon of their fwellingandblewnefs, through the dugs, as it were into many ftreams or little rivu¬

We may judg of or know the nature and condition of milk, by the quantity, quality, colour, fa^ what is to

after the conception remaineth about the womb, for the nutri-

which breedeth impure or unclean milk: but to the conceived child, becaufe it will caufe it to have

In thofe dugs that are great •, the milk is as it were fuffbeated, slopped or bound in, fo that the child in fucking can

in fucking can scarce draw it out, and moreover, if the dugs be hard, the child putting his mouth to the breaft

to her own child that is within her body, and alfo to the Nurfe-child: to the Nurfe-child

moreover, becaufe that thereby they may happen to be with child, whereof enfueth difcom*modity

menstrual Mux, and caufeth the milk to have a certain ftrong and virulent quality fuch as we mav

beerf or red or freckled face, but brown or fomewhat shadowed • for trulv

not have a red or freckled face, but brown or fomewhat lhadowed, or mixed with rednefs • for trulv

ly not fat, nor lean but well made, her flefii not foft and tender, but thick, and hard or ftrong, of body in

not then grow or increafe, file muft of neceifity have the more abundance of blood. After thirty five

milk, the form not only of her^s or breafts, but alfo oFher teats or nipples the

reason that the more laudable bloud after the conception remaineth about the womb, for the nutri-

the better becaufr that in firm flefii the heat is more ftrong and compad. You may by touching

or stink, nor no ulcer nor fore about her body, and

reason that the more laudable bloud after the conception remaineth about the womb, for the nutri-

why the

Nutre-milk ab¬

Plain from co¬

pulation.

What days a

Nurfe oughte
to do in her

habe.

Als the ought to have a broad breaft, and her dugs indifferentily big, not fack or hanging, but

of a middle confidence, between foft and hard, for fuch dugs will ccoct the blood into the

the better, because that in firm flefii the heat is more ftrong and compad. You may by touching

try whether the 8th he fold and firm, as alfo by the difpurring of the veins, easily to be feen by

reason of their swelling and bleepears, through the dugs, as it were into many streams or little rivu-

for in 8th that is boof and thick, they lie hidden. Thofe dugs that are of a competent bigtefs, receive or contain no more milk than is fufficient to nourifh the infant, In thofe dugs that are great and hard, the milk is as it were fuffbeated, flopped or bound in, fo that the child in fucking can

We may judg of or know the nature and condition of milk, by the quantity, quality, colour, Gi¬What is to be

vor and fafe, when the quantity of the milk is fo little, that it will not suffice to nourifh the infant, obferved in

cannot be good and laudable, for it argueth fome diftemperature either of the whole body, or at

lefs of the dugs, especiafly a hot and dry diftemperature. But when it feperaboundeth, and is more

in cannot be good and laudable, for it argueth fome diftemperature either of the whole body, or at

be a good and laudable, for it argueth fome diftemperature either of the whole body, or at

of what beba¬

Of what beha¬

of body in a

Nurfe.

the better into blood. For according to the judgment of

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the condition of her milk, the form not only of her dugs or breafts, but alfo of her teats or nipples, the

time of her child-birth, the fex of her laft infant or child, that the be not with child, that the be

found and in perfect health. As concerning her age; the ought not to be under twenty five years. The beft age

nor above thirty five: the time that is between is the time of strength, more temperate and more of a Nurfe.

which is too grofs and thick ; but if it remain ©n the nail fo long as you hold it upright, and fall frbfn it

be well manner'd, because the

the infant can fpend, it exhaufteth the juice ofthe Nurfes body, and when it cannot all be drawn

wanteth.

The milk of the infant is too grofs and thick; but if it remain ©n the nail so long as you hold it upright, and fall frbfn it if it ftick to the nail, although the end of the thumb be bowed downwards, it ftieweth that it
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when you hold it a little stole or downwards by little and little, it is therefore it is very good milk. And that which is exquisitely white, is best of all. For the milk is no other than blood made white.

Therefore, if it be of any other colour, it argueth a default in the blood: so that if it be brown, it betokeneth melancholick blood; if it be yellow, it signifieth cholerick blood; if it be wan and pale, it betokeneth phlegmatick blood; if it be somewhat red, it argueth the weakness of the faculty that engendreth the milk. It ought to be sweet, fragrant and pleasant to the taste; for if it dike into the noifills with a certain sharpness, for the most part the milk of women that have red hair and little freckles on their faces doth, it prognosticat a hot and cholerick nature: with a certain fowemidd, it portendeth a cold and melancholick nature. In taste it ought to be sweet and as it were figured, for the bitter, faftith, thorp, and flatipate, is taught. And hence I cannot but admire the providence of nature, which hath caufed the blood wherewith the child should be nourifhed to be turned into milk: which unlies it were fo, who is he that would not turn his face from, and abhor so grievous and terrible a spectacle of the child's mouth so inflamed and befmeared with blood? what mother or Nurse would not be amazed every moment with the fear of the blood so often sted out, or flecked by the infant for his nourishment? Moreover, we should want two helps of substantation, that is to fay, Batter and Cheefe.

Neither ought the child to be permitted to fuck within five or six days after it is born, both for the reason before alleged, and also because he hath need of so much time to rest, quiet, and to make himself after the pains he hath fulfilled in his birth: in the mean time the mother must have her breasts, drawn by some maid that drinketh no wine, or else she may drak or draw them herfelf with an artificifal instrument which I will describe hereafter.

That Nurse that hath born a man child, is to be preferred before another, because her milk is the better to please, the heart of the male child, and the mother herself. And moreover, the women that are with child with a male child, are better coloured, and in better strength, and better able to do any thing all the time of their gestation, which proveth the fame: and moreover the blood is more laudable, and the milk better. Furthermore it behoveth the Nurse to be brought on bed, or to travail at her just and prefixed or natural time; for when the child is born before his time of term towards caufe, it argueth that there is some defect lurking and hidden in the body and humour thereof.

CHAP. XXII.

What diet the Nurse ought to use, and in what situation she ought to place the infant in the Cradle.

Oh! in eating, drinking, sleeping, watching, exercising and refting, the Nurife diet must be divers, according as the nature of the child both in habit and temperatur shall be: as for example, if the child be altogether of a more hot blood, the Nurse both in feeding and ordering her feld ought to follow a cooling diet. In general let her cat meats of good piece, moderate in quantity and quality, let her live in a pure and clear air, let her abstain from all spices, and al l falted and fpaced meats, and all sharp things, wine, especially that which is not alloyed or mixed with water, and carnal copulation with a man, let her avoid all perturbations of the mind, but anger especially, let her use moderate exercife, unless it be the exercife of her arms and upper parts, rather than the legs and lower parts, whereby the greater attraction of the blood that must be turned into milke, may be made towards the lungs. Let her place her child fo in the Cradle that his head may be higher than all the body, that the excremental humors may be the better sent from the brain into the passages that are beneath it. Let her fważhe it fo to the neck and all the back bone may be straight and equal. As long as the child sucketh, and is not fed with stronger meat, it is better to lay him alway on his back, than any other way, for the back is as it were the keel in a ship, the ground-work and foundation of all the whole body, whereas the instance may fail and easily ref. But if he be weak, and feen on one fide, it were dangerOUtl that the bones of the ribs being foft and tender, not strong enough, and united with fclla dclads, fhould bow under the weight of the rel, and fo wax crooked, whereby the infant might become crooked-back. But when he beginneth to bleed teeth, and to be fed with more ftronger meat, and alfo the bones and conneflions and them begin to wax more firm and hard, he must be layed one while on this fide, another while on that, and now and then alfo on his back. And the more he groweth, the more let him be accuftomed to lie on his fides, and as he lieth in the Cradle, let him be turned unto that place whereat the light conccrneth, let that otherwise whofhould be made publinh, for the eye of its own nature is bright and lightrouse, and therefore always defhirs the light, and abhorreth darker i for all things are moft delighted with their like, and flun their contraries.

Therefore unlies the light comes directly into the child's face, he turneth the himfelf every way being very forrowful, and drieth to turn his head and eyes that he may have the light, and that often turning and rowling of his eyes at length groweth into a cuftom that cannot be left: and so it co-

very forrowful, and ftriveth to turn his head and eyes that he may have the light, and that often
concerning the Generation of Mau.

Concerning the Generation of Mail, to look after that for all, which afterwards he cannot leave or alter. For those evil things which we learn in our youth, do stick firmly by us, but the good qualities are easily changed into worse. In the eyes of those that are squint-eyed, those two muscles which do draw the eyes to the greater or lesser corner, are chiefly or more frequently moved. Therefore either of those being confirmed in their turning aside by long use, as the exercise of their proper office increaseth the strength, soon overcomes the contrary or withstanding muscles, called the Antagonists, and brings them into their subjection, so that, will they, will they, they bring the eye unto this or that corner as they listed. So children become left-handed, when they permit their right hand to languish with idleness and sluggishness, and strengthen their left hand with continual use and motion to do every action therewithall, and so bringing the exercise thereof more strength unto that part. But if men (as some affirm) being of ripe years, and in their full growth, by daily society and company of those that are lame and halt do also halt, not minding to do, but it cometh against their wills, and when they think nothing thereof, why should not the like happen in children, whose soft and tender substance is as flexible and pliant as wax unto every impression? Moreover, children, as they become lame and crook-backed, and so bring by the exercise thereof more nutriment unto that part. But if men had, as some affirm being of ripe years, and in their full growth, by daily society and company of those that are lame and halt do also halt, not minding to do, but it cometh against their wills, and when they think nothing thereof, why should not the like happen in children, whose soft and tender substance is as flexible and pliant as wax unto every impression? Moreover, children, as they become lame and crook-backed, and so bring by the exercise thereof more nutriment unto that part.

How children become left-handed.

Ap is a most meet food or meat for children because they require moist nourishment, and it must be answerable in thickness to the milk, that so it may not be difficult to be concocted or digested. For pap hath these three conditions, so that it be made with wheaten flower, and that not crude, but boiled: let it be put into a new earthen pot or pickin, and so get into an oven at the time when bread is set thereinto to be baked; and let it remain there until the bread be baked and drawn out: for when it is so baked, it is left clammy and crude. Those that mix the meal crude with the milk, are contrived to abide one of these difficulties or other, either to give the meat grofs and clammy unto the child, if that the pap be only first boiled over the fire in a pickin or skellet, so long as shall be necessary for the milk; hence come obstructions in the univadrians veins, and in the small veins of the liver, fretting and worms in the guts, and the stone in the reins. On else, they give the child the milk, depollled of its butterish and whiffy portion, and the territrital, and cheese-like, or curd-like remaining, if the pap be boiled so long as is necessary for the meal: for the milk requireth not so great, neither can it suffer so long boiling as the meal. Those that first boil the milk requireth not so great, neither can it suffer so long boiling as the meal. Those that first boil the milk requireth not so great, neither can it suffer so long boiling as the meal. Those that first boil the meal, and have no hurt by it, are greatly bound to nature for so great a benefit. But Galen willed children to be nourished only with the Nurse's milk, so long as the Nurse hath enough to nourish and feed it. And truly there are many children that are contented with milk only, and will receive no pap until they are three months old. If the child is at any time colicive, and cannot void the excrement, let him have a cataplasm made with one dram of Aloes, of white and black Hellebore, of each fifteen grains, being all incorporated in as much of an Ox gall as is sufficient, and extended on Cotton like unto a patina, as broad as the palm of one's hand, and so apply it upon the navel warm: Moreover, the cataplasm hath also virtue to kill the worms in the belly. Many times children have fretting of the guts that make them to cry, which cometh of crudity. This must be cured by applying unto the belly sweaty or moist wool, macerated in oil of Camomil.

If when the child's teeth begin to grow, he chance to bite the nipple of the Nurse's breast, there will be an ulcer very continuance and hard to be cured; because that the sucking of the child, and the rubbing of the cloths do keep it always raw; it must be cured with anointing it with Alum-water, and then profly after the fumication putting thereupon a cover of lead, made like unto a hat, as they are here described, with many holes in the top, wherein both the milk, and also the fomious matter that cometh from the ulcers may go out; for lead itself will cure ulcers.

The figure of leaden Nipples to be put upon the Nipple or Teat of the Nurse, when it is ulcerated.
Concerning the Generation of Man.  

CHAP. XXIV.

Of the weaning of Children.

Many are weaned in the eighteenth month, some in the twentieth; but all or the most part in the second year: for then their teeth appear, by whose presence nature concedes to require some harder meat than milk or pap, whereas children are delighted, and will feed more earnestly thereto. But there is no certain time of weaning of children. For the breast of the mother will separate sooner, and some later; for they are of nature for no other purpose than to chew the meat. If children be weaned before their teeth appear, and are fed with meat that is somewhat hard and solid, according to the judgment of Avitius, they are incident to many diseases coming through crudity, because the stomack is yet but weak, and wanteth that preparation of the meats which is made in the mouth in chewing, which more of ripe years cannot with a sudden out offence: when the child is two years old, and the teeth appear, if the child more vehemently desire harder meats, and doth feed on them with pleasure and good success, he may be safely weaned, for it cannot be supposed that he hath this appetite of hard meats in vain, 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 of the child be weak, dull, or feeble, he ought not to be weaned. And when the mean time of weaning cometh, the Nurse must now and then use him to the teat, whereby he may leave it by little and little, and then let the teat be anointed or rubbed with better things, as with Abes, water of the infusion of Cologne, or Wormwood, or with Mustard, or box steeped in water, or such like. Children that are fphybly in their heads, and over all their bodies, and which void much phlegm at their mouth and nostrils, and many excrements downwards, are like to be strong and sound of body; for they are purged of excremental humors contrariwise, those that are clean and fair of body, gather the matter of many diseases in their bodies, which in process of time will break forth and appear. Certainly, by the sudden falling of such matters into the back-bone many become crook-bodied.

CHAP. XXV.

By what figure it may be known whether the child in the womb be dead or alive.

If neither the Chirurgical hand, nor the mother can perceive the infant to move, if the waters be flowed out, and the facuncile come forth, you may certainly affirm that the infant is dead in the womb, for this is the most infallible sign, because the child in the womb doth breathe but by the artery of the navel, and the breath is received by the Cotyle; and when the arteries of the womb, it must of necessity come to pass that when the fecundine is separated from the infant, no air nor breath can come unto it. Wherefore so often as the fecundine is excluded before the child, you may take it for a certain token of the death thereof; when the child is dead, it will be more heavy to the mother than it was before when it was alive, because it is now no more sustained by the spirits and faculties wherewith before it was governed; but the brain, noftrils, the eyes and mouth are purged, by the tears and mucus that come from the eyes and nostrils. But they must not be permitted to cry long or fiercely, for fear of breaking the production of the Peritoneum, and thereby causing the falling down of the guts into the cod, which rupture is called of the Greeks Enteritis, or of the caulk, which the Greeks call Epitrochitis.

A most certain sign of the child dead in the womb.

When children are strong and sound of body.

What children must not be weaned.

A sudden caufe of sudden crook-beds.
ing, the natural heat vanishes away, and in place thereof succedeth a precursory, natural, by the working whereof the purged and diffused humors are stirred up into vapors, and converted into wind, and those vapors, because they puffle and fall to the feet (for naturalists say that of one part of water ten parts of air are made) do to puff up the purged body into a greater heat.

You may note the same thing in bodies that are gangrenate, for they cast forth many sharp vapors, yet nevertheless they are swollen and puffed up.

Now if from the Chirurgion that know that the child is dead by all these fore-mentioned signs, he shall with all diligence endeavor to have the mother so speedily as he can, and if the Physicians cannot prevail with potions, baths, fumigations, menstruations, vomits, and limeniments appointed to expel the infant, let him prepare himself to the work following, but first let him consider the strength of the woman, for if he perceive that she is weak and feeble by the smallness of her pulse, by her small fullness of her breast, and by the altered and death-like colour in her face, by her cold sweats, and by the coldness of the extreme parts, let him abstain from the work, and only affirm that the child will die thereby, contrariwise, if her strength be yet good, let him with all contentment and industry deliver her on this wise from the danger of death.

CHAP. XXVI.

The Chirurgion ought to prepare himself and his patient to the drawing out of the child from the womb.

A woman in travail must be placed when the child being dead in her womb shall be drawn out.

After what the child is be drawn out, the woman is to be bound and drawn out.

The child of a woman that is dead in her womb must be drawn out by force with his hands forwards.
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To diminish the wind wherewith the infant being dead in the womb, felth and is pushed up that he cannot be got ten out of the womb.

To draw out the infant that is dead in the womb.

But if the head be troubled with like fault, the hooks must be fastened about the chanted-bone: if there be a Drop in the belly, the hooks must be fixed either in the short ribs, that is to say, in the muscles that are between the ribs, or especially, if the disease do also descend into the feet, about the bones that are above the groin; or else putting the crooked knife here pictured into the womb with his left hand, let him make incision in the child's belly, and so get out all his entrails by the incision: for when he is so bowelled, all the water that caused the Drop will out. But the Surgeon must do none of all these things but when the child is dead, and the woman that travelles in such danger that she cannot honestly be holpen.

But if by any means it happeneth, that all the infant's members be cut away by little and little and that the head only remaineth behind in the womb, which I have sometimes against my will, and with great sorrow seen; then the left hand, being anointed with oil of Lillies, or sweet Butter, must be put into the womb, wherewith the Surgeon must find out the mouth, putting his finger into it; from his right hand he must put up the hook (according to the direction of the left hand) gently, and by little and little, and so taken it in the mouth, eye, or under the chin; and when he hath firmly fixed or fastened it, he must therewith draw out the head by little and little, for fear of breaking the part whereon he hath hold. In stead of this Hook, you may use the instruments that are here described, which therefore I have taken out of the Surgery of Francis Dachamps, that they may easily take hold of a spherical and round body with the branches, as with fingers.

Why the head being alone in the womb, is more difficult to be got out.
CONCERNING THE GENERATION OF MAN.

CHAP. XXV.

What must be done unto the woman in travail presently after her deliverance.

There is nothing so great an enemy to a woman in travail, especially to her whole child, as to be drawn away by violence, as cold: wherefore with all care and diligence the must be kept warm, and defended from cold. For, after the birth, her body being void and empty, doth easily receive the air that will enter into anything that's empty, and hence the wrathful cold, her womb is distended and puff'd up, and the orifice, or the vessels thereof are that and closed, whereof cometh suppression of the after-birth, or other after-purgations. And thereof cometh many grievous accidents, as hysterical suffocation, painful fretting of the guts, fevers, and other mortal diseases.

What woman foever will avoid that commodity, let her hold her legs or thighs across, for if so doing, those parts that were separated will be joined and close together again. Let her belly be also bound or rowled with a ligature of an indifferent breadth or length, which may keep the cold air from the womb, and also prevent the blood out that is contained in all the substance thereof. Then give her corn Capon-brest or Candle, with Saffron, or with the powder called Pulvis mus, or else bread toasted and dipped in wine wherein spice is brewed, for to restore her strength and to keep away the fretting of the guts. When the seconddine is drawn out, and is yet hot from the womb, it must be laid warm unto the region of the womb, especially in the winter, but in the Summer the hot skin of a weather newly killed must be laid unto the whole belly, and unto the region of the loins. But then the curtains must be kept drawn, and all the windows and doors of the chamber must be kept that with all diligence, that no cold air may come unto the woman that travaileth but that she may lie and take her rest quietly. The weather's skin must be taken away after that it hath lain five or six hours, and then all the region of her belly must be anointed with the ointment following.

R. Perfrmatu Ceri, 3 j. olei amygdal dulcis & hypericon, an. 3 j. feci hirici, 3 j. olei myristi. Cere nonum quantum sufficit make thereof an ointment, wherewith let her be anointed twice in the day: let a plaster of Galbanum be applied to the navel, in the midst whereof put some few grains of Civet or Musk, so that the small of the plaster may not strike up into her nostrils. Then let this medicine following be applied, commonly called Tele Guatlerina. R. Ceri, 3 j. olei myristi, an. 3 j. olei amygdal dulcis. Termeaul, Vente in aqua rossaci late, 3 j. olei amygdal dulcis & hypericon, an. 3 j. olei amygdal dulcis & myristi, an. 3 j. amorgia cextri, 3 j. melt them together, and when they are melted, take it from the fire, and then dip a linen cloth therein, as big as may serve to fit the region of the belly, whereunto it is to be applied. These remedies will keep the external region of the belly from wrinkling.

But of all other, the medicine following excelleth. R. Liasacum rub. B. j. florum anthus quari, iv. let them be cut all in small pieces, and put into an earthen pot well sealed with lead, and close stopp'd, then let it be set in the dung of horses for the space of forty days, and then be press'd or strained, and take the liquor that is strained out be kept in a glass well covered, and let it be set in the Sun for the space of three or four days, and therewith anoint the belly of the woman that lieth in child-bed. If she be greatly torment'd with throws, let the powder following be given unto her. R. carab. Anis, 4 j. make thereof a powder, let her take 4 j. thereof at once with white wine warm. Or, R. rad., the root.

Confolida major, 5 j. olei anthus quari. V. olei melox, 3 j. nucis myristi. 3 j. olei djaliger. 3 j. make thereof a powder, let her take 3 j. thereof at once with white wine warm. 

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CHAP. XXVIII.

What care must be used to the Dugs and Teats of those that are brested to bed.

To drive the milk downward.

If great store and abundance of milk be in the breasts, and the woman be not willing to nurse her own child, they must be anointed with the unguent following to expel the milk, and cause it to be expelled through the wounds. R. shi rof. myrtini an. 3 iij. et cypri 3 iij. incorporate them together, and therewith anointing beforetime with the powder of Myrtles, and then apply the plaster following. R. pulp. medicini, uncis myrptat. an. 3 iij. cypri cupressi 3 iij. balmi. myrtillis an. 3 iij. Rose. florent. 3 iij. shi myrptini 3 iij. serrulati. Veneti 3 iij. cero nova quantam suffac. make thereof a soft plaster.

The leaves of brooklime, cressels and box boiled together in urine and vinegar, are thought a premonitory remedy for this purpose, that is to say, to draw the milk from the breasts. And others take the clay that falleth down into the bottom of the trough wherein the grindstones, whereon fwords are ground, turwith, and mix it with oil of roses, and apply it warm unto the dogs, which in short space, as it is thought, will affwage the pain, stay the inflammation, and drive the milk out of the dogs. The decoction of ground-ivy, Periwinkle, Sage, red Roses, and Roch Alum being prepared in oxycrate, and used in the form of a fomentation, is thought to perform the like effect: the like virtue have the lees of red wine, applied to the dogs with vinegar, or the distilled water of unripe Pine-apples applied to the breasts with linens cloths wet therein, or linolcum beaten and applied with the young and tender leaves of a gourd.

This medicine following is approved by use: Take the leaves of Sage, Smallage, Rue, and Cherry-vil, and cut or chop them very small, and incorporate them in vinegar and oil of Roses, and apply it warm to the breasts, and renew it thrice a day. In the mean time let Cupping-glaules be applied to the inner side of the thighs and groins, and also above the navel, for this is very effectual to draw the milk out of the breasts into the womb by the veins whereby the womb communicateth with the breasts. Moreover, they may let children or little whelps suck their breasts, whereby they may draw out the milk that is fixed fast in their breasts, instead whereof we have invented this instrument of glaules, wherewith, when the broader orifice is fastned or placed on the breasts or dog, and the pipe turned upwards towards her mouth, the same may suck her own breasts her self.

The form of a little glass, which being put on the nipple, the woman may suck her own breasts.

Instead of this instrument, a viol of glaules being fixed made warm, and the mouth thereof applied to the nipple or teat, by reason of the heat and warmth thereof will draw the milk forth in the bottom thereof, as it were by a certain sucking. The after-purgations being first evacuated, which is done for the most part within twenty days after the birth, if the woman be not in danger of a fea-ver, nor have any other accident, let her enter into a bath, made of raijerom, mint, sage, rosemary, mugwort, agimony, pen-royal, the flowers of camomill, milleene, dill, being boiled in modest pure and clear running water. All the day following let another fuch like bath be prepared, whereunto let thefe things following be added. R. farin. fabarium & croc. an. 1 iij. farin. orbis, t. pini. & gland. an. 1 iij. aluminis rof. 3 iij. fulis coni. an. 1 iij. gallarium, mucum cupreps. an. 1 iij. refpar. rubr. m. vi. cypri cupreps. mucum myrptat. an. 3 iij. boil them all in common water, then few them all in a clean linen cloath, as it were in a bag, and call them therein the water wherein red hot hot hath been exsiccated, and let the woman that hath lately travailed sit down therein so long as the sweat therof, and when the cornet out, let her be laid warm in bed, and let her take some preferred Orange-pill, or bread toasted and dipped in Hippocras, or in wine brewed with spices, and then let her sweat, if the sweat will come forth of its own accord.

Astringent fomentations for the privy parts.

On the next day let astringent fomentations be applied to the genitals on this wise prepared. R. galii mucum cupreps, coriaceum granat. an. 3 iij. refer. rubr. m. vi. thyrsus, myrrham. an. m. vi. aluminis rof. fulis coni. an. 3 iij. boil them all together in red wine, and make thereof a decoction for a fomentation.
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fomentation, for the forenamed use. The distilled liquor following is very excellent and efficacious: A distilled liquor to draw together and to draw from the drains, or any other leaky parts. 

The causes of difficult and painful travail in child-birth are.

The birth is wont to be easy, if it be in the due and prefixed natural time, if the child offer himself humbly to come forth with his head forwards pleasantly after the waters are come forth, and the mother in like manner humble and strong: those which are wont to be troubled with very difficult child-birth, ought a little before the time of the birth, to go into a half-tub filled with the decoction of mollifying roots and seeds, to have their genitals, womb and neck thereof to be anointed with sumach, berberis, myrobalan and others, and the liquor in which they are letted in travail by shamefacedness, by reason of the presence of some man, or hate to some woman of theirs. In the moment of the deliverance, both the child and the mother will be in danger of death, as the force of the birth is stopped or delayed, if together with the stopping of the secundine, there be either a mole or some other body contrary to nature in the womb. In the secundine of two women whom I delivered of two children that were dead in their bodies, I found a great quantity of sand like unto that which is found about the lower part of the rivers, so that the gravel or sand that was in each secundine was a full pound in weight. The causes of abortion or untimely birth.

The causes of abortion or untimely birth are.

What the causes of difficult and painful travail in child-birth are.
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Women are in more pain by reason of the effusion than at the true birth.
The causes of Abortion.

Girding of the belly may cause untimely birth.

How baths and hot baths cause untimely birth.

Women are in more pain at the unterm birth than at the due time of birth.
The error of the first child birth comes afterwards.

A platter flaying the infant in the womb.

What children are ten or eleven months in the womb.

A male will be born sooner than a female.

behind it weakens of body far greater than if the child were born at the due time. The causes of abortion or untimely birth, whereof the child is called an abortive, are many, as a great fouring, a great flux or cathartick, a great violence of cough, exceeding vomiting, vehement labour in running, leaping, and dancing, and by a great fall from on high, carrying of a great burden, riding on a trotting horse, 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 do like vehement and inordinate motions dilate the ligaments of the womb, and so cause abortion and untimely birth.

Also whatsoever prefetth or girdeth in the mothers belly, and therewith alfo the womb that is within it, as are shodd Ivory or Whale-bone beds, which women wear on their bodies, thereby to keep up their bellies; by these and such like things the child is letted or hindered from growing to its full strength, so that by expectation, or as it were by compulsion, he is often forced to come forth before the legitimate and lawful time. Thundering, the noise of the flowing of great Ordinance, the found, and vehement noise of the ringing of Bells constrain women to fall in travail before their time, especially women that are young, whole bodies are fast slack and tenderer, than those that be of riper years. Long and great falling, a great flux of blood, especially when the infant is grown somewhat great: but if it be but two months old, the danger is not so great, because than he needeth not so great quantity of nourishment; also a long disease of the mother, which consumeth the blood, caueth the child to come forth being destitute of force of nourishment before the fit time. Moreover, falses, by reason of the existing great store of meats, often maketh or causeth untimely birth; because it depareth the strength, and presereth down the child; as likewise the use of meats that are of an evil piece, which they eat or long for. But baths because they relax the ligaments of the womb, and hot-houses, for that the fervent and choaking air is received into the body, provoke the infant to strive to go forth to take the cold air, and so cause abortion.

What women foreign, being indifferently well in their bodies, travail in the second or third month without any manifest cause, thofe have the Coryzophies of their womb full of heat and matter, and cannot hold up the infant, by reason of the weight thereof, but are broken: Moreover laden or continual perturbations of the mind, whether they be through anger or fear, may cause women to travail before their time; and are accounted to the causes of abortions, for that they cause great and vehement trouble in the body. Thofe women that are like to travaile before their time, their dugs will wax little; therefore when a woman is great with child, if her dugs suddenly wax small and tender, it is a sign that the infant is grown to be big, and that she will shortly be delivered.

Concerning the Generation of Man.

How to preserve the infant in the womb, when the mother is dead.

If all the signs of death appear in the woman that lieth in travail, and cannot be delivered, there must then be a Surgeon 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 privy parts be held open for the infant being included in his mothers womb,
Concerning the Generation of Man.


womb, and compassed with the membranes, cannot take his breath but by contractions and dilata-
ings, or constrictions; for when the mother is dead, the hæmorrhage do not execute their office
and function; therefore they cannot gather in the air that compasseth the body and the wound of
aftera arteria into their own substance, or into the arteries that are difperfed throughout the body
thence, by reason whereof it cannot feed it unto the heart by the vein artery which is called arteria
venalis: for if the heart want air, there can be no air in the great artery which is called arteria arteriae,
whose function it is to draw it from the heart, as also by reason thereof it is wanting in the arteries
of the womb, which are as it were the little conduits of the great artery, whercinto the air that is
brought from the heart is derived, and floweth into these little ones of all the body, and likewise of
the womb. Wherefore it must rest upon the necessity that the air, if it is to be transported to the
cotyledons, to the artery of the infants navel, the black arterie also, and therefore into his heart,
and so into his body; for the air being drawn by the mothers lungs, is accustomed to come to the
infant by this continuance of passages. Therefore because death maketh all the motions of the mo-
ters body to cease, it is far better to open her body so soon as she is dead, beginning the incision at
the carthilage, Xiphoides, or blade, and making it in a form semicircular, cutting the skin, muscles
and peritonæum, not touching the guts: then the womb being lifted up, must truth be cut; lastly,
otherwise the infant might perchance be touched or hurt with the knife.

You shall sometimes find the child unmovable, as though it were dead; but not because it is
dead indeed, but by reason that be, being out of the reach of the spirits by the death of the
mother, hath contracted a great weakness; yet you may know whether he be dead indeed or not
by handling the artery of the navel; for it will beat and part in the be alive, otherwise not; but if
there be any life yet remaining in him, shortly after be hath taken in the air, and is recreated with
the access thereof, he will move all his members, and also all his whole body. In so great a weakness
or disability of the strength of the child, by cutting the navel-dring, it must rather be laid close to
the region of the belly thereby, that the heat (if there be any of remaining) may have time to
up again. But I cannot sufficiently marvel at the insolvency of those that affirm that they have
been women whose bellies and wombs have been 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 persuade me can be done without the death of the mother, by reason of the neces-
sary greatness of the wound that must be made in the muscles of the belly, and substance of the
womb, for the womb of a woman that is great with child, by reason why it is filled, and is
filled with much blood, must needs yield a great flux of blood, which of necessity must be
mortal. And to conclude, when that the wound or incision of the womb is closed, it will not
permit or suffer the womb to be dilated or extended, to receive or bear a new birth. For flabe
and such like other cauces, this kind of cure, as desperate and dangerous, is not (in mine opinion)
to be used.  

CHAP. XXXII.

Of Superfetation.

Superfetation is when a woman doth bear two or more children at one time in her womb, and
they be enclosed each in his several cotyledon: but those that are included in the same fe-
cundine, are supposed to be conceived at one and the same time of copulation, by reason of
the great and copious abundance of feed, and that they have no number of days between their con-
cption and birth; but all at once. For as presently after meat the stomach which is naturally of
a good temper, is contracted or drawn together about the meat, to comprehend it on every fide,
and so form and compose it. But now if any part of the woman's womb doth not

A woman's womb is not dissipated into divers cells.

The reason of superfetation.

others lay that the womb of it fell, and of its own nature is very deficient of feed or copula-
tion, or else being heated or inflamed with the pleasant motion of the man moving her thighs,

Why it is not
described to

preferre life in the
cold to hold open the
mouth and pri-

the child to

in the

the child is
dead, and the

child alive in her

body.

How the belly
of the woman
that death in

travel must be
cut open to

give the child

birth.

How it may be

known whether

the infant

be alive or not.
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The orifice of the stomach being (hut after eating, is prefently unloosed again, when other delicate meats are offered to be eaten; even so may the womb unloose it itself again at certain feasons, of some concealed infus, whose whole time of birth and also of conception are different. For as Pliny writeth, when there hath been a little space between two conceptions, they are both hastened, as it appeared in Cleopatra and her brother Ptolemy & 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 Procanician flave or bond-woman, who, by copulation on the same day, brought one forth like unto her master, and another like unto his steward: and in another who brought forth one at the due time of child-birth, and another at five months end. And again, in another, who bringing forth her burden on the seventh month, brought forth two more in the months following. But this is a most manifest argument of supercession, that as many children as are in the womb (unless they be twins of the same sex) so many secundines are there, as if they were often seen in my life. And it is very likely that if they were conceived in the same moment of time, that they should all be included in one secundine. But when a woman hath more children than two at one burden, it seemeth to be a monstrous thing, because that nature hath given her but two breasts. Although we shall hereafter rehearse many examples of more numerous births.

CHAP. XXXIII.

Of the tumor called Mola, or a Mole growing in the wombs of women.

O

F the Greek word Myele, which signifies a Mill-stone, this tumor called Mola hath its name; for it is like unto a Mill-stone both in the round or circular figure, and also in hard concretion, for the which it often raiseth the whin-bone of the knee, as is called in the Latin Mola, and in the Greeks Myele. But the tumor called Mola, whereof we here intend, is nothing else but a certain false conception of deformed flesh, round and hard, conceived in the womb as it were rude and imperfect, not difficult to penetrate the members, coming in short, weak, and difficult fed, or the immediate flux or the terms, as it is defined by Hippocrates. This is included in no secundine, but as it were in its own skin.

There are some that think the Mola to be engendred of the concourse or mixture of the womans feed and menstrual blood, without the communication of the mens feed. But the opinion of Galen is, that never any man saw a woman conceive either a Mola, or any other such thing without a copulation of man, as a Hen lyath eggs without a Cock: for the only cause and original of that motion is in the mens feed and the manseed doth only minifter matter for the generation thereof. Of the same opinion is Avien, who thinkest the Mola to be made by the connexion of the mens seed that is unfertile, with the womans, when as it, because unfruitful, only puffeth up or makes the womans seed to swell as leaven into a greater bignesse, but not into any perfect shape or form. Which is also the opinion of Plineus, as the decrees of Hippocrates and Avien: for the immediate fluxes of the courses are conducting to the generation of the Mola, which overcometh the mens seed, being now unfruitful and weak, doth contrariwise to delit from its extraneous of conception already begun, as vanquished or wholly overcome: for the generation of the Mola cometh not of a simple heat working upon a clammy and grofs humor, as worms are generated; but of both the seeds, by the efficacy of a certain spirit, after a forte prolihcal, as may be underftood by the membranes wherein the Mola is inclosed, by the ligaments whereby many times it is fastened or bound to the true conception or child, engendred or begotten by supercession; and finally, by the increafe, and great and thiggish weight. If all men were not perfwaded that the conflux of a mans seed must of necessity concur to the generation of the Mola, it would be no small cloak or cover to women to avoid the flame and reproach of their light behaviour.

CHAP. XXXIV.

How to discern a true conception from a false conception or Mola.

The signes of a mole inclosed in the womb.

W

Hen the Mola is inclosed in the womb, the same things appear as in the true and lawfal conception. But the more proper signes of the Mola are these: there is a certain prickinge pain, which at the beginning troubleth the belly as if it were the colick in the womb. But the motion of the Mola differeth from the motion of the infant in the womb. The mole doth rise to one side of the belly, as the fquamation of the body is.

By what feedly the womb moveth. How the motion of the mole differeth from the motion of the infant in the womb. The mole doth turn to each side of the womb, as the squamation of the body is.
Book XXIV. Concerning the Generation of Man.

natural heat forshaking the parts remote from the heart by little and little: and moreover, her belly foreloll, by reason that the menstrual matter rutsch about those places, and is not confined in the nourishment of the Mola, but it floweth as if it had the dropie, but that it is harder, and doth not rise again when it is pressad with the fingers. The navel doth not fwal low out as it will do when the true liffe is contained in the womb, neither do the courses flow as they do sometimes in the true conception; but sometimes great flashes happen, which ease the weight of the belly. In many when the Mola doth cleave too very fast, it falleth away within three or four months, being not as yet come unto its just bignefs; and many times it cleaveth unto the sides of the womb and Coyledons very firmly, fo that some women carry it in their wombs five or fix years, and some as long as they live.

The external form and description of the forenamed womb.

The Defcription of the womb being open, and shewing the Mola contained therein.

The wife of Guillaume Roger Peweter, dwelling in S. Villars street, bore a Mola in her womb seventeen years, who being of the age of fifty years, died; and I having opened her found the body of her womb to be almost loosed, and not tied or bound by its accustomed ligatures, but as it were hanging only by the neck, and furthermore cleaving to the Kall adjoining to it, having but one teitle, and that on the right side, and that somewhat broader and looser than usual; the horns were not to be feen except it were on that fide, the vessels were on the neck only, and there very manifest and puffed up, it was as big as a mans head. When I had taken it out of her body, I brought it home unto my house, that at my leifure I might find out what was contained in it so long; therefore on a certain day, calling together the chief Physicians of Paris, as Mallet, Aëneas, Vigor de S. Font, Feure, Baret, Violat, Greaultus, Racin, Marefchial, Milet, Hautin, Kideau, Laffos; and Surgeons, as Brou, Cleftrel, Guillenmus; all thole being present, I opened the womb, and
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The description of a Mola carried seven years in the womb.

and I found it in all the body thereof, and in the proper tunicle, so fair and bright, that I could hardly cut or make a knife to enter it: the body thereof was three fingers thick. In the middle of the capacity thereof I found a lump of flesh as big as both my fists, like unto a Goose-egg, cleaving to the sides of the womb, but in a certain place, of a very thick, unequal and cellular substance, with many bodies therein, even as are commonly found in Wens and Gristles, differenced through it as if it were bones. The judgment of all that were present was, that this great tumor at the first was a Mola, which in process of time degenerated into a fair and bright body, together with the proper substance of the womb. Moreover, in the middle of the neck of the womb, we found a tumor as big as a Turkies egg, of substance hard, cartilaginous and bony, filling all the whole neck, but especially the inward orifice of the womb, which the common people of France do call the Garland, so that by that passage nothing could go out, or enter into the womb: all that tumor weighed nine pounds and two ounces, which I, by reason of the novelty of the thing, keep in my closet, and before I have described it.

As long as the woman carried this Mola in her womb, the felt most sharp pain in her belly: the region of her belly was marvelous hard, dilated 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, supposed that swelling of the belly to come of the Dropifie, and affayed to cure it as they would the Dropchie, but for all the medicines they could use, the belly became never the softer. Sometimes the urine was stopped for the space of three days, and then the making of urine was very painful unto her, and many times also her excrements were stopped for the space of a week, by reason that the guts were preferved by the weight of the Mola. At certain feasons, as every third month, there came exceeding great fluxes; the matter thereof could not be carried through the capacity of the womb, as we said before, because it was exactly that and stopped, but through the vessels by which Virgins, and also certain other women great with child evacuate their menstrual matter. If this Mola be expelled or cast out in the first or second month, as many times it so happeneth, it is called of women an unprofitable or false conception. Sometimes there are found in one womb 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 Valerio the Physician, which was delivered of a Mola which he had carried in her womb twelve months, annexed with a child of four months old, which had deprived the Infant of its room and nutriment. For it is always to be certainly suppos'd, that the Mola, as a cruel beast, by its society, and keeping from its nutriment and place, kills the Infant at once in her womb so that many Physicians when the time of child-birth was past, were constrained to assist the child in the womb, as we said before, because the Mola was supposed to come of the smallpox, and assayed to cure it as they would the smallpox.

A vain or unprofitable conception.

The Mola kills the infant in the womb, when it is fastened unto it.

Those things that provoke the flowers and seedlines, and exclude the Infant, being dead, are to be preferred, given inwardly, put up, and applied outwardly, as Trochisces of myrrha, hermodactyl, and such like, first having fermentation that are relaxing and mollifying always applied to the places. You must use these medicines, and phlebotomy, diet and baths that are more slender, they are said in a mockery to have been delivered of a farthing. To conclude, whatsoever resembles being with child, if it be not excluded at the due and lawful time of child-birth by its own accord, or by the strength of nature, then must it be expelled by art.

CHAP. XXXV. What cure must be used to the Mola.

All things that provoke the flowers and seedlines, and exclude the Infant, being dead, are to be preferred, given inwardly, put up, and applied outwardly, as Trochisces of myrrha, hermodactyl, and such like, having fermentations that are relaxing and mollifying always applied to the places. You must use these medicines, and phlebotomy, diet and baths that are more slender, they are said in a mockery to have been delivered of a farthing. To conclude, whatsoever resembles being with child, if it be not excluded at the due and lawful time of child-birth by its own accord, or by the strength of nature, then must it be expelled by art.

The Chirurgical extraction of the Mola.
The tumors of other places and parts in the belly ought diligently to be distinguished from the Mola, and other tumors of the womb. For when the tumors arise in the glandula called Pancreas, and in all the whole Mesenterium, many unskilful Surgeons take them for Mola or feirrhous tumors of the womb, and so go erroneously about to cure them, as shall appear by these Histories following.

Isabel Balbus, the wife of John Bony dwelling in Paris in the street Moncey near to St. Germaine his church, being three-score years of age, departed this life in the year of our Lord 1578. On the second and twentieth day of October, and her body being opened in the presence of Doctor Miles the Physician; he, when the Mesenterium was taken out of the body, caused it to be carried home to his house, that at his leisure he might find out the cause of this mortal disease, which was always suspected to be in the Mesenterium.

Therefore on a time calling Paradum, Bruno, Cheppel, Marcotina, Arganious, Batbilm, Rebritian, and Rishan, all Doctors of Physick, and myself and several Surgeons, to his house to see the cause: Where we found all the Mesenterium and the Pancreas in the Mesenterium swollen and put up with a marvellous and almost incredible tumor, so that it weighed ten pound and an half, altogether feirrhous on the outside, cleaving on the hinder part only to the vertebrae of the loins: but on the fore-part to the Peritoneum being also firmous and wholly cartilaginous. Moreover, there were infinite other abscesses in the same Mesenterium, every one closed in a several cell, some filled with a honey-like, some filled with a cellow-like, some with an albugineous, and some with a watery liquor or humour, wherein some were like unto pap, and to conclude, look how many abscesses there were, so many kinds or differences of matters there were. It was then eight years since that tumor began to grow by little and little without feeling and pain unto such a greatness, because that the Mesenterium it self was without pain in a manner. For the woman her left could do all the faculties of Nature almost as well as if she had been found and whole, except that two months before the death, she was constrained to keep her bed, because she had a continual Fever, which endured so long as she lived, and also because that the Mesenterium, being as it were separated or torn from its roots or feet, did grow up and down in the belly, not without the feeling of grievous pain: for, as we said before, it did stick but only to the Mesenterium and Peritoneum, and nothing at all to the guts and other parts whereunto it is as it were naturally knit or joined.

Therefore because the weight and heaviness thereof depriev’d the bladder, it caus’d a great difficulty in her making of water, and also because it rested on the guts, it made it very painful for her to go to stool, so that the excrements would not come down except she took a sharp Clyster to cause them; and as concerning Clysters, they could not be put up high enough by reason of the greatness of the tumor which enclosed and cut the way, and suppositories did no good at all. It was also very difficult for her to take breath, by reason that the midriff or diaphragma was compris’d with the tumor. There were some that did fuppose it to be a Mola, others thought that it came by reason of the great tumors of the tumour. There were some that did fuppose it to be a Mola, others thought that it came by reason of the dropstie. Affuredly this disease cau’d the dropstie to ensue, neither was the cause thereof obscure, for the function of the Liver was frustrated by reason that the concretion or the alteration of the Chylus was intercept’d by occasion of the tumor: and moreover the Liver itself had a proper disease, for it was hard and feirrhous, and had many abscesses 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 be brief, there was nothing found in the lower belly.

There is the like History to be read, written by Philip Ingrellis, in his book of Tumors, of a certain Moor that was hanged for thefts; for (said he) when his body was publicly dissected, in the Mesenterium were found seventy seirrhous tumors, and so many abscesses were contained or enclosed in their several cells or skins, and sticking to the external mucle, especially of the greater guts: the matter contained in them was divers: for it was hard, knotty, clammy, glutinous, liquid and watery; but the excrements, especially the Liver and the Milk, were found free from all manner of a tainture, because (as the same Author alledgeth) Nature being strong had fent all the evil juice and the corruption of the excrements into the Mesenterium: and verify this.

Of Tumors or swellings happening to the Pancreas or sweet-breads, and the whole Mesenterium.
Here are many causes of barrenness in Men, that is to say, the too hot, cold, dry or moist dis temper of the seed, the more liquid and flexible consistence thereof, so that it cannot stay in the womb, but will peradventure flow out again: for such is the seed of old men and frophulous, that it will not adhere to the female parts. 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 reacheth the privy parts of a woman, and doth cast out a fcarce or blood, for then it is no service to the woman, that she cannot void her seed, for what cannot yield forth seed, but a certain clammy humour contained in the glandules called Prostate (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 reacheth the privy parts of a woman, and doth cast out a false or blood, for then it is no service to the woman, that she cannot void her seed, for what cannot yield forth seed, but a certain clammy humour contained in the glandules called Prostate (yet with some feeling of delight).

The Woman may perceive that the mens seed hath some dis temperature in it, if when the husband received it into her womb, the feeth it ithapp, or hot; and 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 are been cut, that are there, that after they have been evacuated, there followed an intercession of the seminal matter downwards, and also of the community which ought of necessity to be between the brain and the testicles, so that when the conduits or passages are stopped, 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 lesser in quantity, and weaker in quality.

Those that have their testicles cut off, or else compressed or cutted by violence, cannot beget children, because that either they want that help the testicles should minister in the act of generation, or else because the passage of the seminal matter is intercepted or stopped with a Colloqu: by reason whereof they cannot yield forth seed, but a certain clammy humour contained in the glands called Prostate (yet with some feeling of delight).
A woman may become barren or unfruitful through the obstruction of the passage of the seed, or through straitness and narrowness of the neck of the womb. Moreover the Membrane called Hymen, when it is in growth in the midst or in the bottom of the neck of the womb, hinders the receiving of the man's seed. Also if the womb be over-flippery, or more loose, or over-wide, it maketh the woman to be barren, so that the Seed cannot have free passage thereinto. Moreover the Membrane called Hymen, when it is in growth in the midst or in the bottom of the neck of the womb, hinders the receiving of the man's seed. Also if the womb be over-flippery, or more loose, or over-wide, it maketh the woman to be barren, so that the Seed cannot have free passage thereinto. Moreover the Membrane called Hymen, when it is in growth in the midst or in the bottom of the neck of the womb, hinders the receiving of the man's seed.

The signs of too cold a Womb whose Flowers are either stopped, or flow sparingly, and those pale and hot well coloured.

The signs of a cold womb.

The signs of a hot womb.
What is the falling down of the Womb. The caufes.

The Womb is faid to fall down and be perverted, when it is moved out of its proper and natural place; as when the bands and ligatures thereof being loofed and relaxed, it falleth down into one side or other, or into its own neck, or ifli puffeth further, fo that it comes out at the neck, and a great portion thereof appears without the privy parts. Therefore what things forever refolve, relax, or hurt the ligaments or bands whereby the Womb is tied, are fuppofed to be the caufes of this accident. It fometimes happens by vehement labour or travel in Child-birth, when the Womb with violence excluding the ilulses and the fecundines, alfo follows and falls down, turning the innerfe thereof outward. And fometimes the foft bands of the Midwife when they draweth away the Womb with the Infant, or with the fecundines cleaving fall thereunto, and fo drawing it down and turning the innerfe thereof outward. Furthermore, a heavy bearing of the Womb, the bearing of the carriage of a great burden, folding or stretching of the hands or body upwards in the time of gestations with child, a fall, contufion, lodging or jogging by riding, either in a Waggon or Coach, or on Horfe-back, or lying or dancing, the falling down of a more large and abundant humour, great griping, a strong and continual cough, a Tenifer or often defire to go to flool, yet not being able to defec, a manifold and great birth, difficult bearing of the Womb, an aflhma, or the taking of cold air in the time of travel with child, or in the flowing of the menftrual flux, or in the corrupting of the bands, or in the running of the menftrual flux, fettling on a cold marble stone, or any other fuch like cold things are thought oftentimes to be the occafion of thefe accidents, becaufe they may bring the Womb out of its place. It falls down in many {faith Ariftot'), by reafon of the defire of copulation that they have, either by raifion of the laftness of their youth, or elfe becaufe they have maintained a long time from it. You may know that the Womb is fallen down by the pain of thofe parts wherein it is fallen, that is to fay by the enthrails, loin, or férums, and by a tracheal tumor at the neck of the Womb, and often with a visible hanging out, of diverse greatnefs, according to the quantity that is fallen down. It is fenfimes like unto a piece of red fleft, hanging out at the neck of the Womb, of the bignefs of a Goofe-egg, if the woman stand upright, the fleeth the weight to lie on her privy parts; but if the fit or lie, then the perceiveth it on her back, or go to the flool, the fhining great called tertiumus retum will be prefent and loaden as it were with a burden; if he lie on her belly, then her utus will be loofed, fo that the thinl fear to ufe copulation with a woman.

When the Womb is newly relaxed in a young woman, it may be foon cured; but if it hath been long down in an old woman, it is not to be helped. If the Pfalme of the ligaments thereof have oc- curred the falling or ceafe admits of cure; if but it falls down by means of perturbation, it can- not be cured. It is great quantity thereof that hang out between the thighs, it can hardly be cu- red; but is is corrupted by taking the air, and by the falling down of the utus and fifth, and by the motions of the thighs in going it is ulcerated, and fo putrefies.

I remember that once I cured a young Woman who had her Womb hanging out at her privy parts as big as an Egg, and I did fo well perform and perfed the Cure thereof, that afterwards the conceited, and bare children many times, and her Womb never fell down.
By this word, falling down of the Womb, we understand every motion of the Womb but of its place or seat: therefore if the Womb ascend upwards, we must use the same medicines as in strangulation of the Womb. If it be turned towards either side, it must be restored and drawn back to its right place, by applying and using cupping-glasses. But if it descend and fall down into its own neck, but yet not in great quantity, the woman must be placed so that her buttocks may be lifted upwards, her buttocks and thighs so lifted up, and her legs so drawn back as when the child or secundine are to be taken or drawn from her. Then the neck of the Womb, and whatsoever hangeth out thereon, must be moistened with oil of Lilies, fresh Butter, Capsoms, Grease, and such like: then it must be thrust gently with the fingers up into its place, the sick or pained woman in the mean time helping or furthering the endeavor by drawing in of her breath as if she did sup, drawing up as it were that which is fallen down.

After that the Womb is restored unto its place, whatsoever is filled with the ointment must be wiped with a soft and clean cloth, lest that by the slipperiness thereof the womb should fall down again: the genitals must be fomented with an astringent decoction, made with Pomegranate Pills, Cypress Nuts, Figs, Food Allen, Horse-tail, Sumach, Berries, boiled in the water wherein Smiths quench their horns of: of those materials make a powder, whereby let those places be sprinkled: let a Pessary of a competent bigness be put in at the neck of the Womb, but let it be eight or nine fingers in length, according to the proportion of the grieved Patients body. Let them be made either with Latten, or of Cork covered with Wax, of an oval form, having a thread at one end, whereby they may be drawn back again as need requires.

When all this is done, let the sick woman keep herself quiet in her bed, with her buttocks lying very high, and her legs crossed, for the space of eight or ten days: in the mean while the application of Cupping-glasses will stay the Womb in the right place and seat, after it is restored hereunto: but if the bath taken any hurt by cold air, let the privy parts be fomented with a diffusing and heating fomentation, on this wise: R Fels. albo. flat. brasent. rosmar. arte[m]. florea. mulier. angum. melilot. amom. ½. let them be all well boiled in water and wine, and make thereof a decoction for your use. Give her also Clysters, that when the Guts are emptied of the excrements, the Womb may the better be received in the void and empty capacity of the belly: for this reason the bladder is also to be emptied, for otherwise it were dangerous lest the Womb lying between them, both being full, should be kept down, and cannot be put up into its own proper place by reason thereof. Also vomiting is supposed to be a singular remedy to draw up the Womb that is fallen down: furthermore also it purgeth out the phlegm which did moisten and relax the ligaments of the womb, for as the Womb in time of copulation at the beginning of the conception it moved downwards to meet the seed, so the Stomach, even of its own accord, is lifted upwards when it is provoked by the injury of any thing that is contrary unto it, to cast it out with greater violence; but when it is so raised up, it draws up together therewith the Peritoneum, the Womb and also the body or parts annexed unto it. If it cannot be restored unto its place by those preferred remedies, and that it be ulcerated and so putrefied that it cannot be restored unto its place again, we are commanded by the Precepts of Art to cut it away, and then to cure this.
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the Womb according to Art.; but first it should be tried, and as much as is necessary must be cut off, and the rest feared with a cautery. There are some women that have had all their womb cut off, without any danger of their life, as Patrinus testifieth.

The Physicin to the Count Palatine writeth, that Corpus the Chirurgian took out the womb of a Woman of Etruria, he being present, and yet the woman lived and was very well after it.

There was a certain woman, being found of body, of good repute, and above the age of thirty years, in whom, shortly after she had been married the second time, which was in Anno 1571, having no child by her first husband, the lawful signs of a right conception did appear; yet in processes of time those arose about the lower part of her privities the desire or feeling of a weight or heaviness, being to trouble them unto her by reason that it was painful, and alfo for that it stopped her urin, that the was constrained to dilate her distention by Christopher Monbery a Surgeon, her neighbour dwelling in the Suburbs of Saint Germain: who having seen the tumor or swelling in her groin, affwaged the pain with mollifying and anodyne Pomentations and Cataplasmes; but presently after he had done this, he found on the inner side of her lip of the orifice of the neck of the womb, an Impollution rotten and running, as if it had been out of an aldeles newely broken, with fowful matter, somewhat red, yellow, and pate, running a long time. Yet for all this the feeling of the heavyness or weight was nothing diminished, but did rather increase daily, fo that from the Year of our Lord 1573, the could not turn her fell in her bed on this or that side, unless the laid her hand on her belly to keepe and ease her feel of the weight; and also the said the sword upon her fell, the feneem to feel a thing like a Bowl or Rowl in her belly unto the side whereunto the earned her fell, neither could the go to toile, or avoid her excrements fikning or fitting, fo that the lift up that weight with her hands towards her fomach or midloch: when the was about to go, the could scarce ftrum forwards, as if there had been a thing hanged between her thighs, that did hinder her going. At certain fefons that rotten apoftume would open or unclofe of its fel, and flow and run with its wonted fowful matter, but then the was grievously vexed with pain of the head, and all her members, swelling, loathing, vomiting, and almoft choaking, to that by the peruation of a foolish woman she was induced and contented to take Antimonious, the working and the strength thereof was fo great and violent, that after many vomits, with many frettings of the guts, and watery defecfions of the stools, the thought her fundament fell down, but being certified by a woman that was a familiar friend of hers, unto whom the fowed her fell, that there was nothing fallen down at or from her fundament, but it was from her womb, and that the fell in the Year of our Lord, 1575, Surgeons, as my felf, Janes Guillemeau, and Anany Faus, that we might help her in extremity.

Where we had diligently and with good consideration weighed the whole effect of her disease, we agreed with one consent, that the that was fallen down should be cut away, because that by the black colour, flinking, and other such signs, it gave a testimony of a putrefied and corrupted thing.

Therefore for two days we drew out the body by little and little, and piece-meal, which fowed unto the Physicin that we had called, as Alciuin, Guinicum, Francico, and Volcaines, and alfo to our felves, to be the body of the Womb: which thing we proved to be fo, for one of the treffices came out whole, and alfo a thick membrane or skin being the relick of the Egoi, which being fappurated, and the aldeles broken, came out by little and little in matter, after that all this body was drawn away, the fick woman began to wax better and better, yet notwithstanding for the space of four days, being very fuddenly) and I having opened her body, obferving for the space of four days.

After this all things became as they were before, and the lived in good health three Moneths after, and then died of a Pleurifie that came on her very fuddenly) and having opened her body, obferving and marking every thing very diligently, could not not the womb at all, but in feed thereof there was a certain hard and calous body, which Naturae, who is never idle, had framed in head thereof, or to fill the hollowness of the belly.

C H A P. XLII.

Of the Tunicle or Membrane called Hymen.

Whether there be a membrane called apone.

Once I was in a Virgin of seventeen years, when her mother had contraried to a man, and the knew not whether there was foething in her privy parts that hindered her bearing of children, who deffered me to fee her, and I found a very thin and nervous membrane a little beneath the Nymphex, near unto the orifice of the neck of the womb, in the midst there was a very little hole where-through the Tentin my might flow; I being the thicken of thofe, cut it in foether with my Sciflas, and told her Mother what the fhould do afterwards: and truly the married shortly after, and bore "1st. 12. An History.

Children. Residam Columbus is of my opinion, and faith that this is very feldom, for these are their words, Under the Nymphex in many, but not in all Virgins, there is another membrane which when it is present (which is but feldom) it Boppeth, fo that the Yard cannot be put into the orifice of
of the Womb, for it is very thick, above towards the bladder it hath an hole by which the Courses flow out. And he also addeth, that he observed it in two young Virgins, and in one elder Maid.

Also writes, that in Virgins in the neck of the Womb there are Tunicles composed of Veins and Ligaments very little, rising from each part of the neck thereof, which at the first time of copulation are wont to be broken, and the blood run out. *Alhacen* writeth, that in Virgins the paffage of the neck of the Womb is very wrinkled, or narrow and fist, and these wrinkles to be broken or fluid togethet with many little veins and arteries, which are broken at the first time of copulation.

Thee are the judgments of Physicians of this membrane: Midwives will certainly affirm that they know a Virgin from one: that is delivered, by the breach or soundness of that 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 privy 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 it for propofe that it cannot be seen or perceived before the birth. But truly of a thing to rare, and which is contrary to Nature, there cannot be any thing spoken for certainty. Therefore the blood that cometh out at the first time of copulation, cometh not always by the breaking of that membrane, but by the breaking and violating or renting of the little veins which are woven and bepread all over the superficial and inward parts of the Womb and neck thereof, depending into the wrinkles, which in those that have not yet used the act of generation, are closed as if they were glued together, although those Maid that at their due time of marriage, feel no pain nor no flux of blood, especially if the marriage be an acceptable to the neck of the womb. Whereby it appears evidently how greatly the inhabitants of *Fav*, the Metropolitan City of Mauritania are deceived; for *Les the Africains* writeth, that it is the custom amongst 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 pretend that themselves into a Chamber, and make flat the door, while the marriage dinner is preparing: in the mean while while force old or grave Matron standeth waiting before the Chamber to receive a bloody linen cloth the new married husband is to deliver her there; which when the husband received, the brings it into the midst of all the company of guests, as a fresh spot and testimony of the married wife Virginity, and then for joy thereof they all fall to banquetting familiarly. But if through evil fortune it happeneth that in this time of copulation the spouse bleedeth not in the privy parts, she is relighted again unto her Parents, which is a very great reproach unto them, and all the Guests depart home sad, heavy, and without dinner.

Moreover there are more, that having learned the most filthy and infamous Arts of Baudery, profess common Harlots, make gain thereof, making men that are taughtly 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 do cause the neck of the Womb to be so wrinkled and thinned together, so that the sides thereof shall almost close or meet together; then they put therein the bladders of Fibers, or gall of Beads filled full of blood, and so deceive the ignorant and young Letcher by the fear and deceit of their evil Arts, and in time of copulation they mix lights with groans, and woman-like cryings, and Crocodiles tears, that they may seem to be Virgins, and never to have dealt with man before.

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**C H A P. XLIII.**

A memorable History of the Membrane called Hymen.

*Alhacen* writeth, that there was a Maid at Camurgo, who in the midst of the neck of the womb *dulce profi* had a thick and strong membrane growing overthwart, so that when the monethly Terms came out, it would not permit them, so that thereby the menstrual matter was stopped and flowed back again, which caufed a great tumor and distention in the belly, with great torment, as if she was in travel with child: the Midwives being called, and having seen and considered all that had been done, and did appear, did all with one voice affirm, that the face of the pains of child-birth, although that the Maid her self denied that the ever dealt with man. Therefore then this foresaid Author was called, who when the Midwives were void of counsel, might help this wretched Maid, having already had her sin stopp now three whole weeks, and perplexed with great watchings, loves of appetite, and losting: and when he had been the grieved place, and marked the orifice of the neck of the worlds, he few it stopped, with a thick membrane, he knew also that that sudden breaking out of blood into the Womb and the vefsels thereof, and the paffage for those matters that was stopped, was the caufe of her grievous and tormenting pain. And therefore he called a Chirurgeon presently, and willed him to divide the membrane that was in the midst, that did stop the face of blood, which being done, there came forth as much black, congealed and putrefied blood as weighed some eight pounds. In three days after the was well and void of all dissac and pain. I have thought it good to fet down this example here, because it is worthy to be noted, and profitable to be imitated, as the like occasion shall happen.
The strangulation of the Womb, or that which cometh from the Womb, is an intermission or dropping of the liberty in breathing or taking wind, because that the Womb, swollen or puffed up by reason of the access of gross vapours and humourous that are contained therein, and also stretched as it were by a convulsive motion, by reason that the vessels and ligaments distended with fulness, are so carried upwards against the midriff and parts of the bed, that it maketh the breath to be short, and often as if a thing lay upon the brest and presse it.

Moreover the Womb swelleth, because there is contained or inclosed in it a certain substance, caused by the defluxion either of the Seed or Flowers, or of the Womb or Whites, of some other humour, tumour, abscess, rotten spotness, or some ill price, putrefying or getting, or ingrowing an ill quality, and resolved into gross vapours. These, as they affect fumny or divers places, into divers or fumny accidents, as rumbling and rofe in the belly, if it be in the guts, define to vomit, after (with fudain vomiting) cometh weareines and loathing of meat, if it trouble the Stomach.

Choaking with strangulation, if it afflict the brest and thereunto, forcemng, if it vex the hearts, madhness, or else that which is contrary thereto, forced sleep or drawwindings, if it give the brain: all which oftentimes prove as malign as the bing of a mad dog, or equal the flinings or bintings of venomous beasts.

It hath been observed that more grievous symptoms have proceeded from the corruption of the Seed than of the menstrual blood. For by how much every thing is more perfect and noble, while it is contained within the bounds of the integrity of its own nature, by so much it is the more grievous and pernicious, when by corruption it hath once transfused the laws thereof. But this kind of accident doth very seldom grieve those women which have their menstrual flux well and steady, and do not corruption familiarly, but very often those women that have not their menstrual flux well and orderly, and do not copulation familiarly, but very often these women that have not their menstrual flux well and orderly, and do not copulation familiarly, but very often these women.

The accidents of the strangulation of the womb, if it come such divers accidents as we have before observed, it is because there be some inflamatory vapours, and other humours both venal and arterial. And if the matter be cold, it bringeth a coldness, being lifted up unto the brain, whereby the woman is putrefied, and a confusion of the faculties of the parts which it toucheth with its venomous malignity and infection, and intercepts the functions thereof. Neither doth the variety of the parts which it toucheth with its venomous malignity and infection, and intercepts the functions thereof.

If the matter be hot, and provokes the mind therewith, then laughter. The ascension of the Womb is diligently to be distinguished from the strangulation thereof; because the ascension of the Womb is by reason that the woman is altogether dead. If it be more, it inferreth a convulsion; if it participateth of the nature of a gross melancholick humour, it bringeth such heaviness, fear and sorrowfulness, that the party that is vexed therewith shall think that she shall die presently, and cannot be brought out of her mind by any means or reason; if of a choleric humor, it causeth the mind to be carried with a strangulation like unto this, but much harder by a venomous humour breathing out a malign and gross vapour, not only by the veins and arteries, but also by the pores that are invisible, which pollutes the faculties of the parts which it toucheth with its venomous malignity and infection, and intercepts the functions thereof.

For some accidents come by oppression of the terms, others come by corruption of the Seed; but if the matter be cold, it bringeth a drawwindings, being lifted up unto the brain, whereby the woman is putrefied, and a confusion of the faculties of the parts which it toucheth with its venomous malignity and infection, and intercepts the functions thereof. Nothing is more admirable, than that this disease taketh the Patient sometimes with laughing, and sometimes with weeping; for some at the feet will weep and then laugh in the same disease and state thereof.

For they were held with long laughter for an hour or two before the fit, which rather for fear, admonition, nor for any other means they could hold, and their Patients chide them, and asked them wherefore they did so, they answered that they were not able to lay their laughter to the Proctor's provocation, and the works or the wanton humour; but nothing is more admirable, than that this disease taketh the Patient sometimes with laughing, and sometimes with weeping; for some at the feet will weep and then laugh in the same disease and state thereof.

Concerning the Generation of Man.

Book XXIV.

Chap. XLIV.

The strangulation of the Womb.
evacuations of the Flowers, and in Child-bed, and such like, and laborious and painful travel in Child-bed, through which occasion it waxeth hot, contrary to Nature, and withereth and turneth it self with a certain violence unto the parts adjoining, that is to say, unto the Liver, Stomach, and Midriff: if happily it may draw some moisture there-hence unto it. I omit that the Womb may be brought unto its place upwards by often smellass or aromatick things, yet in the mean while it inures not the strangulation that we described before.

CHAP. XLV.
The figure of imminent strangulation of the Womb.

Before these fore-named accidents come, the Woman thinks that a certain painful thing ariseth from her Womb unto the orifice of the Stomach and heart, and the thinketh her self to be oppriffed and choked, the complainteth her self to be in great pain, and that a certain lump or heavy thing climbs up from the lower parts unto her throat, and stoppeth her wind, her heart bemeth and panteth. And in many the Womb and Vehicles of the Womb to feed, that they cannot stand upright on their legs, but are constrained to lie down flat on their bellies, that they may be thelesly grieved with the pain, and to press that down by their hands that formeth to arise upwards, although that not the Womb it felt, but the vapour ascended from the Womb as we said before: but when the it is at hand, their faces are pale on a sudden, their understanding is darkened, they become flow and weak in the legs, with unblenching to stand. Hereof cometh found sleep, foolish talking, interception of the tentes and breath, as if they were dead, loss of speech, the contraction of their legs, and the like.

CHAP. XLVI.
How to know whether the Woman be dead in the strangulation of the Womb, or not.

I have thought it meet (because many Women, not only in ancient Times, but in our own and our Fathers memory have been so taken with this kind of symptom, that they have been supposed and laid out for dead, although truly they were alive:) to set down the signs in such a cafe which do argue life and death. Therefore all of all it may be proved whether the be alive or dead, by laying or holding a clear and smooth looking-glass before her mouth and nostrils. For if the breath, although it be never so obfuscated, the thin vapour that cometh out, will stain or make the Glafs dandy. Also a fine downish feather taken from under the wing of any Bird, or else a fine flock being held before the mouth, will by the trembling or quaking motion thereof, shew that there is some breath, and therefore life remaining in the body. But you may prove more certainly whether there be any spark of life remaining in the body, by blowing some fumeering powders of Pellitory of Spain, and Hellicore in the nostrils. But though there no breath appear, yet must you not judge the woman for dead, for the small vital heat, by which being drawn into the heart, the yet liveth, is connected with transpiration only, and requires not much attraction, which is perfommed by the contraction and dilatation of the Breech and Lungs unto the prerervation of it self. For fo Flies, Gnats, Primaries, and such like, because they are of a cold temperature, live necessarily 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 confirmed by the offer of the Barometer and heart, that is to say, by perfpiration. Without the motion of the blood, because the greatest use of perfpiration, that is the inward heat may be preferred by refrigeration and ventilation. Though 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 deceased by neglecting, An History.

For he being called in Spain to open the body of a Noble-woman which was supposed dead through strangulation of the Womb, beheld at the second inspexion of the Laceration-knife, he began suddenly to come to her, and by the moving of her members and body, which was suppos'd to be altogether dead, and with crying, to shew manifest signs that there was some life remaining in her. Which thing did make such an admiration and honour 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 strangled his eyes proficiently: wherefore he thought there was no better way for him, if he would live safe, than to forsake the Country. But rather could he be also avoid the horrible prick and inward wound of his Conscience (from whose judgment no offender can be absolved) for his inconsiderate dealing, but within few days after being confirmed with sorrow, he died, to the great loss of the Commonwealth, and the Art of Physick.

CHAP. XLVII.
How to know whether the strangulation of the Womb comes of the suppression of the Flowers, or the corruption of the Seed.

Here are two chief causes especially, as most frequently happening, of the strangulation of the Womb: but when it proceedeth from the corruption of the Seeds all the accidents are more grievous and violent: difficulty of breathing goes before, and shortly after comes deprivation there of, the body femeth more cold than a stone: the Woman is a Womb, or else hath great store or abundance of Seed, and hath been used to the company of a man, by the
the absence whereas the was before went to be paired with heaviness of the head, to loath her meat, and to be troubled with faddens or fear, but chiefly with melancholy. Moreover, when the hath fatisfied, and every way fulfilled her luft, and then presently on a fudden begins to contain her felf very likely that is is fuffocated by the fuppreflion of the Flowers, which formerly had been them well much blood, which ftruck much, which is grievous with fome weight and swelling in the region of the belly, with pain in the fomach, and a defire to vomit, and with fuch other accidents as come by the fuppreflion of the Flowers. Thofe who are freed from the fit of the fuffocation of the womb, either by Nature or by Art, in a short time their colour comes into their faces by little and little, and whole body beginneth to wax strong, and the teeth, that were feft and cleft falt together, begin (the jaws being loofed) to open and unfeal again, and latly, fome moifture floweth from the fecret parts with a certain tickling pleafure; but in fome women, as in thofe especially in whom the neck of the womb is tickled with the Midwife’s finger, in lecede of that moifure comes thick and grofs thick, which moifure or feed when it is fallen, the womb being before as it were raging, is reforted unto its own proper nature and place, and by little and little all fymptoms vanifh away. Men by the fuppreflion of their feed have not the like fymptoms as women have, becaufe Man’s feed is not fo cold and moift, but far more perfect and better digefted, and therefore more meet to refift putrefactive fecretion, and whilst it is brought or drawn together by little and little, it is difflufed by great and violent exercife.

C H A P. XLVIII.
Of the Cure of the Strangulation of the Womb.

The pulling of the hairs of the lower parts are profta" but for this malady and the caufe of the fame.

Apex a fcared parts are profta" but for this malady and the caufe of the fame.

Being that the strangulation of the womb is a fudden and sharp defection, it therefore requite fearful and speedy remedies for it if be neglected, it many times caufeth preftent death. Therefve when this malady comes, the fick woman muft prefently be placed on her back, having her breast and fomach loofe, and all her cloaths and garments flack and loofe about her, whereby the may take breath the more eafily; and the man becalmed on her own right with a loud voice in her ears, and pulled hard by the hairs of the temples and neck, but yet efpccially by the hairs of the foft parts, that by provoking or caufing pain in the lower parts, the Patient may not onely be brought to her felf again, but alfo that the fmall and malign vapour ascending upwards, may be drawn downwards: the legs and arms muft be bound and tied with painful ligatures, all the body muft be rubbed with rough linen cloths befprinkled with Salt and Vinegar, until it be very fore and hard, and let this pelfary following be put into the womb. It Sucei mercur. artenfii, &c. set in quod diflufa pul.bened. 3 llij. pul.sadc. Lati. comp. gal. mag. uunus. set. 5 make thereof a pelfary. Then let the foleus of her feet be anointed with Oil of Bays, or with fome fuch like Oil: let a great cupping-glas with a great fume be applied to the belly below the navel, to theinner part of the thigh, and to the throat, whereby the fecret matter that climbs upwards, and alfo the womb it felt running the fame way, may be brought downwards or drawn back. There may be made a fumuation of Spices to be received into the womb, which that it may the eafier be done, the womb may be held open by putting in the Instrument here following defcribed, into the neck thereof. Let it be made of gold, filver, or ftrong, into the form of a pelfary: At the one end thereof, that is to fay, that end which goeth up to the neck of the womb, let there be made many holes on each fide, but at the lower end let it be made with a Spring, that it may open and shut that you will have it. Alfo it muft have two Laces or Bands by which it muft be made fast into a Swathe or Girdle tied about the Patients belly.

The matter and ingredients of fweet and aromatick fumigations, are Cinnamon, Calam. Aromat. Lic. Aloes, Ladunum, Benzoine, Thyme, Pepper, Cloves, Lavander, Calamint, Mugwort, Pennio-ryal, Aloes mollesi. Nutmegs, Musk, Amber, Squawhat, and fuch like, which for their fweet finmell and sympathy, allure or incline the womb downwards, by their heat conformfe and diglitt the thick vapours of white Wine, or in the Brouch of a Capone; alfo it is preftrate not onely to give her Treate to drink, but alfo to inject it into the womb, being firl difflufed in Aqua vitæ, and in the mean time to drop two drops of oil of Sage, or fome fuch Chymical Oil, into the ears. Thile be drowfie or fleepy, the mouth muft be rubbed over with rough linen cloths befprinkled with Salt and Vinegar, and red •, and let this pelfary following be put into the womb. Let the foals of her feet be anointed with Oil of Bays, or with fome fuch like Oil s let a great cupping-glas, whereby both the fecret matter that climbs upwards, and alfo the womb it felt running the fame way, may be brought downwards or drawn back. There may be made a fumuation of Spices to be received into the womb, which that it may the eafier be done, the womb may be held open by putting in the Instrument here following defcribed, into the neck thereof. Let it be made of gold, filver, or ftrong, into the form of a pelfary: At the one end thereof, that is to fay, that end which goeth up to the neck of the womb, let there be made many holes on each fide, but at the lower end let it be made with a Spring, that it may open and shut that you will have it. Alfo it muft have two Laces or Bands by which it muft be made fast into a Swathe or Girdle tied about the Patients belly.

Moreover it shall be very necfary to procure vomit by thuffing a Goode-feather down into the throat, or elle the hairs of the Patients own head. Shortly after the muft make a potion of fifteen grains of black Pepperbruadted and difflufed in hydromel, or water and honey mixed together, or in fome strong Wine, which remedy Aescen holdeth for a fecret.

Also in laid thereof three hours before next 5 of Treacle difflufed in 3 lrij. of the water of Worm-wood may be given her: alfo it is thought that one drop of the oil of Trest dropped on the tongue, is a very profitable remedy. There be fome that allow a potion of half a dram of Calamint difflufed in white Wine, or in the Brouch of a Capone; alfo it is preftrate not onely to give her Treate to drink, but alfo to inject it into the womb, being firl difflufed in Aqua vitæ, and in the mean time to drop two drops of oil of Sage, or fome fuch Chymical Oil, into the ears. Thile be drowfie or fleepy, the mouth muft be rubbed over with fneezing powders of white Hellebor and Pellitory. It is alfo requisite to inject Calamint both into the fund awes, which formerly be made of Ladunum, Ginger, Galia mofchat. Treacle, Thunfudate, Giver, and Musk, of the oil of Cloves, Annecd, Sago, Notermann, and fich, like,
Book XXIV. Concerning the Generation of Man.

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like, chymically drawn; this following is a convenient description of a Clyster.

A Clyster fitu-

Let the Midwife anoint her fingers with oleum nardinum, or mofchetalinnum, or of Clove, or else Tickling of of Spike mixed with Musk, Ambergrize, Giver, and other sweet Powders, and with thefe let her rub of the neck and tickle the top of the womb which toucheth the inner orifice. But her fecret parts must the womb, furst be warmed by the appling of warm linen cloths, for fo at length the veenuous matter contained in the womb, fhall be dilfolved and flow out, and the feal, tharp, and flatulent vapours, whereby the womb is driven as if it were into a fury or rage, fhall be refolv'd and diffaftered, and fo when the conjunct matter of the defcap is flattered and waiteth, the womb, and alfo the Woman fhall be reforted unto themselves again. Some hold it for a fecret to rub the Navel with the piece of Garlic boiled and mixed with Aloes.

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CHAP. XLIX.

Of Woman's Monthly Flux or Course.

Utually they call the flux of blood that iffeth from the fecret parts of Women, Monethly The reafon of Flowers or Courtes, because it happeneth to them every Moneth fo long as they are in the names of health. There be fome which call them Terms, becaufc they return at their usual time, the monethly Many of the French men call it Septrmis, becaufc in fuch as fit much, and are given to plentiful teating, it endureth almoft for the space of seven days. Some call them purgations, becaufc that by this flux all a Woman's body is purged of superfluous humours. There be fome alfo that call thofe Fluxes the Flowers, becaufc that as in Plants the flower buddeth out before the fruits, fo in Woman-kind the Flux goeth before the iftie, or the conception thereof.

For the Courtes flow not before a Woman be able to conceive, for how fhould the feed being call into the Womb have his nourifhment and increase, and how fhould the child have his nourifhment when it is formed of the feed, if this neceffary humour were wanting in the womb? yet it may be fans
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Chapter L

The Caufe of the Monethly Flux or Cours.

A woman is more cold, and therefore hath the digestive faculty more weak, it cometh to pass, that the requisit and defir'd more meat or food than the can digest or concoct.

And because that superfluous 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 womb, by the power of the expulsive faculty, as its own certain and prefixed season or time. But then especially it beginneth to flow, and a certain rude portion of blood to be expelled, being hurtful and maligino otherwise in no quality, when Nature hath laid her principal foundations of the increase of the body, so that in greatnes of the body the hash come as it were in a manner to the highest top, that is to say, from the thirteenth to the thirtieth year of her age.

Moreover, the child cannot be formed in the womb, nor have his nutriment or increas without this flux: therefore this is another final cause of the monthly flux. Many are persuaded that women do far more abound with blood than men, considering how great an abundance of blood they call forth of theirfacet part every month, from the thirteenth to the sixtieth year of their age:

how much women great with child, of whom all' so many are menstrual, yield unto the nutriment and increase of the child in their wombs, and how much Physicians take from women that are with child by opening of a vein, which otherwise would be delivere before their natural and prefixed time; how great a quantity thereof 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 suck, which milk is none other thing than blood made white by the power of the kernels that are in the dugs, which doth suffice to nourish the child, be he great or little; yet notwithstanding many Nurtures in the mean while are menstrual: and as that may be true, so certainly this may be true, that one dram (that I may so speak) of a man's blood is of more efficacy to nourish and increase than two pounds of womans blood, because it is far more perfect, more concocted, wrought, and replenished with abundance of spirits: whereby it cometh to pass that a man endowed with a more strong heat, doth more easily convert what meat he eateth unto the nourishment and substance of his body; and if that any superfluity remains he doth easily digest and excrete it by insensible transpiration.

But a woman being more cold than a man, because the taking more than the can concoct, doth gather together more humour, which cannot digest, by reason of the imperfectness and weakness of her heat, it is necessary that she should digest, and have her monthly

purged, especially when the growth of some bights: but there is no such need in a man.
The caufes of the Suppression of the Course or Menstrual Flux.

The Course is suppressed or stopped by many caufes, as by sharp, vehement, and long diffe-
cases, by fear, hunger, indig^nate labours, watchings, fluxes of the belly, great
bleeding, hemorrhoids, fluxes of blood at the mouth, and evacuations in any other part of
the body whatsoever, often opening of a vein, great sweats, ucers flowing much and long, fea-
kabs of the whole skin, indigndate growths and ulcers, of the wind, and by eating of raw
fruits, and drinking of cold water, by flagellations and thickenings of the veffels, and also the obstruc-
tion of them by the defires and difeomes of the womb, by dijtemper, an abfence, an ucer, by
the obftruction of the inner orifice thereof, by the growing of a callous, caruncle, cicatrize of a wound
on ucer, or membrane growing there, by impaling of alienfing things into the neck of the womb,
which place many women endeavour foolily to make narrow. I fpeak nothing of age, graveness
with child, and purlhing of children, becaufe thefe caufes are not bedefirous, neither do they re-
quire the help of the Physician.

Many Women, when their Flowers or Terms be stopped, degenerate after a manner into a certain
manny nature, whence they are called Virginid, that is to fay, they, or many Women, therefore
their voice is more loud and big, like unto a man, and they become bearded.

In the City Aileras (fith Hipocrates) Phaethusa the wife of Pyrobus at the firft did bear 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 shrill. The very fame thing happened to Neomphia the wife of Gorgippus in Thofe.
Thefe Virgins that from the beginning have not their Monethly flux, and yet nevertheless enjoy
their perftal health, they must necelfarily be hot and dry, or rather of a manly heat and drinfs, that
they may do diffipate and diflodge by transpiration, as men do, the excefsments that are gathered
be verily all fuch are barren.

CHAP. LII.

What accidents follow the suppression or stopping of the Monethly Flux or Flowers.

When the Flowers or monethly Flux are stopped, Diforders affect the Womb, and from
there pafs into all the whole body. Forthwith cometh Saffication of the Womb, Head-ach, Swouning, beating of the Heart, and swelling of the breast and secret parts, inflammation of the Womb, an Abfceso, Ucer, Cancer, a Fever, Nafalcondifees, Vomiting, dicilis.
and flow connection, the Dropit, Anefthesy, the whole Womb prefing upon the orifice of the bladder,
black and bloody Urin, by reafon that portion of the blood sweats out into the bladder. In many
Women the flopped matter of the Monethly Flux is excluded by Vomiting, Urin, and the Hemor-
roides, in fome it groweth into Voice. In my Wife when the was a Maid, the Moneth: matter
was exluclcd and purged by the Noftrils. The Wife of Petcr Ponce of Cafpedanum, was purged
of her Menstrual matter by the Dogs every moneth, and in fuch abundance, that three or four
froths were able to dry it and suck it up.

In thofe that have not the Flux monethly to excitate this prevalent, by fome part or place of the
body, there often follows difficulty of breathing, Melancholy, Madness, the Gout, an ill dispoftion of
the whole body, dilution of the strength of the whole body, want of appetite, a Confufion, the
Falling-oftheks, an Apoplexy.

Thefe whole blood is laudable, yet not fo abundant, do receive no other difcommodity by the
suppression of the Flowers, unlefs it be that the Womb burns or teething with the defire of copula-
tion, by reafon that the Womb is diluted with hot and itching blood, especially if they lead a lea-
dentary life. These Women that have been accustomed to bear children, are not fo grievcd and
evils at cafe when their Flowers are stopped by any chancce contrary to Nature, as thoile Woman
which did never conceive, becaufe they have been ufed to be filled and the veffels by reafon of
their customary repletion and dilution are more large and capacious: when the Coarse flow, the
flowers, or ulcer, or membrane growing there, by transpiration, as men do, the excrèmences that are gathered
be verily all fuch are barren.

CHAP. LIII.

Of provoking the Flowers or Course.

The suppression of the Flowers is a plethoric Diffafe, and therefore must be cured by eau-
ces, which must be done by opening the Vein called Sapfies, which is at the ankle,
but firft let the ladick Vein of the arm be operator, especially if the body be plethoric, but
that there should a greater attraction be made into the Womb, and by fuch attraction or drawing in
there should come a greater dilocation. When the Veins of the Womb are dilocated with fo great
a foftling that they may be fen, it will be very proftitable to apply Horfe-leeches to the neck there
of; Polatiae for Women may be used, but fermentation of aromatice thingts are more meet for
Maids, becaufe they are bathful and thame-faced, Unguaries, Linements, Emphules, Caupulisps
that fervor for that matter, are to be prefcribed and applied to the secret parts; Ligatures and Fae
Due

Why the Brapury, or Slaughties of the Urin follow the suppression of the Flowers, the diforders of
which are of fuch as were purged of their Moneth-

flreat flux by the

Note and Bogs.

To what end men the suppression of the Moneths is most grievous

Why the Veins
called Sapfies in the arm
must be open-
ed before the
Vein Sapfies
in the foot.

Horfe-leeches
are to be applied
in the neck of the
Womb.
Concerning the Generation of Man.  

Book XXIV.

Chapter IV.

The signs of the approaching of the Menstrual Flux.

When the Menstrual flux first approacheth, the Dugs itch and become more twofold and hard than they are wont; the woman is more delirious of copulation, by reason of the ebullition of the provoked blood, and the stagnation of the blood that remains; her voice becometh bigger, her loins and head, numbnesses and vomiting, troublest the stomack: 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 waketh forth through the thighbones and watery humors filling the same, and it floweth by the secret parts very softly. Those Moids that are marrigeable, although they have the menstrual flux very well, yet they are troubled with Head-ache, numbnesses, and often vomiting, want of appetite, longings, an ill habit of body, dulness of breathing, trembling of the heart, swouing, melancholy, fearful dreams, watching with fidgets and heavinesses, because that the genital parts burning and itching, they imagine the act of generation, whereby it concerneth to pass that the genital matter, either remaining in the vesicles in great abundance, or else poured into the hollows of the Womb by the tickling of the genitals, is corrupted, and acueth a venomous quality, and causeth such like accidents as happen in the leucorrhoea.

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When women do live, and what women do laith the act of generation when the months are stopped.  With what accidents those that are marriageable and are not married, are troubled.  The causes of so many accidents.

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concerning the Generation of Man.

one Antony BUSO was a Genoa, who being thirty years of age, had so much milk in his breasts as was sufficient to nourish a child: for the breeding and efficient cause of milk proceeds not only from the engrafted faculty of the glandulous substance, but much rather from the action of the masses fed, for cause of the proof 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 milk food. Also Women that are strong and full of menses unto men, which the Latines call Flaccines, that is to say, whose food cometh into a manly nature, when the Flowers are dropped, conceal the blood, and therefore when it wantsers passage forth, by the likeness of the substance it is drawn into the dugs, and becometh perfect milk: which that have the Flowers plentifully and continually for the space of four or five days, are better purged and with more happy issues than those that have them for a longer time.

CHAP. LVI.

What accidents follow immoderate fluxes of the Flowers or Confecre.

If the mensual flux floweth immoderately, there also follow many accidents: for the conception is frustrated, the appetite overthrown, then follows coldness throughout all the body, collection of all the faculties, an ill habit of all the body, Lennets, the Droptoe, an Ichtyck Fever, Convulsion, Sweating, and often death: if any have them exceeding immoderately, the blood is sharp and burning, and also thinking, the sick woman is also troubled with a continual Fever, and her tongue will be dry, ulcers arise in the gums and all the whole mouth. In women the Flowers do flow by the veins and arteries which rise out of the spermatick vessels, and end in the bottom and sides of the womb; but in virgins and in women great with child, whose children are found and healthful, by the branches of the Hypogadrick vein and artery, which are fired and dispered over the neck 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, especially with a man that hath a Yard of a monstrous greatness, and the dissolution of the retention faculty of the vessels, sometimes also the Flowers flow immediately by reason of a painful and a difficult birth of the child, or the after-birth, being pulled by violence from the coryledons of the womb, or by reason that the veins and arteries of the neck of the womb are torn by the coming forth of the infant with greatness, and many times by the use of thryfe Medicins, and crucerating Pellelaries. Off-sides also Nature avoids all the juice of the whole body critically by the womb after a great dish and flux is not rashly or suddenly to be stopped. That mensual blood that floweth from the womb, is more grofs, black, and clotty, but that which cometh from the neck of the womb is more clear, liquid and red.

CHAP. LVI.

Of stopping the immoderate flow of the Flowers or Confecre.

You must make choice of such meats and drinks as have power to increasate the blood, for as the Flowers are provoked with meats that are hot and of subtil parts, so they are stopped by such meats as are cooling, thickening, and astringent, as are Early-waters, foold Rice, the extreme parts of Beasts, as of Oxen, Calves, Sheep, either fried or soold with Sowred, Puflain, Plantain, Shepherds-purse, Sumach, the buds of Beemides, Berbeuries, and such like. It is suppos'd that a Harts-horn burned, wadied, and taken in adstringent water, will stop all immoderate fluxes; likewise Sanguis draconis, terra sigillate, hminerum, Lapis bohmeis, Cord leanes into moist fulful powder, and drunk in stealed waters: also Pap made with milk, wherein to be extinguated, and the flower of Wheat, Barley, Beans, or Rice, is very effectual for the same. Quinces, Cervises, Medlars, Cornelian-berries, or Cheries, may likewise be eaten at the second course. Julls are to be used of seelled waters, with lymp of dry Rofes, Foncegrantes, Sorele, Mystels, Quinces, or old Conserve of red Rofes, but Wine is to be avoided: but if the strength be to be extinguated, that they require it, you must chuse grofs and astringent Wine tempered with stealed waters, exercizes are to be thinned, especially Venereal exercizes. Anger is to be avoided, a cold air is to be chosen, which (if it be not so naturally) must be made by sprinkling cold things on the ground, especially if the Summer or heat be then in his full drength: for the earth: in those burning days all of life evacuations except sweating. The opening of a Vein in the arm, Cypipung-glacies faliced on the breasts, bands, and painful irritations 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 mixed with the blood, the body must be purged with Medicins that purge choler and water, as Rhubarb, Myroba Vering, Jans, Tamarined, Selloren, and the purging Syrop of Rofes.

CHAP. LVII.

Of local Medicins to be used against the immoderate flowing of the Confecre.

Unguents are made to stay the immoderate flux of the Terms, and likewise injections and pellaires. This or that like may be the form of an Unguent. R OI. Matelles, or Myrth. An unguent.

An Unguent, or 53. ointment moderately, vnpleased myrth, 53. Sy煽cine oint, rubr. 53. Putoumichelos, 53. but arsenet ter-

galus, 53. cera quenummum, flufiummum. An injection may be thus made. R Ap. planas--a astringent

ruber, butecontinued, an. 1, an. corticas quern, unius capfus, gaffa, non manetan, an 5, 1, injection.
Concerning the Generation of Man. Book XXIV.

Chap. LVI.

Of Woman's Flowers, or the Whites.

B Eides the natur'd Flux, which by the Law of Nature happeneth to Women monethly, there is also another called a Woman's Flux, because it is only proper and peculiar to them: this sometimes weareth the Woman with a long and continual distillation from the womb, or through the womb, coming from the whole body without pain, no otherwise than when the whole superfluous matter of the body is purged by the reins or urin: sometimes it retainteth at uncertain seasons, and sometimes it causeth a certain pain and cauterizeth the places of the womb: it differeth from the meral Flux, because that this for the space of a few days, as it shall seem convenient to Nature, causeth forth laudable blood; but this Woman's Flux yieldeth impure juice, sometimes fanious, sometimes serous and livid, otherwheres white and thick, like unto Balum-cream, proceeding from flammatic blood: this last kind thereof is most frequent. Therefore we see women that are flagmatic, and of a feel and leafe habit of body, to be often troubled with this disease; and therefore they will lay among themselves that they have the Whites. And as the matter is diverse, so it will pain their flocks with a different colour. Truly it is he properly red and fanguin, it is to be thought it cometh by erosis, or the exfoliation of the substance of the vessels of the womb, or of the neck thereof: therefore it cometh very feldom of blood, and not at all except the woman be either great with child, or caese to be membranal for some other caites: for then in the meanethly flux there floweth a certain whanylhy excrement, which laistheth her cloaths with the colour of water wherein feth is washed. Also it very feldom proceedeth of a melancholic humour, and then for the most part it causeth a Cancer in the womb. But oftentimes the purulent and bloody matter of an utter lying hidden in the womb, decueth the unskillful Chirurgeon or Physician: but it is not he hard to know their difcares one from the other, for the matter that floweth from an utter, because (as it is said) it is purulent, it is also leffer, greater, (linking, and more white. But those that have uteres in these places, especially in the neck of the womb, cannot have copulation with a man without pain.

Chap. LIX.

Of the causes of the Whites.

S Ometimes the cause of the Whites confifteth in the proper weaknes of the womb, or effe in the uncleanenes thereof, and sometimes by the default of the principal parts. For if the brain or the fomach be cooled, or the liver heated or fetthous, many crudities are engendred, which if they run, or fall down into the womb that is weak by Nature, they caue the flux of the Womb or Whites: but if this Flux be moderate, and not tharp, it keepeth the body from malig dicares: otherwise it uteth to infer a Consumption, Leanettes, Flableness, and an enfebbled swelling of the legs, the falling down of the womb, the dep cleanliness of the appetite and all the faculties, and con- tual faintnes and fermentations, from which it is very hard to persuade the fick woman, because her mind and heart will be almost broken, by reason of the shame that she taketh, because such flux floweth continually: it hindereth conception, because it either corrupteth, or driveth out the seed when it is conceived. Oftentimes if it happeneth for a few Moneths, the matter that floweth there caufeth an abscess about the womb in the body or neck thereof; and by the breaking of the abscess there followeth rotten and cancerous ulcers, sometimes in the womb, sometimes in the gein, and often in the hips.

This disease is hard to be cured, not only by reason of it self, but because all the whole fith and superfluos excrement of a woman's body floweth down into the world, as it were into a sink because it is naturally weak, hath an inferior situation, many veffels ending therein and laft of all, because the Courses are wont to come through it; and also by reason of the fick woman, who ofte- times had rather die than to have that place seen, the disease known, or permit- ed thereto: for so faith Montanus, that on a time he was called to a Noble-woman of Italy, who was troubled with this disease, unto whom he gave counsel; 'for these cleansing decocations injected into her womb, which when he used, the sick fell into a swoond, and desired her husband never thereaf- ter to use his coyness in any thing.'
Of the Hamorrhoids and Warts of the neck of the Womb.

Like as in the Fundament, so in the neck of the Womb there are Hamorrhoids, and as it were various Veins, often times flowing with much blood, or with a red and thinning, whereby some of the Hamorrhoids of the Womb be called Ulcers, or Fissures, and as these open and shut, so as the Woman be fed, wherein the blood is purged of such filth or abundance of humours, for they do but hinder to stop it, cause the droppings by reason that this flux of humours is turned back into the liver; or else a Cancer in the Womb, because it is fixed there; or a Fever, or other diseases, according to the condition of the part that receiveth it. Therefore we must not come to local reme- dies, but to universal ones, unless we have first used universal remedies according to Art. Alum baths, baths of Brimstone, and of Bitumen, or Iron, are convenient for the Whites that come of a phlegmatick humour: in these whereas baths may be made of the decoction of herbs that are hot, dry, and indued with an aromatick power, with Alum and Piddles, or Plain-flakes red her thrown into the same. Let this be the form of a cleansing disposition and injection. *Vulvas albofatripium*.

The signes of a purged ulcer in the Womb. The virulent Gonorrhea is like unto the flux of Womans.
Wharan a Crochordon is. Acrochordon is a kind of Wart with a callous bunch or knot, having a thin or fonder root, and a greater head, like unto the knot of a Rope, hanging by a small thread; it is called of the Arabians, Verrua latina.

There is also another kind of Wart, which because of its great toughnes and inequality, is called Thymus, resembling the flower of Thyme. All such diseas are exasperated and made more grievous by any exercise, especially by venereous acts: many times they have a certain malignity, and an hidden virulence joined with them, by occasion whereof they are aggravated even by touching only, because they have their matter of a raging humour; therefore to these we may not rightly use a true, but only the palliative cure, as they term it: the Latins call them only Ficus, but the French men name them with an adjunct, Saint Ficiscum Figs.

CHAP. LXII.

Of the Cure of the Warts that are in the neck of the Womb.

There is also another kind of Wart, Which because of its great toughnes and inequality, is called as resembling the flower of Thyme. All such diseas are exasperated and made more grievous by any exercise, especially by venereous acts: many times they have a certain malignity, and an hidden virulence joined with them, by occasion whereof they are aggravated even by touching only, because they have their matter of a raging humour; therefore to these we may not rightly use a true, but only the palliative cure, as they term it: the Latins call them only Ficus, but the French men name them with an adjunct, Saint Ficiscum Figs.

Another form of a Dilater, or Speculum Matricis, whereof the declaration followeth.

A shows the Screw which shutteth and openeth the Dilater of the Matrix.
B shows the Arms or Branches of the Instrument, which ought to be eight or nine fingers long.

But these Dilaters of the Matrix ought to be of such lengths correspondent to the Patients 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 tie the Warts, which we have described in the relaxation.
Concerning the Generation of Man.

XXIV.

orfome of the lee

or Aquafortis^ left they grow up again, let Oil of Vitriol be dropped on the place,

Therefore for the curing of Warts there are three chief fcopes, as Bands, Sedions, Cauteries, and

laxation of the Palat or ; let them be tied harder and harder every day until they fall away.

alum. roch.

3 iij./i/. idt. rom. & fttblim. an.

vij. to waste Warts. Kt

3 iij. 5 (whereof potential Cauteries are made. This Water following is molt elTedual to confume and

loufnefs which groweth between the Toes or Fingers. I have proved by experience, that the Warts

Cantharides which, whether it be true or not, let Experience, the Miftrefs of things, be judge. . Verily,

before. A certain man Itudious of Phylick, of late affirmed to me, that Ox-dung tempered with the

grieved place, not touching any place elfe i but if there be an ulcer, it mult be cured as I have Ihewed

The Leaves and Flowers of Marigolds, do certainly perform the fclf-same thing.

are wrinkled and parched by holding of them to the fire. They rife fometimes in the mouth, fo

of ones finger may be put into the orifice thereof, like unto pieces of Leather or Parchment, which

and as it is (more effectually) fo they will confume the cal¬

hens which groweth betwixt the Toes or Fingers. The Leaves and Flowers of Marigolds, do certainly perform the fclf-same thing.

Haps or Fissures, are cleft and very long little Ulcers with pain very sharp and burning, by What Chap|

in Sea-water or lee, and injed it in her fecret parts with a Syringe, and to wet

The virtue

USING. parcin. recent.

The virtue

a little Camphir.

or the ftrait Gut, is to be fomented vVith a decodion

Condylomata. or the ftrait Gut, is to be fomented vVith a decodion

into very often, fo to widen that which is over hard, and too much drawn together or narrow, and.

The Cure of

In the cure thereof, all (harp things are to be avoided, and thofe which mollifie are to be The Cure

of the itching of the Womb.

Women, efpecially fuch as are old, there oftentimes cometh an itching in the neck of the what the ini

Womb which doth so trouble them with pain, and a desire to fcratch, that it taketh away their of the Womb',

Itch. Not long fince a woman asked my counfel, that was fo troubled with this kind of ma-

lady, that she was conftrained to extinguifh or fray the itching burning of her fecret parts by

springing of falk phlegm, which when it falles into the eyes, it caufeth the Patient to have much

The cure of

Of the itching of the Womb.

every one, that the itching burning of their fecret parts by

springing of falk phlegm, which when it falles into the eyes, it caufeth the Patient to have much

the itching burning of her fecret parts by

by bathing the fphinder-mufcle of the fundament, and the two others called

Levatores.

For the cure there¬

Cure,

of ones finger may be put into the orifice thereof, like unto pieces of Leather or Parchment, which

and as it is (more effectually) fo they will confume the cal¬

hens which groweth betwixt the Toes or Fingers. The Leaves and Flowers of Marigolds, do certainly perform the fclf-same thing.

Haps or Fissures, are cleft and very long little Ulcers with pain very sharp and burning, by What Chap|

In the cure thereof, all (harp things are to be avoided, and thofe which mollifie are to be The Cure

Of the relaxation of the great Gut, or Inteftine, which happeneth to Women.

Many Women that have had great travail and inftains in Child-birth, have the great inte-

line (called of the Latins, Craffum intiflum) or Gut, relaxed and flipped down; which

kind of affect happeneth much to children, by reafon of a phlegmatick humour moulding

the phinder-mufcle of the fundament, and the two others called Larenores. For the cure of

of, firt all the Gut called the Inteftine, or the great Gut, is to be fomented with a decoction

of burning and refoiling herbs, as of Sage, Rosemary, Lavender, Tyme; and flinch likey; and then of

then it must be sprinkled with thePowder of things that are astringent without biting: and

some ufe this that followeth: R Alum: sau. ait. fulph. vit. &c. " ij. yl. philipp. 3 j. Let them all

be infold in Vinegar of Rofes, adding thereunto Batyus, receiv. q.£. make thereof a liment for the fore¬named ufe.
Concerning the Generation of Man. Book XXIV.

An effectual remedy.

The difference and figure.

An History.

An History.

An History.

An History.

An History.

An History.

An History.

An History.

An History.

An History.

An History.

CHAP. LXVI.

Of the relaxation of the Navel in Children.

CHAP. LXVII.

Of the pain that Children have in breeding teeth.

Children are greatly vexed with their Teeth, which cause great pain when they begin to break as it were out of their shell or sheath, and begin to come forth, the gums being broken, which for the most part happeneth about the seventh month of the Child's age. This pain cometh with itching and scratching of the gums; an inflammation, flux of the belly, whereof many times cometh a Fever, falling of the Hair, a Convulsion, at length death. The cause of the pain is the solution of the continuity of the Gums by the coming forth of the Teeth. The signs of that pain is an uncustomed burning, or heat of the Child's mouth, which may be perceived by the Nurse that giveth it suck, a swelling of the Gums and Cheeks, and the Child's being more wayward and crying than was wont, and it will put its fingers to its mouth, and it will rub them on its Cheeks and face, and will often put its fingers to its mouth, and rub them on its Cheeks and face.

What power scratching of the gums hath to alleviate the pain of them.

C H A P. LXVI.

Of the relaxation of the Navel in Children.
Of Monsters and Prodigies

The Preface.

We call Monsters, what things formerly are brought forth contrary to the common decrees and orders of Nature. So we seem that Infant monstrous which is born without an arm, or with two heads. But we define Prodigies, those things which happen contrary to the whole course of Nature; or as if a man should be delivered of a Dog. Of the first sort are thought all those, in which any of those things which ought, and are accustomed to be, according to Nature, to want, or be wanting, or be altered, or changed, or deformed, &c. or not put in its right place: for sometimes some are born with more fingers than they should, other some 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 privacies of both sexes, male and female. And Aristotle saw a Goat with a horn upon her knee. Nothing Creature was ever born which wanted the heart, but some have been seen wanting the spleen, others with two spleens, and some wanting one of the reins. And none have been known to have wanted the whole liver, although some have been found that had it not perfect and whole; and there have been those who wanted the gall, when by Nature they should have had it, and besides it hath been seen that the liver, contrary to its natural fit, hath lain on the left side, and the spleen on the right. Some women also have had their privacies closed, and not perforated, the membranous obstacle, which they call the hymen, hindering. And men are sometimes born with their fundament, ears, nose, and all the rest of the passages, and accounted monstrous, Nature arising from its intended fibres. But to conclude, those Monsters are thought to portend some ill, which are much differing from their Nature.

CHAP. I.

Of the causes of Monsters and first of those Monsters which appear for the glory of God, and the punishment of Man'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 thus our Saviour Christ answered the Disputers (asking whether He or his Parents had offended, when being born blind, received his sight) that neither He nor his Parents had committed any fault so great, but that glory and majesty of God should be divulged by that miracle, and such great works.

Another cause is, that God may either punish men wickedness, or shew signs of punishment at hand, because Parents sometimes lie and join themselves together without law and measure, or lustfully and beastly, or at such times as they ought to forbear by the command of God and the Church, such monstrous, horrid and unnatural births do happen.
Of Monsters and Prodigies.

At Verona, An. Dom. 1512, 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 Wars between the Florentines and Pisans began, by which all Italy was in a combustion.

About the time that Pope Julius the second raised up all Italy, and the great part of Christendom against Louis the Twelfth, the King of France, in the Year of our Lord 1512, (in which Year, upon Easter day, near Ravenna was fought that mortal battle, in which the Pope's Forces were overthrown) a Monster was born in Ravenna, having a Horn upon the Crown 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 this Figure.

The third cause is, an abundance of seed and 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 party with child, and the position of the parts of the body. The eighth, a fall, strain, or stroke, especially upon the belly of a woman with child. The ninth, hereditary diseases, or affedics by any other accident. The tenth, the confusion and mingling together of the seed. The eleventh, the craft and wickedness of the Devil. There are some others which are accounted for Monsters, because their original or essence full of admiration, or do assume a certain prodigious form by the craft of some begging Companions; therefore we will speak briefly of them in their place, in this our Treatise of Monsters.

CHAP. II.

Of Monsters caus'd by too great abundance of Seed.

Seeing we have already handled the two former and truly final causes of Monsters, we must now come to those which are material, corporeal, and efficient 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 onely one should be begot of all that; therefore either two or more must arise, whereby it comes to pass, that these are rather judged wonders, because they happen seldom, and contrary to common custom. Superfluous parts happen by the same cause that Twins and many at one birth, contrary to Nature's course, do chance, that is, by a larger effusion of seed, than is required for the forming of that part, that so it exceeds either in number or else in greatness. So Auson tells that in his time in the East, an Infant was born, having all the parts from the belly upwards double, but from thence downward single and simple: for it had two heads, four eyes, two breasts, four hands, all in the rest like to another child, and it lived a little while. Cælius Rhodigian faith he saw two Monsters in Italy, the one male, the other female, handly made through all their bodies, except their heads, which were double; the male died within a few days after it was born, but the female (whose shape is here delineated) lived five and twenty years, 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 consent; to which may be
be added, they do not love themselves, by reason they are made a scorn to others, and that by that means lead a hated life.

But it is most remarkable which Lycephanius telleth of a Woman-monster for, excepting her two heads, she was formed 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, she begged from door to door, every one giving to her freely. Yet at length she was banished Bavaria, lest that by the frequent looking upon her, the imagination of Women with child, strongly moved, should make the like impression in the Infants they bare in their Womb.

The Effigies of a Woman-monster. The Effigies of two Girls whose backs grew together.

In the Year of our Lord 1475, at Fornas in Italy, two Girls were born with their backs sticking 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 chief 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 head, hanged forth as if he had been grafted there. The man was forty years old, and he carried the other implanted or growing out of him, in his arms, with such admiration to the beholders, that many ran very earnestly to see him.
At Queria, a small Village some ten miles from Turin in Savoy, in the Year 1578, upon the seventeenth day of January, about eight of the Clock at night, an honest Matron brought forth a Child having five horns, 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 use to wear, hanging down from his forehead by the nape of his neck almost the length of his back: two other pieces of flesh, like the collar of a fair, were strapped about his neck: the fingers ends of both his hands somewhat resembled a Hawks Talons, and his knees formed to be in his hams: 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 scratch 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 was performed, one would hardly think what various senfures 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 hairs yielding a horrid representation of Snakes; the chin had three other Snakes stretched forth like a beard. It was first seen at Autun, at the house of one Baneduro a Lawyer: a Maid 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 Sene, was brought to King Charles the Ninth being then at Metz.

In the Year 1546. a Woman at Paris in her sixth Month of her account, brought forth a Child having two heads, two arms, and four legs. I diffcrling 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 mons-ter from birth be one or more joined together, by the principal part: if the body have but one heart, it is but one; if two, it is double by the joining together in the conception.
In the Year 1569, a certain Woman of Tours was delivered of *Twins joined together with one head, and naturally embracing each other. Renatus Ciretus the famous Chirurgeon of those parts, sent me their Sketch.

The Portraiture of *Twins joined together with one Head.

The Effigies of two *Girls being Twins, joined together by their Fore-heads.

Munfler writes that in the Village Brijian, not far from Tours, in the Year 1495, he saw two 'Girls perfect and entire in every part of their bodies, but they had their Fore-heads so joined together that they could not be parted or severed by any art: they lived together ten years, then the one dying, it was needful to separate the living from the dead: but the did not long out-live her sister, by reason of the malignity of the wound made in parting them asunder.

In the Year of our Lord 1570, the twentieth of July, at Paris in thestreet Greniers, at the sign of the Bell, those two Infants were born, differing in sex, with that shape of body that you see here expressed in the Figure. They were baptized in the Church of S. Nicolas of the Fields, and named Ludovicus and Ludovica, their Father was a Mason, his name was Peter Germane, his surname Petit Dieu (A.) Little-God, his Mothers name was Mathea Petronilla.

The Shape of the Infants lately born at Paris.
Of Monsters and Prodigies

In the Year 1572, in Pont de Ser near Anger, a little Town, were born 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 breasts to their navels, which was but one, as their heart also but one; their liver was divided into four lobes; they lived half an hour, and were baptized.

The Figure of two Girls joined together in their breasts and belly.

The Figure of a Child with two heads, and the body as big as one of four months old.

Cassius Rhodiginus tells, that in a Town of his Country called Sarzano, 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 and 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 5. of the Ides of March, 1514.

The Figure of one with four legs and... as many arms.

The Figure of a man out of whose belly another head shewed itself.

Jovianus Pontanus tells in the Year 1529, the ninth day of January, there was a man-child born in Germany, having four arms, and as many legs.

In the Year that Francis the first, King of France, entered into League with the Swisse, there was born a monster in Germany, out of the midst of whose belly there stood a great head: it came to man's age, and his lower, and as it were infected head, was nourished as much as the true and upper head.
Of Monstros and Prodigies.

The shape of two monstrous Twins, being but of one only Sex.

In the Year 1572, on Easter Monday at Metz in Lorraine, in the Inn whose Sign is the Holy Ghost, a Sow pigged a Pig which had eight Legs, four Ears, and the Head of a Dog; the hinder part from the belly downward was parted in two as in Twins, but the fore-parts grew into one; it had two Tongues in the mouth, with four Teeth in the upper Jaw, and as many in the lower. The Sex was not to be distinguished, whether it were a Bore or Sow Pig; 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 set down, was sent me by Borysius the famous Physician of Metz.

CHAP. III.

Of Women bringing many Children at one birth.

Woman is a Creature bringing usually but one at a birth; but there have been some who have brought forth two, some three, some four, some five, six, or more at one birth.

Empedocles thought that the abundance of food was the cause of such numerous births: but the Stoics affirm the diverse Cells or Partitions of the Womb to be the cause; for the food being 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, it turned into divers circles or rounds. But Aristotle saith there is no reason to think so; for in Women that parting of the Womb into Cells, as in Dogs and Sows, taketh no place; for Women's wombs have but one cavity, receiveth no other creeping or coming between, except by chance distinguished by a certain line; for often Twins lie in the same face of the Womb. Aristotle's opinion is, that a Woman cannot bring forth more than five children at one birth. The Maid of Augustin Cesar brought forth five at a birth, and a short while after she and her children died. In the year 554, at Bear in Switzerland, the Wife of Dr. John Gleigser brought forth five children at one birth, three Boys and two Girls. Athanasius affirneth a Woman to have been the Mother of seven children at one birth, and another, who by some external injury did slitt, brought forth fifteen perfectly shaped in all their parts. Pliny reports that it was extant in the writings of Physicians, Lib. 7, cap. 11, that twelve children were born at one birth; and that there was another in Peloponnesia which brought forth fifteen several times was delivered of five children at one birth, and that the greater part of those children lived. It is reported by Diodorinuflus that Buteinonides, the Author of one Savid, a Gentilman of Siena, at one time brought forth seven children, of which four were baptized. In our time, between Siena and Matte, in the Parish of Sarone, not far from Chiamelio, there is a Family and Noble House called Maddesovere, the Wife of the Lord of Maddesovere, the first year she was married brought forth Twins, the second year she brought eight children, the third year five, the fourth year six, the fifth year four, and of that birth the died: of thes five one is yet alive, and is Lord of Maddesovere. In the Valley of Bonsert, in the County of Anguin, a young Woman the daughter of Maud Chevreau, when at one perfect birth she had brought forth one child, the tenth day following fell in labour of another, but could not be delivered until it was pulled from her by force, and was the death of the Mother.

Eee 2

Maritius
And they are to be reprehended here again, who affirm the cause of numerous births to consist in the variety of the Cells of the Womb; for they feign a Woman’s Womb to have seven Cells or Portions, three on the right side for Males, three on the left side for Females, and one in the midst for Hermaphrodites or Scars; and this untruth hath gone so far, that there have been some that affirmed every of the seven Cells to have been divided into ten Portions, into which the feed divided, doth bring forth a divers and numerous increase, according to the variety of Cells furnished with the matter of feed; which, though it may seem to have been the opinion of Hippocrates in his Book De Natura Fueri, 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 Twins and more at one birth, are begotten and brought forth by the same cause that the fifth finger groweth on the hand, that is, by the abundant plenty of the feed, which is greater and more copious than can be all taken up in the natural framing of one body; for if it all be forced into one, it maketh one with the parts increas’d more than is in either in greatness or number; but if it be, as it were, eleven into divers parts, it causeth more than one at one birth.

A CHAP. IV.

Of Hermaphrodites, or Scars.

Now also we must speak of Hermaphrodites, because they draw the cause of their generation and conformation from the abundance of feed, and are called so, because they are of both Sexes, the Woman yielding as much feed as the Man. For henceupon it cometh to pass that the forming faculty (which always endeavoureth to produce 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 Famine not performed, and from which neither Urin nor Seed doth flow. The second is the female, which besides her natural Fertility, hath a belly and slender similitude of a man’s Yard, but unapt for erection and excretion of feed, and wanteth the Cod and Stones; the third difference is of those, which albeit they bear the express figures of members belonging to both sexes, commonly set the one against the other, yet are unapt for generation, and in which the one only serveth for making of water: the fourth difference is of those who are able in both Sexes, and thoroughly perform the part of both Man and Woman, because they have the genitals of both Sexes complete and perfect, and also the right breast like a man, and the left like a woman: the Laws command them to choose the sex which they will live, 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 none are thought to have abused both, and promiscuously to have had their pleasure with men and women. There are signs by which the Physicians may discover whether the Hermaphrodites are able in the male or female sex, or whether
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 dimensions, and so perforated that it may admit a man's Yard, if the
Curtas show that way, if the hair of the head be long, flaxen and soft, and to conclude, if to this
render habit of the body a timid and weak condition of the mind be added, the Female for
predominant, and they are plainly to be judged Women. But if they have the Perineum and fundament
full of hairs, (which in Women are commonly without any) if they have a yard of a convenient
length, if it stand well and readily, and yield feed, the Male for hath the predominance, and they
are to be judged men. But if the conformation of both the genitals, be alike in figure, quantity,
and efficacy, it is thought to be equally able in both sexes: although by the opinion of Aristotle,
who have double genitals, the one of the male, the other of the female, is always per-
fect, the other imperfect.

The Figure of Hermaphrodite Twins elating together with their backs sticking together.

The same day the Venetians and Genoese entered into league, there was a Monster born
in Italy having four arms and feet, and but one head; it lived a little after it was bap-
tized. James Ruff a Helvetian Chirurgeon faith he faw the like, but which besides had
the Privities of both sexes, whose figure I have therefore set forth, Page 590.

CHAP. V.

Of the changing of Sex.

Main Lusitanus reports that in the Village Esquina, there was a maid named Maria Faresca,
who at the appointed age for her Courses to flow, had in stead of them a mans Yard, lying
before that time hid and covered, so that of a Woman she became a Man, and therefore lay-
ing aside her Womans habit, was clothed in mans, and changing her name, was called Emanuels
who when he had got much wealth by many and great negotiations and commerce in India,
returned into his Country, and married a wife: but Lusitanus faith he did not certainly know whether he had
any children, but that he was certain he remained always beardless.

Anthony Luscinio, the Kings Keeper or Receiver of his Rents of St. Quiniano, at Vermandis,
lately affirmed to me that he faw a man at Reims, at the Inn having the sign of the Swan, in
the Year 1560. who was taken for a Woman until the four and twenty year of his Age; for then it hap-
penned as he played somewhat wantonly with a Maid which lay in the same bed with him, his mem-
bers (thither lying hid) started forth and unfolded themselves: which when his Parents knew
(by help of the Ecclesiastic power) they changed his name from Joan to John, and put him in mans
apparel.

Some years agoe, being, in the Train of King Charles the Ninth, in the French Glafe-house, I was
shewed a man called Germano Grammair, but by some German Marie (because in former times when he
was a Woman he was called Marie) he was of an indifferent stature, and well set body, with a
thick and red bearded; he was taken for a Girl until the fiftenth Year of his Age, because there
was no sign of being a man seen in his body, and for that amongst Women, he in like attire did
those things which appertain to Women: in the fiftenth year of his age, whilst he somewhat
castellly purfued Hogs given into his charge to be kempt, who running into the Corn, he leaped vi-
olently over a ditch, whereby it came to pafs that the stays and foldings being broken, his hidden
members suddenly broke forth, but not without pain; going home, he weeping complained to
his
his Mother that his guts came forth; with which his Mother amazed, calling on counsel, heard he was turned into a man; therefore the whole business being brought to the Cardinal the Bishop of Leuvene, an assembly being called, he received the name and habit of a man.

Pliny reports that the son of Caiusius of a Girl became a Boy, living with his Parents; but by the command of the Sooth-sayers he was carried into a Defart, because they thought such Monsters did always shew or portend some monstrous thing. Certainly women have so many and like parts lying in their wombs, as men have hanging forth; therefore in process of time the heat being increas’d and nourishing, and the humidity (which is predominant in child-hood) overcome, it is not impossible that the virile members, which hitherto fly by defect of heat, may be put forth; especially if to that strength of the growing heat some vehement concurrence of the body be joined. Therefore I think it manifest by these experiments and reasons, that it is not fabulous that some women have been changed into men; but you shall find in no history, men that have degenerated into women; for Nature always intends and goes from the imperfect to the more perfect, but not basely from the more perfect to the imperfect.

CHAP. VI.

Of Monsters caused by the defect of Seed.

On the contrary, the seed be any thing deficient in quantity, for the conformation of the Infant or Infants, some one or more members will be wanting, or more feeble and deformed. Hereupon it happens that Nature intending Twins, a Child is born with two heads; and one arm, or altogether lame in the rest of his limbs.

Anno Dom. 1573. I saw at St. Andrews Church in Paris, a Boy nine years old, born in the Village Parpaville, six miles from Guise; his Father’s name was Peter Eefiard, and his Mother, Marquete: he had but two fingers on his right hand, his arm was well proportioned from the top of his shoulder almost to his wrist, but from thence to his two fingers ends it was very deformed; he wanted his legs and thighs, although from the right buttock a certain imperfect figure, having only four Toes, seemed to put itself forth; from the midst of the left buttock two Toes sprung out, the one of which was not much, unlike a man’s Yard, as you may see by the Figure.

In the Year 1562, in the Calends of November, at Villa Frana in Gascony, this Monster, a headless woman, whose Figure hereafter follows, was born, which figure Dr. John Attius the Physician gave to me, when I went about this Book of Monsters; he having received it from Pasteur the Physician of Agenzie, who literally affirmed he saw it.
A few years ago there was a man of forty years old to be seen at Paris, who although he wanted his arms, notwithstanding did indifferently perform all those things which are usually done with the hands; for with the top of his shoulder, head and neck, he would strike an axe or hatchet with as sure and strong a blow into a post, as any other man could do with his hands: and he would lash a coachman's whip, that he would make it give a great crack, by the strong refraction of the air; but he eat, drank, played at cards, and such like, with his feet.

But at last he was taken for a thief and murderer, was hanged and fastened to a wheel.

Also not long ago there was a woman at Paris without arms, which nevertheless did cut, sew, and do many other things, as if she had her hands.

We read in Hippocrates, that Agathon his wife brought forth a child all of flesh without any bone, and notwithstanding it had all the parts well formed.
Of Monsters and Prodigies, Book XXV.

CHAP. VII.

Of Monsters which take their cause and shape by imagination.

The Ancients having diligently sought into all the secrets of Nature, have marked 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 formeth the Infant may be led and governed by the firm and strong cogitation of the Parents begotten them (often deluded by nocturnal and deceitful 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 think to be confirmed by Moses, because he tells that Jacob increased and bettered the part of the sheep granted to him by Laban his Wife's father, by putting rods, having the bark in part pulled off, finely streaked with white and green, in the places where they used to drink, especially at the time they encouraged, 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 Hidush, being also an Ethiope, had a daughter of a white complexion, because in the embraces of her husband, by which she proved with child, she earnestly fixed her eye and mind upon the picture of their fair Andromeda standing opposite unto her. Damascene reports, that he saw a Maid hairy like a Bear, 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 Camel's skin, hanging upon the posts of the bed. They say Hippocrates by this explication of the causes, freed a certain Noble-woman from suspicion of adultery, who being white herself, and her husband also white, brought forth a child as black as an Ethiopian, because in copulation the strongly and continually had in her mind the picture of the Ethiope.

The Effigies of a Maid all hairy, and an Infant that was black 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 and forty days after the conception, is in no danger of the Mothers 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 inquired of: truly I think it best to keep the woman all the time the goeth with child, from the sight of such shapes and figures.

In Sinapp a Village of Samay, they say, a Monster was born with four feet, eyes, mouth, and nose like a Calf, with a round and red excrescence of flesh on the fore-head, and also a piece of flesh like a hood hung from his neck upon his back, and it was deformed with its thighs torn and cut.
Of Morijim and
The effigies of an horrid Monjier, having set
The effigies of an Infant, with a face like a Frog,

Anno Dom. 1517. in the Parifh of Kings-bred in the Forest of Essex, in the way to Fontainebleau, there was a Monfter born with the face of a Frog, being seen by John Belanger, Chirurgeon to the
Kings Engineers, before the Justices of the Town of Harney, principally John Belanger the Kings Pro-
curator in that place. The Fathers name was Amadéus the Little, his Mothers Magdalene Sarbucala,
who troubled with a Fever, by a Womans persuasion, held a quick Frog in her hand until it died;
the same thus to bed with her husband and conceived; Belanger, a man of an acute wit, thought
this was the cause of the monstrous deformity of the child.

CHAP. VIII.

Of Monsters caufed by the straitnef of the Womb.

W e are conftrained to confefs by the event of things, that Monsters are bred and caufed
by the straitnefs of the Womb; for Apples growing upon the Trees, if before they
come to juft ripenefs they be put into ftrait Veffels, their growth is hindered. So fome
Whelps which Women take delight in, are hindered from any further growth by the littleneff of the
place in which they are kept. Who knows not that the Plants growing in the Earth, are hindered
from a longer progress and propagation of their roots, by the oppofition of a Flint, or any other foe
which they live, and are hindered from free nourifhment, to be ftrait and ftrong? For seeing that by the opinion of Naturalifts, the
place is the form of the thing placed, it is neceffary that thofe things that are ftiut up in ftrai
er spaces, prohited offree motion, should be leffened, depraved, and lame.

Empedocles and Dribalus acknowledged three caufes of monstrous births: The too great or fmall
matter of the feed, the corruption of the feed, and depravation of growth by the ftrai
er or figure
of the womb, which they thought the chiefeft of all, becaufe they thought the caufe was fuch in
natural births, as in forming of Metals and fuitable things, of which Statues being made, do lefs exprefs
the things they be made for, if the molds or forms into which the matter is poured, be rough, fa-
brous, too ftrait, or otherwife faulty.

CHAP. IX.

Of Monsters caufed by the ill placing of the Mother, in fitting, lying down, or any other
"site of the body in the time of her being with child.

W e often too negligently and carelefly corrupt the benefits and corporal endowments
of Nature in the comlinefs and dignity of conformation: it is a thing to be lamen
ted and pitied in all, but efpecially in women with child, becaufe they thought the caufe was fuch in
natural births, as in forming of Metals and fuitable things, of which Statues being made, do lefs exprefs
the things they be made for, if the molds or forms into which the matter is poured, be rough, fa-
brous, too ftrait, or otherwise faulty.
which holding their heads down, do few or work with the needle, or do any other labour, which
preys the belly too hard with cloaths, breeches, and swathing, do produce children wry-necked, sloo-
ing, crooked, and disfigured in their feet, hands, and the rest of their joints, as you may see in the
following Figure.

The Effigies of a child, who from the first conception, by the size of the
Mother, had his hands and feet standing crooked.

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 bo-
dy, by which means the child wants nourishment, and therefore will be small and little, and alto¬
gether 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:
Crook-backed produce Crook-backed, 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, Dwarfs bring forth Dwarfs, Lean bring forth Lean, and Fat produce Fat.

CHAP.
Hat which followeth is a horrid thing to be spoken; but the chaste mind of the Reader will give me pardon, and conceive that, which not only the Stoicks, but all Philosophers, who are instructed 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 be spoken without blame, but they cannot be said or perpetrated without great wickedness, fury and madness; therefore that ill which in obscurity consists not to word, but wholly in the act. Therefore in times past there have been some, who nothing fearing the Deity, neither the Law, nor themselves, that is, their soul, have so abjected and prostituted themselves, that they have thought themselves nothing different from Beasts; whereas Atheists, Sodomites, Out-laws, forgetful of their own excellency and divinity, and 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 too maliciously crafty, have concealed, and the confcientious Beasts could not utter, yet the generated mid-shapes issue hath abundantly spoken and declared, by the unpeachable power of God, the revenger and punisher of such impious and horrible actions. For of this various and promiscuous confusion of Beasts of a different kind, Monsters have been generated and born, who have been partly Men and partly Beasts.

The like deformity of issue is produced, if Beasts of a different species do copulate together. Nature always affecting to generate something which may be like it felt: for Wheat grows not but by sowing of Wheat, nor an Apricock but by the setting or grafting of an Apricock, for Nature is a most dili- gient prefervor of the species of things.

The Effigies of a Monfier half Man and half Dog.

Anna Dom. 1493. there was generated of a Woman and a Dog an issue, which from the navel upwards perfectly resembled the shape of the Mother, but thence down towards the Sire, that is, the Dog. This Monster was sent to the Pope that then reigned, as Polianus writeth: also Cardan writeth: De var. anim. lib. 14.

The Figure of a Monster in Face resembling a Man, but a Goat in his other Members.

Catius Rhodopius writeth that at Sikarios a Headman called Chromas fell in love with a Goat, and accompanied with her, and of this detestable and brutish copulation an Infant was born, which in legs resembling the Dam, but the face was like the Fathers.
Of Monsters and Prodigies

Book XXV

The Figure of a Pig, with a Head, Face, Hands, and Feet of a Man.

Anno Dom. 1501, in a certain Town of Liege, (as faith Lycofhenes) 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.

Anno Dom. 1554, at Brussels at the house of one Joost Diltzporte, in the Street Warmoesboldts, a Sow farrowed six Pigs, the first wherein was a Monster representing a Man in the Head, Face, Fore-feet and Shoulders, but in the rest of the body another Pig, for it had the genitals of a Sow-pig, and it fed like other Pigs: but the second day after it was farrowed, it was killed of the People together with the Sow, by reason of the monstrousness of the thing. Here followeth the Figure thereof.

The Effigies of a Monster half Man and half Swine.

Anno Dom. 1571, at Antwerp, the wife of one Michael a Printer, dwelling with one John Mollin a Graver or Carver, at the Sign of the Golden Foot in the Canfrate, on S. Thomas his day, at ten of the Clock in the Morning, brought forth a Monster wholly like a Dog, but that it had a shorter neck, 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 the giving a great shriek in the instant of her delivery the Chimney of the house fell down, yet hurt no body, no not so much as any one of four little children that sat by the fire-side.

The Figure of a Monster like a Dog, but with a Head like a Bird.
Lewis Gellim 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. An. Dom. i 577. in the Town of Flandy three miles from Mdon, there was lambed a Lamb having three heads, the middlemost of which was bigger than the rest when one bleated they all bleated. John Bellanger the Chirurgeon of Melo affirmed that he saw this Monster, and got it drawn, and sent the figure thereof to me with that humane Monster that had the head of Frog, 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 causes thereof, by reason of some of the fore-mentioned particular causes: such are the Monsters that are wholly against all Nature, like that which we formerly mentioned of a Lion yeaned by an Ewe.

Yet Astrologers (left there should seem to be any thing which they are ignorant of) refer the causes of these to certain constellations and aspects of the Planets and Stars, according to Arabists laying in his Problems: in confirmation whereof they tell us this tale. It happened in the time of Albertus Magnus, that in a certain Village, a Cow brought forth a Calf which was half a man: the Townsmen apprehended the Herdsman, 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 Astrology, that it was not occasioned by any humane wickedness, but by the efficacy of a certain position of the Stars that this Monster was born.

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 we venture going further from our purpose, we may seem to speak more freely and largely of the Existence, Nature, and Kinds of Devils. Therefore first it is manifest that there are Conjurers, Charmers, and Witches, which whatsoever they do, perform it by an agreement and compact with the Devil, with whom they have addicted themselves: for none can be admitted into that Society of Witches, who hath not forsaken God the Creator, and his Saviour, and hath not transgressed the Worship due to Him above, upon the Devil, to whom he hath obliged himself. And accordingly, whatsoever addidts himself to these Magical vanities and Witchcrafts, doth it either because he doubts of God's Power, Promises, and great Good Will towards us: or else for the sake of the great craft of the Devil, do many strange things, and change, and corrupt bodies, and the health and life of them, and the condition of all mundane things. Also experience forceth us to confess the same, for punishments are ordained by the Laws against the Professors and Practifiers of such Arts, but there are no Laws against those things which neither ever have been, nor ever came into the knowledge of men: for such things are rightly judged and accounted for impossibilities, which have never been seen or heard of.

Before the birth of Christ there have been many such People, for you may find in Exodus and Le. 9-11. Laws made against such persons by Moses, by whom God gave the Law to his People. The Lord gave the sentence of death to Ochosias by his Prophet, for that he turned unto the kind of people we are taught by the Scriptures that there are good and evil spirits, and that the former are termed Angels, but the latter Devils, for the Law hath said to be given by the Ministry of Angels: and it is said that our bodies should rise again at the sound of a Trumpet, and at the voice of an Arch-Angel. Christ said that God would send his Angels to receive the Elect into the Heavens.

The History of the estirch that the Devil sent fire from Heaven, and killed his Sheep and Cattle, and raised winds that shook the four corners of the houes, and overwhelmed his children in the mines thereof. The History of Adolfo mentioneth a certain lying spirit in the mouth of the false Prophets. Satan entering into Judas moved him to betray Christ. Devils who in a great num.
Of Monsters and Prodigies.

Book XXV.

Of the subterranean Devils, and such as haunt Mines.

What the Devils do in Mines.

L

Emi Latorer writes, that by the certain report of such as work in Mines, that in some Mines there are seen spirits, who in the shape and habit of Men, work there, and running up and down there to do much work, when notwithstanding they do nothing indeed. But in the mean time they hurt none of the by-standers, unless they be provoked thereto by words or laughter: for then they will throw some heavy or hard thing upon him that hurt them, or injure them in some other way.

The same Author affirmeth that there is a silver Mine in Rhetia, out of which Peter Brins, the Governour of the place, did in his time get much Silver. In this Mine there was a Devil, who chiefly on Friday, when the Miners put the Mineral they had digged into Tubs, kept a great quarrel, and made himself exceeding hateful, and poured the Mineral as he lifted, out of one Tub into another. It happened one day that he was more base than he used to be, so that one of the Miners reviled him; and bad him be gone on a vengeance to the punishment appointed for him. The Devil offended with this imprecation and scoff, so without the Miner, taking him by the head, twining his rock about, he for his face behind him, yet was not the Workman killed therewith, but lived, and was known by divers for many years after.

By what means the Devils may deceive us.

Our minds involved in the earthly habitation of our bodies, may be deluded by the Devils divers ways: for they excel in purity and subtlety of offence, and in the much use of things: besides, they challenge a great preeminence, as the Princes of this World, over all sublunary bodies. Wherefore it is no marvel if they, the Teachers and Parents of Lies, should cast clouds and mists before our Eyes from the beginning, and turn themselves into a thousand shapes of things and bodies, that by these jugglings and tricks they may shadow and darken mens minds.

Of Succubus and Incubus.

Powerful by these fore-mentioned Arts and Devices, they have sandy times accompanied with men in copulation, wherupon such as have had to do with men, were called Succubus: thence which made use of Women, Incubu. Verily St. Augustinus feemeth not to be altogether against it, but that they, taking upon them the shape of men, may fill the genitals, as by the help of Nature, to the end that by this means they may draw aside the unwary, by the flames of Lust, from Virtue and Chastity.

John Ruffe, in his Book of the Conception and Generation of Man, writes that in his time, a certain
certain Woman of monstrous lust, and wondrous imprudency, had to do by night with a Devil that turned himself into a man, and that her belly swelled up presently after the act, and when she thought she was with child, she fell into so grievous a distemper, that she voided all her entrails by force. 

Medicines nothing at all prevailing.

Neither doth Peter Eulogius, and Martin Archelaus think it absurd to affirm that Devils may beget children, if they shall copulate into the Woman's womb food taken from some man either dead or alive. Yet this opinion is most absurd and full of impiety, mass food consisting of a seminal or fanguineous matter, and much spirit: if it run otherwise into the womb than from the testicles, and

An opinion concluded.

The like History is told of a servant of a certain Butcher, who thinking too attentively on Venerous matters, a Devil appeared to him in the shape of a Woman, with whom (fooping it to be a Woman) when he had to do, his genitals so burned after the act, that becoming inflamed he died with a great deal of torment.

The Church acknowledges that Devils by the permission and appointment of God punishing our wickedness, may abuse a certain shape, so to use copulation with mankind. But that an instant birth may thence arise, it not only affhirs to be false, but detests 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 follow this (so Cagensive a faith) if Devils could conceive by copulation with men? or if Women should prove with child by accompanying them, how many Monsters would the Devils have brought forth 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 common enemy from the beginning: and as God is the author of order, and beauty, so the Devil, by Pride, contrary to God, is the causer of confusion and wickedness.

Wherefore it power should succeed equal to his evil mind 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 discord, would invade the decent and comely order of this Universe. Monsters arising on every side:

Becoming that Devils are incorporeal, what reason can induce us to believe that they can beget it as they say, is our common enemy from the beginning: and as God is the author of order, and beauty, so the Devil, by Pride, contrary to God, is the causer of confusion and wickedness.

There was at Conflance a fair Damoifel called Margaret, who served a wealthy Citizen: the gave it out everywhere that the was with child by lying with a Devil on a certain night. Wherefore the Magistrates thought it fit the should be kept in Prison, that it might be apparent both to them and others, what the end of this exploit would be. The time of deliverance approaching, the feeling pains like those which Women indure in travel; at length, after many throws, by the Midwives help, in child of a child, the brought forth iron nails, pieces of wood, of glass, bones, stones, hairs, tow, 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 Devil to delude the too credulous minds of men.

The Church acknowledges that Devils by the permission and appointment of God punishing our wickedness, may abuse a certain shape, so to use copulation with mankind. But that an instant birth may thence arise, it not only affhirs to be false, but detests 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 follow this (so Cagensive a faith) if Devils could conceive by copulation with men? or if Women should prove with child by accompanying them, how many Monsters would the Devils have brought forth 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 common enemy from the beginning: and as God is the author of order, and beauty, so the Devil, by Pride, contrary to God, is the causer of confusion and wickedness.

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That I may refresh the mind of the Reader, invited to these Histories of Monsters raised up by the Art of the Devil, Witches, and Conjurers, his Servants, I have thought good to add, the following History of certain Difcases, and remedies supernatural, and wholly magi
cal out of Præsidium. There are Difcases, which as they are sent amongst men by God being offended, they cannot expect cure otherwise than from God, from whence they are thought supernaturally to have their essence and cure. Thus the Air oft-times, yet chiefly in the time of King David, being dealt with the Pheleithés; killed sixty odd thousand persons.

Thus Herodias was struck with a grievous difcase: Job was defiled with filthy Ulcers by Satan at God's command. And as the Devil, the civil enemy of mankind, commonly infected by God's per
tection to afflict thee: so wicked persons by the wondrous faculty of the Devil, offer remedies and
do harm to many. Some invoke I know not what Spirits, and adjure them with Herbs, Exorcisms, Impeccations, Incantations, Charms: and others hang about their necks, or otherwise carry certain Writings, Chandeliers, Rings, Images, and other such impostous stuff. Some use Songs, Sounds, or Numbers: sometimes Potions, Perfumes, and Snools; sometimes Gestrures and Jugling. These he fome that make the portraiture of the absent Parry in Wax, and boat that they can cause or bring a di
dace into whatsoever part thereof they prick, by the force of their Words and Stars, into the like part of the party absent; and they have no other tricks to work other difcases.

We know for certain that Magicians, Witches, and Conjurers, have by charms so bound some that they could not have to do with their Wives; and have made others so impotent, as if they had been girt or made Eunachs. Neither do wicked men only fend difcases into man's body, but also Devils themselves. These truly are soon distracted with a certain Fury, but in this one thing they differ from simple Madmen, for that they speak things of greater difficulty, tell things that are hid and hid, disclose the secrets of such as are perfect, and revile them many ways, and are terrified, tremble and grow angry by the power of divine words.

One not very long ago, being by reason of heat exceeding drie in the night-time, rising out of his bed, and not finding drink, took an apple that he found by chance, and eating it he thought his pains were better and held half as by one hands; and that he was almost aftranged: and also not over
tified of a Devil entering into him, he seemed in the dark to be devoured of a huge exceeding black
Dog, which he, afterwards restored to his former health, orderly related to me. There were divers who by his pulle, heat and the roughness of his tongue, thought him to be in a Fever, and by his watching, and the renovation of his mind, thought him only to rave.

Another young Noble man, some few years since, was troubled at times with a shaking of the body, and as it were a Convulsion, wherewith one while he would move only his left arm, another while the right arm; and at other times but one leg, 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 four men: his head lay without any shaking, his tongue and speech was free, his understanding found, and all his fences perfect even in the height of his fit. He was taken at the least ten times a day, well in spaces between, but wearied with labour; it might have been judged a true Epilepsi, if his understanding and fences had failed.

The most judicious Physicians who were called to him, judged it a Convulsion, confin-german to the Falling-fitclections, proceeding from a malign and venemous vapour impaft in the spine of the Back, whence a vapours diffipated it fell over all the Nerves, which pafs from the spine every way into the Limbs, but not into the Brain. To remove this, which they judged the cause, frequent Clyfters are ordered, and strong Purges of all forts, Cupping-glasses are applied to the beginnings of the Nerves, Fomentations, Lünchen, Empatitrs, fill to diffuse, then to strengnen and wear away the malign quality: Thiefs things doing little good, he was sweated with Baths, Stoves, and a Decotion of Guaiacum, which did no more good than the former, for that we were all far from the knowledge of the true caufe of his Disfile; for in the third moneth, a certain Devil was found to be the Author of all this ill, bewraying himself by voice, and unaccustomed words and fences, as well Latin as Greek (though the Patient were ignorant of the Greek Tongue:) he laid open many Secrets of the By-flanders, and chiefly of the Physicians, denoting for that he had abfled them to the Patients great harm, because they had brought his body so low by needless Pur
fettions.

When his Father came to visit him, he would cry out long before he came at him, or saw him, Drive away this Vifitant, and keep him from coming in here: or else pluck his Chain from about his neck: for on this (as it is the custom of the French Order of Knights,) there hangs the image of St. Mi
chael. If holy and divine things were read before him, he flocke and trembled more violently. When his fit was over, he remembered all that was done, and affirmed he did it against his will, and that he was force for it. The Devil, forced by Ceremonies and Exorcisms, denied that he was damned for any crime, and said that he was a Spirit: being asked who he was, and by what means and power he did those things, he said that he had many habitations into which he could betake himself, and in the time of his rest, he could torment others: that he was cast into this body by a certain perfon whom he would not name, and that he entered by his feet up to his neck, and that he would go forth again the same way, when as his appointed time was come. He spoke of many other things, and did other things which are poftifled use to do.

Now I speak not these things as new or strange, but that it may appear that Devils sometimes entering into the body, do often times torment it by divers and uncouth ways, other things they
B o o k XXV.  
Of Monsters and Prodigies.

they do not enter in, but either agitate the good humors of the body, or draw the ill into the principal parts, or with them obstruct the veins or other passageways, or change the structure of the bones, from which cuses innumerable diseases proceed: of these, Devils are the authors, and wrought and forbidden perfections the Minifters: and the reason of these things is beyond the search of Nature.

Pliny tells that the Emperor Neron in his time found magical arts must vain and false: but what need we allodge profane Writers, when as those things that are recorded in Scripture of the Pythagoreans, of the Woman speaking in her belly, of King Nabuchodonosor, of the Magician of Pharaoh, and other such things as a few, prove that there both is, and hath been Magic. Pliny tells of Democritus, that he calling of the entrails of a sacrificed child, turned himself into a Wolf. We read in Homer that Cae s in the long wounding of Ulisses, changed his Companions into Beasts, with an enchanted Cup or Potion: and in Virgil, that the growing Corn may be spoiled or carried away by incantations: which things, unless they were approved and witnessed by many mens credits, the wisdom of Magistrates and Lawyers, would not have made to many Laws against Magicians, neither would there these have been a cult industed upon their heads by the Law of the Twelve Tables, who had enchanted other mens Corn. But as in magical Arts the Devil doth not exhibit things themselves, as those which he cannot make, but only certain thieves or appearances of things: to do which are any ways accommodated to the use of Physick, the Cure is neither certain nor safe, but deceitful, capricious, and dangerous.

I have seen the Jaundice over the whole body, cured in one night, by a written cordal hung about the neck: and I have seen Agues chaced away by words and such ceremonies, while after they returned again and became much worse. Now there are some vain things, and very the fables of old Women, which because they have long perplexed the minds of men, weakened with too much superstitious, they term them superstitions. These are such as we cannot truly lay of them, for they arise from the temperament, neither from the other manifest qualities, neither from the other divine or magical power, from which two last mentioned, all Medicins beyond Nature, and which are confequently to be stiled to Difjectives, whole offences are supernatural, must proceed. Such like old Wives Medicins and superstitious remedies, are written Figures and Characters, where neither the attendance of God or Spirits is inplored. Let me ask you, is it not a superstitious Medicin to heal the Falling-sickness, to carry in writing the name of the three Kings, Gafpar, Melchior, and Balthazer, who came to worship Christ? To help the Tooth-ach, if one whilst Malt isaying, touch his teeth, saying these words. Or am committere ex a? To say Vomiting with certain Ceremonies and words, which they abet pronounce, thinking it sufficient if that they but only know the Patients name?

I knew a certain fellow that with murmuring a few words, and touching the part, would fetch blood out of what part forever it flowed: there be some who so to that purpose say this, ut altera ejus eximis fapiunt & auras. How many Prayers or Charms are carried about to cure Agues? Some taking hold of the Patients hands, say, 

Allo oft-times there are small superstitions in things that are outwardly applied. Such is that of Apollinis in Pliny, to terrifie the Gulls in the Tooth-ach, with the tooth of one that died a violent death: to make Pills of the shall of one hanged, against the bitings of a mad Dog: to cure the Falling-sickness by eating the flesh of a wild Beall killed with the lance iron wherewith a man was killed: that he shall be freed from a Quaran Ague who shall drink the Wine whereinto the Sword that hath cut off a mass head, shall be put: and he, the parings of whose nails shall be tied in linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put and he, the parings of whose nails shall be tied in a linen cloth to the neck of a quick Eel, and the Eel let go into the mans head, shall be put ...

This is but a deceitful cure that is performed by the Devil. Old Wives superstitious Medicins against divers Diseases.

To stay Vomiting with certain Ceremonies and words, which they abet pronounce, thinking it sufficient if that they but only know the Patients name?

As there are many superstitious words, so there are many superstitious writings also. To help a Eye, a Paper wherein the two Greek Letters T and A are written, must be tied in a thread, and hanged about the neck. And for the Tooth-ach this ridiculous saying, Strigidet facris fapiem dentae, destitum dolorum perficere. Also oft-times there are small superstitions in things that are outwardly applied. Such is that of Apollinis in Pliny, to terrifie the Gulls in the Tooth-ach, with the tooth of one that died a violent death: to make Pills of the shall of one hanged, against the bitings of a mad Dog: to cure the Falling-sickness by eating the flesh of a wild Beall killed with the lance iron wherewith a man was killed: that he shall be freed from a Quaran Ague who shall drink the Wine whereinto the Sword that hath cut off a mass head, shall be put: and he, the parings of whose nails shall be tied in linen cloth to the neck of a quick Eel, and the Eel let go into the Water again. The pain of the Milt to be alawed, if a Bealls Milt be laid upon it, and the Phyr. Some reports that Arnous and Pampillins writ, as incantations, transformations, and herbs dedicated to Cornuits and Devils.

I had thought neverthis place to have mentioned these and the like, but that there may be everywhere found such wicked persons, who are learning the Arts and Means which are appointed by God to preserve the heat of mans body, fly to the superstitious and ridiculous remedies of Sorcerers, or rather of Devils which notwithstanding the Devil sometimes makes to perform their wished for effects, that he may still keep them enamored and addicted to his service. Neither is it to be approv'd which many say, that it is good to be healed by any Art or Means, for that healing is a good work. This faying is unworthy of a Christian, and favours rather of him that trusts more to the Devil than to God. Thole Empiricks are not of the Society of Sorcerers and Magicians, which use all kinds of drugs, and other poisons, and drinks, and drugs, and waters, this Cure is neither magi...
ments, that is, pain, delusions, inflammation, an abolition and gangrene, which retard and hinder the cure of such diseases. The following examples will sufficiently make evident the Devils malcioun-
ness, always wickedly and craftily plotting against our safety and life.

A certain Woman of Florence (as Langius writes) having a malignt ulcer, and being troubled with
inflammatory pain at the stomach, so that the Physicians could give her no cure; behold on a sudden
she vomited up long and crooked nails and brass needles wrapped up with wax and hair, and at
length a great goblet of blood, so big that a Giants jaws could scarce forced it in. But that which happened in the year of our redemption 1532, in a certain Town called Fenol-
fall, in the Bithropole of Edeus, exceeds all credit, unless there were Eye-witnesses of approved
integrity yet living. In this Town one Uriah Nofifler, an Husbandman, was tormented with griev-
ous pain in the one side of his belly; he suddenly got hold of a iron Key with his hand under the
skin, which was not hurt, the which the Barber-Surgeon of the place cut out with a Razor, yet
for all this the pain ceased not, but he grew every day worse than other: wherefore expecting no
other remedy but death, he got a Knife and cut his throat. His dead body was opened, and in his
other woman begging, who depicted his breast, and of a very good habit of body, he was might carry her
ceit. He acquainted the Magistrate with this his Piotion, and going to his house, sought to search her more narrowly, there oiling her breast, arm-pit, a Sponge moistened with a commixture of bread with warm water, and with the moisture thereof looseth the
and Flour and these together with Glue made of Bole-armenick, the White of an Egg, and their
being thus fetched off, he found her bread perfectly sound. for this trick by a Beggar

Within less than a year after, there came into the same City a notable Companion, who
previously taking up the Church-doors, laid open his Wares to it, a Kerchief with some little
pieces of money lying theron, a wooden Barrel, and 4 Clequets, where-in he would ever more now-
day places to the hidden holes of her counterfeit Crizce. Therefore he forsook her bread with warm
water, and with the moisture thereof looth the skins of black, green, and yellow Frogs laid upon it,
and stuck together with Glim made of Bot-reminick, the White of an Egg, and flour and their
being thus fetched off, he found her bread perfectly sound. The Beggar being cut for this into prison, confed that he was taught this trick by a Beggar
that lay with her, who himself alfo, by putting about his leg an Oxford Mitre, and perforating it in hund-
dard holes, that the fore-mentioned liquor might drop out, counterfeited an Oxford of a monfortos
bignefs and malignity, covering the edges of the Mitre on every side with a filthy cloth. This Beggar
was diligently enquired after, but could not be found; and to the was whipped and banished.

An history of a man of integrity.

Another of a cunning beggar.

CHAP. XVIII.

Of the Cozenages and crafty Tricks of Beggars.

Having treated of Monsters, it follows that we speak of those things which either of them-
elves, by reason of their nature full of admiration, have some kind of moneymongers in them,
or else from some other ways, as by the craft and coinage of men. And because to the
last mentioned crafts of the Devil, the subtle devices of beggars are somewhat alike, therefore I will handle them in the next place, that the Surgeon being admonished of them, may be
more cautious and cunning, in differing them when he meets with them.

Having a brother called John Pary, a Surgeon, who dwelt in Fife in Britain; he once observed a
woman begging, who depicted her breast, and of a very good habit of body, he was might carry her
ceit. He acquainted the Magistrate with this his Piotion, and going to his house, sought to search her more narrowly, there oiling her breast, arm-pit, a Sponge moistened with a commixture of bread with warm water, and with the moisture thereof looseth the
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Then he laid bare his whole body, and diligently viewed each part, and found no sign of a Leperous one or other. When which the Magistrate once heard, he made him to be thrice whipped through the Streets of the City, with his Barrel hanging before 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 Hangman in jest, that he should not fear to lash him soundly, for being leprous he could not feel it. The Wretch, irritated by the cry of the People, did so beseech 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 other labours: they also divers times confusingly, take away the lives and goods of honest and industrious 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 it being granted them, they, when as the Master 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 way of begging is the Mother and School of all dishonesty: for how many acts of bawdry and poisoning every where corrupt the Wells and publick Fountains? How many places have been burnt under the show of begging? Where can you get more city fit Spies? Where more fit Undertakers and Workers of all manner of Villany, than out of the crew of these Beggars?

Some of them there are, who beforehand their faces with foot laid in waters, so as to seem to have the Jaundice. But you may at first sight find out the deceit, by the native whiteness of the outer coat of the eye, called Adventis, which in such as truly have the Jaundice, either to be died or overcast with a yellowish colour: also you may be more certain thereof, if you wet a cloth in Water or Spittle, and so rub the face; for the adventitious yellowness will quickly vanish, and the true native colour show itself.

Some there be, who not content to have mangled, and filthily excercised their limbs with catchicks, and other catteries; or to have made their bodies more swollen, or else lean, with medicated drinks or to have determed themselves some other way, but from good and honest Citizens, have in such feats have discerned them, they have stolen their children, have broken and dislocated their arms and legs, have cut out their tongues, have deprived the whole face by with these as their own children, begging up and down the Countrie, they may get the more relief, 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, and communicate by Letters one to another, what news or new quirk devices there are to conceal or advance their Ragiery: to which purpose they have invented a new Language only known to themselves, so as to discourse together, and not to be understood by others. We have vulgarly term it Cozning.

Dr. Fleede, a Physician of Paris, intrusted me to bestrain company to his Countriehouse at Campany, four miles from Paris. Where as soon as we arrived, and were walking in the Court, there came presentely to us a good lusty well flet manly woman, begging alms for St. Fiacre, and adding up her Coat and her Smock, whereat there dropped thirp little pce, which had all stained her Legs and Smock, most beastly and filthy to look upon. Fleede asked how long she had been troubled with this Disease, and the answer was that it was four years since she first had it. Hence he early gathered that she played the counterfeit: for it was not likely that such abundance of purulent matter came forth of the body of so well flet and coloured a Woman; for the would rather have been very lean and in a consumption. Wherefore provoked with just anger, by reason of the wickedness of the decease, he ran upon her and threw her down upon the ground, and tied her under her feet, and hit her divers blows upon the belly, so that he made the gut which hung at her, to come away, and by threatening her with more grievous punishment, made her confess the cozenage, and that it was not her gut, but of an Ox, which being filled with blood and milke, and tied at both ends, she put the one of them into her fundament, and let the thirp flow forth at very little holes.

Not very long ago, a Woman, being equalled as ailes, offered her self to the Officers of the Poor of Paris, intreating that she might be excused for one of their Penitencies, for that her Womb was fallen down by a dangerous and difficult birth, wherefore she was unable to work for her living. There they commanded that she should be tried and examined, according to the custom, by the Surgeons which are therefore appointed: who seeing how the whole business was carried, made report the was a Counterfeit, for the had thrust an Oxes bladder, half blown and befreed with healtily blood by the neck, whereeto he had fastned a little Sponge, into the neck of her Womb, for the Sponge being filled and swollen up by the accustomed moisture of the Womb, so held up the Oxes bladder that hangd thereon, that the might safely go without any fear of the falling of it out, neither could it be pulled out by the good women. For this her device she was put into Prison, and being thus whipped, was after banished. This cozenage is not much unlike theirs, who by tally applying a Sheeps puchon to their grins, counterfeit themselves to be burdened.
a Woman of great devotion and charity, who finding for Doctor Hollerini Cheval and me, asked us if this Snake could by any means be gotten forth. Hollerini gave her a strong purgation, hoping that by fitting up the rectos and expelling the faeculence, the Serpentine might be cast forth together with the notorious humours. But this hope had no such success. Wherefore when we met again, we thought fit to put a *Speculum matrice* into the neck of her womb, to see if we could discern either head or tail: but I making large dilatation of her Woman, could see no such thing; only we observed a certain voluntary motion, whereas the head was the author, by contracting and dilating the muscles of the lower belly. Which when as we had observed, perceiving the deceit and impudence, 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 we could not do by the former, as more gentle, we might attempt by the latter, as far stronger. She thus trembling all fear, and confessing of her craft and dissimulation, after we were gone in the evening, packing up her stuff, and a great deal more than her own, the fiercely fled away, not biddng her Hostess farewell: and thus at length the fraud was apparent, to the lords of the honest Gentlewoman. I saw this baggage for days after, fitting hopefully upon a Pitch-hors, at the Gate of Mauumatre, and laugning heartily with such as brought Sea-fish to Town; and she was returning (as it was most likely) into her Country, feeling her courage was discovered here. If such as themselves dumb, draw back and double their tongues in their mouths. Such as falling down counterfeit the Falling-sickness, bind frankly both their wrists with plates of iron, tumble themselves to bleandrowl them before, and sprinkle and defile their heads and faces with Beast's blood, and feign them with they be smear their whole bodies, as if they had that Leprofie or Scab that is vulgarly termed Squallor. Such as youth like those that have the Falling-sickness. Others with Flour make a kind of Glue, whereby they are made whole body. Lastly, by putting Soap into their mouths, they foam at the cheek, and pretends to be a real leprous. Malum san&i Manis. Neither must we think this Art of Counterfeiting and cheating Begging to be of Beggars for filthy gain. But if there be any monstrousnefs in the following narrations, it is of Nature, but working as it were miraculoufly, by some secret and occult means, it is of Nature, but working as it were miraculoufly, by some secret and occult means; for thus there are oftentimes Monsters in Diseases. Before the Town of St. John of Angers, a Soldier called Francis, of the Company of Captain Mars, was wounded with a Harquebuz-shot on the belly, between his navel and ribs; the bullet was not taken out, because the Surgeons who searched him diligently, could not find it; whereas he was troubled with grievous and tormenting pains, until the ninth day after he received the wound, the bullet came forth at his fundament: whereas within three weeks after he was perfectly whole. He was healed by Simon Crispis, the Surgeon of the French Companies. James Pope, Lord of St. Albin in Dauphiné, was wounded at the Skirmish at Choufay, having three Harquebuz balllets entering into his body, one whereof pierced under his throat, where it bunched out as with a knot near to the pipe of his lungs, even to the beginning of the Vertebra of the neck, in which place the Lead-bullet stuck, and as yet doth remain. Hereupon he was afflicted with many and fearful symptoms, as a Fever, and a great swelling of his whole neck, so to fort the fort in whole days he could swallow nothing but broths and liquid things. Yet he recovered, and remained well at this present, by the cure of James Dalam the Surgeon. Alexander Brevilius makes mention of a certain Countryman, who, shot into the back with a dart, drawing out the shaft, the head was left behind, being in length about the breadth of two fingers, but hooked and sharp on the side. When the Surgeon had carefully and diligently sought for it, and could by no means find it, he healed up the wound, but two months after this crooked head came forth at his fundament. The same Author tells us that at Venice A Virgin swallowed a needle, which gave her pain two years after the voided by urine, covered over with a fowy matter, gathering about viscous humours. Catherine Verlan, the wife of William Guerrier, a Draper of Paris, dwelling in the *faury*, as the road is called, drawing out the shaft, the head was left behind, being in length about the breadth of two fingers, but hooked and sharp on the side. When the Surgeon had carefully and diligently sought for it, and could by no means find it, he healed up the wound, but two months after this crooked head came forth at his fundament. The same Author tells us that at Venice A Virgin swallowed a needle, which gave her pain two years after the voided by urine, covered over with a fowy matter, gathering about viscous humours. Catherine Verlan, the wife of William Guerrier, a Draper of Paris, dwelling in the *faury*; as the road is called, drawing out the shaft, the head was left behind, being in length about the breadth of two fingers, but hooked and sharp on the side. 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called Mauhuet at Paris, and I think he is yet living. This Stone was shewed to King Charles the Ninth, for the most notorious of the thing. I being then present, which being given me by the Surgeon, I preferve amongst my other rarities.

The Figure of a Stone taken forth of the Bladder of a Confectioner.

Anno Dom. 1570, the Duchess of Ferarwa at Paris, sent for John Cull to take a Stone out of a Confectioner. This Stone, though it weighed nine ounces, and was as thick as one's fist, yet was it happily taken out, the Patient recovering, Francis Rovfett and Joseph Jodile, the Dutchess Physicians, being present. Yet not long after this Confectioner died by the stoppage of his water, by reason of two other little stones, which being about to descend from the Kidneys to the Bladder, failed in the midway of the Ureters. The figure of the extracted Stone was this.

Anno Dom. 1569, Laurence Cull the younger, took three stones out of the Bladder of one dwelling at Marly, called commonly Tire-vit because being troubled with the Stone from the tenth year of his age, he continually scratched his Yard, each of the Stones were as big as an Hens Egg, of a yellow white, they altogether weighed twelve ounces. When they were presented to King Charles, then lying at St. Maure des Faujfez, he made one of them to be broken with a Hammer, and in the middle thereof there was found another of a Chestnut colour, but otherwise much like a Peach Stone. These three Stones, befieved on me by the Brethren, I have here represented to the life.

The Effigies of the three fore-mentioned Stones, whereof one is broken.

I have in the dissection of dead Bodies, observed divers Stones of various forms and figures, as of Figs, Whelps, and the like. Dalechampius saith that he saw a man, which by an Abortion of his Loin, which turned to a Fidula, voided many Stones out of his Kidneys, and yet notwithstanding could endure to ride on Horse-back, or in a Coach. John Magnus, the Kings most learned and skillful Physician, having in cure a Woman, troubled with cruel torment and pains of the Belly and Fundament, sent for me, that by putting a Speculum into the Fundament, he might fee if he could perceive any discernable cause of so great and pertinacious pain: and when as he could see nothing but the force of Purging Mediments, he brought it so to pass, that she at length voided a Stone at her Fundament of the bigness of a Tennis-ball; which once avoided all her pain ceased.

Hippocrates tells us that the Servant of Diocles in Larisfa, when she was young, in using Venery was much pain'd, and yet sometimes without pain, yet the never conceived. But when she was sixty years old, the was pain'd in the afternoon as if she had been in labour. When as the one day before noon had eaten many Leeks, afterward she was taken with a most violent pain far exceeding all her former, and the felt a certain rough thing rising up in the orifice of her womb; but the falling...
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A certain Woman, who, as Hellewe tells, for the space of four Months was troubled with an intense pain in making water, two stones were found in her heart, with many abceffes, her Knieves and Bladder being whole.

Anna Dom. 1548. I opened in John Berriell a Tailor, dwelling in the street of St. Honor, a watry abceffe in his knee, wherein I found a stone, white, hard, and smooth, of the thickenes of an Al-monk, which being taken out, he recovered. Certainly there is no part of the body wherein stones may not breed and grow.

Anodyne Beneficent a Florentine Physician writes, that a certain Woman swallowed a brass Needle without any pain, and continued a year after without feeling or complaining of it: but at the end thereof the face was melted with great pains in her belly's for helping of which the asked the advice of all the Physicians the could, making in the interim no mention of the swallowed Needle. Wherefore the had no benefit by all the Medicins the took and the continued in pain for the space of two years, until at length the Needle came forth at a little hole by her Navel, and the recovered her health.

A Scholar named Chambelant, a Native of Burges, a Student in Paris, in the Colledge of Propis, swallowed a faltk of Grains, which came afterwards whole out between two of his rifs, with the great danger of the Scholars life. For it could not come there unless by pain, or breaking through the lungs, the encompassing membrane, and the intercostal muscles yet he recovered. Feniulnis and

A Knife swallowed; come forth whole again between the ribs.

A Needle swallowed; came forth without any abceffe in the goon.

Anna Dom. 1558. Anthony Benvenet, a Tailor, dwelling in the street of St. Honor, had in cure, and healed a certain Shepherd, who was forced by Thieves to swallow a Knife of the length of half a foot, with a Horn handle of the thickenes of three thumbs: he kept it the space of half a year, yet with great pain, and he fell much away, but yet was not in a Contumpation, until at length a abceffe rising in his groin, with great force of very flaming quittance, the Knife was there taken forth in the presence of the Juris- ticius, and left with Jostem the Physician of Mimipetk.

Monfieur the Duke of Toulouse had a Foot called Guido, who swallowed the point of a Sword of the length of three fingers, and he voided it at his Fundament on the twelfth day following, yet with much ado: there are yet living Gentlemen of Britay, who were witnessesse thereof.

There have been many Women with child, who have cast forth piece-meal children that have died in their Wombs, as that the bones have broke themselves a passage forth at the Navel, but the child, diddled at if it were intoquittance, flown out by the neck of the womb and the fundament, the Mothres remaining alive, as Daniel Longifue observes out of Almonica.

It is not very strange that there have been Women, who troubled with a fit of the Mother, have lain three whole days without motion, without breathing, or pulse that were any way apparent, and have been carried out for dead.

A certain young man, as Ferntin tells, by somewhat too vehement Excercice, was taken with such a Cough, that it left him not for a moment of time, until he therewith had cast forth a whole impo- flute of the bigenes of a Piggeons Egg, wherein, being opened, there was found quittance exquitely white and equal. He fast blood two days after, had a great Fever, and was much distempered, yet notwithstanding he recovered his health.

Anna Dom. 1578. Stephana Chartier dwelling at St. Maures des Fauces, a Widow of forty years old, being sick of a Tertian Fever, in the beginning of her fit vomited out a great quantity of choler, and together therewith three hairy Worms, in figure, colour, and magnitude like the Worms called Bear-worms, yet somewhat blacker; they lived eight whole days after without any food: the Chirur- gion of this town brought them to Dr. Milin, who threw them to Feure, Le Grofl, Marfion, and Conriss, Physicians, and to me also.

This narration exceeds not only all admi- ration, but al- fe belief.

This narration is taken out of the Chronicles of Mofiphox, exceeds all admiration. A cer- tain Frank-Archer of Mendon, four miles from Paris, was for Robbery condemed to be hanged: in that time it was told the King by the Physicians, that many in Paris at that time were troubled with the Stone, and amongst the rest the Lord of Byfages, and that it would be for the good of many, if they might view and doffin with their eyes the parts themselves wherefore to cast a discil dis- bred, and that it might be done much better in a living than in a dead body; and that they might make trial upon the body of the Frank-Archer, who had formerly been troubled with this disease. The King granted their reqvet; wherefore opening his body, they viewed the breathing parts, and satisfied themselves as much as they desired, and having diligently and exactly rehored each part to its proper place, the body, by the Kings command was sewed up again, and deaded and cured with great care. It came to pass, that this Frank-Archer recovered in a few days, and getting his par- don of much good fores of money besides.

Alexander Beneftus tells, that he saw a Woman called Virtora, who having left all her teeth, and being bald, yet had others come up in their places, when as she was fourteen years old.

Stephen Yetter a Chirurgeon of Orleans, told me that not long ago he cured one Charles Vening, a Servant of Orleans, of a wound receiv'd in his borough, whereby the two tendons binding the horn, a wound of the horn, and a wound of the arm, were quite cut off. He took this order in the cure: he caufed the Patient to bend his leg, then he fewed together the ends of the cut tendons, then placed the member in that line, and handled with that Art, that at length he healed the wound, and the Patient not halting at all. Truly this is a memo- rable mean time to be humbly and heartily to be imitated by the young Chirurgeon.

How many have Hec, who wounded and thrust through the body with Swords, Arrows, Pikes, Ballets, have had portion of the brain cut off by a wound of the head, an arm or leg taken away by a Cannon-ball, yet have recovered a and how many on the contrary, have died of light and small wounds, not worth the speaking of.
A certain man was shot near to his groin with an Arrow, whom we have fee[n], that H[e]o[r]s. 

A certain man was shot near to his groin with an Arrow, whom we have seen, that Hippocrates gives no reason for so long a flay, but that he faith it might be suspected it lay hid between the Nerves, and that no Vein or Artery was cut thereby.

CHAP. XX.

Of the wonderful original, or breeding of some Creatures.

We have read in Boist, that a certain Workman of Avignon, when as he lived in that City, opened a leaden Coffin, wherein a dead body lay, that was so closely folded, that it was not to get in, that dead body lay therein, with so venomous and deadly a bite, that it had near to have cost him his life. Yet the original cause of this Creature is not so prodigious as he supposed, for it is an usual thing for a Serpent to breed of any putrid carcass, but chiefly of man.

Hippocrates writes, that in the time of Pope Martin the fifth, there was a live Serpent found enclosed in a vail but solid Marble, no chirr appearing in such solidity, whereby this living Creature might breathe.

Whilest in my Vineyard, that is at Meudon, I caused certain huge stones to be broken to pieces, a Toad was found in the midst of one of them. When as I much admired thereat, because there was no space wherein this Creature should be generated, increase, or live, the Stone-cutter wistied me not to marvel thereat, but that it was a common thing, and that he saw it almost every day. Certainly it may come to pass, that from the most humid portion of stones, contained in places moist and under ground, and the celestial heat mixing and diffusing it felt over the whole mails of the World, the matter may be animated for the generation of these creatures.

CHAP. XXI.

Of the wondrous nature of some marine things, and other living creatures.

He last mentioned creatures were wonderful in their original, or rather in their growth: but these which follow, though they be not wonderful of themselves, as those that consist of their own proper nature, and that working well and after an ordinary manner; yet they are wondrous to us, or rather monstrous, for that they are not very familiar to us. For the rarity and vaunting of bodies, is in some sort monstrous. Of this sort there are many, especially in the Sea, whose secret corners and receptacles are not pervious to men: as Tritons, which from the middle upwards are reported to have the shape of men: and the Sirens, Nereides, or Mermaids, who (according to Pliny) have the faces of women, and scaly bodies; yea, whereas they have the shape of man, neither yet can the fore-mentioned confusion and conjunction of seeds take any place here, for as we lately said, they consist of their own proper nature.

When Moses was President of Egypt, and walked on the banks of Nile, he saw a Sea-monster in the shape of a man coming forth of the Waters; his shape was just like to a man even to the middle, with his countenance composd to gravity, his hair yellow, yet intermixed with some grey, his face much bony, his arms orderly made and jointed, his other parts ended in a Fish. Three days after in the morning, there was seen another Sea-monster, but with shape or countenance of a woman, as appeared by her face, her long hair, and swollen breasts: both these Monsters continued so long above water, that any one might view them very well.

The Effigies of the Triton and Siren of Nile.
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The Figure of a Fish resembling a Monk. The Figure of a Fish in the habit or shape of a Bishop.

The Effigies of a Sea-monster headed like a Bear.

The Effigies of a Lion-like scaly Sea-monster.

Not long before the death of Pope Paul the Third, in the midst of the Tyrrhene Sea, a Monster was taken, and presented to the Successor of this Paul; it was in shape and bigness like to a Lion, but all scaly, and the voice was like a man's voice. It was brought to Rome to the great admiration of all men, but it lived not long, there being destitute of its own natural place and nourishment, as it is reported by Philip Forrest.

An. Dom. 1523, the third day of November, there was seen at Rome this Sea-monster, of the bigness of a child of five years old, like to a man even to the Navel, except the Ears; in the other parts it resembled a Fish.
Gebner makes mention of this Sea-Monster, and saith that he had the Figure thereof from a Painter, who took it from the very Fish, which he saw at Antwerp. The head looks very ghastly, having two horns, prick-ears, and arms not much unlike a man, but in the other parts it was like a Fish. It was taken in the Braise Sea, as it came ashore out of the water to catch a little child: for being hurt by stones cast by Fishermen that saw it, it returned a while after to the shore from whence it fled, and there died.

Gebner tells us that a Sea-Monster, with the head, mane, and beard of a Horse, and the rest of his body like a Fish, was seen and taken in the Ocean Sea, brought to Rome, and presented to the Pope.

Olaus Magnus tells us that a Sea-Monster taken at Bergen, with the head and shape of a Calf, was given him by a certain English Gentleman. The like of which was presented lately to King Charles the Ninth, and was long kept living in the Waters at Fountain-bleau, and it went oft-times ashore. This is much different from the common Sea-Calf or Seal.

This great Monster was seen in the Ocean Sea, with the head of a Boar, but longer tusks, sharp and cutting, with scales set in a wonderful order, as you may see by the following Figure.
Olaus Magnus writes that this Monster was taken at Thyle, an Island of the North, *Ann. Dom. 538*, it was of a bigness almost incredible, as that which was seventy two foot long, and fourteen high, and seven foot between the eyes: now the liver was so large that therewith they filled five Hogheads; the head resembled a Swine, having as it were a half Moon on the back, and three eyes in the midst of his sides; his whole body was scaly.

The Effigies of a monstrous Sea-Swine.

The Sea-Elephant, as *Hedde Bertiun* writes in his description of Scotland, it is a Creature that lives both in the Water and ashore, having two teeth like to Elephants, with which as oft as he desires to sleep, he hangs himself upon a Rock, and then he sleeps so soundly, that Mariners seeing him at Sea, have time to come ashore and bind him, by casting strong ropes about him. But when as he is not awakened by this means, they throw stones at him, and make a great noise; with which awakened he endeavours to leap back into the Sea with his accustomed violence, but finding himself fast, he grows so gentle, that they may deal with him as they please. Therefore they then kill him, take out his fat and divide or cut his skin into thongs, which because they are strong and do not rot, are much esteemed of.

The Effigies of a Sea-Elephant.

The Barbians of Mount Mazawon, which runs alongst the Red Sea, chiefly feed on a Fish called *Orobone*, which is very terrible and much feared by other Fish, being nine or ten foot long, and of the breadth agreeable thereto, and it is covered with scales like a Crocodile.

A Crocodile is a vast Creature, coming sometimes to be fifteen foot long, and being it is a Creature that doth not bring forth young, but eggs, it useth at the most to lay some forty eggs, no bigger than Crocodile eggs, rising to such bignes from so small beginnings (for the hatched young one is proportionable to the egg) the is very long lived.
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It hath so small and useless a tongue, that it may seem to have none at all. Wherefore being it lives both on Land and Water, as it lives on Land it is to be taken for a tongue; but as it lives part of the life in the Water, it hath no use of a tongue, and therefore it is not to be reputed one. For Fishes either wholly want tongues, or else have them toropicidic and bound, that they cannot move them of all other things move the upper jaw, the lower remaining immovable: for her feet, they are neither good to take nor hold any thing; the hath eyes not unlike that of Swayne, long teeth standing forth of the mouth, most sharp claws, a facy skin, to hard that no weapon can pierce it. Of the Land Crocodile (resembling both Land and Water one) is made the Medicin Crocodile, most singular for fore-eyes, being anointed with the juice of Leaks, it is good against fluxions or diuusses of the sight; it takes away treacles, putref, and spots; the Gall anointed on the eyes helps Cataracts, but the blood clears the fight.

There faith they live in the Fountains of the River Nilus, or rather in a lake flowing from the same Fountains, and that he saw some that were fix paces long, and a yard crogs the back, so that their very looks were formidable. They catch them thus: When as the Water of Nilus falls, the Egyptians let down a line, having thereto fastned an iron hook of some three pound weight, made very large and strong: upon this hook they put a piece of the flesh of a Camel or some other Beasts' which when as he fees, he presently falls upon it, and devours it hook and all, wherewith he finds himself to be cruelly pulled and pinched, it would delight you to see how he feels and leaps aloft, then they draw him thus hooked, by little and little to the shore, and fallen the rope finally to the next tree, left he should fall upon them, then with Prongs and such things they drive him his belly, whereas his skin is fott and thin, and that at length they kill him, and uncasting him, they make ready his flesh and eat it for delicious food. John Linnell in his History of Beast, CAP. 10. writes that the Salvages of that Country willingly fed upon Crocodiles, and that he saw some who brought into their houses young ones, with their Children gathering about it, would play without receiving any harm thereby.

True (faith Pliny) is that common opinion, Whateveris brought forth in any part of Nature, that all 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 reembless of living Creatures, but all of other things: you look upon the Sword, Saw, Casmer, like in smell and colour to that of the Earth, that you may less wonder at the Sea-feather and Grape, whose Figures I have here given you out of Bandeloten.

The Sea-feather is like these feathers of Birds which are worn in hats for ornament, after they are trimmed and dress for that purpose. The Fishermen call them Sea-pricks, for that one end of them resembles the end of a mans yard when the prepuce is drawn off it. As long as it is alive it swells and becomes sometimes bigger and sometimes fatter; but dead, it becomes very flaccid and flank: it shines bright on the night like a Star.

You may by this gather, that this which we here express, is the Grape wherof Pliny makes mention, because in the surface and upper part thereof it much resembles a fan bunch of Grapes it is somewhat length is like a milhaipen Club, and hang upon a long stalk; the inner parts are nothing but contination, sometimes distinguished with little glandules, like that we have here figured alone by it fell.

In the Sea near the Island Hispaniola in the West-Indies, there may be seen many monstrous Fishes, amongst which These in his Colographia thought this most rare and observabel, which in the vulgar Language of the Natives is termed Alle. For it is just like a Goose, with a long and first neck, with the head ending sharp, or in a Cone, not much unlike a Sugar-pear, it is no bigger than a Goose, it wanteth caules, it hath four fins under the belly for swimming: when it is above water you would say that it were a Goose.

The Sarmatian, or Eastern German Ocean contains Fishes unknown to hot Countries, and very monstrous. Such is that which resembling a Small, equals a Barbel in magnitude of body, and a Stag in the largenes and branches of her horns: the ends of her horns are rounded as it were into little Ball, thing like unto Lilies, the neck is thick, the eyes thing like unto little candles, with a roundish note for with hair like to a Cats, the mouth wide, whereunder hangs a piece of flesh very ugly to behold. It goes on four legs, with so many broad and crooked feet, the which with a long tail, and varatuged like a Tiger, serves her for Fins to swim withal. This Creature is said to be an Amphitophium, that is, which lives both in the Water and ather, yet usually it keeps it self in the Sea, neither doth it come ather to feed, unless in a very clear Season. The flesh thereof is very good and grateful meat, and the blood medicinable for such as have
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The blood of great Tortoises is good for the Leprofe. Thetor in his Cosmography affirmeth that he saw this in Denmark. In a deep Lake of Fresh water, upon which standeth the great City or Town of Tomepulien, in the Kingdom of Mexico, which is built upon Piles, like as Venice is, there is found a Fish of the bigness of a Calf, called by the Southern Salvages, Hoga, but by those of the place, and the Spaniards the Conquerors of that place, Hoga. It is headed and eared almost like a Swine, from the chaps hang five long bearded appendices, at the length of some half a foot, like the beard of a Parrot. It hath flesh very grateful and good to eat. It bringeth forth live young like as the Whale. As it swims in Waters it fomets green, yellow, red, and of many colours, like a Chameleon; it is most frequently convergent about the Shore-sides of the Lake, and there it feeds upon the leaves of the Tree called Hoga, whence also the Fish hath its name. It is fearfully toothed, and a fierce Fish, killing and devouring such as it meeteth withal, though they be bigger than her self: which is the reason why the Fishermen chiefly desire to kill her, as Thetor affirmeth in his Cosmography.

The monstrous Fish Hoga.

Andrew Thetor in his Cosmography writes, that as he sailed to America, he saw infinite store of flying Fishes, called by the Salvages, Eulampsch, who rising out of the Water, flee some fifty paces, escaping by that means from other greater Fish that think to devour them.

This kind of Flying Fish exceeds not the bigness of a Mackrel, is round-headed, with a blowish back, two wings which equal the length of almost all their body. They oft-times flee in such a multitude, that they fall foul upon the sails of Ships, whilst they hinder one another's flight, and by this means they fall upon the Docks, and become a prey to the Sailors: which same thing we have read confirmed by John Lemos in his History of Brazil.

In the Venetian Gulf, between Venice and Ravenna, two miles above Quena, there was taken a flying Fish, very horrible and monstrous, being four 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 filthy and green, two wings, fome holes in her throat, like those of a Lamprey, a tail so long, at the fitting on whereof there were two little wings. This Monster was brought alive to Quena, and presented to the chief of the City, as a thing whereof the like had not been formerly seen.

The Figure of a monstrous flying Fish.
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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, dispenses it in the framing of them. In so great a diversity I have chiefly made choice of three to treat of here, as those that are worthy of the greatest admiration. In these lie hid certain little Fishes, as Smalls in their shells, which Aristotle calls Cancelli, and he affurthem to be the common companions of the crustated and shell-fishes, as those which in their greater or kind are like to Lobsters, and of which he bade without shell; but as they creep into shells, and there inhabit, they are like shell-fishes. His one of these is termed the Uranus. He hath two somewhat long and slender horns, under which are his eyes, always standing out of his head, as those which he cannot pluck or draw in, as Crabs can. His fore-foot hath claws upon them, wherewith he defends himself, and carries each to his mouth, having two other on each side, and a third being a leffer, the which he useth in going. The female lays eggs which hang forth at her back part, as if they were put upon a thread, being joined together by certain little membranes. Lastly, in the opinion of Aelian, the Cancelli, or small Cray-fish is born lib. 7. c. 31.

They change yer carries away the empty shell, or else makes the weaker to quit possession. Now the shell is either their habitation, or a Nevs or Tube, and all the rest of a small purple; and entering into possession, the carries it about, till for two three feet and grows, and then feeds a more capacious one, as Arctida Faith in the formerly-cited times.

The Effiges of the empty Shells wherein the Cancelli of to creep to dwell.

Some think that this Bernard the Hermit is that kind of Cancelli which is by Pliny termed Pinnator, but in truth the Pinator is not a kind of Cancelli, or Gray-fish, but of a little Crab. Thus in Aristotle there is much difference between Cancelli and Cancer parvus, though Pliny may Cray-fish, and he seems confused thens for he is bred naked, having his claw onely, but without a shell: wherefore finding that by Nature he wants it, he diligently searches for it, and dwells in it, when as he hath found it: But the Pinator is not bred by it self alone, but in Pinnas and some others, and he changeth not his habitation, because (as Aristotle thinks) being of the kind of Dwarf-Crabs, it never grows big, neither dwells it in empty shells. Now the Pinnas, or Pan, is a kind of shell-fish, it what the Fishes breed in muddy places, and is always open, neither is it at any time without a Companion which, as is, they therefore call the Pinnator, or Pinnapilia, (I. e.) the Pin-keeper, as Pliny faith. Verily that Lib. 9. c. 31.

de Hiang. De Vison, faith, the Pinnas or Pinnator affid and further each other, neither can they live afunder. The Pinnas may be referred to the kind of Oisters, but the Pinator is a Dwarf-Crab, the Pinnas opens her shell for the little fishes to enter thereinto, the Pinator stands by, observing if any come in; which if they do, he gives the Pin notice thereof by, biting, who preferably thereunto. The Pinator is born lib. 2. of the Danae in his Writings. The Pinator is sometimes called by Pliny, Cancer Latin affulicnt.

But that which of the Authors is attributed to the Dwarf-Crab, the same by Cicer is ascribed to the little Shrimp. Nor the Pinas (faith he) opening her two large shells, enters into concubinage with the little Shrimp for getting of food, wherefore when little Fishes swim into her gaping shell, then the Pinnas, admittance of the Shrimp bites her, that she keeps the two unlike Creatures get their living together. But Plinarch seems to make the Pinnas to be the Pearl-Oyster in that Work of his, whereas he enquireth whether the craft of Water or Land-beasts be the greater.
But amongst the most miraculous Fishes may fitly be placed the Namidas, or Sails; of some called Pumfier(f it is thought to be a kind of Polyphemus) comes forth; the face upwars to the top of the Sea, raising it by little and little, that calling forth all the water by a pipe as if it had a Pumfier easily floats. Then putting back the two first tendrils or arms, it extends between them a membrane of wondrous fineness or thinness, which gathering air like as a Sail, and the rowing with the rest of her arms, guides her yet with her tail in the midst, as a Rudder. Thus she sails along in imitation of Pinnaces, and if any thing affright her, she presently takes in Water, and sinks herself.

The better to store this Treatise of Monsters, affhing the name with the Poets, we will reckon up the Whale 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; for most commonly this Beast is thirty six cubits long, eight high, the slit of his mouth is eighteen foot long, teeth they have none, but in head thereof in each jaw, horns black Excrefences or Fins [which we vulgarly term Whale-bones] which by little and little end in small hairs like to a Swines bristles, which coming and flanding out of his mouth, are in head of Guides, left whilst he swims with a blind and rapid violence, he might run against a Rock. His eyes are distant one from the other the space of four Els, which curiously appear small, but inwardly they are bigger than a mass head; whereas they are deceived that lay that they are no bigger than an Oxen eyes; his nose is short, but in the middle of his fore-head he hath a pipe whereat he draws in the air, and casts forth a whole shower or River of water, that therewithal he will even sink a Vessel or Boats of Manorers, when he hath filled himself beyond measure, he cries out or roars with so great or strong a voice, that he may be heard two miles off. He hath two very large fins upon his sides wherein he swims, and under which in the time of danger he hides his young; he hath none upon his back. His tail in fire is like to the tails of Dolphins, neither is it much unlike in shape, which when he moves, he sets the Sea, that he drowns and overturns the Boats that he touches. You may by discharging thef thif and that a Whale brings forth live young, and gives them suck; for the male hath Testicles and a Yard, but the female a Womb and Dugs. They are taken in divers places about Winter, but chiefily about the Coast of Aquitain, at a small Town which is vulgarly called Barrais, some six miles distant from Bayon; whereasunto I being sent by King Charles the Ninth when he was at Bayon, to cure the Prince of Roche Sur-Tou; I was an eye-witness how they are caught; and also I confirmed that which I had formerly read to that purpose, in that excellent and most true
Of Monsters and Prodigies.

true History of Whales set forth by Remedius. Now at that Town there is a little hill, in the top whereof there is a Tower of very great antiquity, from which as from a watch-Tower they keep watch whether or no any Whales find that way. Wherefore the Watch-men from the Tower, either seeing, or by the horrible noise hearing a Whale to go that way, they give warning thereof to the inhabitants by the beating of Drums, and ringing a Bell which sign once given they all run forthwith, as to extinguish 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 affail or flee, there are put ten balle rowers, and divers others furnished with harping irons to strike the Whale, which being call and fainoth in her, they looke out huge long ropes, fastned to them, until such time as he be dead, then together with the ropes, and affisted by the waves of the Sea, they draw the Whale weary with running and labouring, and tasting by reason of the magnitude and multitude of his wounds, being in the time of their conflict diligently chafed and driven toward the shore on land, and merrily part the prey, each whereof hath his share, according to the number of the ironst thrown, the magnitude of the wound, and the necessity and excellency of the wounded part for life: each of their harping-irons are known by their peculiar marks. In the heat of the skirmish many stand up and down in boats, only for this purpose, to take up such assistance to fall into the Sea, lest they should be drowned. The Males are caught with more difficulty, the Females more easily, especially if their young ones be with them for whilst they linger to help and succour them, they take the occasion of escaping. The fish of no effect, the tongue only is convenient; for being very large, and of a very lax substance, it is powdered, and by most Gentlemen accounted for a dainty. The head of the Whales is furnished with their bones, also Orchards in the Coast of Aquitania, are fenced with these bones. The Fins that hand forth of their bodies, which are commonly called Whale-bones, being dried and polished, serve to make Buds for Women, Whip-staves, and little Staves, as also to stiffen garments. Many make feasts or feasts of the Fertilizer, or spoilds of the back-bone.

The manner of cutting up the Whale.

In the River Sculde, ten miles from Antwerp, A.D. 1577, the second day of July, there was a Whale taken, of a blackish blue colour, the had a frightful hole in the top of her head, out of which the cast great bow of water: the was fifty eight foot long, and sixteen foot high, her tail was fourteen foot broad, from the eye to the end of her nose, was some sixteen foot. Her lower jaw was fix foot on each side, bale and twenty five teeth, which she could hide in her upper jaw, being hole for these irons, and the whole toothless, for which one thing this Whale may be judged monftrous, for that Nature hath denied them teeth, and for that 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 them, for to chew their meat. The longest of these teeth exceeded not fix inches.

There is (as Flanders reports) a very small Fish accustomed to live upon Rocks, it is called Echeneis, never exceeding the length of a foot; it is thought that ships go more slowly if this fish to them: wherefore the Latins have also given it a name of Remora, for that a ship being under sail with a good wind, may by the Echeneis hanging on her, as if the would devour her, be stand against the Sails and wind, and stand still and the were at a safe farther. Wherefore the is said in the African light to have laid the ship of Marcus Antonius, flattering to go about and incourage his Souldiers, so that he was forced to enter into another ship, and thereupon Cæsar Navy came upon them too hastily, and before they were provided.

She also laid the Ship of the Emperor Cæsar coming from Africa to Italy, his Ship of all the Navy making no way, neither did they longer wonder at this case, the cause being perfectly known, some forthwith leaping into the Sea to find the cause thereof, there found her about the Ship, even to the Rudder, and they thought it to Cæsar, being wrath that this should happen, and quartered the canoes or feats of Ferry Barers.

Therefore this little Fish terrifies and inspireth the violence and madness of the world, and that
with no labour, not without holding, or any other way, but only by flicking thereto. Certainly, however it comes to pass, who from this example of holding of Ships, can doubt of any power or effect of Nature, in Medicines which grow naturally? Yea, and without this example, the Torpedo out of the Sea also may be sufficient; who afar off and at a distance, if it be touched with a Spear or Rod, will benumb even the strongest arms, and retard the feet, how ever nimble to run away.

C H A P. XXII.

Of the admirable Nature of Birds, and of some Beasts.

That there be divers things not only in the Sea, but also in the Air and Earth, which by the wonderful condition of their own Nature may equal that of Monsters, the only Effricb may serve for a witness. It is the biggest 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 Birds and Beasts, hath feathers, and against the custom of Birds, cannot fly aloof, for it hath not feathers fit to fly, but like unto hairs, yet will it out-run a horse. The natural force of the stomach in concocting, is miraculous, as to which nothing is untamable: (he lays eggs of a wonderful largeness, so that they may be framed into cups: their feathers are most beautiful, as you may perceive by this following Figure.

The Figure of an Effricb.

Any one may easily gather of what a prodigious magnitude an Effricb is, by the greatness of its bones. Three of these Birds were kept at the Kings charge, by the Marechal De Rust: one whereof dying, it was bestowed upon me, whereof I have with great diligence made a Sceleton.

The delineation of the Scelton of an Effricb.
Of Monsters and Productions.

Book XXV.

A. Shows the head, which was somewhat thicker than the head of a Crow, of the length of two hands, plain from the crown even to the back; the beak being divided to the middle region of the eye, being roundish at the end thereof.

B. The neck a yard long, consisting of nineteen Vertebrae, each wherof on each side is furnished with a transfereous process looking downwards, of some fingers length, excepting the two which are near the head, as those which steer ships, and are joined together by Ginglyms.

C. The back is of a foot's length, consisting of fifteen Vertebrae.

D. The holy bone of two feet long, in whose top there is a transfereous process, under which there lies a great hole.

E. Three words, but left.

F. GH. After which there follows the cavity or socket, wherein the head of the thigh bone is received and laid. They externally and on the side produce a perforated bone, noted with the letter L, perforated I say at the beginning, for it is pretently united at the letter K, then as it is forked and divided into two other bones, wherof one is bigger than the other. The left is noted with the letter L, then they are both united at the letter M, of them is half a foot and four inches long. But from that part wherof they first began to be divided, to that wherof they are united, there is a hole four small fingers broad, but the length of one hand, or more, and it is noted with the letter N. The refuse of the bone is thyg to a pruining Knife three small bones, but fix in length: the end wherein is the letter N, it is joined by osification.

P. The ramp consisting of nine Vertebrae, like to a manne. The thigh bones are two, wherof wherof this is noted with the letter Q, is of the length of a foot, and of thickness equal to a horse's big bone. The other nave manner which peradventure thou mayst call the leg-bone, noted with R, is a foot and half long: it hath joined thereunto the Falcals, or lesser front of the length, but which grows smaller as it comes lower.

S. Is the leg, to which the foot is there, livings one foot and a half long, divided at the end into two claws, the one bigger, the other left, wherof each one consists of three bones.

T. Either rib, which are inserted into the Sternum, the three middles of which have a long prodification like to a hook.

V. Is the Sternum, consisting of one bone of four feet length, representing a backier, to this there is joined another bone, which is jointed over the three first ribs, in stead of cartilages or collar-bones.

X. The first bone of the wings, which is one foot and half long.

Y. Two bones under this, equal amongst other and much, under which there are five other bones composing the point of the wing, noted with Z.

This whole Scoletus is seven foot long, and so many foot or more high from the feet to the beak: there are many other observables in his composition, but I have thought it to omit them for brevity sake.

Ieronimo Cardano in his Books De Subtilitate, writes that in the Island of the Moluccas you may sometimes find lying upon the ground, or take up in the waters, a dead Bird called a Manomonastra that it is in Hebrew, the Bird of God, it is never seen alive. It lives aloft in the air, it is like a Swallow in body and beak, yet distinguished with diverse colored feathers: for tho' on the top of the head are a golden chofe, chofe of the neck like to a Mallard, but the tail and wings like Peacocks.

It wants feet, yet the fore if it become weary with flying, or desire sleep, it hangs up the body by twining the feathers about some bough of a tree. It paffeth through the air, wherein it must remain as long as it lives, with great celerity, and lives by the air and dew onely. The Cock hath a cavity deprrt in the back, wherein the Hen lays and sits upon her eggs. I saw one at Paris which was preferred to King Charles the Ninth.

We have read in Theeta Confrontigraphy, that he saw a Bird in America, which in that Country is called a Tamte, that it is in Hebrew, the Bird of God, it is never seen alive. It lives aloft in the air, it is like a Swallow in body and beak, yet distinguished with diverse colored feathers: for tho' on the top of the head are a golden chofe, chofe of the neck like to a Mallard, but the tail and wings like Peacocks.

*Whoever

**I**

T. Speech is called Zoma, in this very monstrous and deformed, for that the chest in length and thickness exceeds the bigness of the rest of the body; it feeds on pepper, as the Blackbirds and Fellers with us do upon Ivy-berries, which are not less hot than Pepper.

A certain Gentleman of Presence brought a Bird of this kind 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 Marshal De Eust to give him to me, that I might take forth her bowels and examine her, that the might be kept amongst the Kings rarities. I did what I could; yet not long after she died: the resembled a Crow in body and feathers, but had a yellowish beak, clear, smooth,
and toothed like a Saw, and of such length and thickness as we formerly mentioned. I keep it yet as a monstrous thing.

Thence writes, that in the Island Zeester there is frequently found a certain wild Beast called Halphagis, of the biggefs of an Ethiopian Monkey. It is a very monstrous Creature, but in nothing more than that it is thought to live upon the air solely: the skin as it were died in grains, is of a fainter colour, yet it is in some places spotted and variegated: it hath a round head like a bowl, with feet round, broad, and wanting huftrifal nails. The Moors kill it and use to eat the flesh of it, being first boiled, that for it may be the more tender.

In the Realm of Camefa, of Absh, of Benga, and other Mountains of Congoja, Ploona, and Cagasa, which are in the inner Indies, beyond the River of Ganges, some few degrees beyond the Tropic of Cancer, is found a Beast, which the Western Germans call Giraffe. This Beast in head, ears, and cloven feet, is not much unlike our Deer; it hath a very slender neck, but is some fix foot long, and there are few Beasts that exceeds him in the length of their legs: his tail is round, but reacheth no farther than his hams, his skin is exceeding beautiful, yet somewhat rough, having hair theron somewhat longer than that it is ruffened and variegated: it hath a round head like to a bowl, with two long horns on her head, but not branched, somewhat referring to the horns of Unicorns. For the Natives of the place, bitten by the venomous tooth of either Beast or Fish, are presently helped and recovered by drinking the water wherein such Beasts have been immersed for fix or seven days space, as Thence in his Cosmography reports.
In one of the Islands of the Moluccas there is found a Beast living both on Land and Water like as a Crocodile: it is called Campodactilus, is of the bigness of an Hart; it hath one horn in the fore-head moveable after the fashion of the nose of a Turkey-cock; it is some three foot and a half long, and never thicker than a man's arm; his neck is covered over with an ash colour; he hath two feet like to a Gooses feet, wherewith he swims both in fresh and salt-waters. His fore-feet are like to a Stags, he lives upon fish. Many have persuaded themselves that this beast is a kind of Unicorn, and that therefore his horn should be good against poisons. The King of the Island loves to be called by the name of this Beast; and so also other Kings take to themselves the names of the wild Beasts, Fishes, or Fruits, that are most precious and observable in their dominions, as Thesaurus reports.
The Indian Elephants are bigger than the African.

Mauritania and Ethiopia and that part of Africa that is beyond the Deltas and Syrtes, bring forth Elephants but those of India are far larger. Now although in the largeness of their body they exceed all four-footed Beasts, yet may they be more specifically and easily tamed than other Beasts. For they may be taught to do many things above the common nature of Beasts. Their skin is somewhat like to a Buffaloe, with little hair upon it, but that which is, is ash-coloured, their head large, their neck short, their ears two handfuls broad, their nostrils very long, and hanging down almost to the ground, hollow like as a Trumpet, the which he utters in head of an hand, his mouth is not far from his beard, not much unlike a Swine, from the upper part thereof two large teeth thrust forth themselves, his legs are thick and strong, not consisting of one bone as many formerly have falsely believed (for they forced to admit their Riders, or to be laden, and then rid up again of themselves) his feet are round like a Quitte three or three hands breadth, and divided into five clots. He hath a tail like a Buffaloe, but not very rough, some three hands breadth long; whereas they would be much troubled with Flies and Wafps, but that Nature hath recompenced the blemishes of their tails by another way, for when they find themselves molested, they contract their skin so strongly, that they suffocate and kill these little Creatures taken in the wrinkles thereof; they overtake a man running by going only, for his legs are proportionable to the rest of his body. They feed upon the leaves and fruits of Trees, neither irky any tree so strong and well rooted, which they cannot throw down and break. They grow to be fifteen handfuls high; wherefore such as ride upon an Elephant are much troubled as if they went to Sea. They are of so unbridled a nature, that they cannot endure any head-dall or reins; therefore you must suffer them to take the course and way they please. Yet do they obey their Country-men without any great trouble, for they seem after some sort to understand their Speech, wherefore they are easily governed by their known voices and words. They throw down a man that angers them, first taking him up with their trunk 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 are twenty years old; they know not adultery, neither touch they any female but one, from which they also diligently abstain when they know the same; it cannot be known how long they go with young; the reason is for that their copulation is not seen, for they never do it but in secret. Their females bring forth reeling upon their hind legs, and with pain like Women; they lick their young, and thefe presently see and go, and suck with their mouths, and not with their trunks. You may see Elephants teeth of a monstrous and hugeous bigness, at Venice, Rome, Naples, and Paris; they term it Ivory, and it is used for Cabinets, Harps, Combs, and other such like uses.

We have read in Theop, that in Florida there are great Bulls, called in that Country Tongue Beasts, they have horns of a foot long, a bunch on their backs like a Camel, their hair long and yellow, the tail 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 horns as an antidote against poison.

The tame Author affirms, that whilst he failed in the Red Sea, he saw a Monster in the hands of a certain Indian Merchant, which in the bigness and shape of his limbs was not unlike a Tiger, yet had the face of a Man, but a very flat nose; besides his fore-feet were like a man's hands, but the hind like the feet of a Tiger: he had no tail, he was of a dun colour: to conclude, in head, ears, neck, and face it resembled a man, but in the blackfih and curled hair, a Moor: for the other parts they were like a Tiger; they called it Thanath. The Figure of a Beast called Thanath.

This following Monster is so strange that it will scarce be believed, but by those that have seen it: it is bred in America, and by the Salvages called Main, of the bigness of a Monkey, with a great belly, almost touching the ground and the head and face of a child: being taken it moans and...
and fights like to a man that is troubled and perplexed: it is of an ash-colour, hath the feet divided into three claws, four fingers long, and sharper than those of a Lion: it climbs Trees and lives there more frequently than upon the ground, the tail is no longer than the breadth of three fingers. It is strange and almost monstrous, that this kind of Creatures have never been seen to feed upon or eat any thing: for the Salvages have kept them long in their bosoms to make trial thereof, wherefore they think them to live by the Air.

The Figure of the Beast called Hattis.

I have taken this following Monster out of Leo’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 back 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 hear by his so many ears: yet hath he but one mouth, and one belly to contain his meat, but his round body is encompassed with many feet, by whose help he can go any way he pleases without turning of his body, his tail is something long and very hairy at the end. The inhabitants affirm, that his blood is more effectual in healing of wounds than any balsam.

It is strange that the Rhinoseros should be a born Enemy to the Elephant; wherefore he whets his horn, which grows upon his nose, upon the Rocks, and so prepares himself for fight; wherein he chiefly affails the belly, as that which he knows to be the softest: he is as long as an Elephant, but his legs are much shorter, he is of the colour of Bee, yet somewhat spotted. Pompys was the first that shewed one at Rome.
The Figure of the Rhinoceros.
The Figure of the Chameleon.

Africa produceth the Chameleon, yet is it more frequent in India: he is in shape and parameters like a Lizard, but that his legs are first and higher, his sides are joined to the belly as in Fihes, and his back stands up after the same manner; his nose stands out not much unlike a Swine, his tail is long, and endeth sharp, and he folds it up in a round, like a Serpent; his snuff are crooked, his pace flow, like as the Tortoise, his body rough, he never shuts his eyes, neither doth he look about by the moving of the apple, but by the turning of the whole eye. The nature of his colour is very wonderful, for he changeth it now and then in his eye and tail, and whole body likewise; and he always assimilates that which he is next to, whether it be red or white. His skin is very thin, and his body clear, therefore if one of these two, either the colour of the neighbouring things in so great facility of his clear skin, casteth things as in a glafs, or else various humours diversely stirred up in him, according to the variety of his affections, represent divers colours in his skin, as a Turky-cock doth in those thorny excrescences under his throats, and under his head; he is pale when he is dead. Mathiolius writes that the right eye taken from a living Chameleon taketh away the white spots which are about the thorny coat of the eye, his body being beaten, and mixed with Goats milk, and rubbed upon any part, fetcheth off hairs; his gall doth cut the Cartilages of the eye.

CHAP. XIII.

Of Celestial Monsters.

P eadventure it hath not been strange that Monsters have been generated upon the Earth, and in the Sea: but for monsters to appear in Heaven, and in the upper Region of the Air, exceeds all admiration. Yet have we often read it written by the Ancients, that the Face of Heaven hath been deformed, by bearded, tailed, and haired Comets, by Meteors representing burning Torches and Lamps, Pillars, Shields, Troops of Clouds hostilely affailing each other; Dragons, two Moons, Sun, and the like Monsters and Prodigies.
Antiquity hath not seen any thing more prodigious than that Comet which appeared with bloody hair in Sikyonia, upon the ninth day of October, 1528. for it was so horrible and fearful a spectacle, that divers died with fear, and many fell into grievous distastes going from the East to the South; it endured no longer than one hour and a quarter: in the top whereof was seen a bending arm holding a great Sword in a threatening hand; at the end thereof appeared three Stars, but that over which the point of the Sword directly hanged, was more bright and clear than the rest: on each side of this Comet were seen many Spins, Swords, and other kinds of Weapons, all with blood, which were intermingled with most heads, having long and terrible hair and beards, as you may see in this Figure.

Also there have been seen great and thick bars of iron to have fallen from Heaven, which have presently been turned into Swords and Rapiers. At Sopodium in the Borders of Hungary, a Stone fell from Heaven with a great noise, the fourth day of September, Anno Dom. 1554, it weighed two hundred and fifty pound: the Citizens hanged it up with a great iron chain put through it, in the midst of the Church of their City, and used to then it as a miracle to Travellers of better note, that pass that way. * Pliny reports that clothing of armour, and the bound of a Trumpeter were heard from Heaven often, before and after the Cimmerian War. The same Author writes that in the time of Charles the Fifth, whilst Malschberg was besieged, three Suns first appeared about the middle of the clock in the Morning, and then were seen for a whole day, whereof the middletwo 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 Saxony, Anno Dom. 1554.

But if so prodigious and strange things happen in the Heavens besides the common order of Nature, but we think it incredible that the like may happen in the Earth. Anno Dom. 542, the whole Earth quaked, Mount Etna cast forth flames and sparks of fire, with which many houses of the neighbouring Villages were burned. Anno Dom. 1553, in Portugal 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 for hundred were spoiled. Ferrara lately was almost wholly demoliished by a fearful Earthquake. Above all which ever have been heard, is that Prodigy which happened in the time of Pliny at the death of Nero the Emperor, in the Marseilles field, the whole Olive-field of Pliny Roxellus, a Roman Knight, going over the High-way, and the Fields which were again it coming into the place thereof. Why should I mention the miracles of Waters, from whole depth and streams, and great flames have off broke forth. They tell out of St. Auginv, that the fire of the Sacrifices which for those seventy years of the Babylonian captivity endured under the Water, was extinguished, Antiochus telling the Priesthood unto Josua. What miracle is this, that the Fire should live in the Waters, 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 joined and tied together by a marvellous confederacy.

Anno Dom. 1554.

Of Monsters and Prodriages. Book XXV.
BOOK XXVI.
Of the Faculties of Simple Medicines;
As also of their Composition and Use.

THE PREFACE.

Amongst the causes which we term healthful, and other remedies which pertain to the health of Man, the excellent and the expelling of Diseases, Medicines chiefly challenge the prime place; which (as it is delivered by the Word of Solomon) God hath produced out of the Earth, and they are not to be abhorred by the wise many, for there is nothing in the World, which sooner, and as by a miracle, affwageth the horrid torments of Diseases, Therefore Hecatus called them fittingly administered, The Hands of the Gods, And hence it was that such Physicians as excelled in the knowledge of Medicines, have amongst the Ancients 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 Medicin is, and how it differeth from nourishment.

We define a Medicin to be that which hath power to change the body according to one or more qualities; and that, such as cannot be changed into our Nature: contrariwise we term that nourishment which may be converted into the substance of our Bodies. But we define them by the word Power, because they have not an positive nature, but as by relation and depending upon the condition of the bodies by whom they are taken. For that which is medicin to one, is meat to another, and that which is meat to this, is medicin to that. Thus for example. Hellebore is nourishment to the Quail, but a medicin to man: Henlock is nourishment to a Starling, but poison to a Goose: the Fennel is food to an Ass, but poison to other Cattle. 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 Maid was presented 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 she breathed was deadly to the bystanders. Therefore it ought to seem no marvel, if at any time it happen, that Medicines turn into the nature and nourishment of our bodies: for we commonly may see Birds and Swine feed upon Serpents and Toads without any harm: and lastly, —

Serpente Ciconia puUos
Nutrit, et inducit per devia rura lacerta:
Et eadem sumpsit qu^runt animalia pennis.
The Stork with Serpents and lizards caught,
In wayles places nouriseth her brood:
And they the same pursu, when as they're taught
To use their Wing, to get their wish'd-for food.

CHAP. II.
The difference of Medicines in their matter and substance.

Ven as the concealed glory of worldly riches lieth hid in the bowels of the Earth, and depth The Earth this of the Sea and Water, as Gold, Silver, and all sorts of Metals, Gems, and precious Stones, furnished with admirable Virtues: so do we behold the superfluities 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, Gums, their Smells, pleasant Tastes and Colours, but much more at their Virtues. This same Mother Earth, as with her Breasts, nouriseth marvollous distinct kinds of living Creatures, various in their springing, increas and strength, wherein the immense goodness of God, the great Architect and frame, and few of all things, doth most clearly appear towards man, as who hath subjected to our government, as a Patrimony, so ample and plentiful provision of Nature for our delight in nourishment and necessity of healing. Therefore the ancient Physicians have rightly delivered, that all sorts of Medicines may be abundantly had from living Creatures, Plants, the Earth, Water, and Air.

Medicines are taken from living Creatures either whole and entire, or else the parts and extract thereof. We oft-times use in Physick which Creatures, as Foxes, Whelps, Hedge-hogs, Frogs, Snails, Worms, Grubs, and other living Creatures. We also make use of some parts of them, as the Liver of a Wolf or Goat, the Lungs of the Fox, the Bone of the Stags heart, Cranium humanum, Fat, Blood, Flesh, Marrow, the Gods of the Goat, or Beavers, which is therefore termed Capricorn, and such

Hh h 
other
other particles that are useful in Phystick. We know that also there are some Medicines taken from
Excrcments, as Horns, Nails, Hairs, Feathers, Skin; as also from Urin, Dung, Spittle, Honey, Eggs,

We take Medicines from Plants, both whole, and also from their parts, whether Trees, Shrubs, or
Herbs. For we oft-times use Succory, Marsh-mallow, Mallow, Plantain, and sic like, whole; but
otherwise only the roots of Plants, their Pith, Wood, Bark, Shoots, Stalks, Leaves, Flowers, Seeds,
Fruits, Juices, Gums, Roaf, Mofts, and the like.

Things taken from the Earth, for the use and matter of Medicin, are either Earths, Stones, or
Minerals. The forms of Earth are Boie-Atomick, Terra solidificata, Fullers-earths, Chalk, Potter's-clay,
and such like. Stones, are the Pumice, Marchesite of Gold, Silver, Bafes, Marble, the Lead-fone, Phant-
fe, Chalk, Sulphur vitreus, Lapis vitreus; and others. Metals and Minerals, are Gold, Silver, Tin,
Lead, Bafes, Iron, Steel, Ammonij, Ceruf, Btrimite, Cinabar, Litharge of Gold and Silver, Turfy, true
Pom pbrolyce, Verjcoricus, Alum, Roman Viridif, Copraf white and green, Salts of fuddy kinds,
both of Arefenics, and fuch like.

The following Medicines are from Frens water, Rain water, Spring water, River water, and all
things thence anting, as Water-Lentils, common Flags, Water-Lillies, Water-Mints, and all the Crea-
tures that live therein. From the Salt water, are taken Salt, Natrium, all forts of Coral, Shells of
Fifth, the Herb Anderftone (which grows in plenty in the Martes at Parij and Cap de Sens) Ander-
stone, which is found in the Dead Seas.

From the Air proceeds Manna, therefore called Mel Aetrium (i.e.) Honey of the Air, and also all
other kinds of dew that are useful in Phystick, by reason of the Virtues they receive from the Sun
which raiseth them up; from the Air, whereas they make fome hay; as also from the Plants, where-
upon they fall and refide.

CHAP. III.
The differences of Simples in their Qualities and Effects.

All the mentioned forts of Simples are endued with one or more of the Four Faculties, where-
of I now purpofe to treat.

The fift Faculty common to all the reit, and as it were their foundation, flows from the four
ftrift qualities of the prime Bodies or Elements, that is, Heat, Cold, Moift, and Mouiture; and
this either Simple or Compound, as one or two of these prime qualities exceed in the temper of
the temper of the Medicin, as may appear by this following.

The Simple quality is either to Heat, Cool, Humect, or Dry. The
Composed arising from two joined qualities, either Heats and Dries, Heats and Moifths, Coolds
and Heats, Coolds, and Mouitures.

Heat moderate, Heats, Attenuates, Rarefies, opens the Passages, Digests, Suppurates. Immoderate,
Inflames and burns, Bites, whence follows Violent attraction, Rubrifcation, Confumption, Colla-
quition, an Eftar, Mortification.

Cold moderate, Cooleth, Condenseth, Obftrueth. Immoderate, Congea, up
Moifiture moderate, Humect, Lubricates, Levigates and mitigates. Glues. Immoderate, Oblufcts,
lifts up into a flatulent tumour, efpecially if it be a vaporous humidity.

Dry moderate, Dries, Rarefies, Attenuates. Immoderate, Binds, Contracts or shrinks, caufeth
Chops and Scales.

The effect of thefe qualities is diftinguished, and as Gales observes, diftinguished in tofe orders, which
we term Degrees, fo that by a certain proportion and measure they may ve ferve to oppuge Diffites,
as the fame Gales affirms. For to a Difette (for example) hot in the fècond degree, no other Me-
dicin must be ufed than that which is cold in the like degree: whereas all fimpke Medicines are,
Hot, Cold, Moift, or Dry; in the beginning, middle, or extreme, of the fift, third, fourth, or fifth
degree.

The Heat, Coldhefs, Moisture, Dryness, of the fift, fourth, third, fourth degree, is either obfure, manifelt, vehement, or excessive.

An example of heat diftinguifhed thus by degrees, may be thus: warm water is temperate,
Examples of the degrees of
heat.

that which is a litte hotter, is the fifth degree of heat; if manifeftly hot, it is in the fecond degree;
but if it heat more vehemently, it may be thought to come to the third; but if it feld, then we
know that it hath arrived to the fourth degree of heat. Such alfo is the diftinguifh of coldness,
defrius and fcrif of degrees. Wherefore it will be worth our labour to give you examples of
certain Medicines, diftinguifhed in their order and degree, by which you may the more eafily give
conjecture of the reit.

Simple Medicins hot in the
First degree. Absinthium, Albica, Amygdala dulcis, Beta, Brasica, Chamomelifm, Ladana, Serum
Lina, Saccharum, Baccum, five Oris, Vitae sotonum: for old is judged hot in the fecond or third degree,
as it is more or lefs years old.

Second degree. Anjunisfium, Aromfis, Anthem, Frangucum, Maltube, Salvia, Marsoum, Molijs, Apton, Chamapris, Creat, Furan, Thun, Myrfrus, Mel, Nini jugiferus, Prae aurea, typha aediculf
corporis, parapopfis folidicrus aptum, tum liquidm decructiorum, Syfu, Seratcula, Bryonia, Saf, Scy-
phantes, Remui.

Third degree. Albaroanum, Agafe caife, Aegilum, Aflrum, Aftrodocia, Chamapry, Salvia, Cale-
minces, Chamardou, Iris, Jactenitius, Hoflif, Origanum, Spagyrum, Cotifolius max, Rau Sata.

Fourth degree. Allum, Copa, Exborbium, Natamina, Pyrum, Smal, Thymbus, Atacarii, Cotifolius.
Cheatodonium minus, Galena. Yet ours, by reason of the gentleness of the air, and moisture of our soil, is not so acrid. Ruta jephoris. This, as all wild and not cultivated things, becomes more frog and acrid than the Gent-le-Rice.

Simples cold in the
First degree.  Asphyra, Heradumont, Colonia mala, Malva, Pyra, Pruna, Rosa, Vida.
Second degree.  Ascura, Concrihita, Comicus, Mala granata acids, dulcis enim temperata sunt poeas, Plantago, Polygnun, Solanum tertius; nam ad quid iunziferum dieuis, vi refrigerans ad papaver accedet.
Third degree.  Hypsium, Solanum jnnserum, Poruula, Simplicium, Tandrageas.

Opium.

Simples moist in the
First degree.  Engolium, Viola, Malva, Rapum, Spinacia.
Second degree.  Ammoniacum, La^uca, Cucurbita, Cucumis, Melones, Portulaca.

Simples dry in the
First degree.  Ficus, Chamelelum, Brassica, Bette, Faba, Funicus, Heradum insuagum.
Second degree.  Artemisia, Pinus, Otulca, Plantago, Balandia, Sactn officinale, Lins, Mufium, Mel, Salu, Ananmus, Myrtis.
Third degree.  Avenum rubrum, Abyssium, Myrtus, Acecum, Aloe, Martium, Conium, Sanguis draconis, Galla, Sabinus.
Fourth degree.  Piper, Alum, Naturium, Sinae, Explosivum.

Those we have mentioned have of themselves and their own nature all such qualities; yet do they produce far 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.

External heat by accident refrigerates the body within, because it opens the passages and pores, and calls forth the internal heat, together with the spirits and humours by sweats: whence it follows that the digestion is worse, and the appetite is diminished. The same encompassing heat also humed by accident, whilest it distufes the humours concrete with cold: for thus Venerity is thought to humed.

The like may be said of Cold, for that it heated, not by its proper and native, but by an adventitious force: whereof you may make trial in Winter, when as the ambient cold, by shutting the pores of the body, hinders the breathing forth and dissipation of the native heat. Whence it is inwardly doubled, and the concubion better performed, and the appetite strengthened. This same Cold also dries by accident, when as it by accident repercusses the humour that was ready to flow down into any part, and whilst it concretes that which is gathered in the part: for thus, by the immoderate use of repercussers, an oedematous tumor proceeding from gross and viscid phlegm, degenerates into a freirus.

Drinclus and Moisture, because they are more passive qualities, show their effects by not so manifeft operations, as heat and cold do; but in comparison of them they are rather to be judged as matter, or a subject.

CHAP. IV.

Of the Second Faculties of Medicins.

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We term those the Second Faculties of Medicins, which have dependence upon the first, which are formerly mentioned, as it is the part of Heat to Rari fic, Attrah, Open, Attenuate, Levigate, Cleanse. Of Cold, to Condenze, Repercuss, Shut up, Incrassate, Exasperate, Confipitate. Of Mollasses, to Soften, Relax. Of Drinclus, to Harden, Stiffen. Hence we term an attractive Medicine, which hath an attractive faculty, as on the contrary, that a Repercussive that repels; a detergent, that which cleanses vitious matter. We call that an Emplastic Medicine, which not only shuts up the pores of the body, but reduces the liquid bodies therein contained to a certain equality and 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 Medicins.

The third Faculty of Medicins depends for the most part upon the first and second Faculties sometimes conjoined, otherwhiles separate. Also sometimes it follows neither of those Faculties, but a certain property and inexplicable quality, which is only known by expe-

Now the operations of this third Faculty are to agglutinate, to fill with flesh, to cicatrize, to affwage pain, to move or stay the Urin, Milk, Seed, the Courses, Sweats, Vomits, and perform such like operations, in or about the body.

Thus the generation of flesh is produced by the concomit of two Faculties, that is, of drying and clearing. But drinclus and affwage produce a glatinating and cicatrizing faculty. A hot and attrahing faculty caufeth Sweats, moves Urin, the Courses, and the like in the body.

To mitigate pain, proceeds only from the Faculty, to wit, from heat, or a moderately heating Faculty, The effects of the first qualities by accident,
The fourth Faculty of Medicine 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 works rather upon this than that part, upon this rather than that humour. Wherefore Physicians cannot by any reason find out this faculty, but only by experience, as we have said a little before 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 Pennyroyal, Marjoram, Sage, Rockerymary, Stahal, Pneumonicks, which respect the Lungs, as Liquorice, Sweet Almonds, Orts, Elecampane, Cordials, that strengthen the heart, as Saffron, Cinamon, Citrons, but chiefly their Rhinds, Bupleus, Coral, Ivory, Smochanical, which respect the Stomach, and the cronic thereof, as Nutmeg, Mint, Anise, Maltick, Pepper, Ginger, Hepaticks, which respect the Liver, as Wormwood, Agrimony, Spikenard, Socory, Sanders, Spirituicks, which have relation to the Spirit, as Tyre, Ephedrums, Bloom-flowers, Ceterach, Capses, the Bark of their Roots, the Bark of Turnpike, Digest, such as respect the Kidneys and Urinary passages, as the Roots of Smallage, Alparganas, Fennel Butchers-broom, the four greater Cold Seeds, Turpen独一无二, Plantain, Saffratique, Amniricks, or such as strengthen the joints, as Cow-flips, Colocynthis, Elecampane, Calamus, Herno- doucheys, and the like.

To this Faculty may be referred purging Medicines, which, furnished with a specifick property, show their efficacy on one humour more than on another humour, and that impact more in one part than in another. For thus Agrarick chiefly draws phlegm from the Head and Joints, Rhabar, draws choler chiefly from the Liver, and hurt the Kidneys. But let us here forbear the consideration of things, as not pertaining to Surgery. But five Medicines of this kind are furnished with one simple faculty, otherwise with more, and those contrary, whereof your taste may give you sufficient notice: for Rhabar at the first touch of the tongue is found acrid and hot, but when you come to chew and thoroughly to taste it, you shall find it to partake of an earthly attrition. Therefore because tastes give notice of the faculties of Medicines, therefore I have thought good to treat of them briefly.

CHAP. VII.

Of Tastes.

Lib. I. cap. 1.

Differences of tastes.

Tastes.

The acerb taste.

The auster taste.

The suavete taste.

Of ascending along with heat, from cold only, or coldness joined with some moisture. But to procure vomit, proceeds neither from the first nor second faculty, but from a certain occult and effential property, which is naturally implanted in Agrarick, and other nauseous and vomitory Medicines.

CHAP. VI.

Of the Fourth Faculty of Medicine.

The fourth faculty of Medicine depends only upon an occult property.
moisture, I say, and that is either Airy or else Watery. Therefore if the fruits, which before their maturitie are acerb, have an accention of heat, then do they become sweeter, as you perceive by Chef- ments: but if there be an accention of moisture only, and that more gross, of acerb they become au- fere, for both the qualities are in the like degree of cold, but the affure is the mother. But if to the fame frigidity remaining in Fruits, a certain humidity accrue, then is there causd an acid tafte. But if they have an accention of a watrith moisture and heat, they will acquire a sweet tafte, or else oily, if the humidity accruing with the heat be airy.

I have judged it requisite to admonish you hereof, that you might know by what means liquid bodies mitigated become sweeter of acerb, as it were by their incorporeal degrees of aethericity, acidicity, and oiliness, as they acquire a certain accention of heat and moisture separately, or conjointly. Now by all that we have delivered, you may gather, that all acerb and affure things are cold and dry; and as they are cold, they repel and hinder defluxions: as they are dry and terrestrial,they con- dence, incessate, confpire, and interlard the passages yea, and they also cicatrize: but acerb things perform this far more powerfully, as tho' which are absolutely tennis, cold, and dry, not partaking of moisture or water. Now affure things consist (as it were) in a middle matter, that is, in a more dilute tenetous body, as it is apparent in Services, unripe Grapes, Cornelians, Medlars, Crabs, wild Pears, and all sorts of unripe Fruits, whence it is termed a crude tafte.

The acid tafte is of a cold and watrith nature, but most fusible, by benefit whereof it penetrates and divides almoft as powerfully as the acrid. It incides or divides, attenuates, bites, cleanses, opens obstructions, repels and dries. Forby the means of the deep piercing cold, it repels all defluxions; and by the drying faculty, which is strong even in its watery confistence, it flies and drops all bleedings, the Hemorrhoids and Diapertures. The force thereof is chiefly manifested in Vinegar, as also in the juice of Citrons, Sorrel, Cherries, Berries, and the like. And this is the nature of cold tafes, now it is time we speak of such as are temperate.

The inipid is so powerfully termed a tafte, as that which is rather a privation of tafte, it is in some manner more a middle matter. For it proceeds from an earthy dryness, as it were torrified and attenuated by the force of heat in a wetty humidity. Wherefore that which in fact contains the purging property, cleans, cleanses, digerates, or rather dries up the humours by the drieds thereof, without any manifest fenet of heat, whence it is that it vindicates from putrefadion. Under this kind are contained all Sorts of Salts, as Silets, Pot which is not rancid by age, nor acrid by nature, as that of Lions and Lizards.

The sweet tafte is made by a moderate and well condensing heat, consisting in a matter more tenacious and hot than the inipid, but in somewhat more gross than the oily, from which in the first qualities it doth not differ; therefore it is of a hot, airy, and temperate nature. Therefore every sweet thing derergeth, levigates, coats, coats, ripens, relieves, and allevieth pain. Examples of this tafte may be had in Sugar, Honey, Manna, Sweet Almonds, Mule, and other like. Now let us come to hot tafes.

The hot tafte is hot, earthy, and drying, for the matter thereof is grofs and earthy, which the abounding heat both torrified and dried up. Therefore bitter things taken inwardly, purge and car- ridy away superfitious humours: and outwardly applied, they mundifie and deterge ulcers, open the solid parts of the bodies, and open the passages of the Vort off-times by their dilatent faculty, whence it is that they move the Couries and Hemorrhoids. The principal things used with this tafte are Aloes, Call, Wommwood, Gentian, the loffer Century, Calomiphla, Fumitory, Soot, and fuch like.

The acid tafte is hot, of a fusible and fiery nature; for it is kinded of a hot, fiery, and dry matter, neither can it confist in any other. Therefore that which is acrid, heats, pricks, or bites the mouth by scorinny, its heats, and off-times burns, it penetrates, opens the passages, attenuates, as refts and draws forth grofs humours, evacuates and forces forth Urine, the Couries, and Sweats; besides it off-times is teplick, blurring, and echecarohick; and lastly, burning and cauditious. The fecrecy and punctacitle: things are Sublimate, Chamaleo, the juice of Thopbe. The Vencrotaries are Distander, Cantharides, Crow-foot, Mustard, Pellitory of Spain, Euphorbium. But the caudic and echecarohick are Lime, Oake-akin, and the like.

But we know Medicins not only by the tafte, but also by our other fenes, as Touch, Sight, Hearing, Smell. And so by the Taste, so also by these we judge of, and try the goodnes of Medicines, and distinguishes the true legitimate from the adulterate. The Touch judges what are hot and cold, moist and dry, rough and gentle, or smooth, hard and soft, brittle or friable, gluntious and vilid, dry or slippery. We approve of the goodnes of Medicins by their colour, brightnes or dusky- nes, whereby the eye is judge: for we commend that Senna which is somewhat greenish, but dislike the whitish: as also we like well of such Cassia, which is black both within and without, thinning and full, and not dry and thronk up. Yet the judgement of the firft qualities by the colour is de- ceful, or none at all; for such things as are white, or the colour of Snow, are not therefore cold; for fundry of them are hot, as Lime. Neither are red things to be therefore judged hot, for Ro- mps are cold. All Medicins are chosen by the fomell, for such as have a good, frenti, and a natural fomell, are commonly hot, and in their perfect vigor. On the contrary, things that want fomell, are the most part cold and evanil. By Hering we distinguish things fall from fuch as are empty: thus we chufe Cassia, which faltens, makes no noise with the grains or feeds rather in it. Hitherto we have explained the firft, second, third, and fourth faculty of Medicins in general, and have shown...
of simple Medicines, and their Life. Book XXVI.

Chap. VIII.

Of the Preparation of Medicines.

To prepare Medicines, is nothing else, but by Art to make them more commodious for Life and Composition; whereby they are either made,  

More gentle.

By Boiling, as when Medicines are broken by striking and rubbing, or grinding in a Mortar, and that either of Briefs, Iron, Lead, Glass, Wood, Marble, and other like; Considering the thing which is to be beaten, the strength or force whereby it must be performed, the time or space, the situation, the things to be added, the confidence which the thing beaten must be of.

More strong.

By Steaming; whereby we separate the Purer and Finer from the more Impure and Grofs, which is done by Sieves and Screens made of Wood, Parchment, Horse-hair, Silk, Lions. Wherein is to be noted, that the same confidence is to be had in Steaming, as in beating; therefore such things as are to be finely powdered, must be heated in a finer Screen, as such as are grofs, in a coarser.

More pleasant.

By Diffusing or Softening, which is nothing else but a diffusing of a Simple or a Compound Medicine of a thick or hard confidence, either into a mean confidence, or a little more liquid or soft, which is performed either by heat only, for by heat gums and horns are mollified; or by liquor, as by Vinegar, Water, Wine, Juice of Limes, &c.

More wholesome.

By Dejection or harrowing, which is nothing else but the confuming of the superfusious and hurtful moisture; and this is performed, either by the Sun, or by Fire. 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, Oil, and the like, so long as the nature of the Medicin requires. To Infusion, Nutrition may be added, which is nothing else but as it were a certain accretion of the Medicine, by being moistened, inclosed, rubbed, or ground with some moisture, especially with heat. By Burning, that is, by confuming the humidity which is in them. And that, either that they may be the better powdered, being otherwise too glutinous, or that they may lay aside their grofs essence, and become of a fubtiler temper, or that they may put off, or partly lose some fiery quality, as Acrimony, Gal. See.

More fit for mixture.

By Boiling, or Eviscination, which is performed by a humid heat, as burning is by a dry; and that either that we may incaze the weak faculties of such Medicins as are boyled, by boiling them with such as are stronger, or to weaken such as are too strong, or else wholly to dissipate such as are contrary: Or that, one faculty may arise of fundry things of different faculties being boiled together, or for the longer keeping them, or bringing them to a certain form or confidence; All which are done, by Fire, or Sun. By Washing or Cleaning, whereby the impurity of the Medicin is waited away or cleared; and such things are either hard, as Metals, Stones, parts of living Creatures, compounded Juices, and other like; Or soft, as Resins, Gums, Fats, Cells. And these ought first to be finely beaten, that the water may penetrate in all their substance. Or to be dissolved, and call into the Vessel filled with Water, and so stirred, and then suffered to subside, so that the Fat may twin aloft. And this must be done so long that the Water retain nothing thereof in colour, finell, or taste.

Chap. IX.

Of Repelling or Repulsive Medicines.

Repleing or Repulsive Medicines are cold, and of gros and earthy parts; by which name also astringent Medicines are understood, because they hinder the falling down of the humours upon the part. Repulsive are such, either of their nature, and of themsehves, or else by accident, being not such of their own nature. Thence which of these be of a thicker hard confidence, are of two kinds, some are waterish and moist, without any acidific nature which effectually proceeds from an earthly essence; whereas that facility of Repelling which they possesse, they have it wholly from coldness. Of this kind are Lettuce, Purslane, Snow-Thistle, Dunoise, Kidney-wort, Cucumber, Melons, Grapes, Raisins, Nard, Mandrake-apples, Night-shade, Henbane, and the like, which cool powerfully, and unless they be taken away before the par wax is melted, they extinguish the natural heat. Otherwise are of an earthly efficacy, and therefore acidific; but yet some of them are hot, otherwise cold. Such things as are cold of temper, and of an earthly efficacy, are properly and truly called Repellers. Of this sort are some Simple, of otherCompound: the Simples are Plantain, Vine-leaves, Leaves of Rutles, Oaks, Brambles, Cypress,
Of simple Medicines, and their Use.

Natrual Medicines is contrary to the repellers; the Greeks call it Heilium, it is of a hot and thin substanfie, wherefby it draweth forth into the superficies of the body that which lieth in the parts within. But if the humour which lieth within be too great for the parts, so that it driveth out of the part and draweth in backward, let them be given in coldness, and conformed to the nature of the disease.

Simple Medicines and their Uses.

To be of an attractive quality, they must be simple, or compound.

The Simple are:
- Bryonia, allium, capsa, porrum, arthelochica, hermodcyly, clystis, iliun, figillum beatae.
- Attracive by
  - Maria, arum, aarum, Aphrodisios, gentiana, psoraeum, rux, salvia, colchicum, omnis tithymalorum semesta.

The Compound are:
- Oleum rosoae, omphacinum, papaverum, cydonum, nenupharum, lilium, figillum beatae.

These things which are manifestly attractives, are such as have a manifest quality, and are such as are of a pure and simple quality.

Repellers by accident.

When and to what parts repellers must be applied.

The drugs which are of a secret nature, and of a very subtle quality, are such as have a secret quality, and are such as are of a very subtle quality.

The drugs which are of a secret nature, and of a very subtle quality, are such as have a secret quality, and are such as are of a very subtle quality.

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The drugs which are of a secret nature, and of a very subtle quality, are such as have a secret quality, and are such as are of a very subtle quality.
What a Resolving Medicine is.
The differences thereof.

That is called a resolving Medicine which by heat, and the tenacity of its sub stance operateth the pores, attenuates the humours, diffipates and difficultheth by evaporating the unprofitable matter. There are two sorts of these kinds of Medicines, the oneis called Arrectics, or resolv-
Of Simple Medicines, and their Use.

Therefore, as oft-times astringents, because they are of earthy and thick parts, are found to suppurate, such are

\[
\text{sugum de bob nutritum, and such like. Such also are those which by their coldness keep the heat in, and that the pores. Hence it is that the qualities of Sores are commended to generate pus: for whilst it keepeth the heat within, it increaseth its effects, to the thickening of the suppurable matter, and the overcoming other rebellious qualities. We use things ripening in great inflammations, whose growth we cannot hinder with Repellents, or increase with Resolvers or Diffusers.}
\]

Although as many things agree together in some respects, though of a divers nature, so many emollients are such as are hot in the first degree, and cold in the second and third, that so they may the better disperse and diffuse that which is congealed, by taking away a little of the humidity, which is contained within the part attacked: but not by exhausting it wholly by the violence of heat or dryness:

Things mollifying, are either Simple or Compound, and these again strong or weak. The weak are,

\[
\text{Radix lilium, olerum, cuminum nigrum, althaea, folia malvae, bismalvae, lino, melis,}\]

\[
\text{ovis, brucea unifida, fenas malvae, his, lino, faccorum, cori, pingues, paffiflum mandata, pedum, capitum, sereus,}
\]

\[
\text{verum cancellum decollatum, adhes ex jucundum & carbanum, dammi, furarum, althae, solani, amari, viscosi, affinity.}
\]

The weaker are things more gentle, as,

\[
\text{Butyrum, lana succida, cerapunguis, vitellus ovii, medulla ex ois, cervina, ovilla, caprina.}
\]

The compound are oil, wherein are boiled mollifying herbs, as,

\[
\text{Oleum lilium, chamomelianum, angy, sylorum dulcium. Stronger emollients are, Aetum, adhes varso, unifida,}
\]

\[
\text{cerratam, formis, peradis, api, etea, juncus, althae, helianthae, dammi, solani, sereus,}
\]

\[
\text{glyc, gallam, ladanum, propolis, opoponax, umb, de althae, umb, dactylis commune & magnum, de succo,}
\]

\[
\text{galeas, vesicae, caprae.}
\]

We use emollients in firrhus tumours of the muscles, or in the lips of Ulcers, in any of the limbs, belly, glandules, bowels, by reason of a gross, cold, and viscous matter, either phlegmatick or melancholick. Yet these tumours which grow of melancholy, commonly turn to Cancers, which are exasperated by mollifying things. On the contrary, such as proceed from a phlegmatick matter, are brought to an equality of confidence, by the use of emollients. Furthermore, there are three things observable in the use of emollients: the first is, that we must 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 diligently observe the nature of the part. The third is, that we artifically gather after what manner this mollifying must be performed, that is, whether we should mingle with the mollifying detere or diffusing Medicins. For there are many desperate furrhus tumours, that is, such as cannot be overcome by any emollient Medicin, as those which are grown so fast, that they have lost their lands and their vulves become smooth and without hairs. Here you must observe that the part sometimes becomes cold in so great an excess, that the native heat plainly appears to languish, so that it cannot actuate any Medicin. That this languishing heat may be rekindled, an iron stove shall be set next to the part, wherein a good thick piece of iron heated red hot shall be enclosed, for so the Stove will keep hot a long time.

\[\text{The Figure of an iron Stove.}\]

A The seat of the Stove.
B The iron Bat to be heated.
C The lid shut the Stove.
A

**Detergives.** Of Detergives, some are simple, some compound, some stronger, some weaker. The simple are

their use. things as deterge, that the superfluous matter being taken away. Nature may the more conve-

truly **Sarcoticks.**

Simple **Sarcoticks.**

other is mote thin and watery, which the Greeks call **Ichor,** Sanies, which is taken away

hath well advifed that every ulcer must be

deterge the excrements of an ulcer, which hinder the endeavour of Nature in genera-

dyglyrrbiza, aqua hordei, aqua mutila, vtnum duke, mel, saccharum, ferum latlk, manna, thus.

galls of Beasts, 

**Lupini, orobus,** aureum, urina bene co&a, squama £ris, £s uflum, £rugo, fcoria £ris, antimonium,

Lixivium

or mildly go under that name, are onely accidentally fuch i as thofe which without biting and erofion,

**Sanies.** the Greeks and by the Latins

Regenerating of flefh, and laudable bloud the material caufe, and the Medicin the helping or affisting

carce any other, than that of a drie confidence, as Powders,

of the whole body, whether it be healthy, plethorick, or ill disposedi there is confideration to be had

oeleus, citronellum, *artemisia, myrrha, marrubium,* perforata, abrotonon, apium, chelidonium, ruta, hyjfopus, scabiofa, arte-

of the part, there is a remain, or a certain thin excrement, flowing from some other place, called

The Compound are, Sympo-

of the thing, there is no Medicin which can properly aqd truly be called farcotick: For thofe which

of the part, which is moUter and drier, indued with a more exquifit or duller fenfe. But oft-times

the affedled part Ihall be moift by Nature, fuch things ftiall'bechofen as (hall be lefs drie: if on the

contrary the part be dtie, then fuch things lhall be ufed as be more drie

without any vehement heat, takes away all hinderances of incarnation, and orders and fits the bloud to

receive the form of flefh. This kind of Medicin according to G<*/e>ce,ought to be drie only in the firft

of the part, there is a remain, era certain thin excrement, flowing from some other place, called by

the Greeks *Ichor,* and by the Latins *Sanies.* Thus by the corruption of the part there concretes another

groffer excrement, termed *Kyppe* by the Greeks, and *Sarder* by the Latins. That makes the ulcers

more moift, this more filthy. Hence it is, that every wound which requires refettition of the left hab-

dance, must be cured with two sorts of Medicins, the one to date and waste the superfuous humi-

dry thereof, the other to fetch off the ftilt : and by how much the wound is the deeper, by fo much

it requires more liquid Medicins, that fo they may the more eafily enter into every part thereof.

But variety of things shall be appointed according to the various temper of the part. For if the

affected part shall be moift by Nature, fuch things shall be chosen as shall be drie: if on the

contrary the part be drie, then fuch things shall be ufed as be more drie ; but many sorts of Medicins

shall be associated with the farcoticks, according to the manifold compication of the affects pollifing

the ulcer. Therefore Nature only is to be accounted the Workmaster, and the efficient caufe in the

regenerating of flefh, and laudable bloud the material caufe, and the Medicin the helping or affilling

cause, or rather the caufe without which it cannot be : as that by cleanfing and moderately drying

without any vehement heat, takes away all hinderances of incarnation, and orders and fits the bloud to

receive the form of flefh. For as by the Law of Nature, from that nourilhment which flows to the nourilhing

stance, muft be cured with two forts of Medicins, the one to drie up and wafte the superfluous humi-

dity thereof, the other to fetch off the ftilt : and by how much the wound is the deeper, by fo much

it requires more liquid Medicins, that fo they may the more eafily enter into every part thereof.

But diversity of things shall be appointed according to the various temper of the part. For if the

affected part shall be moift by Nature, fuch things shall be chosen as shall be drie: if on the

contrary the part be drie, then fuch things shall be ufed as be more drie ; but many sorts of Medicins

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regenerating of flefh, and laudable bloud the material caufe, and the Medicin the helping or affilling

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stance, muft be cured with two forts of Medicins, the one to drie up and wafte the superfluous humi-

dity thereof, the other to fetch off the ftilt : and by how much the wound is the deeper, by so much

it requires more liquid Medicins, that so they may the more eafily enter into every part thereof.
before that the ulcer be cleansed and freed from pain, defluxion, inflammation, hardness, and dis-
ferm. In using those things we consider the temper of the body, and the affected part: For of-
ten a part otherwise (its) dry by nature, requires a more powerful drying medicine, and thorough
faecrotick, than another part which is more dry, and this for some other reason, which ought to
come into our consideration: For example, the glass would be more dried than the prepuce, al-
though it be of a temper less dry, because it is the passage of the urine. Wherefore we must diligent-
ly observe the condition of the affected parts, and choose taking indication, make choice of more
strong faecroticks. For both that which is too little, and that which is too much faecrotick, 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 be used in the examination hereof.

CHAP. XVI.
Of Epulotics, or spinning medicines.

An Epulotic medicine is that which covereth the part with skin: it is said to be such as by
means of attrition without biting delicately, binds, and condenzates the flesh into a cer-
tain callous substance, like to the skin, which we commonly call a cicatrice or fear: yet
this, as the generating of fles, is the work of nature. A medicine therefore is said to be Epulotic,
for that it fiftures nature in substituting and generating a fear, to heal of the true skin, while it con-
fumes the superfluous humidities, condensates, incraflates, and binds the next adjacent flesh: there-
fore it ought to dry more powerfully than a faecrotick. Epulotic medicines are of three kinds: the
first is the true epulotic, which easily dries and binds. The second is an acrid and biting epulotic,
which, for that it fiftures the proud fles, is called fo, and this must be fparingly used, and that only
to hard and raifick bodies. The third is that which only dries without attrition. The things
wherein they confifie are thefe: Argentia urceo, gusnena, iris, cataractum majus, pentaphyllon, fym-
phylum majus, chamisaya, betonica, cauda equina, caputvernae, plantago, furculata, folia, folia
horrida, buce myrti, glandes & carmin efs, baletaria, cupreif imus, medicina, cortex quercus, cortex
amarietis, cortex lysi aloes, acacia, eubon the, furraco, fangueus, ladanum, cinereus, argenteus, spon-
gyro, fatis et visum et latum, faltalice visum, chryscollo, caralis, hulus armeuros, terra fisulata, citerne
bucinatorum, glutinum, furtic, vesicula, folicula, foeunz & ficuta, caralis igneum, ung. diapompholygos, ung. albi.

Epulotic medicines are of three kinds:
Three form of

A Gloucefes, although fometimes they are ufed to inveterate, malign,

Glutinatives by accident are thofe that hinder defluxion, and bind the part, as Sutures, Bandages, Glutinatives
Glutinatives, whether they be ftrong or weakly fuch, do agglutinate either by their proper or acciden-
tal nature: Of this fort are Planctagi as aspera, confolida utraque, hongilia, idem, verba ena,
planta, folia, cauda equina, caputvernae, plantago, furraco, gusnena, cupreif imus, cortex quercus, cortex
amarietis, cortex lysi aloes, acacia, eubon the, furraco, fangueus, ladanum, cinereus, argenteus, spon-
gyro, fatis et visum et latum, faltalice visum, chryscollo, caralis, hulus armeuros, terra fisulata, citerne
bucinatorum, glutinum, furtic, vesicula, folicula, foeunz & ficuta, caralis igneum, ung. diapompholygos, ung. albi.

Glutinatives by accident are thofe that hinder defluxion, and bind the part, as Sutures, Bandages, Glutinatives

Glutinatives, whether they be ftrong or weakly fuch, do agglutinate either by their proper or acciden-
tal nature: Of this fort are Plantagi as aspera, confolida utraque, hongilia, idem, verba ena,
planta, folia, cauda equina, caputvernae, plantago, furraco, gusnena, cupreif imus, cortex quercus, cortex
amarietis, cortex lysi aloes, acacia, eubon the, furraco, fangueus, ladanum, cinereus, argenteus, spon-
gyro, fatis et visum et latum, faltalice visum, chryscollo, caralis, hulus armeuros, terra fisulata, citerne
bucinatorum, glutinum, furtic, vesicula, folicula, foeunz & sicuta, caralis igneum, ung. diapompholygos, ung. albi.

Glutinatives by accident are thofe that hinder defluxion, and bind the part, as Sutures, Bandages, Glutinatives
Of Anodynes, or such as mitigate or affwage pain.

CHAP. XVIII.

Of Pyroticks, or caustic Medicines.

Hat medicine is said to be Pyrotick or Caustick, which by its acrimony and bittine, commonly causing in a hurry consitude, either superficially corrodes, or more deeply eats and putresces, 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 Pyroticks: for some are termed Cathetericks or corroding, for that they walle the proud flesh of an ulcerated or another part, and there are judged the weaker sort of the Pyroticks. Others are termed Septicks or putrefying, as those which decay and disfolve the tender and new sprung up flesh, and raise blisters in the skin, and these are more powerful than the cathetericks. Lastly, there are other kinds termed most powerful Echaroticks, which by their fiery and terrestrial quality cause echars or crusts, whereupon they are also termed Rusticks, and potential Cauteries: Now all these differences are taken from that they are more or less powerful, for it oft-times happens, that according to the different temper and consistence of the parts, according to the longer or shorter stay, a Catheterick may penetrate no farther than a Septick. These are judged Cathetericks, Sapmina satis, albus, subtilis & no firmum, vitriolum satis, calx medullcria lateris, areno, zechcharum, funamina avis, album de vitriolo, trochench susonicus, plasmon, askphalotoricum, ang. Eugenieeunc, apollinum, pulvis mercurii, aequintum fulfumum. Septicks and Veficatories are, Radix arctii, beetae batrae, buglosa, radix raouonului, pans porcinii, quinm, fre, ut heliothorum, lac, sapn, camulitum, asphodes, castorodix, aequintum fuljumum: For all these weaken the native temper and consistence of the part, and draw thereunto humors plainly contrary to nature. Echaroticks or Causticks are, Cala vite, fexvini cremea, & reciprom, ignis, whereas are referred all Causteries, as well actual as potential, whereof we shall treat hereafter. We use Cathetericks in tender bodies, and diseases not very contumacious; therefore by how much they are less acrid and painful, by so much oft-times they penetrate the deeper, for that they are less troublesome by delay, but we use Septicks, and sometimes Echaroticks in ulcers that are callous, putrid, and of incurable humidity, but principally in Caurs, Carbuncles, and excessive Hernorrhagies. When as we make use of these, the patient must have a convenient diet appointed, must abstain from wine: lastly, they must not be used but with great discretion; for otherwise they may cause Fevers, great inflammations, intolerable pains, Sweatings, Gangrene, and Sphacent. Causteries henceforth used, strengthen and dry the part, amend an untameable discom, dull the force of poisons, bridge p饝rfection, and bring further other benefits.

CHAP. XIX.

What pain is.

Before we treat of Anodyne medicines, we think it fit to speak of the nature of pain. Now pain is a sourfull and troublesome sense, caused some sudden discom, or solution of continity. There are three things necessary to cause pain. The efficient cause, that is a sudden departure from a natural temper or union: the tendency of the body receiving the dolorish cause: lastly the apprehension of this induced change, caused either by discom or union for others with how exquisitely former for the body receiving the causes induced with, unless it apprehend and mark it, there is no pain present. Hence is it Apotropaia of Hippocrates, quinm partes alþia corporis dolorem omni non fationem, he mens agriat, that is, Whosoever pain any part of their bodies do wholly feel no pain, their understanding is ill affected and depraved. Heat, cold, moisture, and dryness, induce a sudden change of temper; and heat and cold cause sharp pain, dryness moderate, but moisture scarce any at all for moisture causeth no pain so much by its quality, as it doth by the quantity. Both the formentioned qualities, especially affected with matter, as also certain external causes too violently affailing, such as thee that may cause contusions, cut, prick, or too much extend. When as per pain is a symptom of the touch, accompanying almost all diseases; therefore oft-times leaving thefe, they turn the counte of the Physician to mitigate them, which is performed either by mitigating the efficic causes of pain, or dulling the force of the part. Hereupon they make three differences of Anodynes: For some serve to cure the discom, others mitigate it, othersufe fungial, and are narcotick. We term such curative of the discom, which relit, and are contrary to the conformed, Ecauls. Thus pain, caused by a hot discom, is taken away by oil of Iofes, Oxyl-

What proper medicines are.

CHAP. XXVI.

Of simple Medicines, and their Use.
Hitherto we have spoken of the faculties of simple medicines; now we think good to try something of the compounding of them: for to by the Architect are had and known e-

very thing apart, and then he settles the workmen to the building, the conceived form

conditio is whir^ ^anS

CHAP. XX.

Of the composition and use of Medicines.

Hitherto we have spoken of the faculties of simple medicines; now we think good to try something of the compounding of them: for to by the Architect are had and known e-

very thing apart, and then he settles the workmen to the building, the conceived form

conditio is whir^ ^anS

CHAP. XX.

Of the composition and use of Medicines.

Hitherto we have spoken of the faculties of simple medicines; now we think good to try something of the compounding of them: for to by the Architect are had and known e-

very thing apart, and then he settles the workmen to the building, the conceived form

conditio is whir^ ^anS
Of Simple Medicines, and their Use.  

BOOK XXVI.

Chap. XXII.

Of Glysters.

A glyster is an injection prepared first and properly for the gross intestines and fundament, and sometimes for the stomach, spleen, reins, bladder, womb, and the strength of the glyster: for there are divers sorts of glysters, some emollient, others evacuating, some anodynes, some astringents, some cleansing, some farciotic, and some may be said to nourish. They may be all made of the parts of plants or beasts, with compound medicines either positive, or alterating, and other according to the advice of the Phyisicians. The parts of plants which are used to this purpose, are roots, seeds, leaves, flowers, fruits, roots, juices, mucilages. Parts of beasts are yolks of eggs and whites, hoofs, chickens, and such like in decoctions, wherein we mingle and dissolve ample and compound medicines. We sometimes use without any other medicament, to make a glyster with oil alone, as oil of nuts for the colick, of whey alone, the decoction of the head and feet of the sheep alone, and of the decoction of Citrus and barley do we prepare Glysters.

Ten grains of these make an Obolus, or twenty grains make a scruple, three scruples, or sixty grains make a dram, eight scruples make one ounce, twelve ounces make one pound medicament. 10 grains is the most part the greatest weight used by Physicians, and which they seldom exceed; and it is referred into ounces, drams, scruples, and grains, which is the least weight.

To express these weights we use certain notes; the pound is expressed by this note, lb. the ounce by this, oz. the dram by this, dr. the scruple by this, scr. the obol by this, ob. and the half part by this, h. To express a handful we use certain notes: the pound is expressed by this note, lb. the ounce by this, ob. the scruple by this, scr. and the half part by this, h. To express grains, which is the least weight, we use certain notes: the pound is expressed by this note, lb. the ounce by this, ob. the scruple by this, scr. and the half part by this, h. But sometimes we measure the quantity of medicines by grains and not always by weights: and therefore we express a handful by this note, lb. a pound thus, lb. a quarter thus, q. a scruple thus, scr. and the half part thus, h. A dram thus, dr. An ounce thus, oz. Ten grains of these make an Obolus, or twenty grains make a scruple, three scruples, or sixty grains make a dram, eight scruples make one ounce, twelve ounces make one pound medicament.

To express these weights we use certain notes; the pound is expressed by this note, lb. the ounce by this, oz. the dram by this, dr. the scruple by this, scr. and the half part by this, h. To express a handful we use certain notes: the pound is expressed by this note, lb. the ounce by this, ob. the scruple by this, scr. and the half part by this, h. To express grains, which is the least weight, we use certain notes: the pound is expressed by this note, lb. the ounce by this, ob. the scruple by this, scr. and the half part by this, h.
mature, or by art, as by a Suppository, or an emollient Glyfter, left the alimentary matter be

put, with this Letter B.

The body of the Syringe, whereinto the Glyfter muft be put, is made of Black Horn, or of Wood.

Ihew their buttocks to him that fhould adminifter the Glyfter, a foolifh fhamefaftnefs hindring

them: therefore I thought good in this place to give the figure of an Inftrument, with which one yed.

Moreover, becaufe there are many who cannot by any reafon be perfwaded to glyfter

while he may lie upon his back after he hath received the Glyfter, and prefent after he may turn

to the upper guts, and (as it were) by an overflowing, wet and wa(h all the guts and excrements.

It hapneth otherwife to thofe who lie upon their left fide i for the Glyfter being fo injeded, is con-

ftraint to the aifect of the guts, are relaxed •, Let him wear nothing that may gird in his belly, let

him lie upon his right fide, bending in a femicircular .figure and fo the Glyfter will the more eafily

prelfion the excretion of the guts, are relaxed •, Let him wear nothing that may gird in his belly, let

for the two flrft provoke excretion by their acrimony, and the laft by his humidity doth relax and lu-

bricate. They who think no kind of Glyfter can nourilh or fustain the body, rely upon this reafon :

that it is neceflary whatsoever nourilheth, ftiould have a triple commutation or concodf ion in the

body: firft, in the ftomach •, fecondly, in the liver i thirdly, in all the members. But this is re-

pugnant to reafon and experience : therefore, for that a certain fene of fuch things as are defec-

tive is implanted in all and every of the natural parts of our body.

Therefore fceing nutrition is a reple-

tion of that which is empty, without doubt the empty and hungry parts will draw from any place

that nourilhment that is fit and convenient for them, and in defect thereof, whatever they meet

with, which by any familiarity may affwage and fatisfie their defire. But the alimentary alimentary

Glyfters, by us decribed, conflit of things which agree very well with the nature of our bodies, and such as

are boiled and ordered with much art, fo to apply the yieldification to be performed in the ftomach.

Therefore they may be drawn in by the meafred veins of the guts ; which according to Galen,

have a certain adequate facivity. And thence they may be callily carried through the gate-vein, liver,

and fo over the whole body. And experience teacheth, that many fick people, when they could

take nothing by the mouth, have been fustained many days by the help of thefe kind of Glyfters.

What is more to be faid ? We have feeen thofe who have taken a Suppository by the fundament, and

wondred at the mouth •, by which it is also appeareth that fomething may flow without danger the

fick from the guts into the ftomach.

Commonly they give Glyfters any hour of the day, without any refe£t of time •; but it fhould

not be done unless a great white alen meats, otherwise the meats, being hindered from digestion,

will be drawn out of the ftomach by the Glyfter.

Glyfters are ufed to help the weaker expeciative faculty of the guts, and by confequence alfo of the

other parts, both that fuch as through want of age, and old people, and fuch as by reafon of great ufe of glyfters.

Imbecillity by fuch fets cannot admit of a purging medicine, may by this means at leat cafe them-

elves of the trouble and burden of hurtful humors. Galen hath attributed to Storks the invention of

Glyfters, which with their bills, having drunk Sea-water, which from faltncfs hath a purging quality,

waf themelves by that part, whereby they ufe to bring away the excrements of their meats, and of the

body. But a Glyfter is fily taken after this manner : whileft the Syringe is exprefled, let the

patient hold open his mouth •, for by this means all the muscles of the Adormon, which help by com-

demon the excretion of the guts, are relaxed •; Let him wear nothing that may gird in his belly, let

him lie upon his right fide, bending in a femicircular figure; and fo the Glyfter will the more eafily

pus to the upper guts, and (as it were) by an overflowine, wet and with all the guts and excrements.

If hapneth otherwise to thofe who lie upon their left fide • for the Glyfter being fo injeded, is con-

ceived to abide, and (as it were) to drop in the Intaftum rofati, or Colon, becaufe in this ftate thei

two intines are opprefled, and as it were that up with the weight of the upper guts. A little

while he may lie upon his back after he hath received the Glyfter, and prefent after he may turn

himfelf on either fide. And if there be pain in any part, fo long as he is able, may incline to ving

for fleep hindereth evacuations. In Glyfters of this kind we muft beware of Salt, Honey and Oil

for thefe kind of Glyfters to nourifh.

Confufed first

by reafon.

Secondly, by

experience.

The Glyfter

in the Syringe, whereinto the Glyfter muft be put, is this Letter B.
A Suppository is a certain medicament, formed like unto a tent, or goblet of paste, such as is commonly used to fat Fowl. It is put into the fundament, that it might excite the sphincter-muscle to send forth those excrements which are knit in the guts. Anciently it had the form of an Acorn, whence it is called to this day Gians. The Suppositories we now usually make, have the form of a Pessary, that is round and length, in the form of a Wax-Candle. They are either weak, stronger, or sharp; the weak are made of the falks or the roots of Beets, of Lard, boiled Honey with Salt, or of Castle-foque. The stronger of purging powders, as Hiera, with Salt and Honey, or the juices of sharp herbs, or mingled with the galls of beas. It is commonly made thus: as, W. Medis edit 3; Salis et pulvcris alterius brissantis 5.

R. Medis edit 3, pul. Colorati hails 9; Salis gemma 9, fiat Suppositorium. We use Suppositories, when the sick by his inirmity is unwilling, or not able to bear or away with a Glyster, as in burning Feavers; or, when as one being injected, is flow and refteth in the guts. And we use the flasher Suppositories in feptic affeds of the head, that they might provoke the dull faculty of the guts to expulfion. As also when the condition of the difeafe is fuch, that by the ufe of Glysters there is manifeft hurt; as in an Entemence, where the guts do fwell, that over and above it may be filled by the glyfer infused, it would the more pref the Peritonem, fo that straight-wayes by the relaxed or broken part it might easily be devolved into the Codi.

Nodules have the fame ufe with Suppositories, and are oftimes substituted in stead of Glysters. They are made of gentle medicines, as the yolks of Eggs with a little Salt and Butter, or of Gall and Honey tied up in a cloth in the form of a Filbert; the firing of it may hang forth, whereby the Nodule in the fundament may be drawn forth. This decription may be an example of Nodules: R. Vitellum unius ovi, cuiadde salis modicum, sellis vervecis, mellis an. *butyri *U*].mifce, fiant Noduli filo appenfi.

A Pessary is grofer than a Suppository, and is appointed for the womb, being made with Cotton-Wool or Silk steeped in fome medicament, and then put into the neck of the womb. A Pessary is ufed either to ulcers of the neck of the womb, or for the procuring or stopping of the Menftra, or againft foul and hurtful humors of the womb, caufing hysteral passions, and therefore to be waited away and evacuated. Therefore in the composition of Peflaries are ufed gums, juices, feds of herbs, roots, and many other things, according to the advice of the Phylician, they are alfo made of a folid confiftence, the bignefs of a finger, that they may enter into the neck of the womb; they being tied with a string, which muft hang forth to pluck it out withall when occasion ferves. This following may be an example of thcir decription. R. myrrh, aloes an. 9ij. *radio, ellesbor.nig. 3j*- croci, 9j. cum succo mercurial. & melle fiat Pefarius, letit be tied to the thigh with a third. Or thus, Vp., meffisulb. thurtis, an. 5ij. alum. ref. rub. nec, cupref. an. 9ij. ladan, hypoci,fumach. myrtil. an. 9ij. fiant pelfit cum fucco amogof, & coniferorum. 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 womb: they are to be put up when the patient lieth in bed, and to be kept all night. Peflaries are alfo made of medicinable powders, not only mixed with fome juice, but alfo with thofe powders alone being put into a little bag of fome thin matter, being ftuffed with a little cotton, that it might be of a convenient ftiffnefs, and this kind of Peflaries may be ufed pradtically in the failing of the mother.

As an example of one mentioned by Rondoletius in his booke of inward Medicines, is as follows. R. Benoioini, styracis, caryoph. an. 3j.*sal. mofthi, gr. vi. fiat pulvis, this being made up with cotton, may be put up into the body.
BOOK XXVI. Of simple Medicines, and their Use.

CHAP XXIV. Of Oils.

Properly and commonly we call oil that juice which is pressed forth of Olives; but the word is used more largely, for we call every juice of a flexible, succulent, and oily substance, oil. There are three differences of their oleaginous juices: the first is of those things which yield oil by expression, as well fruits as seeds being bruised; that by boiling the oily juice may be pressed forth; some are drawn without fire, as oil of sweet and bitter almonds, oil of nuts, of Palma Chirali. Others are made to run by the help of fire, by which means is gotten oil of bays, infused-oil, rape-oil, oil of hemp, and such-like; the manner of drawing oil from seeds is set down by Mose in his third book.

The second sort of those oils which are made by the infussion of simples medicines in oil, wherein they leave their qualities: and this is done, in three several ways, the first is by boiling of roots, leaves, tops of flowers, fruits, seeds, gums, whole beasts, with wine, water, or some other liquor, with common or any other oil, until the wine, water, juice be congealed, which you may perceive to be perfectly done, if you call a drop of the oil into the fire, and it makes no noise but barnew. It is to be remembered that sometimes the seeds or fruits are for a certain time to be macerated before they are set to the fire, but it must be boil’d in a double vessel, lest the oil partake of the fire.

After this manner is made oleum ephedra, rhus com, coccus coccus, myristicums, magisterium, de ephedra, vulpinum, de ferpothum, and many others. The second is by a certain time of maceration, some upon hot ashes, others in horfe-dung, that by that moderate heat the oil might draw the therapeutical of the infused medicines into it. The third is by infusion, that is, when thefe or their flowers, being infused in oil, are exposed to the Sun, that by the heat thereof the oil may change, and draw into himfelf the faculty of the flowers which are infused: of this kind are oil of roses, camomel, dill, flakes of water-lilies, violets and others, as you may see in Mose.

The third kind is properly that of the Chymists, 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 Sun or Fire, or purrefcription, as we shall speak in his place hereafter.

We use oils when we would have the virtue of the medicament to pierce deep, or the substance of the medicines mingled with the oil to be left and gentle. Moreover when we prepare oils that should be of a cooling quality the common oil of the unripe Olive is to be used: of that should the oil of roses be made.

Again when we would prepare oils of heating qualities, such as are Oleum Philosphorum, or of Tilles, rape and ripe oil to be chosen.

CHAP XXV. Of Liniments.

A Liniment is an external medicine of a mean consistence between an oil and an ointment, for it is thicker than an oil; for besides oil it is compounded with butter, axungia and such like, which is the reason why a Liniment is more efficacious in ripening and mitigating pain, than simple oil. The varieties of Liniments are drawn from their eﬀects: some cool, others heat, some humect, some ripens, others by composition are made for divers uses. The matter whereof they are usally made, is oil, axungia, fast, butter, all those things which have an oily consistence or consistence, as aqua liquida, turpentine, the mucilages of senugreek, marsh-mallows, marrow, and other like. To these are sometimes added powders of roots, seeds, flowers, roots, metals, but fearfully, that the Liniment may be of a liquid consistence.

An example of a Liniment that is good to attenuate, heat, and digest, is this that followeth. R. Oil. amygda, amar, bilis, au. 3, axungia, nat, pulvis, au. 3, buty, sal expt, 3, maceu, frit, afts, frangue, extract in sp. feffio, au. 3, oil, pulvis, cres, res, au. 3, frut leniuentum. This may be an example of a Liniment to humect and mollific. R. di amygda, dat, ol. axungia, humus, 3, maceu. fent, moll. extrems in sp. farri, 3, frut leniuentum; you may add a little lucose. These be many others like these which may be made for divers aﬀects. They are easily applied to every part of the body, because they are not so liquid as oils; the reason is, they are more agreeable to any of the parts. If they be to enter into any crooked narrow passages, such as the ear, they must be more liquid, and have more oil, and they be tick on the part, they will admit of more axungia and fire.

They are deceived who think that the difference between Liniments and ointments is, that there is no wax in Liniments as there is in unguments: for there be some unguments which admit not any wax to be added, as Euphrasia, and all such as are used in gingerness, and all sorts of putrid ulcers: because to those kinds of diseases all farty things, as oils, fats, resins, and wax, are enemies. Therefore we substitute in the place of them in Euphrasia, honey and verdigris: for of these it hath his consistence, and his quality of cleaning.

CHAP XXVII. Of Ointments.

Ointments are of a more solid consistence than Liniments, and are therefore of more force. Ungements. Their differences are partly taken from their effects: for some heat, others cool, some dry, and their oils and some humect, some cleafent, some corroboreate, some make dead flesh, and other ingredients.
creantis, partly from the variety of colours, partly from the first inventors, as *Alhunm Rosia*, *Disf- 

cationum rubrum*: partly from the number of the simple medicaments whereof they be made, as, *Te- 


tapharmacon*, *Teopharmacon*, or *Nutritum*: partly from that medicament which is principal in the 


composition: hence are they called Unguentum rubrum, *Disfationum de Lithargara*, de Minio, 

*Tetrapharmacon de Lithargara*. The third sort is that which is principal in the forming ointments: 

*Ungentum filicicon-, macrum*, *quantity, and for equally mixed.* Here we must observe, that there be three ways of 


	making ointments: *The first is of those which are made only by furring or grinding in the Mortar: 


	the roots and seeds being bruised, are infused for three days in five parts of water: be set them until three ouces 


	together until they shall be brought into a body. *R. Rad.* *Alth.* *hei.* *fam.* *lina,* *aio.* *hei.* *^Syza.* 


	and Turpentine. *R. O/ei rof.* *iritis terendis.*) *simul* 


	is that which is drained. Therefore let us proceed to explain this by examples. 


	the Saffron, which shall be macerated in the rest of the Oil. *Terapharmacon* is so called, because it is made of four simple medicines, *Wax, Rosin, Pitch, Tal- 


	together until they shall be brought into a body. *R. Rad.* *Alth.* *hei.* *fam.* *lina,* *aio.* *hei.* *^Syza.* 


	and Turpentine. *R. O/ei rof.* *iritis terendis.*) *simul* 


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	the Saffron, which shall be macerated in the rest of the Oil. *Terapharmacon* is so called, because it is made of four simple medicines, *Wax, Rosin, Pitch, Tal-
that the more hard and heavy confidence of the Emplaster should be troublesome to the part, and in the rank of the fire left the virtue of those things be lost. But if green things are to be used in a composition, which is to be boiled with the other things, that nothing for the quality is to remain with the

part being boiled, and being pressed forth, that which is drawn to be mingled with the rest of the composition: and if there be juice to be used, it is to be boiled and pressed forth, which is to be boiled, and make the composition of the Emplaster: therefore it will be worth our labour to know what Emplasters do

sof Cerats and Emplasters.

be made without fire, do suddenly dry, nor are visible: they are made with Meal and Powders, agreeing in one gross, viscid, solid, and hard body, sticking to the fingers. The differences of Emplasters are taken from the parts by which they are called, as Ceraturn Suntalinum: some from the effects, as Ceratum refregnantum Galenii: others from the simple Medicaments which are the chief in the composition, as Ceratum Santalorum. The proper matter of Cerats is new Wax and Oils, being appropriated to the grief of those or those parts, so that Liniments and Ointments do not agglutinate. R Fias pinguis, b. p. apponuntur in notis furtis, etc. literam, & vetustem part amans cellas, 1.3, f. 1.4. Emplasters, fome are made by boiling, fome are brought into a form without boilings; fome of them longer, fome shorter, according to the nature of those things which make up the composition of Emplasters, fome are made by boiling, fome are brought into a form without boiling, fome which are made without fire, do suddenly dry, one or two of them being made with Meal and Powders, are made with some juicets, or with some humdrum matter mingled with them. But Plasters of this kind may rather be called hard Ointments or Cataplasms: for Plasters properly so called are boiled;
with Musclages, but that by their clamminess they do more resist the fire. But these doth much of Oil and Honey remain in their Plasters when they are made. Those juices which are hardened by concretion, as Alum, Upponacca, Ascida, when they are used in the composition of a Plaster, and be yet new, they must be raccented and dissolved in some proper liquor, and then they are to be boiled to the proper consistence of that liquor. Gums, as Opponaco, Galbanum, Sypus, &c., which may be dissolved in Wine, Vinegar, or Aqua vaie, then strained and boiled to the consumption of the liquor, and then mixed with the rest of the Plaster. 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 ficks and foild 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 weak and bad Wine.

Other Gums, which are drier, are to be powdered, and are to be mingled with Plasters last of all. Metals, as Argentum, Chloris, Magnes, Bethas Arminiac, Sulphur, Spermophilium, and others, which may be brought to Powder, must be mingled last, unless advice be given by long boiling to dull the fierce qualities of them. The Hike composition is to be had of Rulin, Pitch, and Turpentinit, which must be put in after the Wax, and may not be boiled but very gently; but the Fats are mingled whilst the other things are boiling. The Litharge is to be boiled with the Oil to a just consistence, if we would have the Plater dry without burning. Gums may endure as long boiling, but than the Plater shall not be white, neither will the Litharge of Silver make a Plaster with so good a colour as Litharge of Gold. Moreover, this order must be observed in boiling up of Plasters: the Litharge must be boiled to its consistence; Jucises or Mucilages are to be boiled away, then add the Fats, then the Waxes, then the Resin, Wax, Gums, Turpentinite, and after them the powders. You shall know the Plater is boiled enough by its consistence, grosb, hard, glutinous, and sticking to the fingers, being cooled in the air, water, or upon a stone.

Allo you shall know it by its exact mixture, if all the things become one mass hard to be broken.

The quantity of things which are to be put into a Plaster can hardly be described, but an artificer may be given, by considering the medicaments which make the Plaster itself, and of a consistence, and the parts hard and firm they make being boiled. Wax is not put into such Plasters wherein is Labdanum, for that is in lead of Wax. For it there shall be in the composition of a Plaster some emplanted Medicaments, the Plaster shall be the less conversive, if they shall be almost all liquid things, the Wax shall be increased so much as shall be necessary for the consistence of the Plaster. The quantity of the Wax also must be altered according to the time, or the air; therefore it is fit to leave this to the art and judgment of the Apothecary. Emplasters are sometimes made of Ointments by the addition of Wax, or dry Rosin, or some other hard or solid matter. Some would that a handful of Medicaments powdered, should be mingled with one ounce, or so ounce and half of Oil, or some such liquor, but for this thing, nothing can certainly be determined: only in Plasters described by the Ancients there must be great care had, wherein he must be very well versed, who will not err in the describing the dose of them; and therefore we will here give you the more common forms of Plasters.

Empl. de Vigna. In a very old, well versed, the prescription of a Plaster, wherein is Labdanum, so that is in stead of Wax. For if there shall be in the composition of a Plaster some emplanted Medicaments, the Plaster shall be the less conversive, if they shall be almost all liquid things, the Wax shall be increased so much as shall be necessary for the consistence of the Plaster. The quantity of the Wax also must be altered according to the time, or the air; therefore it is fit to leave this to the art and judgment of the Apothecary. Emplasters are sometimes made of Ointments by the addition of Wax, or dry Rosin, or some other hard or solid matter. Some would that a handful of Medicaments powdered, should be mingled with one ounce, or so ounce and half of Oil, or some such liquor, but for this thing, nothing can certainly be determined: only in Plasters described by the Ancients there must be great care had, wherein he must be very well versed, who will not err in the describing the dose of them; and therefore we will here give you the more common forms of Plasters.

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The tops are to be cut and bruised in a stone mortar, and boiled in red wine to the consummation of one third part. To the strained Liquor add Wax cut into little pieces, and being disdoubled by the fire, the liquor being consumed put to the Rotin, when it shall cool add the Maltick powdered, working it with your hands, by which it may be incorporated with the rest of the things.

By Succus hebrae, plantaginis, &c., &c., the Rotin, &c., and then add the Cataplasm and make up the Plaster.

**Chap. XXVI.**

Of simple Medicines, and their Ufe.

We use Plasters when we would have the remedy stick longer and firmer to the part, and would the uфоf Plasters to aflaft pain, digeft, difeufs and resolve unnatural tumors and flatuencies; They ought to be

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**C**

Ataplasm is not much unlike to Emplasters leа properly so called, for they may be speed the power of

upon linen cloths and strips like them, and so applied to the grievous parts. They are Cataplasm.

Composed of Roots, Leaves, Fruits, Flowers, Seeds, Herbs, Juices, Oils, Fats, Marrows,

Medicines, Rotins.

Of these some must be boilted, others crude. The boiled are made of Herbs boiled tender, and so drawn through a hair sieve, adding Oils and Annoxiphere thereto. The crude are made of Herbs beaten, or their juices mixed with Oil and Water, or other Powders appropriate to the part or disease, as the Physician shall think fit. The quantity of Medicines entering these compositions can scarce be defined, for that they must be varied as we have the composition of a few, and there is nothing better. Verily they ought to be more gross, and diverse when we define to ripen any thing, but more soft and liquid when we endeavour to diffuse. We use Cataplasm Their a

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moderately hot and of subtile parts, so to attract and draw forth; yet their use is sutfected, the body being not yet purged, for thus they draw down more matter into the affered part. Neither must we use those when as the matter that is to be diffused is more gross and earthy, for thus the sublimer parts will be only diffused, and the gotts remain intact in the part, unless you shall be made of an equal mixture of things, not only diffusing, but also amollient, as it is largely handled by Lih. inl. glMCi Cataplasm.

A ripening Cataplasm.

Difchuing Cataplasm.

How Putltifes differ from Cataplasm.

A ripening Cataplasm.

**CHAP. XXIX.**

Of Fomentations.

A Fomentation is an evaporation or hot lotion, chiefly used to modifie, relax, and affwage pains, consisting of Medicines having these faculties. A Fomentation is commonly used to be made, being usually made of the same things as Embrocations, to wit, of Roots, Seeds, Flowers, bowled in Water or Wine. The roots here used are commonly of Mallows, Marsh-mallows, and Lillies. The Seeds are of Mallows, Marsh-mallows, Parfley, Smallage, Line, Fenugreek. Flowers are of Camomil, Mellot, Figs, Raisins, and the like: all which are to be boiled in Water, Wine, or Lye, to the consumption of the third part, or the half: as, 


This shall be largely illustrated by examples. As, R. Med. panic. & frs. decussat. in laete purgis, adde olei chamm. 3 ij. amyg. gal. & j. flat cataplasm. Or, R. Rad. atth. & littu. 3 ij. flor. mulo. folium. cic. an. 3 j. liter. 1/4. de Copp. ad aqua, & frumentum translactatum, ad dividit slonum in tertiam, ib. j. dist. & frumentum. Cataplasm.

A Fomentation is a watering, when as from an high we (as it were) scatter upon the body the fubtler part of the humour, that so the force of the medicin may enter into the affered part.

**CHAP. XXX.**

Of Embrocations.

A Embrocation is a watering, when as from an high we (as it were) shower down some moisture upon any part. This kind of remedy is chiefly used in the parts of the head, and it is used to the coroidal future, for that the skull, is more thin in that part, so that by the ginntis or breathing places of this future, more open than those of the other futures, the force of the medicin may more easily penetrate unto the Mininge, or membranes of the brain. The matter of Embrocations is Roots, Leaves, Flowers, Seeds, Fruits, and other things, according to the intention and will of the Physician. They are boiled in Water and Wine, to the half or third part. Embrocations may also be made of Lye or Brine against the cold and humid affeds of the brain. Sometimes Oil and Vinegar, otherwhiles of Oil only. R. Rad. atth. & littu. 3 ij. flav. & amyg. amar. an. 3 j. liter. 1/4. de Copp. ad aqua, & frumentum translactatum, ad dividit slonum in tertiam, ib. j. dist. & frumentum. Cataplasm.

In affeds of the brain, when we would repercuss, we often and with good success use Oil of Roses with a fourth part of Vinegar.

We use Embrocations, that together with the air drawn into the body by the Diapne of the Arteries, the sublimer part of the humour may penetrate, and so cool the inflamed part; for the chief use of Embrocations is in hot affeds. Also we use Embrocations, when as for fear of an haemorrhagy, or the seeing of a broken or dislocated member, we dare not lose the bandages wherein the third part is bound. For then we drop down some decollation or oil from high upon the bandages, that by thefe the force of the medicin may enter into the affered member.
E Phthisma, 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 them is.

What an Epitheme is, 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 them is.

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 affects them seem to require; for if you desire to heat, more Wine must be added, as if frowning by the clotting of blood, by the corruption of the fixed, by dissolving some cold poison; the contrary is to be done in a painting by dissipation of the spirits by severer heats, also Vinegar may be added.

The matter of the Medicines proper to the entrails is formerly described, yet we commonly use the fieries of Exchangers, as the fieries elevat. triturationi, the Liver being affected, and Esmargination in affects of the heart.

The proportion of the Juices or Liquors to the Powders 1 in 3: or 1 in 3: of thine, of Wine or else of Vinegar 1:5. You may gather this by the following example:

C A P. XXXII.
Of Potential Cauteries.

Hat kind of Pyrotick which is termed a Potential Cautery, burns, and cautheth an eschar.

The use of their kind of Cauteries is to make evacuation, derivation, revulsion, or attraction of the humours by those parts where they are applied. Wherefore they are often and with good success used in the punctures and bites of venemous Beasts, in a venemous, as also in a patient who or who be temper of the heavens than the heart; for the heat of the lungs being by this means tempered, the drawn in air by the lungs is hot in the patient and drying Fevers. They are prepared of humecting, refrigerating, and cordial things, so to temper the heat, and recreate the vital faculty. Sometimes also we use Epithemes to strengthen the heart, and drive thence venemous exhalations, lifted or raised up from any part which is gangrenous or phaecele. Some Cotton, or the like, parched or moistened with such liquors and powders warmed, is now and then to be applied to the affected entrail: this kind of remedy, as also all other topick and particular Medicins, ought not to be used, unless that have first been tried general things.

The use of potential Cauteries.

The matter of these Cauteries are Oak-alhes, Pot-eyles, the aflies of Tartar, of Tithyrnals or Tartar, of Tobacco, of Catil, Sal-ammoniacum, of each two pounds, of Sulfur natrum & ammoniacum, of each four ounces, of each, must be beaten into a gross powder, then must they be boiled over the fire, and after the boiling let them remain in the Lyce for four and twenty hours, being often stirred about, and then strained through a thick and double linen cloth, left any of the earthy drops get thorn together with the liquor. This strained liquor, which is as clear as Water, they call Collectiun, and they put it in a brazen Ban-

fin, such as Barlewife, and to set it upon the fire, and as soon as it boils, they keep it with continual stirring, left the Salt should adhere to the Bains: the Collectiun being half boiled away, they put in two ounces of powdered vitriol, to haften the falling of the eschar, and so they keep the Ban-

fin over the fire till all the liquor be almost wafted away. Then they cut into pieces the Salt or that earthy matter which remains after the boiling away of the Collectiun, and with a Knife or hot Iron Spatula, form them into Cauteries of such figure and magnitude as they think fitting, and so they lay them up, or keep them for use in a Vial or Glass closely stopped, that the air get not in on.

Take a bundle or sufficient quantity of Bean-stalks or husks of Colewort stalks two little handfuls, or cat and waste the superfluous flesh of ulcers and wens, to bring down the callous lips of ulcers, and other things too long here to infer upon.

The materials of these Cauterizings are Oak-alhes, Pot-eyles, the aflies of Tartar, of Tithyrnals or Tartar, of Tobacco, of Catil, Sal-ammoniacum, of each two pounds, of Sulfur natrum & ammoniacum, of each four ounces, of each, must be beaten into a gross powder, then must they be boiled over the fire, and after the boiling let them remain in the Lyce for four and twenty hours, being often stirred about, and then strained through a thick and double linen cloth, left any of the earthy drops get thorn together with the liquor. This strained liquor, which is as clear as Water, they call Collectiun, and they put it in a brazen Ban-

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The use of potential Cauteries.
wholly spent, let two or three ounces of Vitriol be added; when the moisture is sufficiently evaporated, make cauteries of that which remains, after the formerly mentioned manner.

Take of the ashes of found, knotty old Oak as much as you please; make thereof a Lyse; pour this Lye again upon other fresh ashes of the same Wood: let this be done three or four times thorough. Then, take some fine Lye in this Lye, and of these two make a Capitellum, whereby you may make most approved Cauteries: For such ashes are hot in the fourth degree; and in like sort the flames, whereby the Lime by burning becomes fiery and hot to the fourth degree; Verily I have made Cauteries of Oak-ashes only, which have wrought quickly and powerfully. The Capitellum or Lyse is thought sufficiently strong, if that an Egg will swim therein without sinking. Or:

Take of the ashes of Bean-stalks three pounds, of unquenchable Lime, Argol, of the ashes of Oak-wood, being all well burnt, of each two pounds. Let them for two days space be infused into a vessel full of Lye made of the ashes of Oak-wood, and be often stirred up and down. Let this Lye then be put into another vessel, having many holes in the bottom thereof, covered with firkins or flower-pipes, so that the Capitellum burning through these their passages may become more clear. Let it be put twice or thrice upon the ashes, so that it may the better extract the heat and caustical quality of the ashes. Then putting it into a Barrens Batin, set it over the fire, and when it shall begin to grow thick the fire must be increased, and Cauteries made of this concreting matter.

The following, Cauteries are the belt that over I made of this, in the sigrist of a Peac, in the space of half an hour without pain, especially if the part of it be painless and free from inflammation, cut into the skin and fleishi even to the bone, and make an ulcer of the bignes of a fones fingers end, and they have an Eclaf to mollify and humidi, that within four or five days space it will full away of it fallen without any cartification. I have thought good to call these Cauteries Silken or Velvet ones, not only for that they are like Silk, gentle and without pain, but chiefly because I obtained the description of them of a certain Chymist (who kept it as a great secret) for some Velvet and much extremity. Their description is this:

Take of the ashes of Bean-stalks, of the ashes of Oak-wood well burnt, of each three pounds, let them be infused in a pretty quantity of River water, and be often stirred up and down, then add thereeto of unquenchable Lime four pounds, which being quenched, stir it now and then together for two days space, that the Capitellum may become the stronger, then strain it through a thick and strong linen cloth, and thus strained, put it three or four times upon the ashes, that so it may draw more of the caustical faculties from them, then boil it in a Barrens Batin, until it become thick. But a great part of the secret or Art consists in the Faculty thereof, which therefore is termed Pulsus Angelicus, for the excellency, therefore I have thought good to give you the description thereof, which is thus:

V

Efficaceous and rubifying Ointments, Castaplasms, or Plasters, are made of acrid Medicines which have power to draw forth to the Superficies of the body such humours as are deep, by embalming the skin and cutting blisters. That matter is the same with Efficaceous Medicines, that is to say, Cadus, arseniaci, emplastris, etc.: and these are the things, with which Hony, Trumperine, Leaven, Gum, or Roine, may be made into Castaplasms, Ointments, or Plasters: therefore the compoture of Velicitaries, or rather their constitution differs not, as much as Galen, or Seth, on this subject.

The description of Mercury or Argent, calcified powder.

Take a large earthen pot, whereunto put the Vial or boll-lead wherein the Argentum vivum and Aqua fortis are contained, putting it in ashes up to the neck thereof, then set the pot over a Fornace, or upon hot Coals, so that it may boil and evaporate away the Aqua fortis; neither is there in the interior will the Glass be in any danger of breaking when all the water is vanished away, which you may know is done when as it leaves smoking, suffer it to become cold, then take it forth of the ashes, and you shall find calcined Mercury in the bottom, of the colore of red Lead, separated from the white, yellow, or black excrement, for the white that concretes in the top is called Sublimate, which if it should remain with the calcited Mercury, you shall make it into powder, and put in a brass vessel upon some coals, furring or turning it with a Spatula for the space of an hour or two: for thus it will lose a great part of the acrimony and bating, whence it will become less painful in the operation.

C H A P. XXXIII.

Of Velicitariis.
with water rather than with vinegar, because experience teacheth that vinegar abates the strength of mortar. We use this kind of medicine in long diseases, when as we cannot any thing prevail with. Their use, other medicines; especially in the Head-sach, Meagrim, Epilepsie, Sciatica, Gout, the bites and pustules of venomous creatures, pestilent Carbuncles, and other infective and contaminous diseases.

Affirming them, when as we would eat that strength to a dead or decayed part, for they are drawn back together with the heat; for which purpose we must make choice of more gentle Vehicles, as which only rubricate, so that the part may only become red, and not be burnt; the part must first be strongly rubbed, that the decayed and dull heat may be renewed and stirred up, the pores of the skin more opened, that the force of the Medicine may enter the deeper into the body.

**C H A P. XXXIV.**

**Of Collyria.**

A Collyrium is a Medicine proper for the Eyes, made of Powder finely levigated and ground into what a collyrical form of Alcohol, as the Arabians and our Alchemists term it: yet the word in a more general acceptance, is used for any liquid Medicine, made with Liquors and Powders, and applied to any part.

Wherefore Collyria are of three kinds, some are meati or liquid; which are proper: The differently called Collyria, others drie, which are of the same confidence with Trochilizes; others have eon of them, the confidence of Honey, or a lointment. The liquid serve for the greater and better corners of the Thir eye, the drie of the confidence of Honey are meet for the Apples of the Eye, but the drie are to be made into Powder, and fo blown into the Eyes: also sometimes they are to be dissolved in some juice, or other convenient liquors, that so they may be made into meati Collyria.

Therefore Collyria have diverse uses, and are applied to several parts according to the intention and consist of the Physician: for liquid Collyria put into the corners of the eyes do more readily mitigate the heat of their inflammation, by reason they enter more easily by the tenacity of their substance: such things as have a more firm confidence adhere more tenaciously, and work more certainly. Meati Collyria are made of Juices, Mucilages, Waters of Herbs, Flowers, Seeds, Metallic bodies, Galls, and other such like Medicines, which are Repercussives, Redolves, Detergents, Analgesics, and the like, according to the nature of the present disease.

Sometimes they are made of Juices and distilled Waters only; others with Powders or drie Colly. Their manner, lysis made into Powder, are mixed with them, together with the white of an Egg. Powders are precribed to iij. and liquors to iv. or v. in Medicines for the Eyes: but for other parts, as when it is to be injected into the Uinary passage, they may be preferred to the quantity of a pint. Drie Collyria are made of Powders exceeding finely beaten or ground, and incorporated with some juice, whence it is that they differ little from Trochilizes. Wherefore the Collyria album Raphis is now usually termed a Trochilize, and kept with them. Cathartic Powders are not applied in the form of a meati Collyrium, but in the form of a liniment, that is, incorporated with Fat or Oil. All these things are made more plainly by the following examples.

- From plant, & remote, iij. et, iij. & medicamentum, misce, fiat collyrum.
- Aq. liquefactis, & oxyxymel, v. or iv. V. in Medicines for the Eyes; but for other parts. As when it is to be substituted in place of a collyrium, to the quantity of a pint. Drie Collyria are made of Powders exceeding finely beaten or ground, and incorporated with some juice, whence it is that they differ little from Trochilizes. Therefore the Collyria album Raphis is now usually termed a Trochilize, and kept with them. Cathartic Powders are not applied in the form of a meati Collyrium, but in the form of a liniment, that is, incorporated with Fat or Oil. All these things are made more plainly by the following examples.

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A Masticator.

The matter of solid errhines.

Their use.

The manner of using them.

To whom they are hurtful.

A Mafficatories are those termed stomatatories, for that they cause inuring, or made of powders only, to which purpose the full mentioned things are used, as also aroemathick things in a small quantity, as 7 or 8, at the rising of the sun; as, Myrrh, nigrum, nuxmus, nutum, angustum, et in aeris malsis, et inflantibus. Enrhines of the confidence of Empedocles, by the Latins vulgarly called Nafalia, are made of the described Powders or Gums dissolved in the juice of some of the forementioned herbs, incorporated with Turpentine and Wax, that to fo they may the better be made into a pyramidal form to be put into the nostrils.

As 7 Myrrhun, fum, nigrum, piper, pip., alh, carphay, galang, & s, pyrhy, enphors, an, 3 3, pant, pane, althum, an, 3, terant, & in putorem redugantur. And then with Turpentine and Wax as much as shall be sufficient, make them up into Nafalia of a pyramidal or taper fashion. We use Errhines in invertebrate diseases of the brain, as the Epileptic, fear of blindness, an Apoplexy, Lethargy, Convulsion, the loth of Sensing; yet we hurl general remedies and evacuations, lest by acceding and the like concussions of the brain for the exclusion of that which is offensive thereto, there should be a greater attraction of impurity from the subjacent parts. Liquid things must be drawn up into the nostrils warm out of the palm of the hand; to the quantity of 5 3, the mouth being in the interim filled with water, left the attracted liquor should fall upon the palate, and fo upon the lungs: drie Enrhines are to be blown into the nose with a pipe or quill; solid ones must be failed to a thread, 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 Enrhines. If by their force the nose shall be troubled with an itching, the pain thereof must be mitigated by Woman's milk, or Oil of Violets. The use of aromatic Enrhines is hurtful to such as are troubled with diseases of the Eyes, or ulcers in the nose, as it off-times falls out in the Lues Venerea; wherefore in this cafe it will be best to use Apophlegmatisms, which may divert the matter from the Nose. For though the humour drawn from the brain into the mouth by the means of the mafficatories, may be thence cast forth by coughing and spitting, yet in the interim Nature will be so inured to that passage for the humour, so that it will run that way when as we sleep, and fall down upon the parts thereunder, weak either by Nature or by Accident.

A Sternutation or爽agepain. Their composition is two-fold, the firft is of a decoction of Roots, Leaves, Flowers, Fruits, and Seeds fit for the disease; now the decoction is to be made either in fair water alone; or with the admixture of white or red wine, or in the decoction of Licorice and Barley, or of Pearce things, as the intention of the Physician is to repel, cool, or hinder inflammation; as in the tooth-ach caused by matter which is yet in motion to dilate, as in the tooth-ach already at the height.

CHAP. XXXVII.

Of Apophlegmatismes, or Mafficatories.

What an Apophlegmatism is.

The differenc-es.

The use of Mafficatories.

To whom hurtful,

Mafficatories are sometimes made of harth or acerb Medicines, as of Berberies, the stones of Prunes or Cherries, which held for some space in the mouth, were made ulcerated.

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Gargle or Gargarifm is a liquid composition fit for to wash the mouth and all the parts thereof. For though the humour drawn from the brain into the mouth by the means of the mafficatories, may be thence cast forth by coughing and spitting, yet in the interim Nature will be so inured to that passage for the humour, so that it will run that way when as we sleep, and fall down upon the parts thereunder, weak either by Nature or by Accident.

The time fittest for the use of Apophlegmatismes is the morning, the body being first purged; if any ingrateful tafe remain in the mouth, or adhere to the tongue by using of Mafficatories, you shall correct it away by washing the mouth with warm water, or a decoction of Liquorice and Barley.
Dentifrices are medicines prepared and serving divers ways to cleanse, whiten, and fatten the Teeth; for from their use they take their name. Of these, some are dry, others moister: of the dry, some have the form of opiates, others of Powder greatly beaten, but the moth are commonly made by distillation; the matter of dry Dentifrices is taken from distilling and drying things, such as are Coral white and red, Harts-horn, Scuttle-bones, Alum, Crystal, Pumice, Salt-nitre, myrrh, Frankincense, Balastinth, Aconys, all sorts of shells of Fishes: all these are to be made into Powder either by burning, or without it; for Scuttle-bones burnt call forth a thinking and unpleasant smell. To these for benefit false are added certain aromatick things, as Cinamon, Cloves, Nutmegs, and the like: such Powders if mixed with some Syrups, as oxymel, or myrobalanum, &c., will serve for this same use, and any other astringent Wood.

The Ancients of Lentisk-wood made themseleves Tooth-picks, and such devices to strengthen their Teeth: for from their use they take their name. Of these, some are dry, other moist: of the dry, some have the form of opiates, others of Powder greatly beaten, but the moth are commonly made by distillation; the matter of dry Dentifrices is taken from distilling and drying things, such as are Coral white and red, Harts-horn, Scuttle-bones, Alum, Crystal, Pumice, Salt-nitre, myrrh, Frankincense, Balastinth, Aconys, all sorts of shells of Fishes: all these are to be made into Powder either by burning, or without it; for Scuttle-bones burnt call forth a thinking and unpleasant smell. To these for benefit false are added certain aromatick things, as Cinamon, Cloves, Nutmegs, and the like: such Powders if mixed with some Syrups, as oxymel, or myrobalanum, &c., will serve for this same use, and any other astringent Wood.
A quilt for the stomach.
A cap for a heart.
Their use and matter.

Fumes of the decoction of herbs do very little differ from Fomentations properly so called: for they differ not in the manner of their composition, but only in the application to the affected parts: therefore let this be an example of a humid Fumigation.

A Semicupium or Half-Bath, is a Bath for the one half of the body, that is, for the parts from the belly downwards: it is called also an Inoffus, because the Patient sits to bathe in the decoction of herbs: in which form and respect a Semicupium differs from a Fomina-
A Bath is nothing else than as it were a fermentation of the whole body, both for preserving health, and for the cure of Diseases: this is a very commodious form of Medicine, and among other external Medicines much celebrated by the Greeks, Arabs, and Latin Physicians. For a Bath, besides that it digests the solid humours, and foory excrements lying under the skin, mitigates pains and weariness, and corrects all excess of distemper: moreover in the cure of Perns, and many other contagious and inveterate Diseases it is the chief and last remedy, and as it were the refuge of health and life, with playing delights. Baths are of two sorts, one 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 visceras of Metals, it furnishes and impregnates it with various qualities and effects; hence it is that all such waters excel in a drying faculty, sometimes with cooling, and astringent, and other times with heat and a diffusing 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 years, and keep it from being extinguished. Some Philosopher would have it kindled by the beams of the Sun, others by the force of Lightning, others by the fire of the bowels of the Earth; others by the violence of the Air vehemently or violently agitated, no otherwise then fire is struck by the collision of a Flint and Steel. Yet it is better to refer the cause of so great an effect unto God the maker of the Universe, whose providence piercing every part of the body, by the power of natural faculties, penetrates the bowels of the Earth; others by the violence of the Air vehemently or violently agitated, no otherwise than fire is struck by the collision of a Flint and Steel. Yet it is better to refer the cause of so great an effect unto God the maker of the Universe, whose providence piercing every part of the body, by the power of natural faculties, penetrates the bowels of the Earth, whence he has seemed to have come nearest the truth, who refer the cause of heat in Waters unto the store of Brimstone contained in certain places of the Earth, because among all Minerals it hath most fire and matter fitted for the nourishing thereof. Therefore to it they attribute the flames of the Sicilian Mountain Brimstone continually burns forth. Hence also it is that the most part of such waters smell of Sulphur, yet others smell of Alum, others of Nitre, others of Tart, and the like. Sulphurous Waters powerfully heat, dry, resolve, open, and draw from the center unto the surface of the body, they cleanse the skin troubled with Scabs and Ulcers, they cauterize the itching of ulcers, and digest and exhaust the causes of the Gout, they help pains of the Colick and hardness of the bowels and menses. Bituminous Waters heat, digest, and by long continuance bring the hardened illnesses, and by the hot distemper of the Liver and Kidneys, they are good against eating Ulcers, Fistulae, the hardness of the Eye-lids, and they waste and eat away the most fire and matter of the body, but chiefly to the Liver.

Aluminescent Waters taint very affiduously; therefore they digest powerfully, they have no such malignant heat, yet drink, they lose the belly: I believe by reason of their heat and nitrous quality they cleanse and dry distempers, and theCourtes flowing too moderately, they also are good against the Tooth-ache, eating Ulcers, and the hidden abscesses of the other parts of the mouth.

Salt and nitrous Waters shew themselves sufficiently by their heat: they heat, dry, bind, cleanse, digest, attenuate, whiten the blackness coming of bruises, heal leprous and malignant ulcers, and help all gigantic tumours.

Bituminous Waters heat, digest, and by long continuance bring the hardened illnesses, they are different according to the various conditions of the humour that they walk, and partake of the qualities thereof.

Bazan Waters, that is, such as retain the qualities of brine; heat, dry, cleanse, digest, cut, bind, are good against eating Ulcers, Fistulae, the hardness of the Eye-lids, and they waste and eat away the most fire and matter of the Noto and Fundament.

Iron Waters cool, dry, and bind powerfully, therefore they help abscess, hardened mists, the weakness of the stomach and hinder the urinary excretion of the Urin, and the too much flowing terms, as also the hot distemper of the Liver and Kidneys. Some fish are in Hazard Territory in Italy.

Lead Waters refrigerate, dry, and perform such other operations as Lead doth, as lead may of Lead.
be paid of those Waters that flow by Chalk, Plaster, and other such Minerals, at which all of them, take and perform the qualities of the bodies by which they pass.

Of hot baths. The waters of Baths help cold and violent diseases, as the Polio, Convulsion, the stiffened action of the Nerves, trembling, palpitations, cold distillations upon the joints, the inflations of the members by a droppe, the Jaundice by obstruction of a grofs, tough, and cold humour, the pains of the fides, colic, and hidden, barrennesses in women, the suppression of their Curves, the ful-action of the Womb, caufed weanning: these diseases that spoil the skin, strivers, the leprous of both forts, the fea, and other diseases arising from a grofs, cold, and obtinent humour, for they produce sweats.

Yet such must not as they are of a cholericke nature, and have a hot liver, for they would cause a Cachexia and Droppee by over-heating the liver. Cold Waters or Baths heal the hot distemper of the body and each of the parts thereof, and they are more frequently taken therein than applied parvadually: they help the lacticness of the bloods, as the resolution of the recurrent faculty of the stomac, Entrails, Kidneys, Bladders, and they also add strength to them. Wherefore if they both temper the heat of the liver, and also strengthen it, they say the Diarrhée, Dyfenteries, Curves, involuntary bleeding of Urin, the Cachexia, Sweats and bleedings. In this kind are chiefly commendable the Waters of the Spaw in the Country of Liege, which inwardly and outwardly have almost the same faculty, and bring much benefit without any inconvenience, as those 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 artificial ones, by the infusing and mixing the Powders of the formerly described Minerals; as Britthem, Alum, Nitre, Bitum: also you may many times quench in common or rain water, Iron, Brass, Silver and Gold hewed red hot, and fo give them to be drunk by the Patients; for such waters doe off-times retain the qualities and faculties of the Metals quenched in them, as you may perceive by the happy successes of such as have used them against the Dyfenteries.

Besides these, there are also other Baths made by Art of simple Water, sometimes without the addition of any other thing, but otherwhiles with medicinal things mixed therewith, and boiled parvadually; they help the lacticness of the blood, as the resolution of the recurrent faculty of the stomac and intestines, Entrails, Kidneys, Bladders, and they also add strength to them. Wherefore if they both temper the heat of the liver, and also strengthen it, they say the Diarrhée, Dyfenteries, Curves, involuntary bleeding of Urin, the Cachexia, Sweats and bleedings. In this kind are chiefly commendable the Waters of the Spaw in the Country of Liege, which inwardly and outwardly have almost the same faculty, and bring much benefit without any inconvenience, as those that are commonly used in the drinks and broths of the Inhabitants.

Of artificial baths. The faculty of a Bath of warm water.

Why we put Oil into Baths.

A mollifying and anodyne Bath. Caution to be observed in the use of

To whom hurtful. The faculties of cold baths.

Walter hath no rule remedies approved by us and reason, yet unless they be fully and distinctly used in time, plenty, and quality, they do much harm; for they cause oozings and chilteens, pain, and
density of the skin, or too much rarefaction thereof, and of¬
times a resolution of all the faculties.

Wherefore a man must be mindful of those cautions before he enter into a Bath: First, that there be no weakness of any noble and principal bowels, for the weak parts easily receive the humors which the Bath causeth to be diffused through the vessels, and all the ways lying open, which tend from the whole body to the principal parts. Neither must there be any plenty of crude humours in the first region, for so they should be attracted and diffused over all the body: therefore it is not only fit that general Purifications should precede, but also particular by the Belly and Urine: besides, the Patient should be strong, that he may suffer the heat of the Bath, and the pores of the skin may open, whereby the heat may be made to enter, and the moisture with it.

The morning is a fit time for bathing, the stomach being falling and empty, or six hours after meat, if he be requisite that the Patient should bathe twice a day, otherwise the meat yet erode would be found by the heat of the Bath, out of the stomach into the veins and habit of the body. Many of the feasons of the year, make choice of the Spring and end of Summer, and in those times they chuse a clear day, neither troubled with stormy winds, nor too sharp an air. As long as the Patient is in the Bath, it is fit that he take no meat, unless peradventure to comfort him he take a little bread moistened in Wine, or the juice of an Orange, or some Darrassk Prunes to quench his thirst: his strength will shew how long it is fit that he should stay in: for he must not stay there to the resolution of his powers, for in Baths the humid and spirituous substance is much diffipated. Coming forth of the Bath, they must precisely get them to bed, and be well covered, that by sweating, the excess of the sweat may be removed, and that they may be assisted by gentle Frictions, or Walking; then let him feed upon meat of good juice and easy digestion, by reason that the stomach cannot but be weakened in some sort by the Bath.

The quantity of meat is judged moderate; the weight thereof shall not oppress the stomach, Venery after bathing must not be used, because of the resolution of the spirits by the Bath, it adds another cause of further spending or dissipating them. Some with those that have the Bath by reason of some contractions, pain, or other effects of the nerves, pretendingly after bathing, to dawber before the affected nervous part with the Clay or Mud of the Bath, that by making it up as it were this place, the virtue of the Bath may work more effectually, and may more thoroughly enter into the affected part. Those cautions being diligently observed, there is no doubt but the profit by Baths will be great and wonderful: the same things are to be observed in the use of Stoves, or Hot-houses, for the use and effects of Baths and Hot-houses is almost the same, which the ancients therefore used by turn, so that coming forth of the Bath they entered a Stove, and called it also by the name of a Bath, as you may gather from sundry places of Galen in his Method Med. wherefore I think it fit in the next to speak of them.

CHAP. XLIII.
Of Stoves or Hot-houses.

Stoves are either dry or moist: Dry, by raising a hot and dry air, and exhalation, so to imprint their heat, and cause a profuse Sweating. There are divers ways to raise such an exhalation: at Paris, and whereverof there are Stoves or publick Hot-houses, they are raised by a clear fire put under a vaulted Furnace, whence it being presently diffused, heats the whole Room; yet every one may make himself such a Stove as he shall judge best and fittest.

Also you may put red hot Coals-ashes or Bricks into a Tub, having first laid the bottom thereof of with Bricks or Iron Plates, and so let a seat in the midst thereof; wherein the Patient sitting, well covered with a Canopy drawn over him, may receive the exhalation arising from the fumes that are about him, and have the benefit of Sweating; but in this case we must take care to let the Patient for it sometimes happens that fire, neglected by their Keepers otherwise unprompted, become faint, and their fumes falling them by the dissipation of their spirits by the force of the hot fumes, have funk down with all their bodies upon the fumes lying under them, and so have been carried half dead and burnt into their beds. Some also take the benefit of Sweating in a Furnace or Oven, as soon as bread is drawn out thereof. But I do not much approve of this kind of Sweating, because the Patient cannot in this, lie or turn himself therein.

Humid Stoves or Sudatories are those wherein Sweat is caugled by a vapour or moist heat: this vapour must be raised from a decoction of Roots, Leaves, Flowers, and Seeds, which are thought 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 cover Iron or Tin pipes may come into a Bathing Tub standing near thereto, between the two bottoms thereof, by means whereof the hot vapour may enter thereinto, and diffuse it itself therein. Now it is in the Bathing-tub should be furnished with a double bottom, the one below and whole, the other forcibut what higher and perforated with many holes, whereupon the Patient sitting, may receive a Sudorific vapour over all his body: now this vapour, if at any time it become too hot, must be 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 be closely covered wherein the Patient sits, in parting forth easily his head, that so he may draw in the cold air. In defect of such Pipes, the Herbs shall be boiled by themselves in a Caldron or Kettle, and this shall be let thus hot into the Bathing-tub at the Patients feet, and so by eating into it heated items, a great and fistorific vapour shall be raised.
Of simple Medicines, and their Use.

Book XXVI.

The delineation of a Bathing-tab having a double bottom, with a Vessel near thereto, with Pipes coming therefrom, and entering between the two bottoms of the Tab.

As the colour of the skin is, such is the humour that is thereunder.

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Your face when you go to bed, and wash it in the morning with the formerly prepared water.

If Salis curati,- 1. ang. citronell, citrum, citrum; 2. j. maltarum, ramentarum, & fin. linimentum, addendo albit. How to make this: Take those materials and put them all in a bottle of distilled vinegar. Keep them there for ten days, then filter it, then let that you have filtered in a glazed earthen vessel over a gentle fire until it concretes into Salis, just as you do the capillaries in making of countries.

5. Excrutacions faciei, officina, tabac, vini albi, rosari, coen. cerv. flor. vir. aci. an. partes equales, fin. pulvis, infusionem in aqua dilutae. ang. et ramentarum dulcinem, linarem virulentam, fiores, &c. in unum melis albi par pavas: let them be all incorporated in a marble mortar, and kept in a glass or silver vessel, and at night anoint the face herewith: it wonderfully prevails against the redness of the face, if after the anointing you shall cover the face with a linen cloth moistened in the former described water.

6. Sublim, 3 j. argent. vit. sal. tub. salin. citr. 3 j. margar. non perfus. 3 j. cap. vit. in mortuus marmorum, cum pilula ligata, praes. hom. demerit. & frictus, redimaturque in tenebris palamnrum, coftellat et pulvis aetherae aqua nitri & deficioentis, fessaque ad infusion, addita felat. argent. or. & argent. oxy. When as you would use this powder, put into the palm of your hand a little Oil of Maltich, or of sweet Almonds, then presently in that Oil diffuse a little of the described powder, and work it into an ointment, wherewith let the face be anointed at bedtime: but it is fit first to wash the face with the formerly described water, and again in the morning when you rise.

When the face is freed from wrinkles and spots, then you may paint the cheeks with a rose and flourishing colour: for of the concretion of white and red asfich a native and beautiful colour: for this purpose take as much as you shall think fit of Balsam and Alkohurst: steep them in Ammoniac 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 Sheep's-skin died red: moreover the triction that is made by the hand only, caueth a pealing redness in the face, by drawing thither the blood and spirits.

CHAP. XLV.

Of the Cutta Rofacea, or a fiery face.

His Treatise of Foei, puts me in mind to say something in this place of helping the patient with excellent things, then affualted with the following ointments, which shall be used or changed by the Chirurgeon as the Physician shall think meet.


2. Bengasi, 3 j. fisc. & carn. & coxum, & fens eos fonte trocleis: when you would use them, diffuse them in Rose and Platanum water, and spread them upon linen cloths, and so apply them on the night-time to the affected parts, and so let them off-times be renewed.

3. Ungentis cineris, diast. 3 j. f. pulvis viro viro, 3 j. cum vinum old. fem. cocchi. & f. cum lioment. f. cum aqua stagnac. with this let the face be anointed: when you go to bed, in the morning let it be walked away with Rose-water, being white by reason of brand infused therein: moreover ifari, Vinegar boiled with Bran and Rose-water, and applied as before, wonderfully takes away the redness of the face.

4. Corn. 3 j. 3 j. leb. & albit. & f. pulvis viro pulvis viro, an. 3 j. 3 j. quinariae in phiala cum aceto, & aqua ager. Linen cloths dipped herein shall be applied to the face on the morning, and it shall be walked in the morning with the Water of the infusion of Bran: this kind of Medicin shall be continued for a month.

5. Sauvinae tauri, 3 j. hauri rotae, 1 j. f. distillationis. The liquid which is distilled for the first days is troubled and thickning, but those puffed, it becometh clear and well smellning. Some boil Bran in Vinegar and Water-distilled, and in this decoction they diffuse of Sulphur and Camphire a fit proportion to the quantity of the decoction, and they apply a cloth moistened in this Medicin to the face in the evening.

6. Album. coen. tub. 3 j. aqua ref. 3 j. f. sanct. sanct., & leb. acen. 3 j. 3 j. f. albit. &c. &c. incorporated in mortis. &c. &c. &c. &c. 7. loc. pulvis desc. in aceto lact. 3 j. 3 j. argent. vio. 3 j. albit. &c. albit. &c. &c. &c. &c. &c. &c. 8. L. 11.
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To dry up the
Pustules.

R. Rais, Luminous fish carthoped colurarium, 3 iv. Pulsio Trifas, & Sulfur triplaste, add Little recents, & avaxur, porcul, in uax ur, an, 3 i. Sulfur vivi, 3 iij. ammon, 3 iij. sulpur vivi, 3 ji. fati lima-
unum, 3 iv. salt com, 3 1. let them be all diffilled in a glads Alchemick, and the water kept for the
forementioned uses.

To kill Tett-
er.

R. Lapath. aas, plantas, & abfolvo 1. p. stelethum, oom, 3 p. trebedev, com, 3, 1. fulc limunum, 3 iij. clam. combust, 3 ji. argent vieti excutio, 3 ji. sal lillorum, 3, 1. sulpur vivi oos in mercurie plumb, addends fis from argencia mercuria adiussa. The juice of Oisons beaten with Salt, or Tokes of

Eggs are good for the same purpose.

To wash
the skin.

What things
are fit to die
the hair.

T first the hairs (to take the focus or tincure, and to retain it) must be prepared with Lye, wherein a little Rock-alum is diffolved. Thus the fatty scales may be washed and taken away, which hinder, and (as it were) keep away the fire, that it cannot adhere or penetrate into the body of the hair. Then must we come to particular or proper and fitting Medicins for this purpose.

Youn ought to be aromatic and cephalic, and somewhat fippick, that by their odorifer-
ous and astringent power that may strengthen the animal faculty. Furthermore, they must be of
fabbil parts, that they may enter even into the inner sides of the hairs.

R. Sulphuris, citrumis, gallarinum, calcis vitre, lathurges, an, 3 ji. foeta feri, 3 ii. in pulmon reductane.
er, & cum au. communi incrassatur, om indas maassa with this at bed time let the hairs be rubbed, and
in the morning let them be smoothed with the lane.

R. Calcis lati, 3 ji, librubrum in vinum 3 iij. cum decovs gallarinum, curcum innum, farf maasa, addenda olei chaumum, 3 ij. u. Lathurg, acri, 3 ji. cum, clarnaen, 3 ji, calcis com, 3 ji. differt comen, cum minis doce acnatent constitution negotiis provedit capillorum. R. Calcis lati, 3 ji. cum decovs, salvo-
cert, granum, far fals ad foramina perlas falsi liquida 4, let the hair at bed time be dried hereafter, and
washed in the morning with Wine and Water.

A way to wash
the hair.

Now the manner of washing lime is thus: In a flue in ten or twelve parts of fair water one pound of Lime, then pour out the water by stopping the vellum, putting more in the head thereof, the third time in head of common water pour thereon the water of the decoction of Sage and Galls, let the
Lime lie therein for so many hours, then in like manner pour it off by stopping the Vellum; and thus you shall have your Lime well washed. There is also found a way how to die or black the hair by only pouring of some liquor thereon: as, 4 Argent portivum, 3 rednecin in transmissum la-
nam, 3 ji. et alii, 3 1. &c. in sacco frumenti, put the hair in this water. But if you would black it more deeply, add more silver thereto, if lea, then a smaller quantity: to use it you must steep the Comb wherewith you comb your head in this

To make the
hair of a fla-
xen colour.

R. Plumbis 2 iij. gallarinum non perforsi, cortiss, numm, an, 3 ji. is, turti figuls, turti, bism, an, 3 ji. ni-
trix, corn, 3 vi, calvis genus, 3 iij. corn, 3 ji. &c. ad
es, an, 3 ji. Sat. pius fulfurifici-
num: let this powder be macerated in Vinagre for three days space, then diffil it all in an Alchemick, the water that comes therefrom is good for the foifaid uase. The following Medicin is good to

make the hair of a flavex colour.

R. Flor, ganth, fublact, & cardamom, an, 3 ji. capirum, coqunif
ruf, bint, cortiss ciris, radis, genis, & herbes, an, 3 ji. cum aqua narsi; flat lenta decisa: herewith
bathe and moisten the hairs for many days.

CHAP. XXII.

Of blacking the Hair.

A Depliatory.

M

Edicina to fetch off hair, which by the Greeks, are termed Pithes, and Depliatories in Lat-
in vulgarly, are made as you may learn by the following examples: R. Calcis viti, 3 ji.
infirans, 3 ji. let the lime be quemated in fair water, and then the incorrupt added with some aromatick thing: have care that the Medicine live not too long upon the part, otherwise it will burn, and this Medicin must be made to the confidence of a Pulvis and applied warm, first
Book II.

Of Distillations.

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fomenting the part with warm water: for then the hair will fall off by gentle rubbing or washing it with warm water: but if there happen any excoriation thereupon, you may help it by the use of Unguentum esculentum, or some other of the like faculty.

Another.

V. Caleit vis. repr. cit. ein. §. in unci, brama argentea. §. v. tinct. & incorpoream eum ad. om. bal- 

num fundt: you shall certainly know that it is sufficiently boiled, if putting therein a Crinum Quill, the Feathers come presently off: some make it into powder equal parts of unquenched Spikenard and Lavender oil, etc. in esse, §. iv. mactantur necessi fundt, & fasting distillatur in balni Mariae: the same Water.

Sweet Waters are very fitting for to wash the hands, face, and whole body, as also Linens, because they yield a grateful smell: the first is Lavender-water thus to be made. II. Flor. Lavend. &v. aqua referta. Take Lavender oil, etc. in esse, §. v. mactantur necessi fundt, & fasting distillatur in balni Mariae: the same Water.

This Water may also be had without distillation, if you put some Lavender flowers in fair Water, and set them to Sun in a Glass, or pot them in bowls, adding a little Oil of Spikenard and Musk. Clove-water is thus made. II. Caryophyll. §. iv. aqua referta. maceratur necessi in aqua referta, & distilledatur in balni Mariae.

Sweet-water commonly so called, is made of divers odoriferous things put together, as thus, II. Mus. Sweet Water. the, marapat, trifillus, fabia, vertamurin, lavandula, an. maj. radice ibis, §. iv. caryophyllum, finamum, unis mactantur, & iv. in unci necessi in aqua referta, basi viole carminariae, distillatur in balni Mariae, adinde Melol. §.

The End of the Six and fiventieth Book.

BOOK XXVII.

OF DISTILLATION.

CHAP. I.

When Distillation is, and how many kinds thereof there be.

Having finisht the Treatise of the Faculties of Medicine, it now seems requisite that we speak somewhat of Chymistry, and such Medicines as are extracted by fire. Thefe are such as consist of a certain fifth 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 day Chrifts do not distil, or otherwife make them more strong and effectual than they were before. Now Distillation is a certain Art or way by which the liquefied or humid part of things, by the virtue and force of fire; or some fermentable heat (as the matter shall seem to require), is extracted or drawn out, being first resolved into vapour, and then condensed again 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 subtil and delicate from those that are more corpulent, gross, and excrementitious; as also to make those matters whose substance is more gross, to become more pure and finer, either for that the terrestrial parts are ill united and conjoined, or otherwise confufed into the whole, and disparted by the heat and so carried up, the other greater parts remaining in the bottom of the Vessel. Or distillation is the extraction or effusion of moisture distilling drop by drop, from the nofe of the Alembick, or any such like Vessel, which accompanies nothing else but to separate the pure from the impure; the parts that are more fruitful and delicate from those that are more corpulent, gross, and excrementitious; as also to make those matters whose substance is more gross, to become more pure and finer, either for that the terrestriall parts are ill united and conjoined, or otherwise confused into the whole, and disparted by the heat and so carried up, the other greater parts remaining in the bottom of the Vessel.

Or distillation is the extraction or effusion of moisture distilling drop by drop, from the nofe of the Alembick, or any such like Vessel. Before this effusion or falling down, the Liquor, there goes a certain concoction performed by the virtue of heat, which separates the Substances of one kind from those of another that were confufedly mixed together in one body, and so brings them into one certain form or body, which may be good and profitable for divers Diseases, or for the stace of a clear fire, others a flame, others the heat of the Sun, others of Ashes, Four degrees or Sand, or the Filings of Iron, others Horfe-dung, or boiling Water, or the oily vapour or steam thereof. In all these kinds of fires, there are four considerable degrees of heat. The first is the fire of a clear flame, others flame, others the heat of the Sun, others of Ashes, Four degrees of heat.

The first degree is most convenient to distil such things as are subtil and moif, as Flowers. The second such as are ribul and dry, as those things which are odoriferous and aromatic, as Cassia, Ginger, Cloves. The third is fittest to distil such things as are of a more dense substance and fuller of Juices; such as are some Roots and Grums, as Alum, Vitriol, Amber, Jet, etc. In like manner you may diftill without heat: as we do in those things which are diftill’d by straining, as when the more pure is drawn and separated from that which is most unripe and hardy, as we do in Luc Primul’i, and other things which are strained through a Hypericum bag, or with a piece of cloth cut in form of a Tongue, or by felting, or by a veftile made of ivy wood: for sometimes all these things may be distill’d by coldnes of humiditie, and we make the Oyl of Tartar, Myrth, and Vitriols, by laying them upon a marble in a cold and moist place.
V.

CHAP. H.

Of the matter and form of Furnaces.

The matter to be diverse; for some Furnaces use to be made of Bricks and Clay, otherwise of Clay only, which are the better and more lasting, if so be the Clay be fat and well tempered with White of Eggs and Hair. Yet in sudden occasions, when there is present necessity of distillation, Furnaces may be made of Bricks, so laid together that the joints may not agree, but be unequal, for so the flame there will be the stronger. The best and finest form of a Furnace for distillation is round; for to the heat of the fire carried up equally diffuses in full every way, which happens not in a Furnace of another Figure, as square or triangular, for the corners are less and separate the force of the fire. Their magnitude must be such that it be fit for the receiving of the Vessel. For their thickenss to go as great as necessity shall demand require. They may be made with two bottoms, distinguished as it were into two Forges, one below which may receive the ashes of the coals or the like other fuel, the other above to contain the burning coals; or three. The bottom of this upper must either be an iron grate, or else it must be perforated with many holes, that so the ashes may the more easily fall down into the bottom, which otherwise would extinguish the fire; yet some Furnaces have three partitions, as the Furnace for Reverberation. In the hest and lowest the ashes are received, in the second the coals are laid, and in the third the matter which is calcined or else distilled. The字符 ought to have a semicircular cover, that so the heat or flame may be reflected upon the contained matter. The lower partition shall have one or more doors, by which the fallen-down ashes may be taken forth, but the upper must have but one whereby the coals or wood may be put in. But in the top or upper part of the Furnace may receive the ashes of the coals or wood, shall be put in. Yet some Furnaces have a second bottom, where a grate may be placed, or else it must be perforated with many holes, that so the ashes may the more easily fall out. And being so mentioned doors must have their shutters, much like an Oven mouth. But in defect of a Furnace, or it matter to build one withall, we may use a Kettle, let upon a Tree, after the manner that we shall presently declare, when we come to speak of that distillation which is to be made by Sal ammoniac.

CHAP. III.

Of Vessels fit for Distillation.

Leaded Vessels.

Vessels for Distillation consist of different matter and forms; for they are either of Lead, Tin, of Brass, or else earthen Vessels; and these are sometimes leade, sometimes not: or else of Ceramicks and Stoneware, which are made of Pottery or other brassy materials, and are contained in leaden pipes, which by reason of their slathyness and acrimony which favors of Quicksilver, caufe Dysenteries. Therefore you may perceive such Waters as are distilled through a leaden head to be inclined with a more acid and violent piercing vapour, by reason the portion of those distils diffolved in them, and as it were taken from the Alembick, or head, deft the hurtful than lead, for they make the Waters that come through them to favor or partake of Brass. Thure that are of Gold and Silver are less hurtful; but the greatneß of the coals hinders us from making heads of such Metals, therefore we must have a great care that our Vessels for Distillation be either of Potters metal leade, or else of Brass, of that Jug-metal which is commonly called Terra Retorsa, and these rather than of Lead, or any other Metal. Vessels Glasses are thought the best; and next to them earthen than of Lead, or any other Metal. Vessels Glasses are thought the best; and next to them earthen, and lathy thicke of Tin. There is great variety of Vessels for distillation in form and figure; for some are of an Oval or Cylindrical figure, that is, of a round and length, others are round and crooked, others of other shapes, as you may see in the beaks of the Chymists. Of this almost infinite variety of figures I will in its place give you the delineation and use of such shall seem to be most necessary.

CHAP. IV.

What things are to be considered in Distillation.

Ears make choice of a fit place in your house for the Furnace, so that it may neither hinder any thing, nor be in danger of the falling of anything that shall lie over it. When you shall distill any thing of a malign or venenous quality, ye shall laid by it as little as you may, lest the vapour should do you any harm: when you provide Glasses Vessels for Distillation, make choice of such as are sufficiently baked, without flaws or cracks, and such are every where smooth. Let not the fire at first be very violent, not only for fear of breaking the Vessels, but also for that the heat in Distillation must be gentle, and so increased by little and little. The things to be distilled ought not to be put in too great quantity into the body of the Still, lest they should rise up on the grate; but things that they may be more effectual must be twice or thrice distilled, by pouring upon them their own distilled Waters, or other fresh materials, or else by distilling them severally and by themselves: of this kind are Gums, Wax, Fats, or Oils.
But in each other repeated distillations you must something lessen the fire of the fire; for the matter attenuated by the former distillation cannot afterward endure so great heat: but aromatick things as Cloves, Cinnamon, or the chymical oils of Sage, Rosemary, Thyme, ought not to be distilled or redistilled over again, for that we must presently after the first distillation have a diligent care to separate them from the phlegm, that is the more watery substance of the whole liquor, to which purpose we must have regard to that which is distilled, for there are some things which find oven their phlegm, as Vinegar, others wherein it comes last, as * water.

If you would give to things to be distilled another taste or smell than that which they have naturally, you may mix them with some odoriferous things, as Cinnamon, Camphire, or Musk, or the like, as you please, and so distil them together. The distilled liquors drawn by the heat of ashes, or sand, favour of and retain a certain * teperygium, or finch of the fire, for the helping of which, you shall put them into glasse close flotes, and so expoure them to the Sun, and now and then open the glasse that the fiery impression may exhale, and the * Phlegmon be confumed, that there shall be any. But though in all distillations there are many things to be observed, yet are there two things chiefly worthy of note. The first is, the matter that is to be distilled and wrought upon, as any mixture being distilled, can you rightly expect Oil or Water: For mixt bodies do not consist of an equal portion of the four Elements, but some are more airy, others more fiery, some participate more of the Water, others more of the Earth, and that presently from their original. Therefore as watery things yield more Water: so airy and fiery things yield more Oil when they are distilled; neither are all instruments fit for the extraction of every liquor. Moreover you must note, that the watery liquor sometimes comes forth in its first place, and presently after the help of a stronger fire follows the oily, which we find happens as often as the Plant or parts of the Plants which are distilled, are of a cold temperature; for in hot things it happens otherwise, for the first liquor which comes forth is oily, and the following watery.

**CHAP. V.**

Of what fashion the Vessels for the distilling of Waters ought to be.

Or the distilling of any kind of Waters, two kind of Vessels are necessary, which are commonly termed under this original name of an Alambick. They call one of them the body, or an Alambick containing Vessel, the other the head, that is, the 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 distilled liquor flows drop by drop into the Receiver, as you may see by the Figure.

Of what fashion the Vessels for the distilling of Waters ought to be.

A Shows a brass Kettle full of Water. B The cover of the Kettle perforated in two places to give passage forth to the Vessels. C A Pipe or Chimney added to the Kettle, wherein the fire is contained to heat the water. D The Alambick consisting of his body and head. E The Receiver wherein the distilled liquor runs.
Of Distillations.

Book XXVII.

The Effigies of another Balancum Mariæ, not so easily to be removed as the former.

A. Shows the Vessel of Copper that contains the Water.
B. The Alembick fast in water.

But lest the bottom of the Alembick being half full, should float up and down in the water, and so stick against the sides of the Kettle, I have thought good to shew you the way and means to prevent that danger.

A. Shows the Vessel or Glass Alembick.
B. A plate of Lead wherein it stands.
C. Strings that bind the Alembick to the plate.
D. Rings through which the strings are put to fasten the Alembick.

You may distil the liquors of things by the vapour or steam of boiling water, if so be that you be provided of Vessels and forms made after this following manner.

A Furnace with its Vessels to distil liquors with the steam of boiling water.

A. Shows the head of the Alembick.
B. The body thereof, placed in a broad Vessel made for that purpose.
C. A broad Vessel perforated in many places to receive the vapour of the Water. This Vessel shall contain the Alembick compassed about with Sawdust, not only that it may the better and longer retain the heat of the vapour, but also lest it should be broken by the hard touch of the brazen Vessels.
D. Shows the broad Vessel containing the water as it is placed in the Furnace.
E. The Furnace containing the Vessel.
F. A funnel by which you may now and then pour in water, instead of that which is vanished and dispersed by the heat of the fire.
G. The Receiver.

Why those things that are distilled in Balancum Mariæ, may retain more of the strength of things.

Now for the faculties of distilled Waters it is certain that those which are drawn in Balancum Mariæ of a double vessel, are far better and efficacious, because they do not only retain the smell of the things which are distilled, but also the tastes, acidities, harshness, sweetness, bitterness, and other qualities, so that they will neither favor nor burnish, for the mild and gentle heat of a bath contains by its humidity, the more subtle parts of the Plants that are distilled, that they may not be dispersed and
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 malign quality from the vessels out of which they are distilled, especially if they be of Lead, whence 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 Balneum Marmite are contained in a glass Vessel, from which they can borrow no malign quality. Therefore the matters to draw are more effectual and pleasing in taste, smell, and sight. 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, and purging; others acquired for smell, others for washing or smoothing of Women's faces, as we shall show hereafter.

CHAP. VI.
How the materials must be prepared before Distillation.

Things before they be put in the Alembick must undergo a preparation, that is, they must be cut small, beaten and macerated, that is, steeped in some liquor, so that 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 infusion or maceration, but must rather be dried before they be distilled, as Sage, Thyme, 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, or cut, or beaten; whence it is that Roots and Seeds require a longer time of infusion; flowers and leaves a shorter, and the like of things. The liquors wherein infusion must be made, ought to be agreeable to the other 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 Betony, Wormwood, and the like, or which are very odoriferous, as all aromatick things, would be infused by 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 we desire that the distilled liquor should more exactly retain and have the faculty of the things wherein it is distilled, then must you infuse it in the juice thereof, to some such appropriate liquor that it may swim in it whilst it is distilled, or at least let it be sprinkled therewith.

CHAP. VII.
Of the Art of Distilling of Waters.

Before I describe the manner how to distil Waters, I think it not amiss briefly to reckon up the varieties how many sorts of distilled Waters there be, and what the faculties of them are. Therefore of Distilled Waters some are medicinal, as the Waters of Roses, Plantain, Sorrel, Sage, and the like; others are alimentary, as those Waters that we call Restauratives; other sorts are compounded of both, such as are the restorative Waters which are also mixed with Medicinal things; others are purging, as the distilled water of green and fresh Rhubarb; others for smoothing the skin, and others for washing; of which sort are those that are distilled of aromatick things.

To distil Rose-water, it will be good to macerate the Rose-water before you distil them for the space of two or three days, in some formerly distilled Rose water, or their pressed-out juice, luting the Vessel close, then putting them into an Alembick closely luted by his head and his Receiver, and so put into a Balneum Marmite, as we have formerly described.

The imbibition of Plants in their own juice.

The distilled Alimentary liquors are nothing else Restoratives than those that vulgarly call Restoratives; this is
the manner and art of preparing them. Take of Veal, Mutton, Kid, Capon, Pullet, Cock, Partridge, Fish, as much as shall from fit for your purpose; cut it small, and let it should require heat, or
emeproms from the fire, mix therewith a handful of French Bayleaves, and of red Roselle-leaves day
and feth, but first steeped in the juice of Pomegranats, or Citrons and Rose-water with a little Cin-
namon.

But if you define that this Restorative should not only be Alimentary, but also Medicinal, you
shall add thereto such things as shall reft the difeafe, fuch as are Cordial Powders, as of El. Dianum-
garis, et. fol. de gommos, aromaf. f. Conferve of Buglofs, Bonarg, Roots, Herbs, Seeds, and other
things of that kind. But if it be in a peffiferous feafon, Trecache, Mitridate and other Antidotes
shall be added; each of these shall be laid in ranks or orders one over another, which is vulgarly ter-
med lexcurum fuper lexcurum, in a glafs Alemblide, and deftilled in Balneis Marse, with the heat of Alles, or
e of warm Sand, as the Figure shews.

There may be made other Restoratives in shorter time with lefs labour and cofl. To this pur-
pofe the feth must be beaten and cut thin, and so thraft through with a double thread, fo that the pieces
thereof may touch each other; then put them into a Glafs, and let the thread hang out; fo flrop up the
Glafs clofe with a linen cloth; Cotton or Towel, and lute it up with Paste made of Meal and the Whites
of Eggs, then flit it up to the neck in a Kettle of Water, but fo that it touch not the bottom, but let
it be kept upright by the formerly defcribed means; then make a gentle fire thereunder, until the
contained fult by long boiling fhall be deftilled into juice, and that will commonly be in four hours
space. This being done, let the fire be taken from under the Kettle, but take not forth the
Glafs before the Water be cold, left the fire being hot it fhould be broken by the fudden appufle of the
cold air. Wherefore when as it is cold, let it be opened, and the thred with the pieces of feth be
drawn forth, fo that only the juice may be left remaining; then flain it through a bag, and aroma-
tize it with Sugar and Cinnamon, adding a little juice of Citron, Verjuice or Vinegar, as it fhall beft
like the Patients palat.

After this manner you may quickly, eafily, and without great cofl have and prepare all sorts of
Restoratives, as well medicated as simple. But the force and faculty of purging Medicins is ex-
tended after a clean contrary manner than the Oils and Waters which are drawn from aromatick things,
as Sage, Refernary, Thyme, Annisfeeds, Fennel, Cloves, Cinnaamons, Nutmegs, and the like. For the
strength of thiefs, as that which is fubtit and airy, flies upward in deftillation; but the strength of
purging things, as Turbith, Agaric, Rhabar, and the like, fubfides in the bottom. For the purga-
tive faculty of these purgers inseparably adheres to the bodys and fubftances.

Now for fweet Waters and fuch as serve to fMOOTH the skin of the face, they may be deftilled in
Balneis Marse, like as Rope-water.

Chap. viii.

How to deftil Aqua Vitae, or the Spirits of Wine.

T

ake of good White or Clarret Wine or Sack which is not fowre or mufthy, nor otherwise cor-
rupt, of the Lees, that quantity which may serve to fill the Veflel whereas you make the
deftillation to a third part; then put on your head furnished with the nofe or pipe, and fo
make your deftillation in Balneis Marse. The once it is deftilled, (or as they term it) refixed, the
more noble and effectual it becomes. Therefore some deftil it feven times over.

At the firft deftillation it may fuffice to draw a fourth or third part of the whole; to wit, of twenty
four pints of Wine or Lees, draw fix or eight pints of deftilled liquor.

At the fecond time the half part, that is, three or four pints.

At the third deftillation the half part again, that is, two pints; fo that the other you deftil it over, the
lefs liquor you have, but it will be a great deal the more effecacious. I do well like that the firft
deftiliation be made in Athes, the fecond in Balneis Marse. To conclude, that Aqua vitae is to be ap-
proved of neither is it any other to be deftilled, which put into a Spoon or Saucre, and there left on
fire, burns wholly away and leaves no liquor or moisture in the bottom of the Veflel; if you drop a
drop of oil into this fame. Water, it continually falls to the bottom; or if you drop a drop into the
palm of your hand, it will quickly vanifh away, which are two other notes of the perfuaion of this
liquor.

The faculties and effects of Aqua vitae are immenufe; it is good againft the Epilepsie, and all
cold Diathesis, it aflivates the pain of the Teeth, it is good for punctures and wounds of the Nerves,
Paintings, Swooneings, Gasping and mortifications of the skull, as also put to other Medicins for a
vehicle.

There is this difference between the deftilling of Wine and Vinegar; Wine being of an airy
and vaporous fubftance, that which is the beft and moft effectual in it, to wit, the airy and fery liquor,
comes from it prefersly at the firft deftillation. Therefore the residue that remains in the bottom
of the veflel, it is of a cold day and aerial nature; on the contrary, the Water that comes flirm from
Vinegar, being deftilled, is infipid and logmatick. For Vinegar is made by the corruption of Wine,
and the figgregation of the fery and airy parts; wherefore the Wine being fowre, there remains no-
thing of the former fubftance but phlegm; whereas fifting phlegm is chiefly predominant in Vine-
gar, it firft rife in deftillation. Wherefore he that hopes to deftil the Spirit of Vinegar, he muff car
away the phlegmatick fubftance, that firft rife that firft rife, and when by this rife he fhall per-
ceive the Spirit of Vinegar, he fhall keep the fire thereunder until the flowing liquor fhall become
as thick as honey, then muff the fire be taken away, otherwife the burning of it will cause a great flink.

The Veflels fit to deftil Aqua Vitae and Vinegar are divers, as Alemblide and Retort fet in Sand or
Athes; a Copper or Brass bottom of a Still, with a head thereto, having a Pipe coming forth thereof which
Of the manner of Rectifying, that is, how to increase the strength of Waters that have been once distilled.

To rectify the Waters that have been distilled in Batane Mariæ, you must set them in the Sun, in glasses well stopped and half filled, being set in Sand to the third part of their height, that the Water waxing hot by the heat of the Sun, may separate 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 distil them again in Batane with a gentle fire, or if you will put them into a Retort furnished with his Receiver, and set them upon Chryystal or Iron bowls, or in an Iron mortar directly opposite to the beams of the Sun, as you may learn by these ensuing signs.

A B C


Another Retort with his Receiver, standing upon Chryystal bowls, just opposite to the Sun-beams.

A B C


CHAP. X.

Of Distillation by filtering.

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 delicate liquor may fall down by drops into the Vessel that stands under it: but the grosser and more procumbent part may subside in the first and second Vessel. You by this means may at the same time distil the same liquor divers times, if you place many Vessels one under another after the fore-mentioned manner, and so put shreds into each of them, so that the lowest Vessel may receive the purer liquor. In head of this distillation Apothecaries often times use Bags.

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 from Lac Virginis, or Virgin milk, of which this is the description. 

\[\text{Litharg. auri diligenter pulveriz.} \quad \text{§ iij. macerentur in aceti boni} \quad \text{§ vj. trium horarum propra} \quad \text{etiam in aqua plantag. filensi, et ceter. seu commun. (di. infundatur),} \]

then distil them both by shreds, then mix the distilled liquors, and you shall have that which for the milky whiteness is termed Virgin Milk; being good against the redness and pimples of the face, as we have noted in our Antidotary.

A B

A Shows the Vessel. B The Cloths or Shreds.

CHAP.
What, and how many ways there are to make Oils.

Oils by Evaporation.

By Infusion.

By Distillation.

Oils of Bayberries.

Of Eggs.

Oil of St. John's Wort.

C H A P. X I.

What Oils are to be drawn by Evaporation.

The first manner of drawing Oils by distillation.

Another way.

What Oils fall to the bottom.

Of Evaporating Oils of Vegetables by Distillation.

A

Of Oils by Evaporation.

By Infusion.

By Distillation.

Oil of Bay berries.

Of Eggs.

Oil of St. John's Wort.

C H A P. X I.

What Oils are to be drawn by Evaporation.

The first manner of drawing Oils by distillation.

Another way.

What Oils fall to the bottom.
Oils are of the same faculties with the bodies from whence they are extracted, but much more effectual: for the force which formerly was diffused in many pounds of this or that Medicin, is after distillation condensed into a few drops. For example, the faculty that was dispers’d over one pound of Ovils, will be contracted into two ounces of oil at the most: and that which was in a pound of Cinamon will be drawn into 3 j. b. or 3 jj. at the most of Oil. But to draw the greater quantity with the lesser charge, and without fear of breaking the Vessels, whereto Glasses are subject, I like that you distil them in Copper Vessels: for you need not fear that the Oil which is distill’d by them will contam an ill quality from the Copper: for the waterish moisture that flows forth together therewith will hinder it, especially if the Copper shall be tinned or silvered over. I have thought good to describe and set before your eyes the whole manner of this operation.

A Furnace with five Vessels to extract the Chemical Oils, or Spirits of Sage, Rosemary, Ymes, Lavender, Aniseed, Fennel seeds, Clove, Nutmeg, Cinnamon, Pepper, Ginger, and the like: for if you distil the Spirit of Wine, of Virgin and Ava Vitis. Instead of the Barrel and Worm, you may use a head with a bucket or vessel about it.

A Steams the bottom, which ought to be of Copper and turned over twice a day.
B The Head.
C The Barrell filled with cold water to refrigerate and condense the Water and Oil that runs through the Pipe or Worm that is put through it.
D A Pipe of Brass or Lantern, or rather a Worm of Tin running through the Barrell.
E The Alembick sit in the Furnace with the fire under it.

Now because we have made mention of Cinnamon, the Deodar Pepper, and other Spices which grow not here with Son of Pepper, I have thought good to describe their use out of Thevzer’s Cosmography, by having seen them growing. Pepper grows upon Shrubs in India, these Shrubs send forth little branches wherein hang clusters of Berries, like to Ivy-berries, or bunches of small black Grapes or Currans: the leaves are like those of the Citron-tree, but sharper and prickling.

The Indians gather those Berries with great diligence, and throw them up in large Cellars, as soon as they come to perfect maturity. Wherefore it oft-times happens that there are more than 2000 ships upon the Coast of the Island, an Island of that Country, to carry thence Pepper and other Spices. Pepper is used in Antidotes against Poisons, it provokes urin, digests, attracts, resolves, and cures the bites of Serpents. It is properly applied and taken inwardly against a cold stomach: in Sauces it helps concoction and procures appetite: you must make choice of such as is black, heavy, and not flaccid. The Trees which bear white, and those that bear black 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 black and white Grapes.

The Tree that yields Cinnamon grows in the Mountains of India, and hath leaves very like Bay-leaves: branches and shoots at certain times of the year are cut from this Tree, by the appointment of the King of that Province, the Bank 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 thereof. Galen writes that Cinnamon is of very subtle parts, hot in the third degree, and partaking of some affections: therefore it cures and diffolves the excrement of the body, strengthens the parts, provokes the Courtes when they flay by reason of the admixture of gross humours: it sweetens the breath, and yields a fine taste and smell to Medicin, Hippocrates, and Sauces. Of Cinnamon there is made an excellent Water against all cold Diseases, and also against Swolnngs, the Plague, and Poxes. The composition thereof is this: Take of the choicest and best Cinnamon one pound, beat it gritty, and put thereto of Rose water four pints, of white wine half a pint; being thus mixed, put them into a Glass, and let them stand in infusion 24 hours, often stirring of them. Then distil them in Balsam Water, and yield a tincture and yields a tincture and smell to Medicin, Hippocras, and Sauces.

Another manner how to draw the Essences and Spirits of Herbs, Flowers, Seeds, and Spices, as also of Rhubarb, Agarick, Turmeric, Hermodatyls, and other Pungers.

You may extract the Effences and Spirits of the things mentioned in the title of this Chapter, as thus: Take Sugar, Rhubarb, Cinnamon, or any other Material you please, cut it small, or cleft it, then put it into a Glass with a long neck, and pour distillation as much Aqua vitæ as shall be sufficient to cover the Material and Ingredients, and to over-top them some fingers breadth, then stop up the Glass very close, that no air enter therein: Thus suffer it to infuse for eight days in Balsam, with a very gentle heat, for thus the Aqua vitæ will extract the faculties of the Ingredients.

CHAP. XIII.

Another manner how to draw the Essences and Spirits of Herbs, Flowers, Seeds, and Spices, as also of Rhubarb, Agarick, Turmeric, Hermodatyls, and other Pungers.
A sign that the spirit of Wine hath fetched out the strength of the ingredients.

A sign that the ingredients have left their strength.

The differences of Gums.

Of Gums, some are liquid, some solid; and of the solid, some are more solid than other; some that are solid are more troublesome to distil than the liquid, for they are not so easily diffused or melted, neither do they yield so well to the fire, so that oft-times they are burnt before they be dissolved; whence it is that some for every pound of solid Gum, add two or three pounds of most clear and liquid Oil of Turpentine.

Cautions in distilling of Gums.

Oil of Rum 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 remain empty, and then place the Retort in an earthen Pan filled with ashes; then put into the Retort, especially if it be that the fire be too hot at the first, many to obviate this inconvenience, add to the things put into the Retort, some Sand, as it were to ballast it withal.

How to make Oil of Turpentine.

How to make Oil of Wax.

The faculties thereof.

Of Gums, some are liquid, some solid; and of the solid, some are more solid than other; some that are solid are more troublesome to distil than the liquid, for they are not so easily diffused or melted, neither do they yield so well to the fire, so that oft-times they are burnt before they be dissolved; whence it is that some for every pound of solid Gum, add two or three pounds of most clear and liquid Oil of Turpentine.

Besides, liquid things are also hard to be distilled, because when as they come to be through-hot at the fire, they swell up so much, that they exceed, or run out of the Retort, and so fall into the Receiver, as they were put into the Retort, especially if the fire be too hot at the first. Many to obviate this inconvenience, add to the things put into the Retort, some Sand, as it were to ballast it withal.

Oil of Rum 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 remain empty, and then place the Retort in an earthen Pan filled with fitted ashes, and set it upon the Furnace as is fit, and to the neck thereof fit and clothe a Receiver. Lastly, kindle thereunder a foot fire at the first, lest the contained materials should run over; increase this fire by little and little, and take heed that the things become not too hot on a sudden. At the first a clear and acid liquor will drop out, wherein a certain sediment sits to concrete; then will flow forth a most clear oil, somewhat resembling the wax and phlegmatic liquor: then must the fire be somewhat increased, that the third oil, clear, thin, and very golden coloured liquor may rise and distil: but then also a quicker and more violent fire must be raised, that so you may extract an Oil, that will be red like a Carbooncule, 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 so by distilling them again afterwards you may separate your desired Oil, now there will ten or twelve ounces of Oil flow from a pound of Turpentine. This kind of Oil is effectual against the Palsy, Convulsions, Pains of the Nerves, and wounds of all the nervous parts.

How to make Oil of Wax.

But you shall thus extract Oil out of Wax: Take one pound of Wax, melt it, and put it into a Glass Retort fit in a Pan or ashes, as we mentioned a little before in drawing Oil of Turpentine, then distil it, by increasing the fire by degrees. There distills nothing worth of Wax, besides an oily substance and a little Phlegmus, yet portion of this oily substance presently concretes into a certain butter-like matter, which therefore would be distilled over again: you may draw it vj. or vij. of Oil from one pound of Wax. This Oil is effectual against Contusions, and also very good against cold afects.

C H A P.

Of Distillations. Book XXVII.

A sign that the spirit of Wine hath fetched out the strength of the ingredients.

A sign that the ingredients have left their strength.

The differences of Gums.

Of Gums, some are liquid, some solid; and of the solid, some are more solid than other; some that are solid are more troublesome to distil than the liquid, for they are not so easily diffused or melted, neither do they yield so well to the fire, so that oft-times they are burnt before they be dissolved; whence it is that some for every pound of solid Gum, add two or three pounds of most clear and liquid Oil of Turpentine.

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C H A P.
Of extracting Oils out of the harder sorts of Gums, as Myrrh, Myrtle, Frankincense, and the like.

Some there be who extract these kinds of Oils with the Retort set in Ashes or Sand, as we mentioned in the former Chapter, Of Oils of more liquid Gums, adding for every pound of Gum two points of Aqua Vite, and two or three ounces of Oil of Turpentine, then let them infuse for eight or ten days in Balneis Mares, or cell in Horse dung; then let it to distil in a Retort. Now this is the true manner of making Oils of Myrrh. Take Myrrh made into fine Powder, and there-where withfullhard Eggs in stead of their Yolks, being taken out; then place the Eggs upon a Gridiron, or such like Grate, in some moist place, as a Cellar, and set under them a Lead-earthen pan; the Myrrh will dissolve into an oily water, which being presently put into a Glass and well stopped, with an equal quantity of refined Aqua Vite, and so let for three or four months in hot Horse dung, which past, the veal shall be taken forth, and fo stopp'd that the contained liquor may be poured into an Almbick, for there will certain grofs setting by this means remain in the bottom, then let your Almbick in Balnei, and so draw off the Aqua Vite and phlegmackie liquors, and there will remain in the bottom, a pure and clear Oil, whereunto you may give a curious colour by mixing there-where with some Alkaret, and a smell by dropping therein a little Oil of Sage, Camanor, or Cloves.

Now let us shew the Composition and manner of making of Balmanes, by giving you one or two examples; the first of which is taken out of Pythagoras his Surgery, and is this,


The manner of making it thus: Let all these things be beaten and made fine, and so infus'd for three days in Aqua Vite, then distil'd in a Retort, just as we said you must distil Oil of Turpentine and Wax. There will flow hence three forms of Liquors: the first watery and clear, the others thin and of pure golden colour, the third of the colour of a Carbuncle, which is the true Balsam. The first liquor is effectual against the weaknesses of the thorax, coming of a cold cause, for that it softens phlegm and difficults hardenices; the second helps frotth and hot bleeding wounds, as also the Falters; the third is chiefly effectual against their same effects. The composition of the following Batamentum is out of Pythagoras, and is this.


Let them all be put into a Glass Retort, let in ashes and so distil'd. First there will come forth a clear water, then presently after a redheth Oil, most profitable for wounds.

Now you must know that by this means we may easily distil all Axungiaes, Fats, parts of Creatures, Woods, all kinds of Berks and Seeds, if so be that they be first macerated as they ought to be, yet to that there will come forth more water than oily humidity. Now for that we formerly mentioned Thymi or Frankincense, I have here thought good out of Tertuili Codinography to give you the Description of the Tree from which it flows. The Frankincence Tree (faith he) grows naturally in Arabia, refembling a Pine, yielding a moisture that is presently harden'd, and it concretes into whitish clear grains, fatty within, which call into the fire, take flame. Now Frankincence resembles a Pine, yielding a moisture that is presently harden'd, and it

Of extracing Oil out of the harder sorts of Gums, as Myrrh, Myrtle, Frankincense, and the like.

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Marcellian faith, that it being mixed with Fullers-earth, and oil of Roses, is a singular remedy against the inflammation of the Breasts of Women lately delivered of child.
Now for the Receiver there are two things to be observed. The first is, that it be great and broken by the abundant flowing of vaporous spirits, as it doth oft-times happen; another thing is, that you set it in a vessel filled with cold water, lest it should be broken by being over-hot; you may easily perceive all this by this Figure.

A 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 Diseased.

Edicins and Medicinal meats fit for the case of Diseased, are taken from living Creatures, Plants, and Minerals. From living Creatures are taken, 

Hert, Hofs, Hares, Beathers, 
Sheff, Snares, Seaters, Sweets, Skins, Patt, Flogh, Blaud, Enrulis, Urin, Bone, Extreame parts, 
Hert, Liver, Lunges, Brain, Womb, Semen, etc., etc., Bladder, Spira, Tail, Coats of the Ferevices, 


Smells whether they be Samsung or sweet, as also Perfoms: whole Creatures themselves: as, 

Liniments, Embrocations, Fomentations, Epithemes, Attractives, Refiwers, Suppuratives, Em.

From Plants, that is, Trees, Shrubs, and Herbs, are taken; 

Root, Muff, Fish, Seeds, Roots, 

Leaves, Flowers, Cops, Fibers, or hairy threads, Ear, Stalk, Wood, Must, Fruits, Oils, Gums, 

Butifs, Bittern, Muff or Spaffment, Manua, which falling down like Dew upon Plants perfectly con.

M

Now the kinds of Stones are.

Flints, 

Lapis 

Lapis Lyncis, 

the Fumice, 

or Metals, etc. The kinds of Earth are, 

cretes. Whole Plants, as &c. 

Now from the Waters, as the Sea, Riwers, Lakes, and Fountains, and the mud that arises from thefe i as the 

Scales, 

Gold, Silver, Iron, Lead, Tin, Brass, Copper, Steel, Lattin, and fuch as arise from thofe, as the 

Salt of tartar, 

Common Salt, 

of Vrin, 

as well Natural as Artificial are, 

Whelps, Hedg-hogs, Frogs, Worms, Crabs, Cray-fijhes, Scorpions, Horfleeches, Swallows, Dungs.

Marchafite, Antimony, Mufcovy-glaf, truly, Arfnick, Orpiment, Lazure, or 

or Burrace, 

Bitumen, Naptha, Cinnabaris, 

or Vermilion'. Litharge of Gold, Litharge of Silver, 

does, 

Spunge-fiones, Diamonds, Safifihire, Chryfolite, toface, Load-stone, the 

Hematites, Amiantus, Galadites, 

and many other precious Stones. The kinds of Salts 

Pyrites 

or Fire-fione, Alabafter, Marble, Cryfl-al, 

of thefe Waters, are taken divers Medicins, 

Com/, 

Pe^rr/r, and infinite other things 

Common Alum, 

Alumen ftile, 

Green Coperas, 

Blue, Rofe-agar, Brimjione, $ick^silver. White Coperas, ChalcitU, Ffory, Roman Vitriol, Colcother, Vitriol or 

bowels thereof a great multitude of Remedies prefent themfelves to your view. The choice of all 

which is taken from their fubftance, or quantity, 

&c. Now from the Waters, as the Sea, 

and fuch like. 

ces, Ale, Beer, Vinegar, Verjuice, OH, Steeled Water, Water brewed with Bread-crums, Hippocras, Ferry, 

shews the Fornace. 

A Fornacs or B-everberationfurnijhedwHhhif FetoYt and Receiver' 

XVII. 

CHAP. 

Book
Other Distillations are made either in Cellars by the coldness or moistness of the place, the things being laid either upon a Marble, or else changed in a Bag; and thus is made Oil of Tartar, and of Salts, and other things of an amnious nature.

Bones must be distilled by debent, or by the joining together of Vejellas. All Woods, Roots, Bark, Shells of Fishes, and Seeds or Grains, as of Corn, Beesw, Beans, and other things whose juice cannot be got out by expression, must be distilled by debent, or by the joining together of Vejellas in a Reverberatory Furnace.

Metals calcined and having acquired the Nature of Salt, ought to be dissolved and filtered, and then evaporated till they be dry; then let them be diffolved in diffilled Vinegar, and then evaporated and dried again; for to they will easily distil in a Cellar upon a Marble or in a Bag. Or else by putting them into a glasse Retort, and setting it in Sand, and giving Fire thereto by degrees, until all the waxy humour be distilled; then change the Receivers, and late another close to the Retort, then increase the Fire above and below, and thus there will flow forth an Oil very red coloured. Thus are all Metallic things distilled, as Alums, Salts, &c.

Gums, Druggs, and generally all Rubes, are distilled by a Retort set in an earthen Vejell filled with Alken upon a Furnace; now the fire must be increased by little and little according to the different condition of the distilled matters.

A Catalogue of the Surgeons Instruments mentioned in this whole Work.

Of Distillations.

The Vessels and Instruments serving for Distillation are commonly thefe.

Ornaments of Alminike. The bands of them, from whence the liquors drop. Refrigeratories. Vejellas for sublimation. For veneration. For distilling by debent. Crucibles and another kinds. Vejellas for Caltification. Hair-brainers, Bags, Earthen Flattens. Vejellas for circulation, as Pelicans, Earthen Flattens for filling, Furnaces, the secret furnaces of Philosophers, the Phosphorus Egg. Cucurbitae Retorts. Bolt-holes, Organs, Receivers. Vejella is fitted together that the innermost, which is the mouth of the uppermost, whence they may be termed conjoint Vejellas: they are used in distilling per descensionis. Mallei requirably founds for distillations to be made in Cellars. Pins to diffuse calcined Metals in.

A Catalogue of the Surgeons Instruments mentioned in this whole Work.

A vent, or cooler for the vands made like a Pijsey. Helen Tenks. Sundry Caneses, at flat, round, sharp-pointed, cutting, &c. Conspiratories rings to twist and bend the Calomel. Speculum Cric. Ocul. Aur. Uteri. A Trunk or PIPE with an annal Canere in it. Crooked Knifes. A Pipe in form of a Divers. Trunks, with one or more butlers. A hunter-band to be put about the neck, to hold up a Trunk. A Dollar to drive through a golden Plugs, &c. Pipes with feathers, and Neddles fit for futures. Cutting Mallets. Mallets mostly to hold and not to cut. Malletts to take forth filasters of bone. Malletts to draw Teeth. An Incision knife. Scrapers to plain or smooth the bone, or else to cut them. Cutting or hollow Scrapers. A leaden Mallet to drive the Scrapers or Clavixt into the fault. A Gimblet in forge and ufe, refembling that which Carpenters use to lift up the finke vases of their oaks withall. Levatories of which kind U the three-footed one. Old Lazaretts, which slung up by handlel handl, and their tournes being put under the depothe bone, left them up. Sore. A Defquamatory Trunck, Places to take forth filasters of bone. A Gimblet to perform the skull. A Trypan to fit to the skull, with the Serve, Fists, or Frizzles, Breas, and Cover or Cap, that helps it from running in too far. A Plate to set one foot of the Compass upon. A cutting pair of Compasses both open and fast, an instrument to deprave the Dura Mater without hurting thereof. A Syringe to make injection without. A pair of Pinces with holes through them to take up the ski for making a Sutis. Scissors as well open as well shut, to cut with, &c. The bandy of Crowns, Parrots, Spoons, Dunks, Lazerde, Crane, are either crooked, crooked, straight, or smooth. Cate-bulliters, and Pinces to draw forth pieces of meat, and filasters of bone that is deep in. Hollow and Junonest Dilasters diversly made for the different wounds of the parts. Prober fit for to put flammate into wounds, and thses are other-fustain or crooked, perfomet or not perfomet. Seced Malletts to draw forth bored holes in bones, and the like. Lancets to let blood, and Car contemplating, as well flesh or crooked. A Pignach, or Matter-drawer. Ligatures, Bands, Swatter, Change of Leather, Woolen, Linnen, round, flat, round together. Again times are upper binders, other under-bounders. Again, thites are either expresser in or kept containing, and that other the applied Mallets, or the limbs of wounds, or members put in a fit position, which therefore they call a Sutis. Ligature. Thred, Bottoms or Clews of Thread or Yarn. Pilfers, Pincresse, Cottons, Bellers, doubled Cloathes, Fernile, or Splints. Cofers, Boxes, Drums, Glassbotteries. Amnus, a kind of Glassbottery. A Pignach with six wheels, and wooden, and iron Pinf whereby the wheels may run. Ropers as well to draw and extend, as hold up the member, &c. Stemm-pins, A Handsewe. Hooks, Bottoms or Stays to fasten to the skin to hold together the lips of the wounds, Linse clothes, Pillows, Linen Cloths. File, Dentificles, Dentificles, Dentificles, Dentificles, Canes, Guides of the Work. A Bathing Chair or Seat, Bathing Tubs, Half Tubs, Calidrons, Exalets, with all other circumstances belonging to a Bath. Stones, or Hot-bowers to frit in. Cook to turn and let out Water. A Gimblet to break the Stone. Hooks, Hollow Probes fit on the upper sides. Winged Instruments to draw fur in parts. An instrument to change the Blood. Splanlaxes straight and crooked. Cupping-glassers, Horns, Pipes, or Canester to wear Caninette. Artificial members, as Eyes of Gold enamelled, &c. An Utensil or Canister to take the water in. An Artificial Turck, Crustac, Nipples, or Leden Covers for fire Breeds. Griffins Talons to draw forth a Mola out of the Womb. A Stucking Gismo jo draw a Birth withall. Pijseyers both long and ule. Syringes to give Glisteris, or else to make injection into the Ears and Womb.
The Effigies of Hippocrates of Coos, the Prince of Physicians.

In victum, Hippocrates, quod te potuere superbe
Eo nam quam fletere Regis opes,
Cecropide fronti ex auro fulgente coronam
Promeriti memores imposueri tuae.
Gratia sed levis est, Atelis tantus Athenis
Nec fuit hinc uni quam tibi partus bonos.
Nam quod que recreent languentia corpora morbo
P.eonia fuitis promere largus opes?
Sed tua tam fundit, quam magni machina Mundi
Gratia, & insignis tam tua fama volat.

Select Aphorisms concerning Surgery,
Collected out of the Aphorisms of the
Great Hippocrates.

Aphor. 7. W hicsoever being suppurrate or hydropeal, are burnt, or cut therefore, if all the materials or Water flow forth at once, they certainly die. 8. The drinking of Wine, or a Bath, Fomentation, Blood-letting, or Purging, help the pains of the Eyes. 9. Such as have hidden, or not ulcerated Cancers, had better not to cure them. For healed, they quickly die; not cured, they live the longer. 10. Gravy pain usually is in the Spring and Fall. 11. Eumuchs are not troubled with the Gout, neither do they become bald. 12. Whoever are troubled with the Gout, have cafe in forty days, the inflammation ceasing. 13. In great and dangerous Wounds, if no swelling appear, it is ill. 14. Soft tumours are good, but crude ones ill. 15. For an Enfylas, inflammation to return from without inwards, it is not good; but to come from within outwards, is very good. 16. An Enfylas coming upon the bearing of a bone, is evil. 17. Putrefaction or suppuration coming upon an Enfylas, is ill. 18. If Varices or Herniorrhoids happen to such as are aged, their madness ceases. 19. A flux of blood ensuing upon a great putrefaction in ulcers, is ill. 20. It is a better that a Fever happen upon a Convulsion, than a Convulsion upon a Fever. 21. Throfe Ulcers that have the skin smooth or thinning about them, are evil. 22. The Wound is deadly whereby the Bladder, Brain, Heart, Midriff, or any of the small Guts, Stomach, or Liver are hurt. 23. Whatever Ulcers are of a years continuance or more, the bone must necessarily scale, and the scars become hollow. 24. The bone being affected, if the flesh be livid, it is ill. 25. Stupidity and lack of Reason upon a blow on the Head, is evil. 26. A Delirium happens if a bone (to wit, the skull) be cut even to the hollowness thereof. 27. Whilst Pus or matter is in generating, Pains and F evers happen rather than when it is already made. 28. Cold things are hurtful to the Bones, Teeth, Nerves, Brain, Spinal Marrow: but hot things are good. 29. Two Pains inflicting together, but not the fame place, the more vehement obliterates the other. 30. A corruption, an Abscess of the bone is caused by the corruption of the flesh. 31. Cancers, present a livid or drie Ulcers, or yellowish, is deadly. 32. When as a Bone, or Gristle, or Nerve, or small portion of the Cheek, or the Prepuce is cut asunder, it neither increases, nor grows together. 33. If any of the small guts be cut, it knits not again. 34. Those that have the Brain sphenelate, that is, corrupt, they die within three days: if they escape these, they recover. 35. Bleeding at a wound causing a Convulsion, is the fore-teller of death. 36. Cold is biting to Ulcers, hardens the skin, causes pain, not easily coming to suppuration, blackness, again thinning, convulsions, cramps. 37. Those who have the Temples cut, have a convulsion upon the parts contrary to the Section. 38. Whicsoever being suppurrate are burnt or cut, if pure and white quittance shall flow forth, they escape: but if that which is bloody, excudent, and fissioning, then they die. 39. It is not fit to raise in hand to cure such as are in a desperate case, but to leave them, one foretelling the end of the disease. 40. It is better to trie a doubtful remedy than none at all.
The Effigies of Galen the Prince of Physicians
next to Hippocrates.

Æ quon erat Hippocratem divino è semine Divum
Orbe muneribus conciliare sibi:
Scripta sed involvitur tam multo enigmate, verum
Ut quamvis solus nullus habere queat;
Pergamei auxilio nisi sint monumenta Galeni,
Qui doctà ambages suèdit Arte senis;
Ergò mætyle est virtute, arcaea resolvens,
Quæ nulli fuerant notas, Galene; prius;
Obstringensque orbem æterno tibi munere totum,
Æternis sacras te quoque temporibus.

Rules of Surgery by the Author.

1. Practice is an Operation agreeable to the Rules and Laws of the Theory.
2. Health is not received by Words, but by Remedies duly used.
3. Remedies known and approved by Use and Reckon, are to be preferred before such as are unknown, or but lately found out.
4. Science without Experience gets the Physician no great credit with the Patient.
5. He that would perform any great and notable Work, must diligently apply himself to the knowledge of his Subject.
6. It is the part of a good Physician to heal the Diseased, or certainly to bring it to a better pass, as Nature shall give leave.
7. The Surgeon must be active, industrious, and well-handed, and not trust too much to Books.
8. He that hath not been versed in the operations of the Art, nor a frequent auditor of the Lectures of such as are learned therein, and felt forth himself for a brave Surgeon, 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 Surgery by Gold, not by Life.
10. You shall comfort the Patient with hope of Recovery, even when as there is danger of death.
11. To change Physicians and Surgeons is troublesome, but not good for the Patient.
12. Though the Diseased prove long, yet it is not fit that the Physician 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 Diseased must be known, so also must the remedy.
16. An Abscess of the bone of the Palate, is in danger to cause a flaming breath.
17. Bleeding cau'd by heat, must be reprieved by cold.
18. Wounds of nervous parts require Medicines which by the facility of the parts may enter in and draw from far.
19. It is not fit for such as have Ulcers in their Legs, either to walk, stand or sit, but to rest themselves in bed.
20. All burning and acrid Medicines are offensive to clean Ulcers.
21. For relieving of dislocations you must hold them both, stretch them out, and set them in.
22. A great Gangrene admits no cure but cutting.
23. A monster is a thing diffentering from the Laws of Nature.
24. Wounds of the Cheek presently become famous and purulent.
25. The wounds made by all venomous Creatures are dangerous.
26. The South wind blowing, wounded members easily become mortified.
27. Such as are wounded, and desire to be quickly whole, must keep a spare diet.
28. Untemperate bodies do not easily recover of diseases.
29. Round Ulcers, unless they be drawn into another figure, do not easily heal up.
30. An Erysipelas Ulcer requires purgation by Blood.
31. Crying is good for an Infant, for it serves in stead of exercise and evacuation.
32. Grief is good for those but such as are very hot.
33. Idleness weakens and extinguisheth the native heat.
34. An ill-natured Ulcer yields not, unless to a powerful Remedy.
35. A Bath resolves and dissolves humours, and gently procures sweat.
36. Cold diseases are troublesome to cold people, and hard to be helped; but in young bodies they are neither so troublesome, nor consumptive.
37. Extirpated Bodies are left subject to Diseases.
38. Moist Bodies though they need small nourishment, yet stand they in need of large evacuation.
39. Sick people die sooner of a hot distemper than of a cold, by reason of the quick and active operation of Fire.
40. The quittance that flows from an ulcer is laudable, which is white, smooth and equal.

The End of the Seven and Twentieth Book.
How to make Reports, and to Embalm the Dead.

What judgment is difficult.

Wounds termed great for three respects.

How long a surgeon must suspend his judgment in some cases.

General signs whereby we judge of Diseases.

Wounds deadly by the fault of the air.

Signs of a fractured skull.

Wounds caused by the fault of the surgeon.
widened therefrom, it yield a base and unperfect found like unto a pot-pot that is broken, or rather like to an earthen Pitcher that hath a cleft, or rent therein.

But we may say, that death shall be the hand if the Reason and Understanding fail him, if he be speechless, if his right forklike he, if he would tumble headlong out of his bed, being not at all able to remove the other parts of his body: if he have a continual Fever, if his tongue be black with dirt, if the edges of the wound be black or dry, and call forth no furious matter, if they resemble the colour of dried thistle, if he have an Apoplexy, Phrenlie, Convulsion or Palpie, with an involuntary excretion, or absolute supputation of the Urine and Excretions. You may know that a man hath his throat that is, his weapon and wind-pipe cut: First by the sight of his wound, and next by the abatement of the function or office thereof both ways, for the Patient can neither speak nor swallow any meat or drink; and the parts that are cut affred, divide themselves by attraction upwards or downwards, one from another, wherever cleftly sudden or present death. You may know that a Wound hath pierced into the breath or concavity of the body, if the air come forth at the wound making a certain hissing noise, if the Patient breath with great difficulty, if he feel a great heaviness on or about the midriff, whereby it may be gathered that a great quantity of blood beeth upon the place or midriff, and so causeth him to feel a weight or heaviness, which by little and little, will be call up by vomiting. But a little after a Fever cometh, and the breath is unsavoury and thinking, by reason that the purifying blood is turned into species; the Patient cannot lie but on his back, and he hath an often desire to vomit, but if the escape death, his wound will degenerate into a Fissure, and at length will consume him by little and little.

We may know that the Lungs are wounded by the foaming and spumous blood coming out both at the wound, and call up by vomiting: his voice is vexed with a grievous shorrness of breath, and with pain in his sides. We may perceive the Heart to be wounded by the abundance of blood that cometh out of the wound, by the trembling of all the whole body, by the faint and small pulse, paleness of the face, and cold sweat, with often vomiting, coldness of the extreme parts, and sudden death.

When the Midriff (which the Latins call Diaphragma) is wounded, the Patient feeleth a great pain in that place, he raves and talketh idly, he is troubled with thoughts of wind, a cough, and fit of grievous pain, and drawing of the intrails upwards. Wherefore when all these accidents appear, you may more certainly pronounce that death is at hand.

Death appeareth suddenly, by a wound of the hollow Vein, 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 stopped and hindered.

The Morrow of the back-bone being pierced, the Patient is filled with a Palpie or Convulsion, very suddenly, and force and motion faileth in the parts beneath it, the excrements of the bladder are narrow, either evacuated against the Patients will, or else are altogether stopped.

When the Liver is wounded much blood cometh out at the wound, and pricking pain differeth it. The Liver, fell even unto the sword-like gristle, which hath its situation at the lower end of the breast-bone called Sterna: the blood that followeth from thence down into the intestines doth oft-times infect malignant accidents, yea, and sometimes death.

When the Stomach is wounded, the meat and drink come out at the wound, there followeth a vomiting of purging choleric, then cometh sweating and coldness of the extreme parts, and therefore we ought to presently give diet to such a wound.

When the Mitt or Splen is wounded, black and grofs blood cometh out at the wound, the Patient will be very thirsty, with pain on the left side, and the blood breaks forth into the belly, and these puring caufeth much malign and grievous accidents, and oftentimes death to follow.

When the guts are wounded, the whole body is griped and pained, and the excrements come out at the wound, whereas albeit the guts break forth with great violence.

When the Reins or Kidneys are wounded the Patient will have great pain in making his Urin, and the kidneys, the blood cometh out together therewith, the pain cometh down even unto the Groin, and Yard, and Thighs.

When the Bladder and Uterus are wounded, the pain goeth even unto the intreals: the parts all the Bladder, about and belonging to the Groin, are distended, the Urine is bloody that is made, and the same also cometh oftentimes out of the wound.

When the Womb is wounded the blood cometh out at the privities, and all other accidents appear like as when the Bladder is wounded.

When the Scaws are prickd or cut half asunder, there is great pain in the affected place, and there the Newer, followeth a sudden Inflammation, Flux, Affeets, Fever, Convulsion, and oftentimes a Gangrene or Mortification of the parts, whereby cometh death, unless it be speedily prevented.

Having declared the signs and tokens of wounded parts, it now remaineth that we set down other signs of certain kinds of death, that are not common, or natural, whereasb ecause there is great and necessity made, it oftentimes is determined and ended by the judgment of the different Physician or Surgeon.

Therefore it is chance that a Nurse either through drunkenness or negligence, lies upon the Infant, lying in bed with her, and so filifies and smotheres it to death: if your judgment be required, whether the Infant died through the defect or negligence of the Nurse, or through some violent or sudden disease that by hidden and lurking in the body thereof, you shall find out the truth of the matter by these following signs.

For if the Infant were in good health before, if he were not froward or crying; if his mouth and nostrils, now being dead, be motioned or breathed with a certain foam; if his face be not pale, but of a violet or purple colour; if the wound be opened the Lungs be found swollen and pulsed up, as we were with a certain vaporous foam, and all other intrails found; it is a token that the Infant was stifled, smothered or frangled by some outward violence.
If the Body or dead Corps 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 signs find out the certainty thereof.

For every body that is slain or stricken with lightning, doth call forth or break out an unwholesome, flaming or fulphurous smell, so that the Birds and Fowl of the air, or Dogs will be driven off or withstood, and the Body will be so much left prey or food upon it: the part that was stricken often times found, and without a wound: but if you touch it well, you shall find the bones under the skin to be bruised, broken or shattered in pieces.

But if the Lightning hath pierced into the body, with making a wound therein (according to the judgment of Pliny) the wounded part is far colder than all the rest of the body. For lightning driveth the mott thin and fiery air before it, and stricken it into the body with great violence, by the force whereof the heat that was in the part is soon diffipated, wasted, and consumed. Lightning doth always leave some impression or sign of some Fire either by sullion or blackness: for no Lightning is without Fire.

Moreover whereas all other living Creatures when they are stricken with Lightning, fall on the contrary side, only man falleth on the affected side, if he be not turned with violence toward the coalt or region from whence the lightning came.

If a man be stricken with Lightning while he is asleep, he will be found with eyes open: contrariwise, if he be stricken while he is awake, his eyes will be clofed, as Pliny writeth. Philip Commines writeth that tho Bodies that are stricken with lightning, are not subject to corruption as others are.

Therefore in ancient time it was their custom neither to burn nor bury them: for the breath to which the Lightning brings with it, was unto them in stead of Salt, for that by the dines and they herefore it did preserve them from putrefadion.

Alfo it may be inspected in judgment, Whether any that is dead and wounded, received the wounds alive or dead. Truly the wounds that are made of a living man, if he die of them, after his death will appear red and bloudy, with the sides or edges swollen, or pale round about: contrariwise, tho’ they be made in a dead man, will be neither red, bloody, swollen nor puffed up. For all the faculties and functions of life in the body do cease and fall togethw by death: so that therefore no spirits nor blood can be fent, or flow into the wounded place. Therefore by these signs which fhall appear, it may be declared that he was wounded dead or alive.

The like queftion may come in judgment. Whether a body that is found hung, whether he were dead or alive. Therefore if he were hanged alive, the impression or print of the rope will appear red, pale, or black, and the skin round about it will be contracted or wrinkled, by reafon of the competition which the cord hath made: alfo oftentimes the head of the affected arteria is rent and torn, and the second spondyl, and the neck luxated or moved out of his place. Also the arms and legs will be pale by reason of the violent and sudden fuffocation of the spirits: moreover there will be a foam about his mouth, and a foamy and filthy matter hanging out of his nostrils, being fent thither both by reafon that the Lungs are suddenly heated and fuffocated, as alfo by the convulsion and concussion of the brain, like as it were in the Falling-ficknefs.

Contrariwise, if he be hanged dead, none of these signs appear: for neither the print of the rope appears red or pale, but of the fame colour as the other parts of the body are, because in dead men the blood and spirits do not flow to the grievous parts.

Whoeuer it is found dead in the Waters, you fhall know whether they were thrown into the Water alive or dead. For all the belly of him that was thrown in alive will be swollen and puffed up by reason of the water that is contained therein; certain clammy excrements come out at his mouth and nostrils, the ends of his fingers will be worn and excoriated, becaufe that he died striving and digging or grasping in the fand or bottom of the River, feeling somewhat whereon he might take hold to fave himfelf from drowning.

Contrariwise, if he be thrown into the Waters, being dead before, his belly will not be swollen, becaufe that in a dead man all his parts and congealed, and the head is found without the water, and the extremities of his body do fall together, and are ftopped and clofed, and for that a dead man breathes not, there appear no foam nor filthy matter about his mouth and nose, and much lefs can the tops of his fingers be seen and excoriated, for when a man is already dead, he cannot strive against death.

But as concerning the bodies of tho’ that are drowned, tho’ that swim on the upper part of the Water being swollen or puffed up, they are not so by reason of the water that is contained in the belly, but by reafon of a certain vapour, into which a great portion of the humors of the body are converted by the efficacy of the patureheating. Therefore this swelling appeareth not in all men which do perish, or else are cast out dead into the Waters, but only in them which are corrupted with the ghastliness or muddiness of the Water, long time after they were drowned, and calt on the shore.

But now I will declare the accidents that come to tho’ that are fuffocated and stifled or smothered with the vapour of kindled or burning Charcoals, and how you may fore-tell the certainty thereof. In the year of our Lord God 1175: the tenth day of May, my self with Robert Glesnile Doctor of Physick, was sent for by Mr. Hamel, an Advocate of the Court of Parliament at Paris, to fee and fhow my opinion on two of his servants, of whom the one was his Clerk, and the other his Horse-keeper. All his Family fuppofed them dead, becaufe they could not perceive or feel their Arteries to beat, all the extreme parts of their bodies were cold, they could neither fpeak nor move, their faces were pale and wan, neither could they be rafled 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 died, for their Matter fuffocated the body hard and strangled them: others thought that each of them had ftopped one another’s wind with their hands: and others judged that they were taken with a sudden Apoplexy. But I preferly
previously enquired, whether there had been any fire made with Coals in the house lately? whereunto their Master giving ear, talked about all the corners of the Chamber, (for the chamber was very little and close) and at last found an earthen pan with Charcoal half-burned; which when we once saw, we all affirmed with one voice, that it was the cause of all this misfortune, and that it was the malicious vapour which had poisoned them, as it was to say, 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 pulsation that I felt, though it were very little, wherefore we thought it convenient to augment and increase it. Therefore first of all artificially opened their mouths, which were very faulched, and fliching obliviously together; and thereinto with both a spoon and also with a silver pipe, we put Aqua vitae once distilled with disordered Hiera and Triaci, when we had injected these Medicines often into their mouths, and filthy humours at their mouths and nostrils, and their Lungs seemed to be hot, as it were in their throats.

Therefore then we gave them venitories of a great quantity of Osymel, and beat them often violently on the left fpondil of the back, and right of the loins, both with the hand and knee (for unto this place the orifice of the stomach is turned) that by the power of the vomitory Medicin and concussion of the thorax, they might be constrained to vomit. Neither did our purpose fail us, for presently they voided clammy, yellow and purulent phlegm and blood.

But we not being contented with all this, blew into their nostrils, out of a Goose-quill, the powder of Empordum, that the expulsive faculty of the brain might be stirred up to the expulsion of that which oppressed it; therefore presently the brain being thicken, or moved with fluxion, and infiltrated therewith by rubbing the Chymical oil of Mints on the Face and the Cheeks, they expelled much viscid and clammy matter at their nostrils.

Then we used Frictions to their arms, legs, and back-bones, and minished sharp Clysters, by whose efficacy the belly being abundantly loosened; they began presently to speak, and to take things that were minished unto them of their own accord, and so came to themselves again. In the doing of all these things, James Guillen Surgeon to the King at Paris, and John of St. Germaine the Apothecary, did much help and further us.

In the Afternoon that the matter began to be well begun, two of the most learned Physicians, John Hauty and Lewis Tylor, both well learned Physicians, were first for unities, with whom we might confer on other things that were to be done. They highly commended all things that we had done already, thought it very convenient that Cordials should be ministered unto them, which by ingendering of laudable humours, might not only generate new spirits, but also attenuate and putrefy those that were cloudy in their bodies. The rest of our consultation was spent in the inquiry of the cause of so dire a misfortune. For they said it was no new or strange thing, that men may be stifled with the fume and cloudy vapour of burning Coals.

And even as those that have an Apoplexy do not die but for want of respiration, yet without of the death of the respiration or breathing was in a manner altogether intercepted, as it were by the exceeding contrary to Nature.

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The occasion of the death of such as have the apoplexy.

and to Embalm the Dead. 683
Lungs, but of the Brain and Nerves distributing sense and motion to the whole body and especially to the instruments of respiration. Others contrariwise contended and said, that there was no default in the Brain, but consisted of the intestation of the vital spirits lettered or hindered from going up to the brain from the heart, by reason that the passages of the Lungs were stopped, to be the occasion that sufficient matter could not be afforded for to preserve and feed the animal spirit. Which was the cause that child young men were in danger of death, for want of respiration, without which there can be no life.

For the heart being in such a case, cannot deliver it self from the fuliginous vapours that encompass it, by reason that the Lungs are obstructed by the grossnefs of the vapour of the Coals, whereby inspiration cannot well be made, for it is made by the compafsing air drawn into our bodies: but the air that compafseth us doth that which Nature endeavoureth to do by inspiration, for it modlateth the heat of the heart, and therefore it ought to be ended with four qualities. The first is, that the quantity that is drawn into the body be sufficient. The second is, that it be cold, or temperate in quality. The third is, that it be of a thin and mean consistence. The fourth is, that it be of a gentle benign substance.

But these four conditions were wanting in the air those two young men drew into their bodies being in a clofe Chamber.

For first it was little in quantity, by reason that small quantity that was contained in that little clofe Chamber, was partly consumed by the fire of coals; no otherwise than the air that is contained in a Cupping-glass is consumed in a moment by the flame of fire as it is kindled.

Furthermore it was neither cold nor temperate, but as it were inflamed with the burning fire of Coals.

Thirdly, It was more gross in consistence than it should be, by reason of the admixture of the grosser vapour of the coals: for the Nature of the air is so that it may be soon altered, and will very quickly receive the forms and impressions of those substances that are about it.

Lastly, it was noisom and hurtful in substance, and altogether offensive to the airy substance of our bodies. For Charcoals are made of green wood burnt in pits under ground, and thus extinguished with their own smoke or fmoak, as all Colliers can tell. These were the opinions of most learned men, although they were not altogether agreed one another, yet both of them declared on their proper reason.

For this at least is manifest, that those passages which are common to the Brain and Brain, and were then stopped with the grossnefs of the vapours of the coals: whereby it appeareth that both these parts were in fault, for as much as the external connection of them with the other parts of the body is so great, that they cannot long abide sound and perfect without their mutual help by reason of the loving and friendly sympathy and affinity that is between all the parts of the body one with another.

Wherefore the ventricles of the Brain, the passages of the Lungs, and the feepy Arteries being stopped, the vital spirit was prohibited from entering into the Brain, and consequently the animal spirit retained and kept in, so that it could not come or disperse itself through the whole body, whence happeneth the defect of two of the faculties necessary for life.

It many times happeneth, and is a question too frequently handled, concerning Women's Maidenheads: whereof the judgment is very difficult. Yet some ancient Women and Midwives will brag of the (igns of many times happeneth, and is a question too frequently handled, concerning Women's Maidenheads some Women more able to accompany with a man at nine years old, than many other at fifteen, the contrary, this, is more contrari, fruit, and narrow in Virgins. But how deceitful and untrue these figns and tokens are, shall appear by that which followeth, for this membrane is a thing preternatural, and which is not to be found in a one of a thousand, from the first conception. Now the neck of the Womb will be more open or frail, according to the bigness and age of the party. For all the parts of the body have a certain mutual proportion and commenfuration in a well made body.

Of the Signs of Virginity.

Jubanmara hath written, that at Lutatia in Gaufins, a Woman was delivered of a child in the nineth year of her age, and that she is yet alive, and called Jean de Parie, wife to Vidius Reche the Receiver of the Amencements 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 years old, than many other at fifteen, by reason of the ample capacity of their womb, and the neck thereof: besides also, this passage is enlarged in many by some accidents, as by thrusting their own fingers more strongly into reason of some itching, or by the putting upon a Nodule or Peltary, of the bigness of a man's Yard, for to bring down the Course. Neither to have milk in their breasts is any certain sign of lost Virginity. of some itching, or by the putting upon a Nodule or Peltary, of the bigness of a man's Yard, for to bring down the Course. Neither to have milk in their breasts is any certain sign of lost Virginity.

Cardan writes, that he knew at Venice one Anthony Buffey, some 30 years old, who had milk in his breast in such plenty, as sufficient to suckle a child, so that it did not only drop but spring out with violence like to a woman's milk. Wherefore let Magistrates beware, let us thus admonished, they too readily assent to the reports of Women. Yet Physicians and Chirugons have a case here: they do too much wonder at the impossibility of the insertion of the vital spirits letted into an error, which will not redound so much to the Judgment of these others.

Cardan writes, that he knew at Venice one Anthony Buffey, some 30 years old, who had milk in his breast in such plenty, as sufficient to suckle a child, so that it did not only drop but spring out with violence like to a woman's milk. Wherefore let Magistrates beware, let us thus admonished, they too readily assent to the reports of Women. Yet Physicians and Chirugons have a case here: they do too much wonder at the impossibility of the insertion of the vital spirits letted into an error, which will not redound so much to the Judgment of these others.
...others. The first president shall be of death to ensure a second of a doubtful judgment of
life and death; the third of an impotency of a member; the fourth of the hurting of many
members.

I a.d. Chirurgeon of Paris, this twentieth day of May, by the command of the Council, entered
into the house of one John Boffry, whom I found lying in bed, wounded on his head, with a wound
in his left temple, piercing the bone with a fracture, and effuption or oppression of the broken bone,
infaete and common into the substance of the brain, by means whereof his pulse was weak, he was
troubled with having convulsions, cold sweat, and his appetite was despatched. Whereby, may be ga-
thered that certain and speedy death is at hand. In witness whereas I have signed this Report with
my own hand.

By the Command I have visited Peter Lucy, whom I found sick in bed, being wounded
with a Halliard on his right thigh. Now the wound was of the breadth of three fingers, and so deep
that it pierces quite through his thigh with the cutting of the veins and arteries, wherein is
much effuion of blood, which hath exceedingly weakened him, and caused him to swoon often,
now all his thigh of twelue liveds, and gives occasion to fear worse symptoms, the cause that
the health and safety of the party is to be doubted of.

By the justices command I entered into the houte of one James Berry, to visit his own brother;
I found him wounded in his right arm, with a wound of some four fingers breadth, with the cutting
of the tendons bending the leg, and of the veins, arteries, and nerves. Wherefore I affirm that he
is in danger of his life, by action of the malignant symptoms that usually happen upon such wounds,
such as are great pain, fever, inflammation, abscess, convulsion, gangrene, and the like. Whereas
I find him in need of provident and careful dressing, by benefit whereof if he escape death, with-
out doubt he will continue lame during the remainder of his life, by reason of the impotency of the
wounded part.

And this I affirm under my hand.

We the Surgeons of Paris, by the command of the Senate, this twentieth day of March, have vis-
ted Master Lewis Portman, whom we found hurt with five wounds. The first inflicted on his head
in the middle of his fore-head bone, to the breadth of three fingers, and it penetrates even to the fe-
cond table; so that we were forced to pluck away three splinters of the same bone. The other was
atwaite right his neck, and reached from his car to the midde of his nose, wherefore we finished
it with four fingers breadth, and then we opened the midde of his belly, by the breadth of two fingers, but so deep
that it ascends into the capacity of the belly, so that we were forced to cut away portion of the Kail
coming out thereat, to the breadth of a Walnut, because having lost its natural colour, it grew black
and putreced. The fourth was upon the back of his left hand, the breadth almoft of four fingers,
with the cutting of the veins, arteries, nerves, and part of the bones of that part whence it is that
out doubt he will continue lame during the remainder of his life, by reaion of the impotency of that
part; whereas it is that he

...will be lame of that hand, howsoever carefully and diligently healed.

Now because by hurting the spinal marrow men become lame sometimes of a leg, it is fit you
know that the spinal marrow descends from the brain like a Rivulet for the distribution of the
nerves, which might distribute cause and motion to all the parts under the head; wherefore if by-
hurtting the spinal marrow the Patients arms or hands are refplved or numb, or wholly without
feene, it is a sign those nerves are hurt which come forth of the fifth, sixth, seventh and eighth
nerves of the neck. But if the same accidents happen to the thigh, leg, or foot with refrigeration, so that the
external flow voluntary, without the Patients knowledge, or else are totally suppressed, it is a
sign that the fivens which proceed from the FORTEB of the veins and holybone are hurt or, in
faults; so that the animal faculty belonging fene and motion upon the whole body, and the benefit
of opening and hurting the sphenoid muscle of the bladder and fundament, cannot flow it in
those parts, by which means sudden death happens, especially if there be difficulty of breathing therewith.

Being to make Report of a Child killed by the Mother, have a care that you make a distinct Re-
port, whether the child were perfect in all the parts and members thereof, that the Judge may equally
punish the author thereof. For he merith far greater punishment, who hath killed a child perfect, than
that is, a certain concretion of the spermatick body. For Mofes

The manner how to Embalm the Dead.

...to Embalm the Dead. A certificate

...of death.

...another in a doubtful case.

...in the left of a member.

...another in the

...harts of divers

...parts.
The care of the Egyptians in the embalming their dead.

The like care of the Ethiopians.

The care of the Egyptians in the building of the Pyramids.

The manner of embalming for long continuance.

The care of Joseph in embalming the dead body of our Lord Jesus Christ.

How to make Reports, &c.

B O O K X X V I I I .

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And this condition of time and place is the cause why the dead bodies of Princes and Kings, though embalmed with Art and cost within the space of six or seven days, in which they are kept to be lieved to the people after their embalming, do cast forth to grieve a front, that more can in
fluence it, so that they are forced to be put in leaden Coffins. For the air which compasseth them groweth so hot by reason of the multitude of people passing to and fro in the houses of nightsight and day, that the small portion of the native heat which remaineth being dissipated by the heat of the room, the fmall portion of the native heat which remaineth being dissipated be heldC in toward their original, bring no less pain than the cantering irons do; And with which, after the section, the flesh is again dilacerated, while he thinks to draw the Vessels.

Galen never durst stitch transverse wounds, (which notwithstanding were low a new Inflammation from the Inflammation a Convulsion, a Symptom, Death; for new and unaccustomed way, absurdly constrain the vein by binding it, there must necessarily follow sum) quam mihi corporem aponeurose denudavit. Addo quod esse debet, nam profunde transfigendo adminis seris, animadvertit major a multipericula ex ipsa vulnerum deligatione quam acu partem sedem, novum quendam deligandi vasa modum, contra veteres omnes medicos, sine ratione, judgmente & experientia, nam profunde transfigendo adminisseris, animadvertit major a multipericula ex ipsa vulnerum deligatione quam acu partem sedem, novum quendam deligandi vasa modum, contra veteres omnes medicos, sine ratione, judgmente & experientia, nam profunde transfigendo adminisseris, animadvertit major a multipericula ex ipsa vulnerum deligatione quam acu partem sedem, novum quendam deligandi vasa modum, contra veteres omnes medicos, sine ratione, judgmente & experientia, nam profunde transfigendo adminisseris, animadvertit major a multipericula ex ipsa vulnerum deligatione quam acu partem sedem, novum quendam deligandi vasa modum, contra veteres omnes medicos, sine ratione, judgmente & experientia.

If any man (hall prick any nervous part, yea the Nerve it self, when he (hall by this

Book XXIX. concerning divers Voyages.

And why the bodies of our Princes, how will never embalmed, corrupt in a few days.
if any one having experienced this new manner of cruelty have escaped danger, he ought to con-
der thanks to Almighty God for ever, through whose goodncfs he hath been freed from such tyrann-
y. 

What sweet words are here, for one who is said to be a wife and learned Doctor ? he remem-
bers not that his white beard admonifieth him, not to speak any thing unworthy of his age, and
that he ought to put off and drive out of him all envy and rancour conceived against his neighbour.
So now I will prove by Authority, Reason and Experience, that the said Veins and Arteries ought

to be tied.

**Authorities.**

*As for Authorities, I will come to that of that worthy man Hippocrates, who wills and com-
mmands the cure of Fistulas in the Fundament by ligature, as well to confirm the cautery, as to
avoid hemorrhagi.*

In the Book of Fistulas of the Fundament, Chap. 3. Book 5. leaf 4.

*Galeni, Treatise 2. chap. 174 in his Method, speaking of a Flux of Blood made by an outward cauze,
of whom here the words, To is (faith he) most sure to tie to the root of the Vessel, which Understood to be
that which is most near to the Liver or the Heart.*

*Avicen, Treatise 3. Doct. 1. chap. 3. commands to tie the Vein and the Artery, after it is discovered
towards his original.*

*Guido de Caution, speaking of the wounds of the Veins and Arteries, injunction the Chirurgeon to
make the ligature in the Vessel.*

*Mater Hostin in the 3. Book, chap. 4. of the matter of Chirurgery, speaking of a flux of blood,
commands expressly to tie the vessel.*

*Calmetheus in 12. chap. of the wounds in the Veins and Arteries, tells a most faire way to lay a
flux of blood by ligature of the Vessel.*

*Celina, Chap. 26. Book 3. from whom the said Physician hath snatched the most part of his Book,
charged expressly, to tie the Vessels in a flux of blood happening to wounds, as a remedy most eafe
and most sure.*

*Vesalius in his Chirurgery, Chap. 4. Book 3. willeth that the Vessel be tied in a flux of blood.*

*John de Vigo, Book 1. Treatise 1. treating of Hemorrhage in bleeding wounds, commands to tie
the Vein and the Artery.*

*Tegettius, Chap. 12. Book 2. treating of the means to lay the flux of blood, commands to pinch
the Vessel or Artery with a Crow or Parrots bill, then to tie it with a very strong thread.*

means to stop it, giveth a fourth way exprely, which is made by ligature of the Vessels.*

*John Andreas de Genio, a Perintius, Book 1. Soll. 3. Chap. 6. Pag. 9. upon the 88 Chapter of the Book of
Paul, makes mention of a method to lay a flux of blood by the ligature of the Vessels.*

*D' Alechamp commands to tie the Veins and Arteries.*

See then (my little good man) the Authorities which command you to tie the Vessels. As for
the Reasons, I will debate of them.

The Hemorrhage (say you) is not so much to be feared in the section of the Kall, as that of the
Varices, and the incision of the temporal Arteries, as after the Amputation of a member. Now
you your self command that in cutting the Varices, the flux of blood be stopped by the ligature of
the Vessels. In the Book 3. Chap. of Angiologe, leaf 176. you command the same in the Book
of Stitches, Chap. 1. speaking of the stitch with the amputation and cicatization of the Kall, changed
by the outward air, fee here your own words; After that must be considered concerning the Kall:
for if there be any part corrupted, putrefied, withered, or blackish; firft having tied, for fear of a
flux of blood, you do not bid afterwards to have it cauterized. But to say the truth, you have your
eyes shut, and all your fenfes dulled, when you would fpeak againft fo sure a method, and that it

Varices, and the incifion of the temporal Arteries, as after the Amputation of a member. Now

the Ancients, you ought not thus to tread it under your feet, and fpeak unluckily or one, who all
his life hath preferred the profit of the Common-wealth before his own particular. It is not more
reasonable to be found upon the faying of Hippocrates, in the Chapter of Burning, Book 3. Leaf
206. upon whose Authority you leave your fell, which is thus. That what the medicamen curent
not, the iron doth ; and what the iron doth not amend, the fire exterminateth : It is a thing which
favours, not of a Chriftian, to fall to burning at the firft death, without laying for any more gentle
remedies. As you your self write in the firft Book, leaf 5. fpeaking of the conditions ^n the Book of
Chirurgeon to cure welU which passages you borrow from fome other place: for that which may
be done gently without fire, is much more commended than otherwife. Is it not a thing which all
Schools hold as a Maxim, that we muft always begin with moft ealie remedies, which we

not fufficient, we muft then come to extreme, following the doctrine of Hippocrates, as

Galen commands in the place before alluded, to treat or deftr the difeafed quickly, fately, and wit
the least pain that is pohtible.

Let us come to Reason.

Now fo it is, that one cannot apply hot irons but with extreme and vehement pain in a fensi-
ble part void of a Gangrene, which would be caufed of a Convolution, Fever, yea, at-times of
Dysenterie. Moreover it would be a long while afterwards before the poor Patient were cured,
because that by the action of the fire there is made an echar, which proceeds from the subjett
feh, which being fallen, Nature muft regenerate a new fhell in stead of that which hath been burned
as also the bone remains dilovered and bare, and by this means, for the most part there re-
main's
The faid operation was made in the houfe of gent in the Faculty of Medicine at \[\text{[unreadable]}\].

I will not here forget to fay, that and Mr. Laffile and during the cure was vifited by Mr. Courtin, luch works > and there he readily tied the veffels to ftay the bleeding, without application of hot irons, in the prefence the ordinary Surgeon to the King, James Guinea the of his knee, by one of my fervants, to teach him, and to embolden him in no longer endure. After his body was prepared) I caufed his leg to be cut off, four fingers below near Beauvais Deurdan, dwelling at the fign of the St. Johns Charbonel, of Balthazar Claud.Fiard Mafter Barber-Surgeons, well experimented in the operations of Surgery, .

Monfieur 7 broke both the bones of his leg which were crulhed in divers pieces, infomuch that there was no hand. The laid P S, Continued the dreffing of her, who was cured in two months, without any flux of ulcers.

But as for that (fay you) one must uf efire after the amputation of members, to confume and drie the putrefcation, which is a common thing in gangrenes and mortification, that indeed hath no place here, because the pradice is to ampute the part above that which is mortifed and corruptd. in Gafer written commands, to make the amputation upon the second part, rather than to leave any what of fuch corruption.

I would willingly ask you, if when a vein is cut transverse, and that it is very much retracted towards the original, whether you would make no conftitude to to burn till that you had found the orifice of the vein or artery; and if it be not more eafe with a Crow-bill to pinch and draw the veftle, and fo tie it? In which you may openly fhew your ignorance and folly, your mind fetted with much rancor and false. We daily fee the fgure of the veftles practiced with happy Succes, after the amputations of a part, which I well know to be done by Physic, by Experiences and Histories, of throfe to whom the faid fhigure hath been made, and perfofs yet living.

The 16. of June 1582. in the prefence of Mr. John Libaud Doctor in the Faculty of Phyfick at Paris, Cland.Fiard (worn Surgeon, Mr. Mathurins Haron Surgeon of Montieur de Soemay, and Mr. Claud.Fiard Mater Barber-Surgeon of Paris, well understanding the Thoriocr and Pratlick of Surgery, did with good dexterity amputate the left leg of a Woman tormented the space of three years with extreme pain, by reafon of a great Caries which was in the bone Antrغال, Geholes, great and little feals, and through all the nervous parts, through which he felt extreme and intolerable yeys with extreme pain, by reafon of a great yeys with extreme pain, by reafon of a great

And It muft be here noted, that if I had known fuch accidents to happen, which you have declared in your Book, in drawing and tying the veftles, I had never been twice deceived nor would I ever have left my writings to polityy, fuch a way of stopping a flux of blood. But I write it after I had feen it done, and did it very often with happy Succefs. See then what may happen through your inconfiderate counfel, without examining, or flanding upon the facility of tying the faid veftles.

For fure, here is your fpoke and proppofition, to tie the veftles after amputation is a new remedy, fay you, then it must not be ufed. it is an ill argument for a Doctor.

But with your leffe is nothing more than that refentment of his fin, which is to be forgiven. A notable ram, Maud.Viard ie worn the operation of charbonet. The operation cut off the faid leg, the breadth of four large fingers below the Kine, and after that he had incitid the thin, and faved the bone, he gripped the vein with a Crow-bill, then the artery, then tied them, from whence I profes to God (which the company that were there can witnefs) that in all the operation 

And It muft be here noted, that if I had known fuch accidents to happen, which you have declared in your Book, in drawing and tying the veftles, I had never been twice deceived nor would I ever have left my writings to polityy, fuch a way of stopping a flux of blood. But I write it after I had feen it done, and did it very often with happy Succefs.
Another History.

A Gangrene happened by an Amphetamine cause.

A Gangrene happened to half of the leg, to one named Nicolas Mufanger, aged 76 years, dwelling in St. Hilaire Street, at the sign of the Basket, which happened to him through an inward caufe, so that we were constrained to cut off his leg, to save his life: and it was taken off by Anthony Emanuel, Master Barber-Surgeon of Paris, the 26 day of December 1583; in the presence of M. Le Fort, and M. Le Noe, lower Surgeon of Paris, and the blood was flanch'd by the Ligature of the Veins, and he is at this present cured and in health, walking with a woodden leg.

A Water-man at the Port of Noif, dwelling near Monfieur de Mas, Pott-master, named John Boff- freean, in whose hands a Mofket brake alinder, which broke the bones of his hand, and rent and tore the other parts in fuch fort, that it was needful and necessary to make amputation of the hand two fingers above the wrist: which was done by James Guillmann, then Surgeon in ordinary to the King, who dwelt at that time with me. The operation likewise being readily done, and the blood flanch'd by the ligature of the veins, without burning iron, he is at this present living.

A Merchant Grocer dwelling in St. Dear Street by the sign of the great Tournier, named the Judge, who fell upon his head, where was made a wound near the temporal muscle, where he had an artery opened, from whence issued fuch blood with great impetuofity, in fuch a manner that common remedies would not have efteemed the man; I was called thereto, where I found Mr. Rooff, Mr. Grotenour, Mr. Farrow, Surgeons of Paris, to stay blood, where prefently I took a needle and thread and tied the artery, and tied some more after that, and was quickly cured. Mr. Rooffe can witness it, no long since Deacon of your Faculty, who was in the care of us.

A Servant of the Chafiet dwelling near St. Antheus du Arv, who had a ftrait of a Sword upon the throat in the Clocks Meadow, which cut ofender the jugular vein extern: as soon as he was hurt he put his handkerchief upon the wound, and came to look me at my house, and when he took away his handkerchief the blood leaped out with great impetuofity: whereby I did by the ligature of the Veffels, and he was quickly fent home, and put his handkerchief upon, and was quickly cured. The blood was ftanched and cured, thanks be to God. And if one had followed your advice, there are Historys enough recited to make you believe the blood of veins and arteries is freely ftanch'd without applying any outward cauteries.

He that dehides from Experiment, Dungar not to talk, of my learned Science.

Ow my little Mafter, feeing that you reproach me that I have not written all the operations of Surgery in my Works, which the Ancients write of, I should be very forry for it: for then indeed might you justly call me Carnifex. I have left them becaufe they are too juel, and am willing to follow the Moderns, who have moderated fuch cruelty: which notwithstanding you have followed ftep by ftep, as appeareth by the operations, here written, extracted from your Book, which I have here drawn and here from certain ancient Authors, fuch as follow, and fuch as you have never pradifed nor feen.

The Fifth Operation.

O we have drawn ftuctions of the Eyes, and Meagriins, Paulus Reginus as falso Albemac command to make Arteriotomy: fee here the words of the fame Reginus. You mark the arteries which are behind the Ears, then divide them in cutting to the very bone, and make a great incifion, the breadth of two fingers, even till the artery be found, as you command to make in your Book: and Holding the opinion of Galen, who commands to cut the difeafe quickly, safely, and with the least pain that is pothible: I teach the young Surgeon the means to remedy fuch evils in opening the arteries behind the ears, and thofe of the temples, with one only incifion, as a letting blood, and not to make a great incifion, and cut out work for a long time.

The Second.

O Arteriotomy which are made a long time upon the Eyes, Paul Reginus and Albemac command to make incifion, which they call Pertytiiitian or Arteriotomy of the Greeks, and fee here the words of Paul: in this Operationift the head is flowed, then taking heed of reaching the temporal muscles, a tranferyt incifion might be made, beginning at the left temple, and finishing at the right where you have put in your Book word for word, without changing anything, which I think to you openly you are a right Wound-maker, as may be seen in the Chapter which you call the Growt-cut, which made half round under the Coronal future from one temple to another, even to the bone. Now I do not teache u fhuch a cruel kind of remedy, but inftrude the Operator by Reafon, Authority, and notable proof.

The third Operation.

In the cure of Emphysema, Paul Reginus, Albemac and Ciftus commanded to apply fome thirteen, others fifteen Catearies to give fust to the matter contained in the bone, as the faid Ciftus in the abovefeid place appoynteth for Ashmacke people, which is a thing out of all reafon (with reflpect to their honor be it prophaned ) that since the Surgeons forget to give fust to the matter therein contained, there is no other question then to make apertion, to evacuate the matter in the most inferiour part, I have thwad the young Surgeon the means to do it fadly, without commaeting the Patients for nothing.
Book XXIX.

concerning divers Voyages.

The Fourth Operation.

IN Pain that are too great, Paul Regius and Albusca commands to make a crofs-incision, to take out all the fat, and then join together the wound by stitches: in brief, it is to slay a man alive, which I have never practised, nor counsel it to be done by the young Surgeons.

The Fifth Operation.

Albusca and Paul Regius will cauterize the Liver and the Splene with hot irons, which the Moderns have never practised: for indeed Reason is manifestly repugnant thereunto.

The Sixth Operation.

IN the Paracenthes which is made in the third kind of Dropsie called Albut, Crim Amoermen commands the diverse apertions to be made in the belly. Albusca applies nine actual Causteries, that is to say, four about the Navel, one upon the Stomach, and one upon the Splene, and one upon the Liver, two behind the Spodylis, one of them near the hriest, the last near the Stomach. Autin is likewise of the same opinion, to open the belly with diverse cauteries. Paul Regius commands to apply live actual cauteries to make the said Paracenthes. But abandoning such a kind of burning, of which you speak much in your third Book. I saw another kind of practice, which the Ancients by making a simple incision in the said belly, as may be seen in my Works, with happy success. I do not teach young men in my Works the manner of burning, which the Ancients have called inflammatur, that is not so practised, though Cepius writeth of it.

The Seventh Operation.

IN the Scariac proceeding from an internal caufe, and because the vioceous humour displace the bones, Paul Regius commands to burn or cauterize the said joint to the bone: Disturdis commands the same, which I do not find expedient, taking indication from the subjacent parts: for there where one would burn, it is in the place of four twin-muffins, under which paffeth the great nerve descend¬ning from the Holy-bones, which being burnt I leave it to your censurc what might happen, as Galen remarketh speaking of the shins which must be made in the shoulcers, called hurnacens.

The Eighth Operation.

IN the outward luxation of the Spodylis, Hippocrates commands to bind the man right upon a Ladder or a Tower, or the ridge of a house, with a great rope in a pully, then to let the Patient fall plumb down upon the hard pavement; which Hippocrates says was done in his time. But I do not think of any such way of giving the Strappado to men; but I saw the Surgeon, in my Work, the way to reduce them freely, and without great pain. Moreover I should be loory to follow the way of the said Hippocrates, in the third Book De Morbo, who commands in the difeafe called Vomitus, to caufe the belly to be blown with a pair of Bellowes, putting the noffel of them into the infeftinum retium, and then blow there till the belly be much ftreched, afterwards to give an emollient Olive, and to stop the FomCOND with a Sponge. Such practice as this is not made now adays, therefore were it not if I had not spoken of it. And you not being contented to patch together the operations of the abovesaid Authors, you have alfo taken divers in your Works, as every man may know: which though manifestly that there is nothing of your own in your Surgeons Guide. I have out divers other impracticable operations which you quote in your Book, without knowing whether Beads they are, in never having seen them practicd; 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 lefson in the operations of Surgery, which I think you cannot do: because I have not only learned them in my fudy, and by the hearing of many years the lefions of Doctors of Phvfiicks: but as I have said before in my Epistle to the Reader, I was resident the space of three years in the Hospital of Paris, where I had the means to see and learn divers works of Surgery, upon divers Difafes; together with the Anatomy, upon a great number of dead bodies, as oftentimes I have sufficiently made trial publiqu by the Physicians School at Paris, and my good luck hath made me feen much more. For being called to the service of the King of France, (four of which I have feen) I have been in company at Battles, Skirmishes, Affairs and Besieging of Cities and Fortrefles; as alfo I have been put in at Cities with thofe that have been befieged, having charge to drefs thofe that were hurt. Alfo I have dwelt many years in this great and famous City of Paris, where (thanks be to God) I have lived in very good reputa¬tion among all men, and have not been efferted the leaft in rank of men of my Profession, being there was not any care, were it never fo difficult and great, where my hand and my counfel have not been required, as it makes appear in this my Work. Now dare you (these things being understood) fay you will teach me to perform the works of Surgery, fince you never went further than your fudy? The operations of the fame are four in general (as we have declared hertofore) where you may make but three: that is to fay, join that which is feparated, feparate that which was joined, and to take away that which was superfluous, and the fourth which I make, is as much neceffary, an induftrious invention to add to Nature that which is wanting, and I have threw here above. Alfo it is your will that the Surgeon make but three operations above-faid, without medling to ordain a fimple Carafpan, faying it is that which comes to your part belonging to the Physicin. And that the Ancients (in the discourse which you have made to the Reader) have divided the practice of Phvfiick into three kinds, that is to fay, Diet, Medicin, and Chirurgery. But I would willingly demand of you, who have made the partition, and where any thing should be done? on the good part of Phyfick, as well Galen as Albusca, and the ninth and latter part of Book II. alfo have been befieged, having charge to drefs thofe that were hurt. Alfo 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 among all men, and have not been esteemed the least in rank of men of my Profession, seeing there was not any care, were it never so difficult and great, where my hand and my counsel have not been required, as it makes appear in this my Work. Now dare you (these things being understood) say you will teach me to perform the works of Surgery, since you never went further than your study? The operations of the same are four in general (as we have declared hitherto) where you may make but three: that is to say, join that which is separated, separate that which was joined, and to take away that which was superfluous, and the fourth which I make, is as much necessary, an industrious invention to add to Nature that which is wanting, and I have threw here above. Also it is your will that the Surgeon make but three operations above-said, without meddling to ordain a simple Carafpan, saying it is that which comes to your part belonging to the Physician. And that the Ancients (in the discourse which you have made to the Reader) have divided the practice of Phvsiick into three kinds, that is to say, Diet, Medicin, and Chirurgery. But I would willingly demand of you, who have made the partition, and where any thing should be done? For Hippocrates, Galen, Einm, Avicen, in brief, all the Physicians, 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 affinity and tie that there is between them two, and it should be very difficult to do otherwise. Now when you speak of Chirurgery so much, you speak against your self, for in your Epistle you have declared to Montanae Mairigeni, you say, that Chirurgery is the most noble part of Phvsiick, as well by
A fair family.

The operations of Chirurgery are learnt by the eye, and by the touch. I will say that you much resemble a young Lad of Low-Britain, of plump buttocks, where was fluff sufficient, who demanded the leave of his Father to come to Paris, to take France's being arrived, the Organist of our Ladies Church met with him at the Palace-gate, who took him to blow the Organs, where he was remaining three years; he could somewhat speak French. He returns to his Father, and told him that he spoke French, and moreover he knew well to play on the Organs; his Father received him very joyfully, for that he was a wise and direct man though he have no tongue, know well the use thereof, this man in time shall become the greater Physician, than if without practice his tongue were dipped with Oratory, the which you yourself confess in your said Book by a Tetrasich which is thus;
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 parley with us; but twas too late for them for in the mean time our French foot being never alone, mounted to the breach, and cut them all in pieces, except a fair young lusty Maid of Pizwof, which a great Lord would have kept and preserved for his own, and my mans horse, where I found four dead Soldiers and three which were leaning against the wall, their faces wholly disfigured, and neither saw nor heard, nor spake. And to return to our former discourse, the enemy was summoned to render, which they soon did, and went out, their lives only saved, with assurance to the them within, that one could not plant the Ordnance to beat upon it, and they were lamed about 2 miles from thence. The Castle is feared upon a little mountain, which gave great access to the enemy, who often combated with Swords and other weapons, as also with Muskets, and if they killed and hurt a great number of our people.

The retreating of the enemy.
Country one way or other. Monsieur the Marquis went for a Physician to Milan, who had no note left him in the medicinal art. Then the deceased Monsieur to Commandant de Rohan, who was the Wre- sgers, secrecy, whereof at last he died. This Physician was a certain while at Shrewsbury to deal with him, and was often called to visit the hurt people, where he always found me, and I consulted with him and some other Surgeons; and when we had resolved to do any furious work of Surgery, I twice Ambulato Party that put his head thither, where I did it promptly, as with dexterity, and with dexterity, in so much that the said Physician admired me, to see me so ready in the operation of Surgery, facing the small age which I had. One day discharging with the said Lord Marquis, he said to me, Signor mio, bad un Chezsgere giovin da una, me ene ede da figure e dopererica. Gianda be very, perché egli gia farcire e baciare. That is to say, Thou had a young Surgeon of age, but he is old to knowledge and experience; preferre him well for he will do the service and honour. But the old man knew not that I had dwelt three years in the Hospital at Paris, there to dress the diseased. In the end Monsieur Marquis died with his Hepatical Flux. Being dead, the King sent Monsieur the Marquis of Ansembourg to be in his place, who did me this honour to pray me to dwell with him, and he would see me as well or better than Monsieur the Marquis of Ansembourg, which I would some do for the jury had I been of the reality of my Master whom loved me intimately, and I him in the like manner; and I came back to Paris.

The Voy. of Moulins and of Low Britany, 1543.

1 Went to the Camp of Moulins, with the diseased Monsieur de Rohan, where King Francis was in Prience, and was Surgeon of the Company of the said Monsieur de Rohan. Now the King was advertised by Monsieur de Béjarnes, Governor of Britany, that the English had hotly fall to land in Low Britany, and prayed him that he would send Monsieur de Béjarnes, and Monsieur de La- cavel for surety, because they were the Lords of that Country, and for their taking the place of that Country would beat back the Enemy and keep them from landing. Having received this advi- nant the Majesty dispatched to send the said Lords for the relief of their Country, and to each was given as much power as to the Governor, in so much as they were all three the Kings Lieute- nants; they took freely this charge upon them, and speedily they went away in Pont: and led my men to present in Landavon, there where we found one in a certain Hospital, as to every single, you, five or six leagues about the Harbours, that is to say, Bevfh, Conquet, Coton, Le Feu Doux, Landenan, each of them well furnished with Artillery, as Cannons, Demi-cannon, Culverins, Sakers, Serpantines, Falcons, Harquebusses; in brief, there was nothing wanting in Artillery or Scud- diers, as well Britany as French, to hinder that the English made no landing, as they had resolved at their partiring from England; The Enemies Army came unto the very mouth of the Cannons, and when we perceived them that they would land, they were faulted with Cannon-flot, and we disco- vered our Men of War, together with our Artillery they fled to Sea again: where I was glad to see their Veffels hole fail again, which was a great number and in good order, and termed like a Forest which marched upon the Sea. Few a thing alo whereby I marvelled much, which was, that the bullets of great pieces made great rebounds, and grazed upon the water as upon the ground. Now to make the matter short, the English did us no harm, and returned whole and found inta

The death of
Marquis
Mu¬ti¬

The enemy re¬

The en¬

Danes of the
Country
Weren¬

Wrestlers
Little Brit¬

a good We¬
filer.

The little Brit¬

was killed.

The body of

pened by the
Author.
BOOK XXIX.

concerning divers Voyages.

Bouge, de Laval, and Efampes. Monfieur de Rohan gave me a present of fifty double Duckets, and an ambling Horse, and Monfieur de Laval another for my Man, and Monfieur de Efampes, a Diamond of thirty Crowns, and I returned to my house at Paris.

The Voyage of Perpignan, 1543.

A little while after Monfieur de Rohan took me with him Post to the Camp of Perpignan; being there, the Enemy made a Sally forth, and came and enclosed 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 Boffats, (who was then chief Master of the Artillery) received a Musket shot upon the shoulders, returning to his Tent, all the others that were hurt followed him, hoping to be drest by the Surgeons that ought to drest them. Being come to his Tent and laid on his bed, the bullet was searched for by three or four of the most expert Surgeons of the Army, who could not find it, but laid it was entered into his body.

In the end he called for me, to see if I were more skilful than they, because he had known me be- Address of the fore in Poicomen: by and by I made him rise from his bed, and prayed him to put his body into that Author. posture as it was when he received his hurt; which he did, taking a Javelin between 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 turner under the Omphale; having found it, I showed them the place where it was, and it was taken out by Maitre Nicholas Larkeyen, Surgeon to Monfieur the Dolphin, who was the Kings Lieutenant in that Army, yet notwithstanding the honour remained to me for finding it.

I saw one thing of great remark, which is this: That a Souldier in my presence gave to one of Artillery his fellows a stroke with an Halbard upon the head, penetrating even to the left ventricle of the brain, without falling to the ground. He that struck him, he had heard that he cheated at Dice, and that he had drawn a great sum of money, and that it was his cus¬tom to cheat. I was called to dress him; I told him I did it for the bath, knowing well that he would quickly die: having drest 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 helped him to one who had with him to the last gasp. The next day the Patient first for me by his She-friend in a Boys apparel to come and drest him; which I would not do; fearing he should die under my hands; and to put it off, I said I must not take off the dresting 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 the Wench, and prayed me most affectionately to drest him, and showed me a Purse wherein he had an hundred or six score pieces of Gold, and that he would content me to my desires for all that, yet notwithstanding I left not off to drest the taking off his dresting, fearing he should die at the same instant. Certain Gentlemen defined me to go drest him, which I did at their request, but in dresting him he died under my hands in a Convulsion. Now this Priest accompanied him until death, who feared upon the Forte, left another should take it, saying, he would fly Maffes for his soul. Moreover he furnished himself 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 Fence even till death. Soon after the Camp was broken for divers causes, the one because we were advertized that four Companies of Spaniards were entered into Perpignan; and the other that the Hague begun much in our Camp, and it was told us by the People of the Country, that therewith there would be a great overflowing of the Sea, which might drown us all and the preface which they had, was a very great wind from Sea, which arose in such manner that there remained not one Tent which was not broken and overthrown, for all the strength and diligence could be given; and the Kirks being all uncovered, the wind raised to the dust and sand, which filled and powdered our meat in such sort that we could not eat it, so that we were constrained to boil it in Pots and other vessels well covered.

Now we did not uncamp our selves in so good time, but that there were many Carts and Carters, Mules and Mule-drivers drowned in the Sea, with great loss of Baggage. The Camp broken, I returned to Paris.

The Voyage to Landrefy, 1544.

King Francis raised a great Army to visit Landrefy; on the other side, the Emperor had no left people, yet much more that is to say, eight thousand Germans, ten thousand Spaniards, six thousand Walloons, ten thousand English, and about thirteen or fourteen thousand Hefiers. I saw the two Armies near one another, within Canon-shot, and it was thought they would never part without giving battle. There were some certain foolish Gentlemen who would approach the Enemies Camp, certain that it was made at them, and some died at the place, others had their legs or arms carried away. The King having done what he defined, which was to visit Landrefy, retired himself with his Army to Guip, which was the day after All-Saints, One thousand Five hundred Forty four, and from thence I returned to Paris.

The Voyage to Boulogne, 1545.

A little while after we went to Boulogne, where the English lacing our Army, left the Forts which they had, that is to say, Montmarte the little Paradise, Monplaisir, the Fort of Shuttle, the Post, the Fort Bardato, One day going through the Camp to drest my hurt people, the Enemies who were in the Tower of Grey, thor of a piece of Ordnance, thinking to kill Herrenquin which had talk with one another. It happened that the bullet palled very near one of them, which threw him to the ground, and I was thought the said bullet had toucht him, which it did not at all, but only the wind of the said bullet in the midst of his coat, which went with such a force that all the outward part of the thigh became black and blue, and he had much ado to stand. I drest him, and made
made him divers scarifications to evacuate the congealed blood, which the wind of the said bullet had made, and the rebounds that it made on the ground, killed four Soldiers, which remained dead till the next day. I was not far from this stroke, so that I felt somewhat the moved air, without doing me any more harm than a little fear which made me stoop my head very low, but the bullet was already past far beyond me. The Soldiers mocked me to be afraid of a bullet already gone. (My little Matter) I think if you had been there, that I had not been afraid alone, and that you would have had your share of it. What shall I say more? Monsieur the Duke of Guise, Prince of Joinville, was hurt before Bologne with a chance of a Lance, which above the night eye, declining towards the nose, entered and passed quite through on the other between the back and the ear, with so great violence that the head of the Lance, with a great part of the wood was broken and remained within, in such fort that it could not be drawn out but with great force, yea with Smiths Pincers. Notwithstanding all this violence which was not done without breaking of Bones, Nerves, and Arteries, and other parts: my said Lord, by the help of God, was cured: the said Lord went always with open face, which was the cause that the Lance went through on the other side.

The Voyage of Germany, 1552.

I went the Voyage to Germany in the year 1552, with Moutier de Rohan, Captain of fifty Horses, where I was Surgeon of his Company, which I have said already. In this Voyage we considered that the High Contable of France was General of the Army: Moutier de Chastillon, Prince Admiral, was chief Governor of the Foot, having four Regiments of Landsknechten, under the Command of the Captains, Berrod and Ringuere, having each of them two Regiments, each Regiment of ten Ensigns, and each Ensign of five hundred Men. And besides them, was Captain Chastillon, who conducted the Troops that the Protestant Princes had lent to the King. This was a very great Company of Foot, accompanied with fifteen hundred Horses, with the following of each one two Archers, which might make four thousand and five hundred Horses, besides two thousand Light-Horses, and as many Musketeers on Horse-back, of whom de Amalee was General, before the great number of Nobility who came for their pleasure. Moreover the King was accompanied with two hundred Gentlemen of his house, and likewise with divers Princes; there was also for his Troop that served him, the French, Swiss, and Snuffley Guards, amounting to two hundred men on Foot, and the Companies of Moutiers the Dolphin, Mijieres de Grisly, de Amalee, and of the Marthel of St. Andrew, which amounted to four hundred Landsknechten, which was a marvellous thing to see so fine a Company, and in this equipage the King entered into Town and Masts. I will not omit to tell that it was ordained that the Companies of Mijieres de Rohan, et de Sauvay, et de Lambe, which was each of them of fifty Horses, went by the Wings of the Camp, and God knows we had scarcity of Victuals, and I protest to God, that at these divers times I thought I should have been famished, and it was not for want of money, for I had enough, and we could not have victuals but by force, by reason that the Peasants withdrew it all into the Cities and Castles.

One of the Servants of a Captain of the Company of Moutier de Rohan, went with others thinking to enter into a Church where the Peasants were retired, thinking to find Victuals by force or love: but amongst the rest this man was beaten, and returned with seven wounds with a Sword in the arm, and upon the right (boulder, which cut more than one half of the blade-bone, or Omoplatt, and amongst the rest this man was beaten, and returned with seven wounds with a Sword in the arm, and upon the right (boulder, which cut more than one half of the blade-bone, or Omoplatt, and upon the right boulder, which cut more than one half of the blade-bone, or Omoplatt, which hit a Gentleman's leg, which was of his train: which I was fain to have the said Gentleman's leg amputated, but no such thing.

Another History.

The King went for Powder to Sedan, which being come, they began a greater battery than before, in such sort that they made a breach. Mijieres de Grisly and the Hight Contable being in the King's Chamber, told him that they concluded the next day to make assault, and that they were assured they should enter into it, and that they should keep it secret, let the enemy were advertised. And all of them promised not to speak of it to any one. Now there was a Groom of the King's Chamber who lay under the Kings bed in the Camp to sleep underfoot that they relieved the next day to give and take fire, and imperfectly revealed it to a certain Captain, and told him that for certain, the day following assault should be given, and that he had heard it of the King, and prayed the said Captain that he would not speak a word of it to any body, which he promised: but his promise was not kept: so at the same instant he went and declared it unto a Captain, and this Captain to another Captain, and from the Captains to some of the Soldiers, paying 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 hoes.
hole and their breeches cut at the knee for the better mounting of the breach. The King was ad-
vised of the matter; and then went through the Camp, that the affault must be given, whereas he
himself marvelled, seeing there were but three of this advice, which had 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 affault;
he swore and affirmed to him he had not told it to any body, and Monfieur the Conftable (aid as
much marvelled, feeing there were but three of thit advice, which had protnifed one to another not to
veitifed of the rumor which run through the Camp, that the affault muft be given, whereof he
wished to know if he had not talked of this affault > de Guife,
who faid to the King, he muft exprefly know who had declared this fecret Counfcl, feeing
then the prefence of Monfieur de Guise, and of Monfieur the Conftable, to underftand from him whence
he had it, and who told him that this affault was to be given. The King told him, that if he did not
tell the truth, that he would caufe him to be hanged, and then he declared, he lay down under his
bed thinking to flee, and so having heard it, he declared it to a Captain who was a friend of his,
to the end he might prepare himfelf with his fouldiers the firft for the affault. After the King knew
the truth, he told him he should never ferve him again, and that he deferred to be hanged, and for-
bad him ever to come again to the Court. My Groom of the Chamber went away with this fad
news, and lay with one of the Kings Surgeons in Ordinary, named Mafler Lewis, and in the night
he gave himfelf for wounds with a knife, and cut his throat; yet the faid Surgeon perceived nothing
till morning, till he faw the bed bloody, and the dead body by him, he much marvelled at this acci-
dcate upon his waking, and was afraid left they should fay, he was the caufe of this murder; but
was soon freed, knowing the caufe to be from defperation, having left the good amity which
the King bore to him. The faid Guise was buried. And thofe of Dauntlers when they faw the
breach large enough for them to enter in, and the Souldiers prepared for the affault, yielded them-
selves to the mercy of the King. The chief of them were prisoners, and the Souldiers fent away
without arms. The Camp being broken up, I returned to Paris with my Gentleman whole leg I
had cut off. I drefled him, and God cured him; I fent him to his house merry with his wooden
leg, and was content, laying that he had escapd good cheape, not to have been miserably burnt, as
you write in your book, my little Mafler.

The Voyage of the Caftle of Compt, 1552.

A Little while after, King Henry levd an Army of thirty thousand men, to go make spoil about
Hedin. The King of Navarre who was then called Monfieur de Vendéfois, was chief of the Ar-
my, and the Kings Lieutenant. Being at St. Dennis in France, flaying while the Companies-paffed
by, he fent for me to Paris to come speak with him; being there, he prayed me, and his requeft
was a command, that I would follow him this Voyage: and I about to make my excufe, told him
my wife was fick in her bed; he made me anfwer, That there were Phyficians at Paris to cure her;
and that he as well left his own, who was as well defended as mine; promifing me that he would
ufe me well, and forthwith gave command that I fould be lodged as one of his Train. Seeing this
great affection, which agitation, I went to fpeak with him, I durft not refufe him. I went and met with
him at the Caftle of Compt, within three or four leagues of Hedin, where there was the Emper-
ers Souldiers in garrifon within number of Peafants round about he caufe them to be fummoned to
render themselves; and they made anfwer they fhould never have them but by pieces, and let them
do their work, and they would do their part to defend themfelves. They put confidemce in their
ditches full of water, and in two hours with a great number of Baving, and certain empty Casks,
way was made to pafs over the fence, when they muft go the affault, and were beaten with five piec-
es of Cannon, until a breach was made large enough to enter in, where they within received the af-
fault very violently, and vnit without killing and burning a great number of our people with muske-
tet, pikes, and lances. In the end when they fer themfelves contrary, they put fire to their
powder and munition, which was the caufe of burning many of our people, and theirs likewife, and
they were all almoft put to the fword. Notwithftanding some of our Souldiers had taken twenty
or thirty, hoping to have ran for them. That was known, and ordered by the Council, that it
fhould be proclaimed by the Trumpet through the Camp, that all Souldiers who had any Spaniards
prifoners, were to kill them, upon pain to be hanged and togelled, which was done upon cold
blood. From thence we went and burnt divers Villages whofe barns were full of all kind of Grain,
to my grief. We went along even to Tournahan, 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
leap by a Mine, and then with Gunpowder turned topfe-turvy. After that, the Camp was broken
up, and I returned to Paris. I will not yet forget to write that the day after the Caftle of Compt was
taken, Monfieur de Vendéfois sent a Gentleman to the King to make report to him of all which had
paffed, and amongst other things, told the King that I had greatly done my duty in dressing
those that were wounded, and that I had thro’d him feventeen bullets which I had taken or drawn
out of the hurt bodies, and that there were divers more which I could neither find, nor draw out,
and told more good of me than there was by half. Then the King flid he would have me into his
service, and commanded Monfieur de Guize his chief Phyfician to write me down as entertained one
of his Surgeons in ordinary, and that I fhould go meet with him at Riomer within ten or twelve
days, which I did, when I did me the honour to commend me that I would dwell and be good to
that he would do me good. Then I thanked him most humbly for the honour it pleafed him to do me,
in calling me to his service.

The Voyage of Muts, 1552.

The Emperor having befieged Muts, and in the harshest time of winter, as each one knows of
fresh memory; and that there was in the City five or fix thousand men, and amongst the
The names of the Princes who were at the siege of Metz.

The Duke of Guise, the King's Lieutenant, Maignes d'Ar-again, de Castille, de Montespan, de La Rochefoucault, Monfieur de Nemours, and divers other Gentlemen, with a number of old Captains of War, who often made falls upon the enemy, were thus well provided with medicines wherewith they were first wounded were poisoned, which caused Monfieur de Guise and other Princes to feed me, and that he would feed me, with Drugs to them, for they believed theirs were poisoned, feeling that of their hurt people few escaped. I do not believe there was any poysen, but the great number of the soldiers, musket-shot, and the extremity of cold was the cause. The King caused one to write to Monfieur the Marlhal of St. Andrew, who was his Lieutenant at Luton, that he found some means to make me enter into Metz. The said Lord Marfhal of St. Andrew, and Monfieur the Marfhal of old Fife, got an Italian Captain, who promised them to make me enter in, which he did, and for which he had hundred Crowns; the King having heard of the promise which the Italian Captain had made, sent for me, and commanded me to take of his Apothecary named Dagon, fish and as many Drugs as I should think fit for the hurt who were bledged, which I did, as much as a poll horfe could carry. The King gave me charge to speak to Monfieur de Guise, and to the Princes, and Captains who were at Metz. Being arrived at Verdun, a few days after the Monfieur the Marfhal of St. Andrew, caused hores to be given to me, and my man, and for the Italian, who spake very good French, Spanish and Walloon, with his own natural tongue. When we were within eight or ten Leagues of Metz, we went not but in the night, and being near the Camp, I saw a league and half off bright fires about the City, which seemed as if all the earth had been on fire, and I thought we could never pass through those fires without being discovered, and by consequence be hanged and strangled, or cut in pieces, or pay a great ransom. To speak truth, I feared my death most; however I went on, which I forefaw, God guided so well our affairs that we entered the City at midnight with a certain Token, which the King had with another Captain of the Company of Monfieur de Guise; which Lord I went to, and found him in bed, who received me with great thanks, being joyful of my coming. I told him of all the message to him of all that the King had commanded me to say, and that he had a little letter to give to him, and that the next day I would not fail to deliver it. That done, he commanded me a good lodging, and that I should be well fed, and bid me I should not fail to be the next day upon the Brench, where I should meet with all the Princes, and divers Captains; which I did; who received me with great joy, who did me the honour to embrace me, and tell me I was very welcome, adding withal they did not fear to die if they should chance to be hurt. Monfieur de Guise was the first that fainted me, and inquired of me what they said at the Court concerning the City of Metz. I told him what I thought good. Then presently he deigned me to go fee one of his Gentlemen, named Monfieur de Magnene, 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 bed, his leg bended and crooked, without any dressing upon it; because a Gentleman promised him cure, having his name and his girdle, with certain words. The poor Gentleman wept and cried with pain which he felt, not sleeping night nor day, in four days; then I mockt at this impoffure. God guided so well our affairs that we entred the City at midnight with a certain bright fires about the City, which feemed as if all the earth had been on fire, and I thought we could never pass through those fires without being discovered, and by consequence be hanged and strangled, or cut in pieces, or pay a great ransom. To speak truth, I wished my felf at Paris, cut in pieces, or pay a great ransom. To speak truth, I wished my felf at Paris, and to the Princes, Lords and Captains, who was hurt at the breach by a fome kind of ftrike done by a Cannon-shot in the Temple with a fracturate and depreflion of the bone. They told me that prefently when he received the froke, he fell to the earth as dead, and call blood out of his mouth, nose and ears, with great vomitings, and was fourteen days without speaking one word, or having any reafon to move, there happened to him alfo ftragling; somewhat the Convulfions, and he had all his face fwell and livid. He was repeared on the fente of the temporal mufcle upon the Os Coronale. I dreft him with other Surgeons, and God cured him; and he is at this day living. God be thanked. The Emperor caufed battery to be made with forty double Cannons, where they spared no powder night nor day. Presently when Monfieur de Guise faw the Avanturiers intent upon to make a breach, he made the marfhal hores to be pulled down to make Ramparts, and the potts and beams were ranged end to end, and between two clofs of earth, beds and packs of wool, and then other pots and beams were put again upon them as before. Now much wood of the houfes of the Saloonis, which had been put to the ground for fear let the enemey should be lodged, was removed, and that they should not help therefore with in the breach. Every one was bulled to carry earth to make the Ramparts nightand day. Monfieurs, the Princes, Lords and Captains, Lieutenant, Ensigns, did all carry the Bullet, to give example to the
the Soldiers and Citizens to do the like, which they did: yea, both Ladies and Gentlewomen, and tho' which had not Baskets, helped themselves with Kettles, Panniers, Sacks, Sheets, and with what else they could to carry Earthy info much that the Enemy had no sooner beaten down the Wall, but he found behind it a Rampart more strong. The Wall being fallen, our Soldiers cried to those without, the Fox, the Fox, the Fox, and they filled the little Lodging, as thick as little Bees, when their Hive is discovered, to succour their selves who had their throats cut like Sheep, The Horse-men likewise came from all parts a great number of Princes which were therein, with the other part of the Nobility of de Guise, and theretofore no great harm if they died. Moreover he said, He would never part from before the Princes, nor Lords themseft to eat either fresh Fish, or Venison, as likewise some Partridges, he was done in the City, and they asked him if he had any Letters, he said yes, and gave them one.

And since it was not permitted to the Soldiers nor Citizens, no nor to the

The day before there was a great press to make themselves enrolled, who

Arm, arm, arm, to arms, to arms, to arms, arm, to arms, like the cry after

Where it was resolved, since they could do nothing at the first breach, that presently the Artillery

And when our men saw they were forced, they returned into the City, still firing, and those who run after were beaten back with the Artillery which they had charged with Flint-stones, and four-square pieces of Iron; and our Soldiers who were upon the said Wall made a volley of shot, and showered down their bullets upon them like hail, to lead them back to their lodging, where divers remained in the place of the combat, and also our men did not all come off with whole skins, and there still remained some for the Tithe, who were joyful to die in the Bed of Honour. And when there was a Horse hurt, he was stayed, and eaten by the Soldiers in stead of Beef and Bacon, and it was lit I must run to dress our hurt men. A few days after other Sallies were made, which did much anger the Enemies, because they did not let them flee but little in safety. Mounfieur de Guise made a War-like stratagem, which was, He sent a Pasant who was none of the wittif with two pair of Letters toward the King, to whom he gave ten crowns, and promised the King should give him an hundred, provided he gave him the Letters. In the one he hint word that the Enemy made no sign of retiring himself, and by it a great breach, which he hoped to defend, yes to the losing of his life, and of all those that were within, but he found behind it a Rampart more strong. The poor messenger was felt and searchefl him, and found that which was sewed to his doublet, and the poor messenger was bid to take heed that he told it not to any man. And there was also another given to him, wherein the said Mounfieur de Guife sent word to the King, that he and all the befieg'd did hope well to keep the City, and other matters which I cease to speak of. They made the Pasant go forth in the night, and presently 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 said yes, and gave them one, and having seen it, he was put to his Oath whether he had any other, and he swore, not; then they led and searchefl him, and found that which was sewed to his doublet, and the poor messenger was hanged.

The said Letters were communicated to the Emperor, who caus'd his Council to be called there: Where it was refolv'd, since they could do nothing at the first breach, that presently the Artillery should be drawn to the place which they thought the most weak, where they made great attempts to make another breach, and digged and undermining the Wall, and endeavoured to take the Tower of Hell, yet they durst not come to the assault. The Duke of Albe declared to the Emperor that the Soldiers died daily, yet more than the number of two hundred, and that there was but little hope to enter into the City, facing the Seafon, and the great quantity of Soldiers that were there. The Emperor demanded what provision they could make, and that they were Gentlemen of remark or answer was made, that they were all poor Soldiers then said he it makes no matter if they die, comparing them to Caterpillars and Grasshoppers, which eat the buds of the Earth. And if they were of any fashion, they would not be in the Camp for twelve thilings the Monarch, and therefore no great harm if they died. Moreover he said, He would never part from before the City, neither 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 go once again to Paris, to visit the Parifians, and make himself King of all the Kingdom of France. Mounfieur de Guife, with the Prince, Captains, and Soldiers, and generally all the Citizens of the City, having understood the intention of the Emperor, which was to extirpate us all, they advised of all they had to do: And since it was not permitted to the Soldiers nor Citizens, no nor to the Prince, nor Lords themselves to eat either fresh Fih, or Venison, as likewise some Partridges,
Woodcocks, Larks, Flowers, for fear lest they had gathered some perilous air which might give
us any contagion; but that they shouldcontent themselves with the Ammunition Fires; that is to
say, with Bletter, Bof, powdered Cows Lard, and Gammon of Bacon. Likewise Fish, as Green-
soles, Gray Sole, Monk fish, Turbot, Breams, Pilchards, and Herrings; also Flakes, Bonz, Rice, Garlands,
Olives, Prunes, Chest, Butter, Oh,Salt, Pepper, Ginger, Nutmegs, and other Spiceries, to put into Pies,
chiefly to Horf-Beth, which without that would have a very ill taste; divers Citizens having Gar-
dens in the City, fowed therein great Radishes, Turnips, Carrots, and Leeks, which they kept well
and full dear against the extremity of hunger. Now all theue Ammunition Viands were dis-
tributed by weight, measure, and justice, according to the quality of the perfon, because we knew
not how long the Siege would laft. For having understood from the mouth of the Emperor,
that he would never part from before Metz till he had taken it by Force or Famme; the victuals
were reduced, for that which was wont to be distributed to three, was now shared amongst
four, and defence made they should not fell what remained after their dinner, but "twa" permi-
ted to give it to the Wenchethat followed the Camp, and rode always from Table with an appen-
dence, for fear they should be subject to take Phylend. And before we would yield our felves to the
mercy of our Enemies, had resolved to eat our Affes, Mules, Hores, Dogs, Cats, and Rats, yes,
our Boots, and other Things which we could fuffer and fire. All the beleaguered did generally resolve
to defend themselves with all forts of Instrumets of War, that is to say, Toranz and charge the
Artillery, at the entry of the breach, with Bollets, Stones, Cast-nails, Bars and Chains of iron.
Also all kinds and varieties of artificial Fire, as Bores, Barquepudes, Granados, Ports, Lancets,
Torches, Squins, burning-Flage, with all. Moreover, Scalding Water, melted Lead, Powder of unquench
Lime to blind their eyes. Also they were resolved to have made holes through and through their
heads, there to lodge Muquetters, there to batter in the flank and happen them to go, or elle
make them lie for altogether. Also there was order given to the Women to unpeave the streets,
and to call out at their Windows, Billets, Tables, Torches, Squines, Forms, and Stools, which were
thrown, touch'd, their breasts. Moreover, there was a little farther a strong Court of Guard, filled
with Carts and Pallizzados, Pipes and Hogheads filled with earth for Barcadoes to throw to interly
with Faucions, Faucetons, Field-pieces, Harquebusses, Muskets, and Piñoles, and Fire and
arrows, which would have broken legs and thighbones, in to much that they had been beaten in head, in flank, and in
tail, and when they had forced this Court of Guard, there was others at the crowning of the breack,
each distant an hundred spaces, which had been as bad companions as the firft, and would not have
been without making a great many Widows and Orphans. And if Fortune would have been
so much against us, as to have broken our Courts of Guard, there was seven great Batteries or-
dered in figure and triangle to combat altogether, each one accompanied with a Prince to
give them holdings, and encourage them to fght, even till the laft gaff, and die all together.
Moreover it was resolved, that each one should carry his Treasure, Rings, and Jewels, and their
Honehead-dull of the belt, to burn them in the great place, and to put them into alhes rather than the
Enemy should prevail and make Trophies of their flocks; likewise there was people appointed
to put fire to the Munition, and to beat out the heads of the Wine Casks, others to put the
fire in each house, to burn our Enemies and us together: the Citizens had accorded it thus, ra-
ther then to fee the bloody Knife upon their Throat, and their Wifes and Daughters violated, and
to be taken by force by the cruel inhumane Spaniards. Now we had certain Prisoners which
Moniteur de Garfis left away upon their Faith, to whom was freely imparted our late refolution,
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An Apology or Treatise

Book XXIX.
hunger, and for spit they could not enter into the City to cut out their throats, and have the pillage: and also a great number of their Horses died, of which they had eaten a great part in stead of Beef and Bacon. They went where they had been encamped, where they found divers dead bodies not yet buried, and earth all digged like St. Innocent Church-yard in the time of the Plague. They did blow into the bodies, and at every Mound, Pavillons and Tents, divers sick people, also Ballots, Arms, Carres, Wagges, and other Baggage, with a great many of Monition Lovers, Spoiled and rotten by the rain and snow, yet the Soldiers had it but by weight and measure, and likewise they left great provision of Wood, of the remainders of the Horses of the Villages which they had plucked down two or three miles compass, likewise divers other Horses of Plaisance belonging to the Citizen, accompanied with fair Gardens, and Gras-plats filled with Fruit-trees, for without that they had been starved with cold, and had been constrained to have raised the Siege sooner. The said Lieutenant de Guise caufed the dead to be buried, and drifed their sick people likewise the Enemies left in the Abby of St. Arnold divers of their hurt Soldiers which they could not lead with them: the said Lieutenant de Guise lent them all victualls enough, and commanded me and other Surgeons to go drifed them and give them Medicins which we willingly did, and think they would not have done the like towards others (because the Spaniards is most cruel, pernicious, and insatiable, and therefore Enemy to all Nations) which is proved by Lopez a Spaniard, and Bueno de Molos, and others who have written the History of America, and 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 said to hold. And all write, they are left worth than the idolatrous Indians, by the cruel usage done to the said Indians.

And after a few days we feent a Trumpet to Thionville toward the Enemy, that they should find back for their wounded men in City, which they did with Carres and Wagges, but not enough. Lieutenant de Guise caufed them to have Carres and Carters to help to carry them to the said Thionville. Our said Carters being returned back, brought us word that the way was paved with dead bodies, and that they had to go back the half, for they died in their Carres, and were found lying at the point of death, before they had cut out their last gaff, call them out of their Carres, and buried them in the Mud and Mire, saying, they had no order to bring back the dead. Moreover our Carters said, they met by the way divers Cartes laden with Baggage falling in the Mire, which they durst not find for back, for fear lest those of Mer should fall upon them. I will again return to the cause of their mortality, which was principally through Hunger, Plague, and Cold of the Snow was two foot thick upon the earth, and they were lodged in the caves of the earth, only covered with a little straw. Notwithstanding each Soldier had his Field-bed, and a covering streewed with glittering Stars, more bright than fine gold, and every day had white sheets, and lodged in the ffe of the Moon, and at the fign of the Moon, and made good cheat when they had it, and paid their Host so well over and above their Pay, and we called them the Empe- rors Apostles. After the Camp was wholly broken, I distributed my Patients into the hands of the Surgeons of the City, to fifti their Cure: then I took leave of Lieutenant de Guise, who came back toward the King, who received me with a loving courteous, and demanded of me if he had chance into the City of Mets. I recounted to him all that I had done, he caufed two hundred Crowns to be given me, and one hundred had at my going out, and told me he would not leave me poors; then I thanked him most humbly for the good and the honour which he pleased to do me.

The Voyage of Helin, 1553.

Cours the Emperor caufed the City of Thiononne to be befieged, where Mounfieur the Duke of Savoy was General of the whole Army: it was taken by assault where there was a great number of our men slain and prisoners. The King willing to prevent that the Enemy should not also come to beleige the City and Castle of Helin, sent Mefl:iers the Duke of Saldun, the Duke Hes- rance, the Marques of Villars, a number of Captains, and about eight hundred Soldiers, and during the siege of Thiononne, the said Lords fortified the said Castle of Helin, in such fort that it seemed impregnable. The King sent me to the said Lord to help them with my Art, if there were any need. Now soon after the taking of Thiononne, we were befieged with the Army: there was a quick clear Fountain of Spring, within Cannon-shot, where there was about fourteen Whores and Wenchs of the Enemies, who were about it to draw Water. I was upon a Rampart beholding the Camp, and seeing so many idlers about the said Fountain, I prayed Mounfieur de Saldun Constable of the Artillery, to make one Cannon-shot at that reguill Company; he made me much denial, answering me that such kind of people were not worth the Powder they should waste. Again I prayed him to level the Cannon, telling him, the more dead the fewer Enemies; which he did through my request, and that shot fifteen or sixteen were killed, and many hurt. Our Soldiers filled forth upon the Enemies, where there was many killed and flie with Musket-shot and Swords, so well on the one side as on the other, and our Soldiers did often make fellows forth upon the Enemies before their Trenches were made, where I had much work cut out, so that I had no rest night nor day for drefling the wounded. And I will tell this by the way, that we had put many of them in a great Tower, laid upon a little stair, and their Pillows were boxes, their Coverlets were their Cloaks of clothes that they left, their battery was making, as many shot as the Cannons made, the Patients had they felt pain in their wounds, as if they had given them blows with a staff, the one criedit his head, the other his arm, and so of other parts; divers of their wounds bled at first, yet in greater quality than first when they were wounded, and then it was I must run to stay their bleeding.
My little Master, if you had been there, you had been much troubled with your hot iron, you had used to have had much Charcoal to make them red, and believe they would have flain you like a Calf for this cruelty. Now through this Diabolical temple of the Echo from those thin-dered窗户, the heat thereof, and by the great and vehement agitation of the collar of the shirt, he was cried and reverberating in the wounds of the hurt people, divers died, and others because they could not rest by reason of the groans and cries that they made night and day, and also for want of good nourishment, and other good usage necessary to wounded people. Now my little Master, if you had been there, you would hardly have given them Gelly, Refractuaries, Celluls, Prefervatives, Perfecribs, the former of which, you shall understand, your ordinance would only have been, accomplished in paper, but in effect they could have had nothing but old Cow-beef, which was taken about Helle for our Munition, falted and half boiled, in so much that who would have eat it, he must pull it with the force of his teeth, as Birds do Prey do Carnion. I will not forget their Linen wherewith they were drest, which was only renewed every day, and dried at the fire, and therefore drie and stubborn like Pitch-wood. I leave you to think how their wounds could heal well. There were four hilly Whores to whom charge was given to walk their Linen, which discharged their duty under penalty of the Bastinado, and also they wanted both Sope and Water. See then how the sick People died for want of nourishment, and other necessary things. One day our Enemies signified to give us a general Affault, to draw our Souldiers upon the breach, to the end to know our countenance and behaviour: every run then we had made great provision of artificial Fire to defend the breach; a Priest belonging to Moufieur De Bouillon took a Granado, thinking to throw it on the Enemies, and for it on the sooner than it ought to have done; it brake asunder, and the fire fell amongst our Firearms, which were put into a house near the breach, which was to us a marvelous disastre, because it burned many poor Souldiers: it also took hold on the house it left, and we had been all burned, had not great help been used for to quench it: there was but one Well there wherein was Water in our Castle, which was almost quite dried up, and in head of Water we took Beer and quenched it: then afterwards we had great fear of Water, and to drink the rest that remained, which must drain through Nalpaks.

Now the Enemy seeing this smoke and tempest of the Fire-works, which cast a very great flame or shining mole, they believed we had put the fire on purpose for the defence of our breach, to burn them, and that we had great store of others. That made them to be of another opinion than to take us by assault; they did undermine, and dig under the greatest part of our Walls, so that it was the way to overthrow wholly the Castle top-to-turfy, and when the Mines were finished, and that their Artillery, that the whole Castle did shake under us like an Earthquake, which did much astonish us. Moreover he had levelled five pieces of Artillery which they had leat upon a little hill, to play upon our backs when we would go to defend the breach.

The Duke Hucce had a Cannon-shot upon one shoulder, which carried away his arm on one side, and the body on the other, without being able to speak one only word. His death was to us a great disastre for the rank which he held in his place.

Like wise Moufieur Du Mortier had a sikoe with a bullet which pierced through his Lungs, I drest him, as I will declare hereafter. Then we demanded Part, and a Trumpet was sent toward the Prince of Piedmaus, to know what composition he pleased to make us: His answer was, that all the Chief, as Gentlemen, Captains, Lieutenant, and Ensigns, should be taken for ransom, and the Souldiers should go out without Arms; and if they refused this fair and honest proffer, the next day we ought to be assured they would have us by assualt, or otherwise. Council was made to know what composition it pleased him to make us: His answer was, that the place should be rendered up.

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pay any ransom, and the most part of the Soldiers and the chief of Companies, having faith and to many Prisoners as they would.

Afterward the Spanish Soldiers entered by the breach without any resistance, for ours effectually 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 to rifle all they retained: some hoping to have ransom, that if they should lose their Cordes, which was call'd over a Fife which two held upon their shoulders, then pulled the said Cord with a great violence and dexterity, as if they would ring a Bell, telling them that they must put themselves to the ransom, and tell of what Houses they were; and if they saw they could have no profit, made them cruelly die between their hands, or presently after their genitals parts would have fallen into a Gangrene and total Mortification; but they killed them all with their Daggers, and cut their Throats. See now their great cruelty and perfidious, let him trull to it that will. Now to return to your purpose: Being led from the Castle to the City with Moultre De Martignes, there was a Gentleman of the Duke of Savoy, who asked me if Moultre De Martignes was wounded, I answered not; who presently went and told the Duke of Savoy, now I thought he would send Physicians and Surgeons to him and drefs my said Moultre De Martignes: in the mean time I thought with myself whether I ought to make it nice, and not to acknowledge my self a Surgeon, for fear lest they should retain me to dress their wounded, and in the end they would know I was the Kings Surgeon, and that they would make me pay a great ransom. On the other side I feared, if I should not make my self known to be a Surgeon, and to have carefully dresse Moultre De Martignes, they would cut my Throat, so that I took a resolution to make it appear to them he would not die but for want of good dressing and looking to. Soon after, fee, there were divers Gentlemen accompanied with the Physician and Surgeon of the Emperor, and that of the said Duke of Savoy, with for other Gentlemen following the Army, to fee the hurt of the said Lord of Martignes, and to know of how I had dresse him, and what Medicines. The Emporium Physician bid me declare the offence of the wound, and how I had drest it. Now all the attendants had a very attentive ear to know if the wound were mortal or not. I began to make a discourse that Moultre De Martignes being hurt by the shot of the Waffe, I perceive them that did understand it, received a great fright, and tails quite through the body, prettily I was called to dresse him, I saw he cut out blood out of his mouth and his wounds. Moreover he had a great difficulty of breathing, and cut out wind by the said wounds with a whistling, in so much that it would blow out a candle; and he said he had a very sharp pricking pain at the entrance of the bullet. I do believe and think there might be some little pieces of bones which prick the Lungs. When they made their Syphole and Diahole, 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 thrur in, and the out-going of it had likewise broken the fifth 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, tied with a thread, lest by the inspiration it might be drawn into the capacity of the Thorax, which hath been known by experience to the detriment of the poor wounded; for being fallen in, it cannot be taken out, which is the cause that engenders putrefection, a thing contrary to Nature. The said Tents were moisty with a Medicin composed of Yolks of Eggs, Venice Turpentine, with a little Oil of Rose. My intention for putting the Tents was to stay the flux of blood, and to hinder that the outward air did not enter into the brest, which might have cooled the lungs, and by consequent the heart. The said Tents were alfo put, to the end that ifre might be given for the blood that was spilt within the Thoraces. I put upon the wound great Emplasters of Disasterwine, in which I had retained Oil of Rose and Vinegar to the avoiding of the inflammation; then I put great Tapes of Orange, and bound him up; but not too hard, to the end he might have easy respiration; that done I drew from him five pieces of blood from the Basileck vein of the right arm, to the end to make vomition of the blood which runs from the wounds into the Thoraces, having not taken indication from the wounded part, and chiefly his forces, considering his youth and sanguine temper; I pretendly after went to bed, and by his Urin and Siege cast great quantity of blood. And as for the pain which he said he felt at the entrance of the bullet, which was as if he had been prick'd with a bodkin, that was because the Lungs by their motion beat against the splinters of the broken rib. Now the Lungs are covered with a coat coming from the membrane called Pleura, interwoven with Neures of the sixth Conjugation from the brain, which was cause of the extreme pain he felt; likewise he had great difficulty of breathing, which proceed'd from the blood which was felt in the capacity of the Thoraces, and upon the Diaphragem, the principal instrument of inspiration, and from the dilatation of the sacks which are between each rib, which helps to make the expiration and the inspiration; and likewise because the Lungs were torn and wounded by the bullet, which had caud'd him ever since to spit black and putrid blood in coughing. The Fever fired him soon after he was hurt, with faintings and vomitings. It seemed to me that the said Fever proceed'd from the putridinous vapours rising from the blood which is out of his proper vessels, which hath fallen down, and will yet how down. The wound of the Lungs is grown great, and will grow more great, because it is in perpetual motion both sleeping and waking, and is dilated by the air of the heart, and cast fuliginous vapours out, and the natural heat is made inflammable, then the expansive virtue is contriv'd to call our by cough whatsoever is digestible unto it: for the Lungs cannot be purged but by coughing, and by coughing the wound is dilated, and grows greater, from whence the blood flies out with great abundance, which blood is drawn from the heart by the Vein Arterial to give them nourishment, and to the heart itself. And as for the shot was Barley-broads, Stewed Prunes, sometimes Vitruvius, sometimes Puffe. He could not lye but upon his back, which shew'd he had a great quantity of blood spilt.
faid within the capacity of the Thorax: and being spread or-filled along the spondylis, doth not so much press the Lungs as it doth being laid on the sides or sitting.

What shall I say more, but that the said Lord Marigny since the time he was hurt hath not repos-

ded of his first sensation, and hath always call out bloody, Menses and Stools. Thrice things then Mafter consid-ered, one can make no other prognostick but that he will die in a few days, which is to my great grief. Having ended my discourse, I dreft him as I was wont; having discovered his wounds, the Physicians and other affiats presently knew the truth of what I had faid.

The said Physicians having felt his pulse and known his forces to be almost spent and abolisht, they concluded with me, that in a few days he would die; and at the same instant went all toward the Lord of Savoy, where they all faid that the said Lord Marigny would die in a short time the answered. Then they all with one voice faid, he had been very well dreft, and conciliated with all things necessary for the curing of his wounds, and could not be better, and that it was impossible to cure him, and that his wound was mortal of necessity. The Mounfieur De Savoy fhewed himself to be very much discontented and wept, and asked them again if for certain they all held him deplor'd and remediless; they answered, Yes. Then a certain Spanifeh Impof tor offered himfelf, who promised on his life that he would cure him, and if he failed to cure him, they fhould cut him in an hundred pieces: but he would not have any Physicians, Surgeons, or Apothecaries with him. And at the same instant the faid Lord of Savoy told the Physicians and Surgeons they fhould not in any wise go more to fee the faid Lord of Marigny. And he faid a Gentleman to me to forbid me upon pain of life not to touch any more the faid Lord of Marigny, which I professed not to do: but therefore I was very glad, feeling he fhould not die in my hands, and commanded the faid Impof tor to dreft the faid Lord of Marigny, and that he fhould have no other Physicians nor Surgeons but him; he came presently to the faid Lord of Marigny, who told him:

Sayer Consciviero e tener Dute no ma mandalo quen vaisse a tarz yaftra, vos y jur a Dire que nave o se avio, o Nave o Carro no la langa en puras canzesp go no sy go que tos, Conven-
y y tfien la todo comend que fueren de sinfro go y yo hare la dieta pro V.M. y dejo a te no aes finguir fafe de mi, no fah tarde mas los que vainas magares harten que la vastra. That is to fay, Lord Cavaller, Mounfieur the Duke of Savoy hath commanded me to come fide thy wound; I ftiew to thee by God, that before eight days I will make the mount on Heart-back with thy Lance in thy hand, provided that no man may touch thee but my felf, thou fhalt eat and drink any thing that thou haft a mind to, I will perfy thy diet for thee, and of this thou mayft be affured upon my promife. I have cured divers who have had greater wounds than thine: and the Lord replied, God give you Grace with. He demanded of the faid Lord a Shirt, and tore it in little rags, which he put acrofs, muftering and murmuring certain words over the wounds; and having dréft him, permitted him to eat and drink what he would, telling him he would obferve a diet, which he did, eating but fox Prunes and fix bits of bread at a meal, and drinking but Beer. Notwithstanding two days after, the faid Lord of Marigny died; and my Spanifeh, feeding of him in the Army, eclipsed himself, and got away without bidding farewel to any body; and I believe if he had been taken, he had been hanged for his faile promifes, which he had made to Mounfieur the Duke of Savoy, and to divers other Gentlemen.

He died about ten of the Clock in the morning, and after Dinner the faid Lord of Savoy fent Physi-
cians and Surgeons, and his Apothecary, with a great quantity of Drugs to embalm him; they came accompanied with divers Gentlemen and Captains of the Army.

The Empereurs Surgeon came near to me, and prayed me kindly to open the Body; which I refufed, telling him I was not worthy to carry his Plaster-Box after him. He prayed me again, which I refufed, telling him that I had told them was found true in the dead body. It is done (as it were by a Tnnracle of Nature) by her expullive and (equeftring virtue, which is manifeftly empty thcm(elves by Urin and Stool. As it is likewife seen the pure milk of the brefts of Women newly brought to bed, to defeend by the Mammillary veins and to be

The one of the Physicians asked me, which way the blood might pafs to be caft out by Urin; being

carried in the Thorax. I answered him that there was a manifeft Conduit, which is the Pleurisy,

which having 만나ified the ribs, the refl of the blood defcends under the Diaphragm, and on the left side is conjoined to the emulgent Vein, which is the way by which the matter in Pleurisy and in Empyema, do manifeftly empty them(elves by Urin and Stool. As it is likewise seen the pure milk of the brefts of Women newly brought to bed, to defcend by the Mammary Veins and to be evacu-ated downwards by the neck of the womb without being mixt with the blood. And such a thing is done (as it was by a trunacle of Nature) by her expullive and (equeftring virtue, which is seen by experience of two plafs veffels called Mount-wine, let the one be filled with Water, and the other with Claret-wine, and let them be put one upon the other, that is to fay, that fhall be filled with Water upon which that fhall be filled with Wine, and you fhall appearely fee the Wine mount.
mount up to the top of the vessel quite through the water, and the water defended against the wine, and go to the bottom of the vessel without mixture of both; and if such a thing be done so exteriorly and openly to the sense of our eyes, by things without life, you must believe the fame in our understanding.

That is, that we can make matter and blood to pass, having been out of their vessels, yes, through the bones, without being mingled with the good blood.

Our discourse ended, I embalmed the body, and put it into a Coffin; after that the Emperor's Surgeon took me apart, and told me if I would remain with him, that he would use me very well, and that he would cloath me a new, also that I should ride on Horse-back. I thanked him very kindly for the honour he did me, and told him that I had no defire to do service to Strangers and Enemies to my Country: then he told me I was a Fool, and if he were Prisoner as I, he would ferve the Devil to get his liberty. In the end I told him that I would not dwell at all with him.

The Emperor's Physician returned towards the said Lord of Savoy, where he declared the case of the death of the said Lord of Mariages, and told him that it was impossible for all the men in the World to have cured him; and confirmed again, that I had done what was necessary to be done, and prayed him to win me to his service, and speak better of me than I deserved.

Having been persuaded to take me to his service, he gave charge to one of his Stewards named Monseigneur de Bonner, to tell me if I would dwell in his service, that he would use me kindly; I answered him that I thanked 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 choler, and said, he would send me to the Gallies. Monseigneur de Fandeville Governor of Gravelle, and Colonel of the Seventeen Ensigns of Foot, prayed him to give me to me to him, and offered him an ulcer which he had in his leg for six or seven years; Monseigneur de Savoy told him because I was of worth, that he was content, and if I ranked his leg, it would be well done, he answered, that if he perceived any thing, he would cut my Throat to be cut.

Soon after the said Lord of Fandeville sent for me by four German Halberiers, which affrighted me much, not knowing whether they led me, they spake no more French than I High Dutch: being arrived at his Lodging, he told me I was welcome, and that I was his; and as soon as I should have cured him of that ulcer in his leg, that he would give me leave to be gone without taking any ransom of me. I told him that I was not able to pay any ransom.

Then he made his Physician and Surgeon in Ordinary to show me his ulcerated leg; having seen and considered, we went apart into a Chamber, where I began to tell them that the said Ulcer was annual, not being simple but complicated: that is of a round figure and fally, having the lips hard and callous, hollow and filed, accompanied with a great various vein which did perpetually feed it: besides a great tumour, and a phlegmonous flux very painful through the whole leg, in a body of choleric complexion, as the hair 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 Diet, that he should not use any Wine at all, nor any salt Mears or of great nourishment, chiefeely that which did heat the blood: afterward the Cure must begin with divers applications about the Ulcer, and totally cutting away the callous edges or lips, and giving a longer or triangular figure for the round will very hardly cure, as the Ancients have left it in writing, which is seen by experience. That done the flux must be mended, also the corrupt flux, which should be done with Unguentum yogstiacum, and upon it a bolster dipped in Balsam and Nightshade and Sement, and row the leg, beginning at the foot, and healing at the knee, not forgetting a little bolster upon the various Veins, to the end no nother flux might how to the Ulcer. Moreover that he should take rest in his bed, which is commanded by Hippocrates, who faith, that those who have fore legs should not use much standing or sitting, but lying along. And after those things be done, and the Ulcer well mended, a plate of Lead rubbed with Quickfiver should be applied. See then the manner by which the said Lord Vandeville might be cured of the said Ulcer: all which they found good. Then the Physician left me with the Surgeon, and went to the Lord Vandeville, to tell him that he did assure him I would cure him, and told him what I was resolved to do for the cure of that ulcer, wherefore he was very joyful. He made me to be called to him, and asked me if I was of the opinion that this Ulcer could be cured, and told him, yes, provided he would be obedient to what he ought. He made me a promise he would perform all things which I would appoint; and as soon as his Ulcer should be cured, he would give me liberty to return without paying any ransom. Then I beseeched him to come to a better composition with me, telling him that the time would be too long to be out of liberty, if I stood till he was perfectly well, and that I hoped within fifteen days the Ulcer should be diminished more than one half, and it should be without pain, and that his Physician and Surgeon would finish the rest of the cure very easily. To which he agreed, and then I took a piece of Paper, and cut it large enough of the Ulcer, which I gave him, and kept as much as my self. I prayed him to keep promise, when he should find his bullae done: He swore by the faith of a Gentleman he would do it. Then I resolved to dress him well, according to the method of Galen, which was, that after all strange things were taken out of the Ulcer, and that there wanted nothing but filling up with flesh, I dress him but once a day, and he found that very strange. And likewise his Physician, who was a great Bafios, who would persuade me with the Patient, to dress him two or three times a day, I prayed him to let me do what I thought good; and that it was not to prolong the cure, but on the contrary to hasten it, for the great desire I had to be in liberty. And that he would look in Galen in the fourth Book of the Composition of Medicaments fidmanum genus, who faith, that if a Medicin do not remain long, upon the part it profits not so much, when it doth remain a long time; a thing which many Physicians have been ignorant of, and have thought it hath been better to change the Plaster often. And this ill custom is so inveterate and rooted, that the Patients themselves accuse often-times the Surgeons of negligence, because they do not other
remove their Emptipty, but they are deceived. For as you have read in my Weeks in divers places, the door of all the houses which mansky touch, operations against another, and both of them ftronger, where one of them is much stronger than the other, by means whereof the fad qualities are united, they familiarize with the time, although they are much differing from the manner, that the quality of the Medicament doth unite, and atones becomes like to that of the body, which is a very profitable thing. Therefore they say he is to be paid much what that intellect invented not to change the Platter to others, because it is known by experience this is a good invention.

Moreover it is fad, great fault is committed to drefs Ulcers often in wiping of them hard; for one takes not away only the unprofitable excrescence, which is the pu of Tenor of the ulcer, but the matter whereof the fitch is engendered; wherefore for the reasons afofated it is not needful to drefs Ulcers to often.

The fad Lord Vandevile would feek whether that which I alledged out of Galen was true and commanded the fad Physician to look there, for that he would know it he caufed the Book to be brought upon the Table, where my faying was found true, and then the Physician was abased, and I very joyfull. So that the fad Lord of Vandevile defired not to be drest but once a day; in too much that within fifteen days the Ulcer was almoft cicatrized; the composition being made between us, I began to be merry. He made me eat and drink at his Table, when there were not men of more great rank with him.

He gave me a great red Scarf, which he commanded me to wear. I may fay I was as glad of it as a Dog that hath a cog, for fear he should go into the Vineyard and eat the Grapes. The Physicians and Surgeon led me through the Camp, to vifit their hurt people, where I took notice what our Enemies did: I perceived they had no more pieces of Cannon, but twenty five or thirty pieces for the Field.

Lountenier de Vandevile held Mouncien of Bauge Pofioner, the Brother of Mouncien of Martignies who died at Hedin. The fad Lord of Bauge was Pofioner in the Cattle of the Heap of Wood, belonging to the Emperor, who had been taken at Tournayne by two Spanish Souldiers. Now the fad Lord of Vandevile having looke well upon him, conceived he muft be a Gentleman of force good House; and to be the better assured, he caufed him to have his Stockings pulled off, and feeing his Stockings and his Feet clean and neat, together with his feet white foles, it confirmed him in his opinion, that it was a man was able to pay some good random. He demands of the Souldiers if they would take thirty Crowns for their Pofioner, and that he would give it to them prefently, to which they agreed willingly, because they had neither means to keep him, nor feed him; besides they knew not his worth, therefore they delivred their Pofioner into the hands of the fad Lord of Vandevile, who prefently fent him to the Cattle of the Heap of Wood with a Guard of four Souldiers, with other Gentleman Pofioners of ours. The fad Lord Bauge would not discover himself, who he was, and endured very much, being kept but with bread and water, and lay upon a little draw. The fad Lord of Vandevile after taking of Hedin, first word to the fad Lord Bauge and other Pofioners, that the place of Hedin was taken, and the lif of thofe that had been slain, and amongf the rest, Mouncien of Martignies: and when the fad Lord of Bauge heard the found of the death of his brother the Lord Martignies, he began much to weep and lament; his Keeper demanded of him, why he made fomany and fo great lamentations? He declared unto them that it was for Mouncien de Bauge, who received me with joy, and a good countenance. Maffer at Vandevile, who reeived me with joy, and a good countenance.

The fad Lord Vandevile made fome account of the Ulcer of Mouncien of Bauge, who received me with joy, and a good countenance. Maffer at Vandevile, who reeived me with joy, and a good countenance.

The answer of the fad Lord of Bauge was, that to put himfelf to random he was not abble; and that, that depended upon Mouncien de Eflamps his Uncle, and of Maitres de Briffac his Aunc, and he had not any means to pay fuch a random. I returned with my Keepers to the fad Lord Vandevile, and told him the affair of his fad Pofioner, who told me perhaps he fhould not get out, to do a good rate, which was true, for he was dierovered. And forthwith the Queen of Hungary and the Duke of Sauty fent word to the Lord Vandevile, that this morfe was too great for him, and that he muft fend him to them, (which he did) and that he had enough Pofioners besides him. He was put to forty thoufand Crowns random, besides other expences.

Returning toward the fad Lord Vandevile I called by St. Omer, where I faw their great pieces of Battery, whereof the greatest part was ftruck and broken. I came also by Tournayne, where I did not fee fo much as stone upon fon, unless the mark of a great Church. For the Emperor gave commandament to the Country people within five or fix leagues about, that they fhould carry and carry away the stones, so much that nowone may drive a Cart over the City as is likewife done at Hedin, without any appearance of Cattle or Fortrefs. See then the mishife which comes by the Wars.

And to return to my purpole, prettily after my fad Lord Vandevile was very well of his Ulcer, and little wanted of the entire cure, which was the caufe he gave me my leave, and made me accompany with a Paft-port by a Trumpet to Albeville, where I took Poll, and went and found King Henry my Maffer at Alphon, who received me with joy, and a good countenance.

He feek for the Duke of Guife the High Confable of France, and Mouncien d’ Eflamps, to understand by me what had paff at the taking of Hedin, and I made him a faithful report, and affured him I had feen the great pieces of Battery, which they had carried to St. Omer. Whereas the
the King was very joyful, because he feared lest the enemy should come farther into France. He gave me two hundred Crowns to retire my self to my own house, and I was very glad to be in liberty, and out of this great content and security of mind was the Diabolick artillery, and far from the soldiers, blasphemers and deniers of God. I will not omit to tell you here that after the taking of Rochefor the King was advertised that I was not slain, but that I was a prisoner, which his Majesty caused to be written to my wife by Monsieur de Goyoin his chief Physician, and that he 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 Battle of S. Quintin, 1557.**

After the Battle of S. Quintin, the King sent for me to the Fere in Tartemis toward Monsieur the Marshal of Bordalud, to have a pass-port to go to drees Monsieur the Confable, who was grievously hurt with a Pithol-shot in the back, whereas he was like to die, and remained a prisoner in his enemies hands. But the Duke of Savoy would not give credit that I should go to the said Lord Constable, saying, he would not remain without a Surgeon, and that he doubted I was not sent only to drees him, but to give him some advertisement, and that he knew I understood something, else before Surgery, and that he knew me to have been his prisoner at Horse. Monsieur the Marshal of Bordalud advertised the King of the Duke's denial, which means the King wrote to the said Lord of Bordalud, that if my Lady, the Lord high Constables wife, did find 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 Monsieur the Cardinal of Lorraine had given me in charge. Two days after there arrives a Envoy of the Lord Constable Chamble, who brought him shoes and other linen, for which the said Lord Marshal gave pass-port, to go to the said Lord Constable. I was very glad thereof, and gave him my letter, and gave him his letters, of which that his Master should do being prisoner. I had thought being discharged of my embassage to return toward the King. But the said Lord of Bordalud prayed me to stay with him at the Fere to defend great number of people who were hurt, and were thither retired after the battle, and that he would send word to the King the cause of my flay, which I did. The wounds of the hurt people were greatly flaming, and full of worms with gangrene and putrefaction; so that I was constrained to come with my knife to amputate that which was spoild, which was not without cutting off arms and legs, as also to trench divers. Now there were not any medicines to be had at the Fere, because the Surgeons of our Camp had carried all with them. I found out that the Charriot of the Artillery tarried behind at the Fere, nor had it yet been toucht. I prayed the Lord Marshal that he would cause some of the drugs to be delivered to me that were in it, which he did, and there was given to me one half at a time: five or six days after I was constrained to take the rest, neither was there half enough to drees so great a number of people, and to contrast and fight the putrefaction, and to kill the worms that were entred into their wounds, I washed them with Aegyptiacum dissolved in wine and Aqua vitæ, and did for them all which I could police, yet notwithstanding all my diligence, very many of them died.

There were Gentlemen at the Fere who had charge to find out the dead body of Monsieur de Bois-Dolphin the Elder, who had been slain in the battle; they prayed me to accompany them to the Camp to find him out amongst the dead, if it were possible, which indeed was impossible: seeing that the bodies were all distasteful and overwhelmed with putrefaction. We saw more than half a league about us the earth covered with dead bodies, neither could we abide long there, for the cadaverous fents which did arise from the dead bodies, as well of men as of Horses. And I think we were the cause, that so great a number of flies rode from the dead bodies, which were procreated by their humidity and the heat of the Sun, having their tails green and blew, that being up in the air made a shadow in the Sun. We heard them, but, or him, which was much marvel to us. And I think it was enough to cause the Plague where they alighted. (My little Master) I would you have been there as I was, to discerning the ordures, and also to make report to them which were never there. Now being Clayed and ignorat in that Country, I prayed Monsieur the Lord Marshal, to give me leave to be gone, and that I was afraid I should be feed by reason of my too great pains, and the finks which did arise from the wounded, which did almost all die, for what diligence forer could be used unto them. He made other Surgeons come and dress the same hurt people, and I went away with his good grace and favour. He wrote a letter to the King, of the pain he had taken of the poor wounded. Then I returned to Fere, where I found yet many Gentlemen that had been hurt, and were there retired after the battle.

**The Voyage of the Camp of Amiens, 1558.**

The King sent me to Doulan, and made me be conducted by a Captain Goyoin, 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 caufed my man to alight, making him to be my master for that time, and I got upon his horse, which carried my mail, and took his cloath and hat, and gave him my ambling Mars. My man being put upon her back, one would have taken him for the master, and I for the servant. Then of Doulan facing us far off, thought we were enemies, and let fire their Cannon-shot at us. Captain Goyoin my conductor, made a sign with his hat, that we were not enemies, so that they left shooting, and we entered into Doulan, with great joy. Thofe of Doulan made a hearty forth upon the enemies five or six days before; who killed and hurt divers of our Captains, and good Statesmen, and amongst the rest Captain S. Aubin valiant at the former battle, whom Monsieur de Goyoin loved very well, and for whom chiefly the King sent me thither, who being in the fit of a quartan fever, would needs go out to command the greatest part of his Company: a Spaniard being in the fit of a quartan fever, would needs go out to command the greatest part of his Company: a Spaniard being in the fit of a quartan fever, would needs go out to command the greatest part of his Company.
and with the fear (I protest to God) he lost his quartan ague, and was altogether freed from it. I dressed him with Anthony Parrot Surgeon in ordinary to the King, and divers other soldiers: some died, others escaped quite with the loss of a leg or an arm, or the loss of an eye, and they said they escaped good cheap, escape that can. When the enemy had broken their Camp, I returned to Paris. Here I hold my peace of my little Matter, who was more at ease in his house, than I at the Wars.

The Voyage of Harbor Grace, 1563.

Yet I will not omit to speak of the Voyage of the Harbor Grace; when they made the approaches to plant the Artillery, the English who were within it killed some of our Soldiers, and divers Pioneers, who underrim, who when they were seen to be in hurt there was no hope of curing, their fellows frighted them, and put them yet alive into the Mines, which served them for so much killing earth. The English feering they could not withstand an assault, because they were very much straitened with diseases, and chiefly with the Plague, they yielded, their lives and jewels saved. The King caused them to have slips to return to England, being glad to be out of this place infected with the Plague; the greatest part died, and carried the Plague into England, and since have not yet been exempted. Captain Sarliriner master of the Camp, was left there in Garnison, with six Ensigns on foot, who had no fear of the plague, and were very joyful to enter therein, hoping there to make to make good cheer. My little Matter had you been there, you had done as they,

The Voyage of Rennes, 1562.

Now for the taking of Rennes, they killed divers of ours before the assault, and at the assault: the day after they entered into the City, I prepared eight or nine, who were hurt at the breach where the earth had been removed, and wounded with stones. This was so malignant an air, that divers died, ye a few of them; inbruced thome thought they had poisoned their bullets: these within the line by us, for although they were well treated in their necessities within the City, yet they died also as well as those without. The King of Navar was hurt in the shoulder with a bullet, some few days before the assault; I visited and helped to dress him, with his own Surgeon, named M. Gilbert; one of the chief of Ministers, and others. They could not find the bullet, I searched for it very exactly; I perceived by conjecture, that it was entred by the head of the Adpository, and that it had run into the cavity of the said bone, which was the cause we could not find it. The molt part of them said it was entred and left within the cavity of the body. Monsieur the Prince of the Rues upon Ton, who intimately loved the King of Navar, drew me to one side, and asked me if the wound was mortal. I told him yea, because all wounds made in great joints, and principally contused wounds, were mortal according to all Authors who had written of them. He inquired of the others what they thought, and severely of the said Gilbert, who told him that he had great hope that the King his Master would be cured, and the said Prince was very joyful.

Four days after the King and Queen-Mother, Monsieur the Cardinal of Bourbon his brother, Monsieur the Prince of Roch upon Ton, Monsieur de Gouffy, and other great personages, after we had dressed the King of Navar, caused a consultation to be made in their presences; where there were divers Physicians and Surgeons: each man said what seemed good unto him, and there was not one of them, who had not good hope of him, saying that the King would be cured. The wound was mortal; and I persisted always on the contrary.

Monsieur the Prince of the Rues upon Ton who loved me, withdrew me aside, and said I was only against the opinion of all the rest, and prayed me not to be obstinate against so many worthy men. I answered him, that when I saw any good signs of cure, I would change my advice. Divers consultations were made, where I never changed my word, and prognostick, such as I had made at the first dressing, and always said that the arm would fall into a Gangrene, which it did, what diligence fover could be had to the contrary; and he gave up his soul to God the eighteenth day of his hurt, Monsieur the Prince upon Ton, having heard the death of the said King, sent his Physician and Surgeon toward me, named Feure now in ordinary to the King, and the Queen-Mother, to tell me, that he would have the bullet taken out, and that it should be looked for in what place it could be found; then I was very joyful, and told them that I was well assured to find it quickly, which I did in their presence and divers Gentlemen. It was lodged in the very midst of the cavity of the Adjutory bone. My said Prince having it, shewed it to the King and Queen, who all said my progonstick was found true. The body was laid to rest in the Castle of Gaillon, and I returned to Paris, where I found divers hurt men who were hurt at the breach of Rennes, and chiefly Italians, who defined me very much to dress them, which I did willingly there were divers that recovered, and others died. I believe (my little Matter) you were called to dress some of them, for the great number there was of them.

The Voyage of the Battle of Dreux, 1562.

The day after the battle was given at Dreux, the King commanded me, to go dress Monsieur the Count of En, who had been hurt, and was in a drift-like in the right thigh, near the joint of the thigh, which I cut and broke the Os femineum in divers places, from whence divers accidents did arise, and then death, which was so great a drift. The day after my arrival I went to the field, where the battle was given, to see the dead bodies: I saw a league about all the earth covered, where there was by estimation five and twenty thousand men and more. All which were dispatched in the space of two hours. I told my little Matter for the love I bear you, that you had been there to reconnoitir it to your scholars, and to your children. Now in the mean time while I was at Dreux I visited and dress a great number of Gentlemen and poor followers, and amongst the rest many Sugar Captains: I dressed fourteen in one chamber only, all hurt with Pithach-shot and other instruments of diabolical men, and not one of the fourteen died. Monsieur the Count of En being dead, I made no long tarrying at Dreux; there came Surgeons from Paris who performed...
Concerning divers Voyages.

The Voyage of the Battle of Moncontour. 1566.

During the Battle of Moncontour, King Charles was at Tours, where he heard they had won it; a great number of hurt Gentlemen and Soldiers withdrew themselves into the City and Suburbs of Tours, to be dearded and helped, where the King and Queen-Mother commanded me to fly my duty with the other Surgeons, who were then in quarter, as Piggy, du Blot, Postoil, and one named Serret, a Surgeon of Tours, a man very skilful in Surgery, and that time Surgeon to the Kings Brother; and for the multitude of the wounded we were but little in repose, nor was the Physicians likewise. Count Mansfeld, Governor of the Duchy of Luxembourg, Knight of the King of Spain's Order, was greatly hurt in the battle, in the left arm, with a Pistol-shot, which broke a great part of the joint of the elbow, and had retired himself to Bourges near Tours, being there, he sent a Gentleman to the King, affectionately to beseech him to send one of his Surgeons to help him in his hurt. Council was held what Surgeon should be sent. Montueur the Marshal of Montmorney told the King and Queen, that it was best to send his chief Surgeon, and declared to him that the said Lord Mansfeld was one part of the cause of winning the Battle. The King said that he would not that I should go, but would have me remain close to him. Then the Queen-Mother said, I should but go and come, and that he must consider it a strange Lord, who was come from the King of Spain's side, to help and succour him. And upon this he permitted me to go, provided that I should return quickly. After this resolution he sent for me, and likewise the Queen-Mother, and commanded me to go and find the said Lord Mansfeld 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 theirs Majesties: having seen if he received it, he received me with a good will, and from thenceforth discharged three other Surgeons that dress him, which was to my great grief, because his hurt seemed to me uncertain. Now at Bourges there were retired divers Gentlemen, who had been hurt at the said Battle, knowing that Montueur de Guis was there, who had been also very much hurt with a Pistol-shot through one leg, well assured that he would have good Surgeons to dress him, and also that he, being kind and liberal, would assist them with a great part of their necessaries. And for my part, I did help and aid them, with all my Art, as much as it was possible, some died, some recovered, according to their hurts. The Count Rangon died, who had such a shot into the shoulder, as the King of Navarre before Rouen. Montueur de Baffompierre Colonel of twelve hundred Horse, was hurt also in such a like place as Count Mansfeld, whom the King and Duke cured. God so blest my work that within three Weeks I led him back to Paris, where I must as yet make incisions in the arm of the said Lord Mansfeld, to draw out the bones which were greatly broken and caried: he was cured 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 appear: He write a Letter to the Duke of Aosta how that he was cured of his hurt, and also Montueur de Baffompierre of his, and divers others, which I had dress after the Battle of Moncontour, and consigned him to beheve in the King of France, my good Master, to give me leave to go see Montueur the Marquis of Aosta his Brother.

The Voyage of Flanders.

Omniej the Duke of Aosta 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 chief Surgeons to come to see the Marquis of Aosta his Brother, who had received a Musquet-shot near the knee, with fracture of the bone, about seven months since, which the Physicians and Surgeons in those parts were much troubled to cure. The King sent for me, and commanded me to go and see the said Lord Aosta, and to help him in all that I could for the cure of his hurt; I told him I would employ all that little knowledge which it hath pleased God to give me. I went then conducted by two Gentlemen of the Castle of Aosta, which is a league and a half from Mons in Hainault, where the said Marquis was: as soon as I arrived I visited him, and told him the King had commanded me to come and see him, and to dress 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 foids, with a countenance grave 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 twelled, apoplecticated, ulcerated, and calling out a green thickening matter; I healed it with a Proke, and by the same I found a cavity near the groin, ending in the middle of the thigh, and others about the knee, fatious and cuniculous, all to certain feals of bones, foon separated, not others. The legs were much tumified, and folved with a putridous humour, cold, moist, and fetulent; in so much that the natural heat was in the way to be lacerated and extinguished, and the said leg crooked and extracted toward the buttocks, his rump ulcerated the breadth of the palm of an hand, and he said he felt there a great pain and smarting, and likewise in his reins, in so much that he could not take any eat or drink: it was told me that he fell often into faintings and swoonings, and sometimes as it were by an Epilepsie, and had oftentimes defired 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 gome thither, because I thought there was little appearance that he could escape. Nevertheless to give him good courage and good hope, I told him that I would quickly fet him on foot by the grace of God, and the Physicians and Surgeons help. Having seen him, I went a-
a walking into a Garden, where I prayed to God that he would give me the grace to cure him, and that he would give a blessing to our Hands and Medicaments, to combat against so many complicated Maladies. I bethought in my mind the ways I must keep to do it. They called me to dinner, I entered into the Kitchen where I saw taken out of a great Pot, half a Mutton, a quarter of Veal, three great pieces of Beef, and two Pullets, and a great piece of Bacon, with great store of good Herbs. Then I said to my self, this Broth was full of juice, and of good nourishment. After Dinner all the Physicians and Surgeons assembled, we entered into conference in the presence of Mounfeur the Duke of Aften, and some Gentlemen that did accompany him. I began to tell the Surgeons that I marvelled much they had made no apertures in the Marquess's thigh, which was all apoplectic, and the matter that issued out was foul and stinking, which showed it had a long time lurked there, and that I found with my Probe a Cancer in the bone, and small leales which were already separated; they made me answer, he would never give consent, and likewise it was almost two Months since they could win him to put on clean Sheets on his bed, neither durst anyone fear to touch the Coverlet, he felt to great pain. Then I said, for to cure him, we must touch other things than the Coverlet of the Bed. Each one said what he thought best for the Lords grief, and for conclusion held it altogether deplorable. I told them there was yet some hope, because of his youth, and that God and Nature do sometime fuch things which seem to Physicians and Chirurgians impossible. My conclusion was, that all those accidents were come by reason of the buller lying near the joint of the Knee; which had broken the ligaments, tenons, and aggerurcetes of the muscles which tied the said joint together with the Or femor, alfo Nerves, Veins, and Arteries, from whence there followed pain, inflammation, suppuration, and ulcer, and that we must begin the cure by the elective, which was the cause of all the said accidents, that is to say, to make apertures, to give affue to the matter retained in the intervals of the Muscles, and in the substance of them: Likewise to the bones whose cause a great corruption in the whole thigh, from whence the vapours did arise and were carried to the heart, which caused the Syncope and the Fever, and the Fever an universal heat through the whole body and by consequent, depravation of the whole Osseity. Likewise that the said vapours were communicated to the brains, which caused the Eclampsy and trembling, and to the Stomach distilnation, and hindered it from doing its functions, which are chiefly to concoct and digest the meat, and to convert it into Chylus, which not being concocted, they ingender crudities and obstructions, which makes that the parts are not nourished, and by consequent the body dies, and grows lean, and because all did not do any exercise for every part which hath not his motion remaineth languid and atrophiated, because the heat and spirits are not sent or drawn thither, from whence follows mortification. And to nourish and fatten the body, Frietches must be made universal through the whole body with warm linen cloths, above, below, and on the right side, and let and round about, to the end to draw the blood and spirits from within outward, and to resolve any filiginous vapours retained between the skin and the flesh; thereby the parts shall be nourished and reforted, (as I have hertofore said, in the Tenth Book treating of the Wounds of Gun shot) and we must then cleave when we fee heat and redness in the skin, for fear of revolting that we have already drawn, and by consequent make it become more lean. Also for the ulcer which he hath upon his rump, which came through his too long lying upon it without being removed, which was the cause that the spirits could not nourish or thrive in it, by the means of which there should be inflammation, apoplectic, and then ulcer, yet with a little applications of the subject flux, with a very great pain, because of the Nerves which are difteminated in this part: That we must likewise put him in another soft bed, and give him a clean Shirt and Sheets, otherwise all that we could do would serve for nothing, because that excitements and vapours of the matter retained to long in his bed, are drawn in by the Syphilis and Dyspepsia of the Arteries which are diteminated through the skin, and caufe the spirits to change and acquire an ilemality and corruption which is seen in some that lie in a bed where one hath feet for the Poet, who will get the Poet by the point vapours which shall remain soaking in the Sheets and Coverlets. Now the cause why he could in no wise sleep, and was as it were in a Confumption, 'twas because he was little, and did not do any exercise, and because he was grieved with extreme pain. For there is nothing that abateth so much the strength as pain. The cause why his tongue was dry and foul, was through the vehemency of the heat of the Fever, by the vapours which ascended through the whole body to the mouth. For as we fay in a common Proverb, When the Ozen is well heated, the Throat feeth it. Having discoursed of the Caufes and Accidents, I told them they must be cure by their Contraries, and if I could not appease the pain, making apertures in the thigh to evacuate the matter retained, not evacuating all at a time, for fear left by a sudden great evacuation there might happen a great decay of spirits which might much weaken the Patient and shorten his days. Secondly, to look to the great swelling and cold of his leg, fearing it should fall into a Gangrene and that actual heat must be applied unto him, because the potential could not reduce the intertemporality Dr Pittam ad Adium, for this cause hot Bricks must be applied round about, on which should be cast a decoction of Nervous Herbs boiled in Wine and Vinegars, then wrap up in some Napkin, and to the feet an earthen Bottle filled with the said decoction, stop and wrap up with some linen cloths; also that fomentations must be made upon the thigh, and the whole leg of a decoction made of Sage, Rosemary, Tyme, Lavender, Flowers of Camomile, Mellow, and Red Fritels held in White Wine, and a Laxative made with Oak-ashes, with a little Vinegar, and half an handful of Salt. This Decoction hath vertue to attenuate, incite, resolve and dry the gros vicious humour. The said Fomentations must be used a long while, to the end there may be a great resolution, for being done a long time together, more is resolved than attained, because the humour contained in the part is liquifed, the skin and the flesh of the muscles is rati fied. Thirdly, that there must be applied upon the rump a great Plaster made of the red dective,
B O O K  X X I X .

Concerning divers Voyages.

cutie and *Unguentum Comitiss*, of each equal parts incorporated together, to the end to appease his pain, and drizzle up the ulcer, alfo to make him a little down-pillow which might bear his rump aloft without leaning upon it. Fourthly, to reffir the heat of his Kidnies, one should apply the Unguent called *Refrigerans Galea* veterely made, and upon the leaves of Water-Lilies. Then a Napkin of Oil of Naphtha, or Ointment, and often renewed, and for the corroboration and strengthening of his heart a refirering Medicine should be applied, made with Oil of Naphtha, and ungrefed, and a little Saffron diffilled in Rois-Vinegar, and Trecacle spread upon a piece of Scarlet, for the Syphoe which proceed from the deflribution of the natural forceft of the brain. Alfo he muft use good nourifhment full of juice, as *Rece Eggs* Damask Prunes liewed in Wines and Sugar, alfo Pandan made of the broch of the great Pot (of which I have already spoken) with the white faltie parts of Conies, and Partride wings minced small, and other rooff-meat cafe of digestion, as Veal, Goat, Pigeon, Partride, and the like. The Sauce should be Oranges, Verjuice, Sorrel, sharp Pomgranates; and that he alike likey eat of them boiled with good herbs, as Sorrel, Lettuce, Purlane, Saxaver, Bugloss, Mangolds, and other the like. At night he might ufe clarified Barley with the juice of Naphthaf and Sorrel, of each two ounces, with five or six grains of Opium, and of the Four cold Seeds bruifed of each half an ounce, which is a remedy nourifhing and medicinal, which will provoke him to fleep: that his bread should be of Millet, neither too new nor too stale; and for the great pain of his head, his hair muft be cut, and rub his head with *Unguentum hale-warm*, and leave a double cloth wet therein upon it likewise should be made for him a tronfal of Oil of Rois, Naphthaf, Peppedes, and a little Opium and Rois-Vinegar, and a little Camphifer and to re¬new it fometimes. Moreover one should caufe him to find to the flowers of Horbane and Naph¬thaf bruifed with Vinegar, Rois Water, and a little Camphifer wrapped in a Handkerchief, which that he be offended, and a good time hold to his nefte, to the end that the fecret may be communicated to the brain, and fuch things to be continued till that the great infeftion and pain be past, for fear of cooling the brain too much. Besides, one may caufe it to rain artificially, in pouring down from fome high place into a Kettle, and that it may make fuch a noife that the Patient may hear it by the flefp of the brain fecreted provoked on him. And as for the extraction of his leg, when there was hope to drefs it, when evacuation was made of the matter, and other humours contained in the leg, which by their extention (made by reftion) have drawn back the leg, which might be remedied in rubbing the whole joint of the Knee with *Unguentum Distilhum* and Oil of Lilies, and a little *Amphi*, and upon to he laid black Wool with the greafe thereof. Likewise putting in the Ham a Feather pillow folden in double, and by little and little to make his leg to ftrich out, and which my difcourfe was approved of by the Physicians and Chirurgus. The conflaguation ended, we went to the fick Patient, and I made him three apertions in his thigh, from whence diffilted out great quantity of matter and faines; and at the fame time I drew out fome fcales of bones, nor would I lett out too much abundance of the faid matter, for feare of too much decaying his strength: Then two or three hours I caufed a Bed to be made near his own, where there were clean white sheets, then a strong man lifted him into it, and he rejoiced much in that he was taken out of his foul thinking Bed. Soon after he demanded to fleep, which he did almoft four hours, where all the people of the houfe began to rejult, chiefly Monfieur the Duke of *Af¬ter his Brother*. The days following I made injecfions into the bottom of the cavities of the Ucer, made with *Amphi* diifolved fometimes in aqua vitæ, and fometimes in Wine. I appled to mag¬nifie and drie the fpongy and loofe flefh, bolifters at the bottom of the fummaries, hollow tents of lead, that the fantes might have paflage outs and upon to a great Engelfher of *Drecellebær* diifolved in Wine: likewise I did rowl it with fuch dexterity, that he had no pain, which being appeafe, the Fever began much to diminife. Then I made him drink Wine moderately allayed with Water, knowing that it refures and quickens the fpirits : and all the things which were refed on in the conflaguration were accomplifhed, according to time and order, and his Pains and Fever ceaful, he began to grow better, and dillachiefed two of his Surgeons and one of his Physicians, fo that we were but three with him. Now I remained there about two months, which was not without being divers fick people, as well rich as poor, which came to me about three or four leagues about. They gave meat and drink to the needy, all which he recommended to me, and prayed me also for his fake to help them. I protest I did not refufe any one, and did to them what I poobly could, wherefore he was joyful. Then when I faw he began to mend, I told him he muft have a Confort of Violins and a Jefter to make him merry, which he did; in one moneth we fo wretched, that he could hold himfelf up in a Chair, and made himfelf to be carried and walk in his Garden, and at the Gate of his Caflle to fee the people pafs by. The Countrypeople of two or three leagues about, knowing they could fee him, came the Fair-day Male and Female, to fing and dance pell-mell, in joy of his amendment, all being very glad to fee him, which was not done without goold laughing and drinking. He caufed still a barrel of Beer to be given them, and they drank all mery to his good health. And the Citizens of Monf *Hutander*, and other Gentlemen neighbors, came to fee him in admiration, as a man coming from the Tomb. And as foon 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 for his beauty and honeftiy, having a pleafantlook and a gra¬"
after they fetched me with two Coaches, and being arrived at Mons we found the dinner ready, and the chief of the City with their Wives, paid for me with a good will. We went to the Table, and they placed me at the upper end, and drank all to me, and to the health of Monsieur 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 we were all honoured and loved. After dinner was highly honoured and loved. After dinner was highly

fired back to the Castle of Auret, where Monsieur the Marqués said for me with great expectation to reconnoitre, what we had done in our Banquet. I told him that all the company had drank divers times to his health. In six weeks he began to uphold himself a little with Crutches, and grow very fat, and to get a lively natural colour. Now he had a desire to go to Beaumont, which is the dwelling place of Monsieur the Duke of Ajax, and made himself be carried in a great chair with eight men by turns, and the Country-folks, where we passed along, knowing 'twas Monsieur the Marqués, fought and strive together who should carry him, and confirmand us to drink, but it was but Beer, but I believe had it been Wine or Hippocras, they would have given it us with a very good will, so much did they show themselves joyful to see the said Marqués, and prayed all to God for him. Being arrived at Beaumont, all the people came before us to do him reverence, and prayed God to bless him, and keep him in good health. We entered into the Castle, where there was more than fifty Gentlemen which the Duke of Ajax had lent for to come make good cheer with his Brother, who kept his Table furnished three days together: And after Dinner the Gentlemen ran at the Ring, played at Foils, and rejoiced to see the said Marqués and the rest that remained for the cure of his grief. And now to begin a little to estrange myself from him, I prayed him to give me leave to go see the City of Auret, which he willingly accorded to: and commanded his Steward to conduct me thither accompanied with two Pages; we passed through Malines and Brussels, where the chief of the City prayed the said Steward that at our return they might hear of it, and they had a great defire to feast me, as they of Mons had done. I thanked them most kindly and told them that I was not worthy of such honour. I was not two days and a half to see the City of Auret, where some Merchants knowing the Steward, prayed him to do them the honour, that they might have a Dinner or Supper upon us. There was driving who should have us, and they were all very joyful to hear of the good health of the Marqués of Auret, doing me more honour than I expected. To conclude, we came back to the Marqués making good cheer, and within five or six days I asked my leave of him, which granted with great grief and gave me an honest Present, and of great value, and made me be conducted by the said Master of his House and two Pages, even to my house at Paris. I have forgot to tell you that the Spaniards have since ruined and demolished his Castle of Auret, facks, pilgaged, rifled and burnt all the Houses and Villages belonging unto him, because he would not be of their side, in the slaughter and ruins of the Low-Countries.

The Voyage of Brussels, 1562.

The King with his Camp remained not long at Burgers, but those within yielded it up, and went out with their Jewels saved. I know nothing worthy of memory, but that a Boy of the Kings Privy Kitchen, who being near the Walls of the City before the Compositions was made, cried with a loud voice, Hugonot, Hugonot, Shoot here, Shoot here, having his arms lifted up, and his hand stretched out, a Soldier shot his hand quite through with a bullet: having received his brooke, he came and found me out to dress 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 was a Gentleman who saw the shot made, said it was well bellowed, because he cried Hugonot, Shoot here, Shoot here. Then the said Lord Constable said, this Hugonot was a good Musketeer, and bare a pitiful mind; for it was very likely if he would have shot at his head, he might have done it more easily than in the hand. I dressed the said Cook who was very tick, but at length was cured, but with lameness of his hand, and ever after his Companions called him Hugonot.

The Battle of St. Dennis, 1567.

And as for the battle of Saint Denis there were divers slain as well on one side, as on the other: ours being hurt, went back to Paris to be dressed together with the Prisoners who were taken, whereas I dressed a great part. The King commanded me, by the request of the Lady High Constable, to go to her house to dress my Lord, who had received a Pithot-shot in the middle of the spondyle of his back, whereby he presently lost all sense and motion of thighs and legs, with retention of excrements, not being able to call out his Urin, nor any thing by the fundament, because that the Spinal marrow, from whence proceed the nerves to give sense and motion to the interior parts, was lacerated, broken, and torn by the vehemence of the bullet. He likewise lost his Reason and Understandings, and in a few days he died. The Surgeons of Paris were a long time troubled to dress the said wounded people. I believe (my little Master) that you saw force of them. I beheld the great God of Victories, that we may never be implicated 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 years 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 Mounfieur Chaplain, chief Physician to the King, and Mounfieur Chefillon chief to the Queen-Mother, a man of great honour and knowledge in Physick and Surgery: making this Voyage, I was always inquisitive of the Surgeons if they had marked any rare thing of remark in their practice, to the end to learn some new thing. Being at Bayonne, there happened two things of remark for the young Surgeons: The first was, that I dress a Spanish Gentleman, who had a grievous great Impostume in his Throat: he came to have been touched by the deceased King Charles for the Evil. I made incision in his Apo¬stome, where there was found great quantity of creeping Worms as big as the point of a Spindle, having a black head, and there was great quantity of rotten flesh. Moreover there was under his Tongue an Impostume called Kanula, which hindered him to utter forth his words, and to eat and swallow his meat: he prayed me 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 stones, like those which are drawn from the bladder. The greatest was as big as an Almond and the other like little long Beans, which were five in number: in this apostome was contained a slimy humour of a yellow colour, which was more than four spoonfuls. I left him in the hands of a Surgeon of the City to finish his cure.

Mounfieur de Fontain, Knight of the Kings Order, had a great continual pestilent Fever accompanied with divers Carbuncles in divers parts of his body, who was two days without ceasing to bleed at the nofe, nor could it be stanch’d: and by that means the Fever ceased with a very great sweat, and soon after the Carbuncles ripened and were by me dress’d, and by the grace of God, cured.

I have published this Apology to the end that each man may know with what foot I have always marched, and I think there is not any man for which I have said, being my Discourse is true, and that the effect Iwewith the thing to the eye, Reason being my Warrant against all Calumnies.

The End of the Apology and Voyages.

F I N I S.
ARRHEIOAORIA:
OR,
A DESCRIPTION
OF THE
VESSELS
In the BODY of MAN:
Of the THREE KINDS; i. e.
OF THE
Veins, Arteries, and Nerves:
Especially of those in the LIMBS and HABIT of the Body.
Whereof there are also given
ANATOMICAL FIGURES,
The largest and fairest that ever were published with any English Book.

IN THREE TRACTATES.

Translated out of the ANATOMY of ADRIANUS SPIGELIUS,
by whom these Parts are more largely and accurately described than by
other Authors: the more full tractation whereof, being a part of Anatomy
so useful in order to Chirurgical Operations, hath been judged very worthy
to be annexed unto this present WORK.

LONDON,
Printed by M. Clark for John Clark, and are to be sold at Mercers Chappel
at the Lower End of Cheapside. MDCLXXVIII.
ATTEMPT
OR
DESCRIPTION
OF
THE
VESSELS
FOR
BOAT-AND
MAN-MADE
VANITIES
AND "PRA"/E.
ANATOMICAL
ILLUSTRATIONS
OF
THE
MUSCLES
OF
THE
HEAD,
CHEST,
AND
BACK.

H. W. C.
THE PREFACE.

From how great consequence a more perfect knowledge of Anatomy is to the Art of Physick and Chirurgery, hath been frequently and abundantly made out by Anatomists, Physicians, and Chirurgeons, upon occasion, in their several Writings; though the thing itself speak so plainly in its own behalf, that much need not be said in this kind. The case is plain, that with the like facility and success may a Mariner, making out some Unknown Land, steer his course through the Main Ocean, where nothing but Sea and Sky appears, without the help of his Card and Compass, as a Phyicinan judge of the Natural Action, or Supernatural Affect of any part of the Body: or a Chirurgeon institute any Operation about the same, without the Anatomical knowledge thereof: and therefore no more shall be said to this effect.

Anatomy may be very commodiously reduced to four distinct Kinds, or distinguished according to so many Principal Parts.

1. **Splanchnologie.** Splanchnologie, that is, the description of the Bowels contained in the three Cavities or Bellies of the Body, the lower, middle, and supreme.

2. **Osteologie.** Osteologie, which is the description of all the Bones of the Body.

3. **Myologie.** Myologie, being the Anatomical History of all the Muscles.

4. **Angeiologie.** Angeiologie, describing all the Vessels of the Body, i.e. the Veins, Arteries, and Nerves: these last though having no sensible Cavities, being reputed Vessels in the account of Anatomists.

Now though all these parts or kinds of Anatomy are needful both to Physick and Chirurgery, yet are they not all of a like necessity to both: but the first of more absolute necessity to the Art of Physick, the other three to Chirurgery. And therefore, though all four have been treated on by the learned Author of this Volume, yet in reason it could not but be advantageous and acceptable to Chirurgeons to have some further helps in our English Tongue, for improvement in the three latter kinds before-mentioned, or in some of them at least. Now for Osteologie, the parts themselves, or the dry bones are and may be kept at hand, for frequent view and contemplation upon them; whereby their several Figures, Articulations, and all other particulars observable about them, may be rendered familiar, in order to practice about Fractures and Luxations: and without such Autoprise, much cannot be acquired by the reading of Descriptions, or sight of Delineations. Toward Myologie there hath been a peculiar Traetate of late published in English, which may be useful in that respect to those who cannot peruse Latin Authors. So that the greatest want seemed to be in that kind or part of Anatomy, which is the last in the Enumeration, i.e. Angeiologie, or the Description of the Vessels; the more exact or particular knowledge whereof, especially of those in the habit of the body,
body, will appear, upon a true account, more necessary to the exercise of Chirurgical Operations, at greater certainty, and with more security, than the knowledge of the Muscles. Upon these considerations, being consulted by the Publisher of this Work, what Piece or Treatise in any kind, of Chirurgery or Anatomy, I thought might to good purpose be added thereto, I resolved that I could think of nothing more advantageous in this kind, than a fuller and more Anatomical Description of the Veins, Arteries, and Nerves, in the Body of Man, Translated out of the Anatomy of Spigelius; adding also the most useful Anatomical Figures relating to the said Descriptions, of the same largeness as they are in the Editions of the said Author in Folio; which were first taken out of Vesalius, and are the largest and fairest that are extant: the case being here, as in Mathematical Instruments, in which, how much the largeness conduceth to certainty in use, is well known. Accordingly he hath not spared for care and cost, in procuring a Scholar every way competent to Translate the Descriptions of these Parts out of the forementioned Author, and an able Artificer to Cut the Figures. And as the Work is now accomplished, I doubt not but good improvement may be made thereof by such Chirurgeons, as being not able to make use of the Original, stand in need of such helps, if they will not be wanting to themselves for industry in the use hereof.

J. G.

TRACT.
Concerning the Veins.

Chapter I.

From the hollow-vein fends its propagations to the rest, as the reins, bladder and those parts which serve for generation. But that the manner of this distribution may be more easily understood, for our better method in teaching, likening the whole vein to a tree, we will divide it into four parts, one "roots", trunks, of which we will call the roof, as that part which is in the liver, continues itself on, and is not divided a third the branch, branches, into which the trunk is divided; fourths, twigs or surcles, such small veins as the trunk shoots out at its sides, before it be divided into its branches. Which terms ought diligently to be observed, because we have endeavored by the propriety of these words, and the light to this obscure tractise concerning the veins. But that they may more easily be committed to memory, and all that concerns this business be written with more brevity, following some very learned later authors, we will give every part its name from the place of its situation.

From the outside then of the liver some very little hairy veins are prolonged towards its inner region, and by little and little meet together into greater branches, so that at length they become five, which again gathered together like roots about the middle of the hollow side of the liver, but somewhat hinderly near to the back, make a notable trunk or trunk, which at length inflating forth near to those antennces of the liver, which by the greeks are termed thoracal gates, as the gate-vein, and now deferves the name of a trunk.

This trunk, parting now from the liver defends somewhat obliquely towards the left side, under the gut called duodenum, where above the rach-bones it gets a firm feast; but before it be divided into branches, two twigs sprout from it; the first of which being very small, arising out of the uppermost and front part of the trunk, as soon as it is come forth from the liver, is scattered into the neck and body of the bladder of gall, and into its outer coat, with a numerous succession of very small branches, such as we have said above are called hairy veins. This twig is called in Greek eunomus, in Latin you may render it Pelles, the vein of the bladder of gall. Pelles, says there are two branches, which run through the bladder of gall, whence they are called by some Glycola, named, the twin-vein of the Gall, but this makes no great matter. The second twig being greater than the former, but lower, arising from the same fore-part, and more to the right, is inserted into Pylorus or the lower mouth of the stomack, into whose hinder part which looks towards the back, it scatters many small branches, from whence it is commonly called Gastro-vein, the stomack-branch, but in Greek, Gastro-vein.

These two twigs being thus propagated, the trunk runs downwards, and inclining all the way somewhat to the left, is divided into two notable branches, a right and a left one; the left is formed into the stomack, the Kall, one part of the Calum or Colick gut, and the spleen; the right through the guts and mcenteria; that is called Splanchns or spleen-vein, or the linear one; this the Menterichia.

Now the spleen-vein, after it is thus come forth from the trunk, is carried all about, being underprop by the membrane of the Kall toward the spleen, into which before it is confined, it thence forth certain twigs, both from its upper part, and from its lower; from its upper part one, that ascends obliquely to the left side of the stomack that looks towards the back, is divided into three propagations, of which the outermost, on either side are conveyed into the stomack, and presently from the upper region of the stomack, and compares the left orifice or mouth round about like a crown, from whence it is called Constantin, the crown-vein of the stomack.

This again sends forth continually some small branches upwards to the end of the gutlet, and others downwards through the stomack. All this branch is called Gastro-vein, the stomack-branch, because it is the greatest, and most copious part of all those, which come to the stomack. From the lower part of the splenich-branch arise two twigs one, which is small, sending forth other little spouts to the right side of the lower membrane of the Kall, and the colick gut annexed thereunto, is commonly called Epigastric, or the stomack-branch, the right Kall-vein.

The division of the gate-vein into the roots, trunks, branches and twigs.

The division of the gate-vein into the roots, trunks, branches and twigs.
other twigs, which are sent upon the lower membrane of the Kall, which like a Mefentery ties the Colick Gut to the back, as also upon that part of the Colick Gut, which is so tied. It is called the Colick-Gut, that part of the Gut, which corresponds to the left region of the Stomach, and of it there are two divisions, the upper and the lower; the upper one consists of the Stomach and Kail-vein. By the Writers of Phyfick, which they commonly call For breach, the right Vein, but we the Vena, to distinguish it from the Arterius Vein, that answers to it: this is inserted into the left side of the bottom of the Stomach, sometimes also higher and about the left orifice or mouth. Which is the cause why some Physicians, and commonly Anatomists too, have foolishly thought that the Melancholick humour is returned from the Spleen through this Vein back into the Stomach, to provoke appetite. But you may often find Bodies, in which it is altogether wanting. From the lower branch, which goes to the other part of the Spleen, one propagation arises, which being pretty big, and notable, is reflected toward the right hand, like the foregoing, and compiles the bottom of the Stomach to the left side, and also sends many little branches to the higher membrane of the Kall on the left side; it is called Gastro-epiplois foewa, the left Stomach and Kail-vein. There is also another notable Branch, which is found in most to arise from the lower branch of the Vein, very seldom from the Spleen it left. This is carried downwards, and after twirling over all the left side of the Colick Gut, GIS upon the gut forth on the whole length of the right Gut, and at length determines in the membranous substance thereof, and in the fundament with many little twigs. Physicians make mention of this very often, and call it Hemorrhoidalis interna, the inner Emroid Vein, to distinguish it from the outer, which is derived from the hollow Vein. It is truly and properly called the Emroid Vein; I say, properly and truly, because sometimes they call by the same name the Vein of the Nobles, Guts, and Mouth, that call forth blood, and without pain. To this large and the Philosophers took it, 3. De Part. Animal, where he makes Malignant purgations also an object of the Enemies. But the Emroids properly so called by Physicians, are dilatations of this Vein in the fundament, caufed as well by black and yellow choler, as also by a flat region, by the touch of the Sick humour. And these are of two kinds: Cerebrum, and Cerebellum. And these are of two kinds: Cerebrum, and Cerebellum. But of these the Emroids swell out like the stone of a Grape into the fundament, or out of it: Others aperture, open, which call out the blood which they contain. The learned Hippocrates hath left us a peculiar Book, a golden one indeed, concerning the cure of thefe. The remaining part of the Spleen-branch is sent upon the whole Spleen, and therein is scattered into divers and very small propagations, entering the very left of it about the hollow and middle line. And there the feigs which grow out of the Spleen-branch.

The Mefentery Vein, or right branch of the Gate Vein is joined to the Mefentery, as soon as it comes from the back, and is divided into two chief branches, which passing through the Mefentery between its two coats, are each of them cleft into an infinite number of small branches, and they again into left twigs, which going to the Guts make up those Veins so famous among Physicians, that are called the Mefariack Veins. The right Mefentery Vein from the right side, wherein is placed, and is likewise two-fold, which is to pass that Pileta, and through all others who follow him, reckon three Mefentery Veins. This branch is inserted into the Fundament or empty Gut, the Brown or Circle Gut, the Cervix or blind Gut, and the right side of the Colick Gut, where it lies next to the Kains and Liver: and although both its branches shoot forth many propagations from themselves, so that it is very hard to express any number of them, as well because they varies much by reason of their subjects, as also because they do not observe the very same order and course, yet it hath been observed, that there are fourteen, which afterwards are scattered into an infinite company of other twigs. Thence when they come to the Guts, only gape with their little mouths into their Coat, and cast not the cavity it fell, that being compassed about with a certain crust. But as in most parts of our body, the diversifications or divisions of the Veins are attended with certain glandules, partly that they may make the fair propers, partly left they should link down, and within the flow and ebb of the blood so necessary be hindered; so here also the divisions of the Veins, which are scattered through the Mefentery, are bolstered up with certain glandules, which with their propagations obverse such an exact propagation, that the greater glandules do fulfill the greater branches, and the left the lesser. When these Glandules swell with a Scurvy, the Veins being prett clofe together, and the distribution of the Chylus through the Veins, and consequently of the blood through the body being hindered, there follows a consumption, and pining of the whole body. The left Mefentery Vein is distributed into the middle part of the Mefentery, and also that part of the Colick Gut which runs from the left region of the Stomach as far as to the right Gut. The Hemorrhoidalis interna, or inner Emroid Vein, of which we spake a little before, sometimes arises from this Vein, as Pileta hath observed, which affording some sprigs to the Colick Gut, at last running forward through the whole length of the right Gut, determinates in the fundament. But before the Mefentery Trunk be divided into two branches, it first finds forth two propagations, one of which is called Gastro-epiplois dextra, or the right Stomach and Kall Vein, which creeps through the right bottom of the Stomach, before and behind, as also through the upper membrane of the Kall: the other called by others interspinulosus, or the Gut Vein, by us the Duodenum, reaches to the middle of the Gut Duodenum, and the beginning of the Empty Gut or Jejunum, and descends all along them.

The chief office of the Gate Vein is to nourish those parts which are placed in the lowest belly, and need a thicker and more excellent blood, such as are all those parts which serve for nutrition. For their blood ought to be thicker, that it might be hotter, when heat is always more powerful
powerful in a thicker body; so that the Roots of the Gaste-vein nourish the Liver, the Trunk nourishes the Pancreas or Sweet-bread; of the Twigs, the Cyphour, or Gall-twigs nourish the blood, on the side of the Gaste-vein branch, all the entrails which serve for nutriment, except the Mefentery, and the Guts; the Twigs Phlyiour, or of the lower mouth of the Stomach, the Cytour or Stomach-branch, both the Stomach and Kall-veins, and the short veiief nourish the Stomach. For I do not think that the short veiief was made by nature for the carrying back of melancholick humors to the Stomach, but especially for its nourishments false; when that blood which is directed into the Splen-vein, is not a melancholick and excrementitious humor, but rather the both, although somewhat thicker than other blood, and that because the parts that are to be nourished by the Splen-vein, needed a thicker blood, then they which are to be nourished by the Mefentery. Both the Stomach and Kall-vein nourish the upper membrane of the Kall; the right and the hinder Kypilis, or the Kall-vein, the lower. The Splen is nourished by thefe two branches, into which the Splen-vein is clifi, and which enter its parenchyma, or thref through its middle line; the Mefentery, and almost all the Guts by the two Mefentery branches; the Gut Daemon in the propagation called Daemon, but the empty Gut, the Hora or circle Gut, the blind Gut, and the right side of the Colon or Cylis by the right Mefentery-branch. The left side of the Colon and all the first-Gut by the hemorrhoidal veins; but the middle part which lies under the Stomach, by the hinder Kall-vein. The whole veins are most-famous for the making of blood. But the fame veins which nourish the Mefentery branch, do also attract the Cyphour, as we shall shew you hereafter, when we shall intimate upon the History of it. The third use is to empty out the excrement from the body through the Guts. Thus we fee that the cholerick-humor is sometimes poured forth out of the Liver through the Mefentery-branch in the bloody flux; and cholerick loofnefs, and the melancholick drops through the Emroid-vein. The fourth use is to help the compofition of the Liver. Thus we fee that the liver being cut into the part of the Cyphour, which is called melancholick, is attracted by the flint-branch, not that the seat of melancholy is in the Splen, but that it may be more attenuated, and better concceded by the benefit of the Arteries, which are most abounding in the Splen, and do not disturb, or hinder the concoction which is famed to be in the veins of the Liver, as it usually happens, that whatsoever the Splen is troubled with any difeafe, the work of making blood is perfectly hindered.

But because there has been mention made here of the Emroid veins, it feemed that it would not be uncaufed if I did refer to this place the explanation of a more excellent Aphorifm, which is the twelfth of the fiirth Section, when it cannot be understood without the History of Anatomy, and is not to faithfully explained by others, as was necessarv. Hippocrates writes in it, 

"Hippocrates writes in it, as we have done before, when we shall intimate upon the History of it."

The third use. 

The explanation of a certain Aphorism of Hippocrates. 

The fourth use.

The fourth use.
A Description of the Veins.

T R A C T I.

cut off without an abundance of freemixed and thick blood: when it may be provoked both by reasons and authority, that they come also from choler and phlegm. By the Authority of Hippocrates, who in the beginning of his Book concerning the Emroids, witnesseth that this disease is caused in this manner: to wit, when choler, or phlegm falling down into the veins of the Strait-Gut, heats the blood, which is in the veins. For the veins being heated attract the blood out of the little veins that are near, and when they are filled, the inward veins, that are in the head, and the heads of the veins appear out of it. But by reason it is proved thus: when lachrymals are caused by phlegm, or choler, as Hippocrates witnesseth in his Book De Morbo Saeus, the same Author in the 6. Aphorism, 21. pretends, that if phlegm is taken away, if there follow swellings of the veins, or Emroids in those that are so mad. Now the madnesse would not be taken away, if melancholick humour did only come forth by the Emroids: for then the cause of the disease would not be purged out. But I say also I have found in Germany some Noblemen, that were troubled with that disease, afterwards recovered by a great flux of the Emroids; I am of opinion, that not only melancholy, but also lachrymals, and choler are worst to be purged out by the Emroids. Wherefore it happeneth, that one, who has been long troubled with the Emroids, be cured afterwards, that choler and phlegm, either bred obstructions in the Liver, or spleen, or being gathered together in some plenty by stretching the vessels contained in the Aulmonia, or pouch, breaks through them, or by their quality corrodes and eats their way out, and makes a Dropsie in the Aulmonia, or else by raising obstructions in the Liver, and extinguishing the natural heat, generates much water, and ferous humour in head of blood, which passing through the veins, makes a febris of the Dropcie called Leucoplagnatia: but if the humour go back to the Liver, or lungs, it breaks through, or eats out their vessels, and hence follows an aspitting of blood, then of corrupt matter, and from hence at last a Consumption, as Hippocrates teaches in this Aphorism. For in this place it is first of all to be observed, that there are two sorts of propagations of veins, which make the Emroids: for there are some propagations of the Gate-vein, of which we have already treated: but there are others of the Hollow-vein, which arise from the Iliacal branches, of which we are to speak hereafter. Now if the aforementioned humours, whether melancholy, or cholerick, or phlegmatic and fist, flow through the propagations of the Gate-vein, the internal Emroids are caused, which being cured, the matters flow back into the branches of the Gate-vein, that are scattered through the lower belly into which the veins being laden with these humours unbend themselves, and make a febris of the Dropcie called fistulae. But if they flow through the branches of the Hollow-vein, they cause the external Emroids, and these being cured against the Prophecy of Hippocrates, there is danger of a Consumption to ensue, because from hence there is an easie passage of the perniuous matter through the Hollow-vein to the lungs, nigh to the Heart. And this is that which we have of a good while observed, that many, who have been long troubled with Fistula of the Fundaments, and afterwards cured, through the ignorance of Physicians, have fallen into a spitting of blood, and then into a Consumption. Nay, we remember, that a Maid was once cured by us in Germany, which had a Fistula in the middle of her Hip, and for three years had fought help from many in vain, but being cured the fell at length after three or four months into a spitting of much blood. Although she was scarce ten years old, I let her blood presently in the foot on that side on which she had been troubled with the Fistula, and purging her body, and laying on a cautery near the place, in which the Fistula had been, I easly freed her in this manner from imminent danger of a Consumption. This spitting of blood happened from no other cause, but that sharp and cholerick matter, which when it could no longer find a way out by the Fistula, got up afterwards to the Lungs through the branches of the Hollow-vein. But Hippocrates says expressly that there is danger of a Dropcie, or Consumption to follow, because it sometimes falls out, that neither of these happen, but rather some other disease infuts, as it happened to Alcippus, who fell into a madnesse, and from that into an acute Feaver: sometimes also the bloody flux follows, and others middle. Sometimes also it happeneth, that they who are so cured, are preferred still in health, by abundance of urine, sweatings, remedies, and a good rule of diet.

C H A P. II.

Treats of the superiour, or ascendent Trunk of the Vena Cava, or Hollow vein, and the branches which it snares through the Head.

We are now to consider the other vein, which as we told you is called Cava, the Hollow one, which spreads it self much wider than the Gate-vein, as being distributed through out the whole body. For its office is to nourish all those parts of our body, which conduct not to the concoction of the food, and those parts being spread far and wide, it is necessary, that the Hollow veins also be very large, and extended to a great length: and because they ought to be nourish with a thinner, and more elaborate blood, and not so thick and faetulent, as that wherewith the Stomack, Spleen, and Gall are nourished; therefore the blood which the Hollow-vein carries, and carries, is also more pure, thin and sincere.

In delivering the History of this vein, although we are not of their opinion, who derive its beginning either from the liver, or heart, yet because we must begin our Treatise at some where, we thought fit to follow the received Caution of Anatomists, and so for particularities, we shall always speak of it, as if it took its birth from the Liver. It may be added, that it supplies certain roots as it were in the Liver, just like the Gate-vein, in the History of which we said, that for that reason we took our ride from those roots, we begin therefore alfo with the Hollow one. But this vein although it runs directly through the whole
whole Trunk of the body, and make one very notable rock [D] that is drawn out through the middle, and lowest belly, like one strict line continued, or rather in manner of a channel, or conduit pipe, is notwithstanding wont to be divided into two by reason of the Liver, and seamless to be called the Ascendent Trunk, the other the Descendent. For indeed that is not true, which many perverse themselves, that the Hollow-vein in its going forth from the Liver, when it comes out of the Heart, is left into two Trunks; but if hereafter, they be called Trunks by me, you must believe, that I do it only for orders sake in teaching. The Ascendent therefore or upper Trunk [A D] is that which flows about the Liver, and is terminated about the Jugulum, or Hollow of the Neck; but that is called the Descendent, one [T V] which is below the Liver, and reaches down as far as the Legs. For both of them are afterwards divided into two branches, of which they of the Ascendent [A and D] are carried upwards to the head, as the Jugular or Neck-branches; or to the Arms, as the Brachial [G and I] or Arm-veins; the of the Descendent Trunk to the Legs, and are called the Crural branches [T]. We will speak therefore of all these in order, so that we first deliver the History of the Ascendent Trunk, then of its branches, that grows up partly to the Head, partly to the Arms, after that we will come to the descendant Trunk, and its branches, that are divided into the Legs.

As therefore we have said, that many little Veins like roots grow out of the Hollow side of the Liver, which always by degrees inferred into the greater veins, and all of them at length meeting together about the middle of it did make a Trunk: so in the same manner out of the circuit of the Convex side of the Liver a numerous propagation of veins issues forth, which afterwards meet together in one Trunk. This Trunk makes its way through the nervous part of the midst, left, and middle, and pulling through it goes undivided to the Jugulum, or Hollow of the Neck, and because it climbs upwards, it is commonly called the Ascendent Trunk by them who conceive that the Hollow-vein rises out of the Liver. It is much fatter than the Descendent, because the upper parts are nourished by it alone: but almost all the inferior parts, that are contained in the lowest Belly, by the Confluent-veins. But although it be not parted into any branches, until it come to the Jugulum yet before that it spreads more propagations at its sides, to three notable ones. The first [C B C] is that which is called Parenchyma, or the vein of the Midriff, on either side one, and is distributed throughout the whole Midriff, which is called cxveus, with a numerous issue, sending little branches to the neighbouring Pericardium, or purfe of the Heart, and the mediastinum, or partition of the chest, which when it has now gone above, and reached the Cheff, it inclines a little to the left hand, and enters the Pericardium, and being hidden very close over against the eighth Rack-bone of the Cheff, is very strongly insinuated into the right ventricle [C] of the heart, that Arteria did not without cause grief, that it sprang from hence. But before it be so insinuated, it issues out another propagation [B B] which is a notable one, extends it by the hinder part of the Heart, and the left side of it, towards the footpart, compounding the Aorta of the Heart like a Crown, from whence it is called Coronaria, or the Crown-vein of the Heart. This carries many branches through all the outer surface of the Heart, but especially through the left side, as that which needed a more copious alman of the right side, because of the continual, and greater motion there. But because the fifth of the Heart is hard, and solid, it ought therefore to be nourished with a thicker blood, from whence it is, that this branch grows out of the vein, before it enters the Heart, to wit, when the blood is somewhat thicker, and not yet communicated in the cavities of the Heart, as the original of this there is a little valve, or diaphragm, which hinder the blood from running back to the Hollow-vein, as it might easily do by reason of the continual motion of the Heart. When the Hollow-vein has now gotten above the Heart, it becomes lesser, and penetrates again the Pericardium, and trotsakes the Rack-bones of the Back, and being got above the Gullet, the rough Artery, and the Arteria, or great Artery, (which lead to upon one another, that the Gullet takes hold of the bodies of the Back-bones, the rough Artery lies upon that, and the Arteria again upon this,) it climbs upwards through the midst of the division of the Lungs, where the right part is separated from the left. But because by this means it could not get to the back, and the little branches, if it should have first forth any fish, had been very liable to dangers of breakings, being so hunged up, therefore it issues forth a third propagation [C E], as soon as it is got out of the Pericardium or purfe of the Heart. The Greeks call this vein, $\delta\lambda\gamma\nu\iota$ or the Latinus fuc parte, or careless vein, without a companion, or wanting a mate, because in a man there is but one, and it has no companion, or mate on the left side, as other veins have, though in creatures that show the cud, it is double, and plainly to be perceived on both sides. But it issues forth about the ninth Rack-bone of the Cheff out of the hinder part of the Hollow-vein, and the right side, and goes downwards not directly, but inclining a little toward the right hand, as is as were reflected backwards to the Back-bone; but as soon as it reaches the eighth, or ninth side, it is a little above the Spine of the Back into two branches, which running downwards pas through the division of the midst, which is between two productions, and so are spread abroad into the lowest Belly: Of which the left, which is sometimes the greater, lying is felt about the transverse Process of the Rack-bones, and under the last production of the midst and the original of the first bending Muscle of the thigh, is inserted into the left Enmallastic, either near to its beginning, or (as it oft happens) into the middle of it. But the right, running on like the left, under the membranes about the transverse process of the right side, and the right production of the Septum or Midriff, and the beginning of the flat full bend of the thigh, which keeps the right side, is implanted sometimes into the very Trunk of the Hollow-vein, sometimes into the Artery of the Lungs. And we are indifcriminate for this observation, and the Loires. For we have the matter that is gathered together in the Cheff, whether it be wet, or purulent and corrupt, or fanguineous, to be evacuated by the benefit of the left branch
of this vein, of which notwithstanding we will say something briefly in the following Book. But this vein in its journey downwards throws forth twigs on both sides, as well right, as left, of which the right are more notable, and larger, of which there are numbered almost always ten, which run out to as many distances of the lower ribs, and make the internal intercostal veins. But I say so seldom almost always, because it happens very seldom, that all the distances of the ribs receive branches from this vein, the two uppermost, to wit, the first and second distance giving their twigs or twigs from the fourth branch, that is previously to be mentioned. But these twigs run straight forwards near to the lower side of the ribs, where there are cavities cut out for them, as we have taught in the second Book. And truly this place is diligently to be taken notice of by Students in Chirurgery, because of the opening of the Chest in the disease called Empyema, that they may know that incision is to be made in the uppermost part of the rib, because in the lower the veins would be harmed to the great indangering of life. But these veins do not run through the whole length of the true ribs, but are terminated together with the bony part. But the propagations of the Mammary vein nourish the six distances betwixt the gristles of the seven true ribs, as we shall tell you by and by. Yet in the bastard ribs they run even beyond the Gristles towards the Abdomen or Paunch, into whole Muciles they involve themselves. But these are certain other little branches propagated from the same vein, by which nourishment is derived to the marrow of the Rach-bones, and the Muciles, to wit, those about which they are carried: forsoe also are implanted into the Mediastinum near to the back. This vein finite pari without a companionship, being thus constituted, the Hollow vein attends to the Jugulum, or Hollow of the Neck [D] being supported by the Mediastinum, and a certain soft and glandulous body, which the Greeks call Spleen, and is placed in the highest part of the Chest, to defend the propagations of the veins there hanging up from all danger of breaking.

And here the Hollow-vein is first divided into two notable branches [EE] from which all those veins arise, that run as well to the Head, as to the Arms, or to certain Muciles of the Oras. The one goes to the right side, and the other to the left, which as long as they yet are in the Chest, are called the Subclaviae, Subclavian branches, because they go under the Clavicles, or Colla-bones; but as soon as they have gotten out of the Chest, and attain to the Arm-hole, they are named Axillary, or Axillary-veins [F]. From both of them very many propagations issue forth, some of which arise from their upper part, and some from their lower. In our recital of them we will observe this order, that they which are nearest to the Trunk, shall be first mentioned by us; and those, which are farthest from it.

The first propagation then issues out near the very root of the dividation or division of the Trunk, and is called Intercostal superior. There is either one or five, which being very little, and descending along by the roots of the ribs, as far as to the third rib, ends two (Fig. [H]) overwaft, like the vena finite pari, to the two distances of the upper ribs. But if the vena finite pari send its propagations to all the distances (as it sometimes happens) then it is wanting not without cause. Sometimes the same vein arises from the Trunk of the Hollow-vein, before its division into the Subclavian branches.

Another vein [G] sometimes arises from the forpart of the Efferication, sometimes from the root of the Subclavian-branch, and is double, on either side one: sometimes also only one grows out of the middle of the Trunk, before it be divided, which at length, when it has attained unto the Brach-bone, is parted into a right, and a left branch. For Nature is wont to form, as sometimes in its other works, so especially in the rife of veins, so that they are not spread in all bodies after the same manner. But this is called Mammaria, the Mammary-vein, which, whenever it arises, going toward the fore-part: strives to get up to the higher part of the Brach-bone, and descends by the side of it, and when it comes to the Brach-blade, about its sides goes out of the Chest, and runs on directly under the right Muciles of the Abdomen, even to the Navil, near to which it is joined by Axillary-veins, or Inoculation [L] with an Epigastick-vein [9] that affects and meets it by the benefit whereof arises that notable sympathy between the bone or Skull and the Brachia of women, of which we shall speak more hereafter in the eighth Chapter, when we shall insist on that History of the Epigastick-vein. But before it have the Chest, in its descent, it distributes one branch espie to the for distances between the Gristles of the Rach-bones of the right side, which terminate with the Gristles near to the end of the bony part of the ribs, in which place we told you that the branches of the vein finite pari, (with the extremities of which these are joined) were ended. From these veins, which are distributed in this manner to the distances of the Gristles, some others very worthy of our notice do arise, which are diffinated both in the Muciles that lie upon the Brach, and into the Paps. Near to these is another [I] arises, and sometimes also grows out of the Trunk, which is called Mediastinum, because it spreads it self into the Mediastinum, or membrane that closes up the cavity of the Chest, being extended all along by it, with the left Nerve of the Midriff. The fourth [F] commonly called Coroinal, or the Neck-vein, is a large vein on both sides, which running obliquely, upward, and backward, to the Transversal Process of the Rach-bones of the Neck, and climbing up through their holes (from whence perhaps it might be better named Prenchis) it affords twigs to the Muciles that lie next upon the Rach-bones. When this vein has got above the Transversal Process of the Rach-bones, it derives a Notable branch to the Sinus or Canale in the Neck, through the hole that is made for the outlet of the Nerves; and then another, when it comes above the Process of the fifth spondyl, or Rach-bone, and again another, when it has left the fifth Spondyl until at last it comes to the Process of the first Rach-bone, which notwithstanding it does not stop, but runs into the Skull, (as Vesalius would have it) with that which extends to the same from or caudis, partly it is distributed into the hinder part of the Neck. For there are two long veins filled with blood, which are made out of the hard membrane of the Brain, one on each side, being
being placed at the sides of the narrow of the Neck. From those little branches are distributed, which nourish the narrow of the Back-bone, and the neighbouring parts: they being driven over the Juncture of the head with the first Rack-bone, and end near to the seventh Rack-bone of the Neck. These two veins, of which one is of the right, and the other of the left, having some communication between themselves by a little pipe, and that a short one, which is derived afterwards from the one to the other, for the most part about that region of the Neck, which is between the second and third Rack-bones. At last there is a fifth vein [1] which arises from the hinder part, called Mufcula inferior, or the lower Mufcle-vein, which is distributed in many branches to the Mufcles in the lower part of the Neck, to extending the Head and Neck, from whence the vein might be rightlier called Cervicalis, or the Neck-vein) and also to those in the higher part of the Chrift near to the Rack-bones.

For the upper part of the Subclavian branch, whilst the Hollow-vein is yet in the Chefl, three propagations issue forth, two of which do very well deserve to be noted, which take their way upward, under the Mufcles that bend the Head. The former of the two looks more inward, and is called Jugularis intima, the inner Jugular-vein: the other belongs to the Chefl; and as soon as it arises, it is joined with the artes Carota, or fleepy Artery, and a Nerve of the fifth pair, accompanying in its journey; at the side of the rough Artery, and climbing to the Chops, about the middle of the way is parted into two branches, of which one is called the outer, the other the inner branch. The outer is so called, because it comes not into the inner parts of the Head, but being divided into two at the corner of the lower Jaw, distributes one branch to the Chops, and the other to the Ear and Face. The inner branch, all the way is joined to the Arteria Carota, or fleepy Artery, even to the back of the Skull, whether when it is arrived on the backside, it is likewise chieflie into two branches, but of unequal bignefs. For the firit [1] is greater and more hinderly, being carried backward obliquely, which having propagated some twigs to the Mufcles under the Chefl, and in the fork of the Rack-bones of the Neck, through the fepart of the Oesophagus or Navel-bone, enters the Skull with the lefler branch of the Arteria Carota, through which had the birth the fide pair of the Nerves depends: and thus this branch enters the firt [1] and fecd [2] veins of the thick membrane. The fecond branch [3] being smaller, and more to the forepart, quite forfaking the Arteria Carota, or fleepy Artery, goes to the forepart of the Head, and after that by the way it has borrowed a Suckle not very notable upon the Organ of hearing, it enters the Skull through the forepart of the Wedg-bone, or Osteo—ferrum. This is difpersed through the fides, and fides of the thick membrane, with a numerous fijfe of branches, the prints whereof are observed in the inner furface of the bones of the forepart of the Head, as we have faid above in the fecond Book. We will call thefe two branches, becaufe they go to the brain, Encephalica, as if youfhou'd fay Cerebrales, of the Brain, and that fhall be the greater Encephalica, this the lefler. The external Jugular-vein [5] acching under the skin, and the Mufcularis Quadrata, or fquare Mufcle, that draws down the Chefs, by the fides of the Neck, when it comes to the Ear, is chiefl into two branches [x] one of which I call Profundus, or Profunda. The other branch, called Jugularis Ext. intima. Three branches entering the brain. The other or Pofteirior branch is carried behind, and fends branches to the Temple [s] and skin of the Back-part [x] of the Head. A third vein which arises out of the upper part of the Subclavian branch, is commonfly called Muscula superior, or the upper Mufcle-vein, in relation to another of the fame name rising out of the lower part. It fends out branches to the external Jugular-vein, and is difpersed into the Mufcles, and skin of the back-side of the Neck, in regard whereof we fhall not do amifs to call it Cervicalis, or the higher Neck-vein [s]. But now let us return to the distribution of the Subclavit.
A Description of the Veins.

The division of the Axillary vein into two branches.

The Axillary-vein [F] therefore is split into two branches, as soon as it comes near to the Arm, but those branches are of different sizes. For the upper [G] which they call Cephalica, the Head-branch, is smaller, but the lower [I] called Basilica, is almost three times greater. The Cephalick also is as it were wholly just under the skin, but its width is wholly just under the skin, andthis width is wholly just under the skin, and this vein is seen from the outside of the skin. The basilic, however, is situated under the skin, and not under the Mucles. But although this vein be not opened to this extent, it is possible for some Physicians to make it open, for it is possible to make this opening, though the vein is not usually opened in this way.

Three branches of the Cephalick-vein.

The Cephalic [G] therefore is called by Ufalius Humeraria, or the vein of the Arm, because by the arm it is divided into the hand, by others Cubiti exterior, the outer vein of the cubit, from its situation, because it runs on the outside of the cubit, as the contrariwise doth on the inside. By some others it is commonly called Cephalica, the Head-vein, because it is not to be opened in diseases of the head, through the error of the Ancients, who thought ignorantly that it arises from the exterior Jugular vein, and therefore empties the blood immediately outside of the Head. But it arises from the upper part of the Axillary vein, and climbing over the Tendon of the extensors of the arm, and therefore is called Deltoides, which rises up to the Arm, and is the beginning of the Pectoral Mucles, which brings it forward to the chest, where it is seen from the outside, and the outer branch of the Basilic-vein, passes from the cubit to the hand, where it is seen from the outside, and the inner branch of the Basilic-vein, passes from the cubit to the hand, where it is seen from the outside, and the middle branch of the Basilic-vein, passes from the cubit to the hand, where it is seen from the outside.

The division of the Basilic-vein.

The vein, from which we have digested. This vein, as it is as it is just outside of the cavity of the chest, and when it comes to the Arm-pit, is divided into two notable branches, called Cephalica or Head-vein [G] and Basilica [I], which are afterwards divided again throughout the whole Arm. But before the Axillary-vein is thus divided, it sends forth two twigs: the inner [J] is called Scapularis interna, the inner Blade-vein, and the outer [K] is named Scapularis externa, or the outer blade-vein, and it is a pretty big one, and is implanted into the muscles of the outer, and gibbonous part of the name Shoulder-blade. But the vein Basilica allo, before it enters the Arm, flows out two propagations; one called Thoracica inferior, or the upper Cubit-vein [L], because it arises out of a higher part than the following, it is a very notable one, and runs through the inside of the pectoral Mucles, which brings the Arm forward to the breast; it distributes branches allo to the other Mucles of the Arm, as allo to the skin of the Dugs in women. The other is called Thoracica superior, the lower Cubit-vein [M], which is a great and notable one likewise, which descending along the side of the side of the chest is distributed especially through the third broad Mucle or Longanu, that moves the Arm backward, and other masses of muscles from it fell, which afterwards are joined by Anastomosis or inoculation, with the branches of the vein fine pari, that fall out of the chest. And this vein sometimes grows out of the former, or the upper Cubit-vein. The branches being thus distributed, the Axillary-vein reaches into the Arm.

C H A P. III.

Show how the Axillary-vein is distributed through the Arm.

HE Axillary-vein [F] therefore is divided into two branches, as soon as it comes near to the Arm, but those branches are of different sizes. For the upper [G] which they call Cephalica, the Head-branch, is smaller, but the lower [I] called Basilica, is almost three times greater. The Cephalic also is as it were wholly just under the skin, but its width is wholly just under the skin, and this width is wholly just under the skin, and this vein is seen from the outside of the skin. The basilic, however, is situated under the skin, and not under the Mucles. But although this vein be not opened in diseases of the head, through the error of the Ancients, who thought ignorantly that it arises from the exterior Jugular vein, and therefore empties the blood immediately outside of the Head. But it arises from the upper part of the Axillary vein, and climbing over the Tendon of the extensors of the arm, and therefore is called Deltoides, which rises up to the Arm, and is the beginning of the Pectoral Mucles, which brings it forward to the chest, where it is seen from the outside, and the outer branch of the Basilic-vein, passes from the cubit to the hand, where it is seen from the outside, and the inner branch of the Basilic-vein, passes from the cubit to the hand, where it is seen from the outside, and the middle branch of the Basilic-vein, passes from the cubit to the hand, where it is seen from the outside. At length when it is come to the chest, it runs under the fibrous membrane, as a vein under the skin should, and prevents it felt to the figt without distention. But about the very joint of the chest at the external protrubation of the Arm, it is wont to be divided [H] for the most part into three branches, an outer, an inner and a middle one. The two former run under the skin, the third deeper. The first or middle one, [J] which is often wanting, is very little, and deeper, and penetrates into the substance of the Mucles, especially of those two that bend the finger, and third joint of the finger, as allo of the long fingernator of the Radius, or wand of the Arm. The fixed [K] and inner, and chief of the three branches is carried down obliquely under the skin, and joins with the inner branch of the Basilic, three fingers below the joint of the cubit, with which it makes upon the vein that Physicians call Mediana, the middle vein [L]. This running down obliquely by the middle Region of the cubit, distributes many Surles to the Radius or wand, and at length it is divided into two lesser branches; of which the outer [M] goes to the infinite of the wrist, toward the thumb, and the other and inner [N] runs to the fore, and middle fingers. The outer of these is called by Some Cephalick manus, and is opened to very good purpose in the diseases of the Head or Teeth. Now the third branch [O] or outer Cephalick-vein climbs up to the Mucle called the long fingernator Cubit, and in that same place is joined with a little branch [P] of the Basilic-vein, being united thereto it goes on to the outside of the wrist, and distributes veins to that part of the hand, which is called obliquely through the Radius, or wand, and having attained to the middle of its length enters the outside of the little, and Ring-fingers, as allo to the fingers themselves. This vein, especially that which...
which reflects the little finger, is commonly called Saphena, and the Section of it is much commended by Practitioners in Physick in melancholy diseasks. Which being formerly the subject of a question, and I having observed that experience does favour thse Practitioners, endeavoured to find out the cause, and found that there are many inoculations here of this vein with the Arteries, as the inoculations are usually more frequent about the extreme parts, as being more removed from the lymphatic parts, and hence wanting a hotter and more spirited Blood. This vein being cut, because the inoculations are so near it cannot be that the blood of the Arteries should be also let out, which cannot be so well done by opening the veins of the Cubit, because the Anatomists or Inoculators are somewhat more distant from the place, in which the vein is opened. And hence it is, that the blood which is emptied out of the Hand, is much fairer and redder than that out of the Arm, because the Arterious blood there always runs out together with that of the veins. But there being five times more Arteries then there are veins in the Spleen, it is necessary, that its discharges be much helped, when the peccant blood is drawn out of those vessels wherein it was.

The other branch of the Axillary-vein, that is the inner, and greater, is the Basilic [I] which according to its situation in different arms hath found different names among writers practised in Physick. For in the right arm it is called Hepatica or the liver-vein, but in the left Sphenia, or the spleen-vein. They choose that to be opened in diseasks of the liver, this in diseasks of the spleen. But it issues forth under the arm, and discharging many propagations of the Glandules, that are frequent thereupon, it is carried down by the upper part of the Arm to the side of the double headed Muscles, or Biceps, between the Muscles that bend and stretch out the Cubit, and not far from its origin out of the Cubit, is divided [K] into two notable branches, of which one is called Profunda, or deep, the other Subcstaneous, or branch under the skin, from their site and progress. The deep one is the most part of that which, all the way it goes, penetrates into the more inward parts of the Arm; having the Axillary Artery, that runs into the Arm everywhere for its companion, as also the fourth branch of the third Nerve of the Arm. But it is carried between the two Muscles, which bend the Cubit, and having put its joint, is clef[t [M] into two branches; of which the outer [N] near to the radius or wrist, (from whence it might be called Radia) goes down to the Hand, and carries little branches toward the Thumb or Four-fingers, as also the middle one but the inner branch [O] falling near to the Cubit, (from whence it derives the name of Cubitaris) distributes small branches to the middle, and little fingers; but as the outer lends its propagations to the Muscles of the outside of the Hand, so to the inner on the inside. The other is the branch Subcutaneus, or under the skin [P] which is carried down by the inside of the Arm, scattering divers little branches to the skin, and parts adjacent, but when it is come to the inner protrubrance of the Arm, it is divided [Q] into an outer, and inner branch, like as the Cephalic is. The inner [K] is carried down obliquely beneath the bow of the Arm, and being united with the inner branch [S] of the Cephalic, makes the vein called Mediana [X] of which we spake before. But the outer [S] near to the inner protrubrance of the Arm being divided into two branches, is carried by the greater along the Region of the aitna or down toward the wrist, and scatters it into the little Fingers, but by the other it is derived to the inside of the Hand.

But in this place it is worth our pains to advertifie with other the most learned Anatomists, that it ought not to be believed, that the fame order and course of veins is to be found in all men; when the disposition of the bodies does demonstrate, that scarce two in a thousand do accurately observe the same distribution of the veins. Wherefore we ought not to be so scrupulous in choosing out places for the opening of the veins, as fome that are unexperienced, are wont but to choose that vein especially, which may be most safely opened because it is best seen. For sometimes the Cephalic or Head-vein is so small, that it can hardly be discerned, and sometimes on the contrary the Basilic is so. Wherefore he shall doe well, who will rather follow wise counsel, than the scrupulous opinion of unskilful men.

**CHAP. IV.**

**Explains the lower, or dependent Trunk of the Hollow-vein.**

We have done with the upper Trunk, and branches of the Hollow-vein; it remains now that we treat of the lower. Nevertheless (as we have above allso admonished) they are not indeed two Trunks, as Galeis would have them, but one only, which stretches in one continued line from its division about the fifth Back-bone of the Loin [V] as far as to the Jugular, or hollow of the Neck [D]: but, for methods sake in teaching, we thus divide it by reason of the Body, which standing as it were in the middle of it, seems to part it into an upper and a lower Trunk. As therefore that is the upper one [AD] which runs up from the Liver to the Hollow of the Neck; so is the lower [TV] which beginning at the same Liver, is terminated at the Or facrum, or Holy-lone. And as the upper did run on undivided through the Cheff, scattering only few propagations at its fides to the lower also fides down, intire through the whole Adussen, or pannus, only some twigs springing from it. But when it has attained to the fifth Back-bone of the Loin, it is cut into these two notable branches called Hors [XX] as the upper is into the Subclavien carried into the Arm, makes the Branchial, or Arm-veins. Let us speak therefore in this Chapter of the Trunk, and its propagations, as long as it yet is in the lower belly. Then let us come to the crural branches.

For the division of the Trunk then [TV] before it part into the branches, arife four veins. For as the Arterious blood in one continued line from it as it come forth from the hinder part of the Liver, it declines to the right side of the Back and...
A Description of the Veins.  

TRACT I.  

and sends forth a propagation from its own left side which they call Adiposa sinistra, the left fatty vein (on the left side) because it passes to the fat and outer membrane of the Kidneys, which arises from the Peritoneum, or Rim of the Belly, as also to the Chyle and blood above the Kidneys.

There is another [on the right side] answering to this on the left side, but which does very seldom grow out of the Trunk, but rather from the upper side of the middle part of the Emulgent vein, and because it is distributed in the same manner as the left is, it is called Adiposa dextra, the right fatty vein. Yet sometimes you may see the contrary also to happen, and this right vein to come forth of the Trunk, and the left out of the Emulgent. For there are diverse properties of nature to be seen in the veins, and you cannot easily meet with a dead body in which you may not find something new, and differing from others. After this the hollow-vein pushing on, when it comes beyond the middle of the back, about the first Rach-branch of the Loin, it brings forth a second pair of veins, [x] very notable, which issues directly to the Kidneys, upon whose substance it is wholly spent. And hence it is called Renale, the pair of Kidney-veins from its insertion; but from the

Entries, because the Kidneys feed by this pair to milk out the whey or serous moisture in the blood, and to draw it to themselves. It is therefore very thick, but yet short, and not of equal length, nor rising directly opposite each to his fellow. It is short, because it did not need length, which for the most part is given by nature to vessels for some previous preparation. It is unequal, because it was fitting the left should be longer than the right, by reason that it was necessary to bring the spermatical vein out of it. But the beginning of both answers not directly one to another, left one should be hindered by the action of the other. And the left is higher than the right, because the left kidney is also raised higher than the right. But the Emulgent branches, as soon as they arise out of the Trunk, do not presently go to the cavity of the Kidneys, but are first divided into two greater branches, and so accompanied with Arteries, entering the concave side of the Kidneys, and afterward being broken into little branches are scattered quite through the whole substance of the Kidneys, and in such manner with their small ends in certain hollow places in the Kidneys, which are called Mamillitates. These veins do serve not only for the bringing of nourishment to the Kidneys, but also for the carrying down of the serous moisture to those bloody Processe called Mamillitates, through which it is trained into the Pipes of the Ureters, and then gathered together into that canalicule called the Pelvis, and so drops down by little into the Bladder, as we shall shew, when we open the history of the Kidneys. And here the place is to be noted, in which the stones of the Kidneys are wont to be generated, which is not in the Emulgent vessels, I mean the veins, or Artery's but rather in the very cavity of the Kidneys, or in the Pelvis and pipes of the

For in these if a vitious matter be at any time received, either it is hardened there by reason of a notable heat, or else through cold is congealed into gravel or stone. For this matter is not only a crude and uncoagulated kind of blood, which like a mucous matter sometimes is wont to abound in the mists of blood, but eternally alo that excremenitious phlegm which falls down from the head, through the veins and Arteries, both into the Hollow-vein and the great Artery, and sometimes into the Stomach and Guts. Of which this seems to be a manifest sign, that they, who are subjected to diseases of the Stone, are very often troubled with reams and pains of the Colick; of which whilst once pervade themselves that it is caused by wind, daily experience hath taught me, that it comes from phlegm, because I have observed, that they who are troubled with the stone in the Kidneys, had this Colon or Colick-gut always with plenty of this phlegm, and that being taken away, the Stone has been no longer bred. And therefore oftentimes I give scouring Clysters, and such as gently purge phlegm, not only to such as have the Stone already, but also to such as are threatened with the breeding of it, with a great deal of benefit to the Patients. But all these things are perpetually to be avoided, which drive out the stone, as also because they are able to drive down the crude matter plentifully to the Kidneys. We thought fit therefore to insist upon this, that we may accommodate the study of Anatomy to the very practice of Physick; especially noting, that the place wherein the stone is bred, is not commonly known, because the most famed Peritonitis, whom the greatest number of Physicians does for the most part follow, Lib. 6, Pathol. c. 12, think that small gravel is bred in the proper substance of the Kidneys, and walked from thence by the flowing of the Urine and carried into the cavity, and so the Urine full of gravel slides down through the Ureters into the Bladder. But if any one enquire also the cause, why the left kidney is more subject to the Stone than the right, we must conclude that this happens, because the Colick-gut rises more upon the left kidney, in whose cells this phlegm, of which we spoke, arising, either sweats through the pores, and is sucked into the Kidneys, or else by reason of its meagreness, the Kidneys are excessively cooled, experience having often taught us, that this kind of phlegmatick matter is indeed actually exceedingly cold in the as they have sufficiently perceived, who have voided it in great plenty by blood. After this there follows a third part [x and y] called peritoneum, or submucosum, the peritoneal, or side veins, because they carry down matter for making of the feed. Thence differ in their original. For the left [y] arises from the inside, and middle part of the Emulgent, and communicating some furcles to that part of the Peritonitis, or rim of the belly, which covers the Mucles that lie in the Loin, it goeth out by the said Peritonitis, and descends directly to the Colic trouble, riding over it, it passes through the Peritonitis, and holes of the oblique and transverse Mucles of the Abdomen, with whole processes being fattened it is conducted into certain various circling which are joined with the spermatical Artery by Anastomoses or Inoculations, and at length it ends in the Testicles of his own side. But the right spermatical vein [x] arises not out of the Emulgent, but the Trunk it left, and the forepart of it, a little beneath the Emulgent-vein, and afterwards obtures a like course with the former. And thus they are in males, though we may observe nature oftentimes varying in them: but in Women, although they arife in the same manner, and obtures the same course with those in Men, as far as the Holy-bone; yet they fall not out of the Peritonitis, inte...
not reach into the thrid-bones; but before they come to the Testicles, are left to two unequal branches; the fatter of which is scattered into the sides of the womb, toward the bottom of it, the greater being joined to the femenveins, and incutet with it, enters to the Testicles on its own side. Last of all the fourth pair is called [X] Lumbares the Loins veins [4 4 4] two, or three which the Hollow-vein sends forth from its back-side, which looks towards the bones of the Back-bone of the Loins; and therefore they are not to be left, unless the Trunk be left up. These veins go in through the holes of the Back-bone, through which the Nerves go out, to carry nourishment to the spinal Marrow. From them two other veins, tied on both sides to the file of the Marrow, ascend toward the brain, with which afterward two veins descending from the internal Jugular, are joined by no Anasmofois or Inoculation.

Thefe propagations being thus fent out, when the Hollow-veins has almost attained to the Sacrum, or Holy-bone, about the fifth or Back-bone of the Loins, it inclines under the great Artery, and is cut into two notable branches called Iliac, [XX] which having gone a little way are again divided into two others [Y and Z] of unequal bignefs, of which one is called the inner, the other the outer. The inner is ftronger, the outer larger and greater. But before they be divided, they fent two other propagations, the firft of which [5] is commonly called Mafcula superior, the upper Mufcle-vein, which is diftributed overwarf, through the Muscles of the Loins, and Abdomen or Pelvis, from whence it would call it Mufcula heinale, the Mufcle-vein of the Loins: the other [6] named Saca, or the Holy-veins, because it reaches some little twigs to the upper holes of the Holy-bone, for the nourifhing of the fide bone and the spinal Marrow.

But from both the iliacal branches many veins iflue, before they go out of the Peritoneum or Rim of the Belly toward the Legs, and from the inner branch two. The firft [7] arises from the cutaneous male, the middle Mufcle-veins: because it is incutet into all the Muscles of the Buttocks, and into their skin: For it carries almoft to all thofe Mufcles, which are of the out- side, or Back of the bone ilium, Hanch-bone, as alfo to the very joint of the Hip, and that for this caufe it ought to be taken particularly with the view of who would fomewhat curiously consider the other branches of the Hip, or the Sacrum. I fhould think that this vein might be named Clefts from its impediment, because it is implanted into the Mufcles called Clausa, or toke of the Buttocks. The other [8] grows out of the ifide, and is a notable vein, called Hypogaftrica, or the vein of the water-course, from its diffusion into all the parts of the Hypogaftrum, or water-course. From this iflues a branch named Hamorrhoidalis rectina, the outer Exmoor-vein, because it at any time is filled with a more excellent blood, or hot, or felt, it makes the outward Exmoor veins of the Fundament. This affords twigs to the holes of the Or sacrum, or Holy-bone, but beftows greater branches upon the Muscles of the Rellum intelfifum, or the inner Groat, as far as to the outer skin of the Fundament. There is alfo another branch anfing from the fame Hypogaftrick-vein, which we call Cyllicus, the Bladder-branch, and is worthy of obfervation both in men and women, because it is fent upon the Bladder: but in women, because in them being fullfainned with a fat membrane, it goes with some twigs to the Bladder; but with more to the bottom of the Womb, and with more manifold ones to the Neck of it, by which veins alone fome think that the monthly courfes flow in Virgins, and fome fliow the fame in Womei's. But the caufes are not the fame. They do not only flow out by thofe branches, but by thofe alfo which we told you were fent from the fpermatifal vein, which go to the bottom of the womb, not to the Neck. For the menftruous blood brutually purged out, whether in Virgins or women, every month: not only through the Neck, but especially through thofe paffages of the Womb, called Cyllicus. Which we have fhewn here at Padua, publiquely in the Theater, the firft year of our lying Prophet, in the cafe of a certain Woman having her monthly cours. For we faw that the Hypogaftrick branches, and the fpermatific veins with the Testicles were filled with blood, and that the Womb it felf did put out a thicker blood, the little mouths of the veins in the inner part of the Womb lying open, and manifestly gaping. Yet I know in twices, that the menftruous blood came out of the veins of the Neck only, not alfo out of the womb, and in another on the contrary that it flowed out of the Womb only. But the ordinary way is for women to be purged at both, and not at one only, except when besides the intent of nature obfervation do fceem to hinder their flowing. But we have obferved, and few divers times, whiled we were about the care of Ulcers in the priy members, and the neck of the Womb, that at what time the monthly cours do flow, the mouth of the Womb gapes. I faw alfo then, that those parts were dilated with a certain ftinking moisture, and that the neck of the Womb appeared much larger than it was wont to be at other times. And therefore no man need to wonder at that, which hath been obferved by fome Writers of our age, that in the time of their cours their parts have been fowed in fores, that being new married, although they were true Virgins, they have for this reafon been accufed, and thought to have been defpoted. Wherefore it happens, that any who are now married, doubt of their Wives virginity, becaufe they find the privy paffage very wide, it will behove them to confider, whether their flowers were not at that time upon them. Now at length the remainder of the inner Iliacal Trunk makes to the Share-bone, and taking to it a propagation of the outer iliac, togethe r with which it makes one vein, and fo passing through the Peritoneum, and hole of the Share-bone, it fpreads it felf into the leg, and is extended almoft beyond the middle of the Thigh on the ifide.

From the outer branch in like manner fome veins iflue: and firft of all, that which is called Epigrafica, or vein of the lower Belly [9] which almoft takes the higher part of the branch, and is fo named, because it goes to the Muscles of the Epigrafium, to wit, the rich Muscles of the Abdomen. It is fent from the lower part of the Mufcle, till it come near to the Navel, where it is joined by two Anasmofois with the defending Membrany-veins. But this Anasmosis or inoculation is feldom found in men, but
but in women it is very conspicuous, from whence also Galen Lib. de Diffil. Ven. et Arer. Cap. 8. winneth, that great sympathy between the womb and the Breasts or Dugs is caused by these two veins and that the most learned Hippocrates has explained this farther, because in many Aphorisms of the fifth Section. For in the fifteenth Aphorism he says, 'If you would stop the courses in a woman, apply a very great Cupping-glass to her Breasts. And in the thirty seventh he witneth, that great sympathy between the womb and the Breasts are provoked to lust, so that for this reason also these Women, that have great Breasts may be accounted more lustful, as Ajax is in Iliad. But it is convenient to note concerning the original of this Vein, that very often it arises out of the Crural branch, which we shall by and by defend, but often out of the Iliac. Another vein is the Pudenda [17] which arises from the inside of the outer Iliacal branch, after it is come out of the Peritoneum, or Rim of the Belly, and it is called Pudenda, because it is fixt upon the privities of both Sexes. For in men it is distributed into Scrotum or Cock, and into the skin of the Yard, but in women it is propagated to the Lips and skin of the privy passage, to the Nymphae or wings, and other parts of it; but in both men and women to the Glanss, that lie about the leskes, whence arises that conflux of matter into these Glanss, in a pestilence or venereal disease, or in a Fetus. But the [18] is that which goes to the joint of the Hip, and is distributed into the skin and muscles thenceforward, by reason wherein in my judgment by a stricter Appellation it might be better called Carnes, or Carcinis, the Hip-vein.

CHAP. V.

T he outer branch then of the Iliacal veins [2] when it hath first forth the first propagations, falls out of the Rim of the Belly, and is carried to the Ingueina or lesskes through the upper and inner region of the Hip-bone, through which the fluid and feces bending Muscles of the Thigh do defend, and makes the Crural-vein [L]. The History whereof that we may deliver in an easy method, we will divide it into Trunk, and Branches. But before the Trunk be left into its branches, it shoots out four propagations; the first of which is that they call Saphena, [19] and vein of the inner Ankle, because it runs near thenceit; it is also commonly called by Physicians vessell, but improperly, as we have said above in our first Book. But it arises from the inner side of the Trunk, probably after its departure out of the Peritoneum, or Rim of the Belly, and having no Artery for its companion, runs strait downwards under the skin, through the inner region of the Thigh and Leg; and when it is now come to the inner Ankle, it spreads itself forth into the upper part of the Foot, and feators a branch overthwart, from which afterward many others arise, that are distributed in their order to every one of the Toes. This vein featers other propagations by the way, but which are seldom found answerable one to another, either in number, or bigness, as we have already more than once intimated, that nature is found to sport in the veins, but especially in those of the joints. The first [17] of these propagations, not far from the original of the vein if it fall, is dealt into the upper skin of the inner region of the Thigh, in two branches; of which the outer, which is the thicker, creeps through the toes, and outside of the Thigh, under the skin; but the inner goes more inwardly, and spreads it forth into the rim of the Belly. The second [18] is propagated, when the veins has now attainted to the middle of the Thigh. The third propagation [19] arises about the knee, and brings forth two off-springs, one which is distributed into the skin of the forepart of the Knee, by the Poplitea or Whirl-vein, but the other into the skin of the back-side, where the binding of ham is, about which it is rowled orbicularly. The fourth [20] is carried to the middle of the Tibia or Leg, with fancies forward, and backward, over against the Saphena, another vein [19] is brought forth from the outside of the Thigh, but shorter than the vein Saphena is, and reaches outward, and overthwart into the skin, that covers the forepart of the Hip-bone, as also into the Muscles of the same place which the later Anatomists call Iliaca. These propagations being brought forth, the Trunk afterward is divided into the Muscles that compasse the bones of the Thigh, and fits out a third propagation [15] which they call Mufcula the Muscle-vein; and there use to be two of them. For the outer, which is the left, sends shoots to the second, and fourth, extending Muscles of the Tibia or Leg, together with the skin; the inner, and greater, affords twigs to the third extender of the Leg, and to almost all the Muscles about the Thigh. After this the Trunk returning to the Back-side, and descending by degrees, featers some other twigs into the membranes of the Muscles, and by and by sends out a fourth veins, which runs into the backside of the Thigh, and is called Poplitea, the Ham-vein [16] much spoken of by writers of Physick, but especially by Hippocrates the chief of them, who 6. Epimen. 1. 5. commends much the opening of it in diseas of the Kidneys. But it is so far from being that learned Hippocrates has explained this farther too deep to be cut without very great difficulty. I have learnt by frequent experience, that it is much used in the Fures or call of the Leg, to which this vein spreads it self, have done a great deal of good in many diseas. This vein, when it is propagated, sometimes receives the addition of a Sprig from the innerbranch of the Muscle-vein; sometimes also two propagations issue from the Trunk, one higher, and another lower, which afterward are united in their journey. But
But presently after it's rifen it fatters fome branches into the skin of the Thigh, about the higher and hinder part of it, then it runs down directly through the middle of the Ham, or binding of the Leg, into the Calf, to which it distributes many Surcles, that run on with an uncertain course, some directly, some overthrow'd, some obliquely. These little branches being thus diftributed, the vein paffes on as fars as to the Tubia, or Cockall-bone, and there its length determines.

And this is the progrefs of the Crural-Trunk, and there the propagations which it fatters, before it be divided. For lying upon the bone of the Thigh, it to defcends, and runs fide-long near to it, that when it has arrived to the Knee, it is carried betwixt the two loweft, and hind-most head of the Thigh, in which place [2] it is cleft afunder into two branches, an outer, and an inner one. But they are of unequal bifniffs, the outer being the smaller, and the inner the greater, but both of them [3, 4] are clefted through the Leg, and loweft part of the Foot. 

The outer [5] invites defcient lends fome propagations of the Muscles that are placed on the backside of the Leg, and efpecially thofe which make the Calf, but moft of all to the inner part [2] of the Gafferoneein extemus, or outward Calf-mufcle, and fo afterward continuing its course downward, when it is come to the lower Appendix of the Tibias or Leg, and has bettowed fome fhoots upon the skin, it is reflected under the inner Ankle [22] and runs out as far as to the great Toe. The outer [2] is prefently cleft into two leffer branches, that are likewife unequal, of which the inner [3] that is the greater, and lies deep, is wholly fpent upon the Mufcles of the Calf, running all along direcdy betwixt the two heads of the Gafferoneemin externus, or thirt moving Mufcle of the Foot, as also betwixt the Gafferoneemin internus, or inward Calf-mufcle, and the Tibian aniueum or forward Leg-Mufcle, and at laft betwixt the Mufcles that bend the Toes, diftinguishing fome furcles every where by the way to the Mufcles, through which it paffes.

When it comes to the mid-length of the Leg, it is again subdivided into an inner, and an outer branch. The inner of thefe distributes a twig near to the joint of the Tibias or greater Leg-bone, and the bone called the Cockall, defends with the Tendons of the Mufcles, and is divided into the great, the fore, and the middle Toes. The outer paffes on near to the Fibula, or leffe bone of the Leg, and when it comes to the Ligament which ties together the greater, and leffe bones of the Leg, it shoots forth a branch, which perforating the Ligament runs into the Foot, and is fattered into the Mufcles which bend the Toes of the Foot outward.

But the outer and left branch [7] of the Crural-vein goes from that division of the outer branch, which is made near the Ham, to the upper Appendix of the Fibulae, as alfo the outer and hinder part of the Tibias, where fattering many little branches, it goes to the outer Ankle, and at laft ends in the Foot.

And this is the universal Hiftory of the Hollow and Gate-veins, where we have perfected the whole courfe of their distributions. It feems yet to remain, that we fpeak of the Umbilical, and Arteribus veins. But becaufe the Umbilical vein is nothing elfe but a more notable propagation illufing out of the Gate-vein, and in a man grown performs the office of a Ligament, rather than a vein, becaufe it keeps the Liver in its place as the diorer of them do witnefs, who upon the cutting off, or wounding of the Navel, have suddenly died, their refpiration being hindered by the weight of the Liver falling out of its place, and pulling down the Diaphragma or Midriff with it, we thought it not worth our pains to make any more mention of it in this place.

But if any one will obstinately contend that it is a peculiar vein, with arguments fetcht out of his own Brain, we know no better counfel that we can give him, than to confult better with his own fenfe, or if he will contend further, to purge his head with Hellebore, that that dimnefs of the eye-fight may be a little taken away. But we hall with more convenience make mention of the Vena Arteriøsa, or Arterial-vein, in the following Book, when we shall explain the hiftory of the Arteria venosa, or venal Artery, becaufe they are very like one another, and therefore the fame pains may serve them both.
An Explanation of the Table of the Veins.

This Table delineates the Hollow-vein, entire, and free from all parts. Wherein we have marked the Trunks, and larger branches, with pretty great letters: but the propagations with little ones \( p \) and when they are at an end, with figures.

The Ascendent Trunk of the Hollow-vein, the beginning whereof is about \( A \), which marks the place, wherein the Liver stands fixed in the proportion of this figure, the end about \( D \). For it passeth on undirected from the convex part of the Liver, about which it is flatterd into little branches, and as far as to the Hollow of the Neck \( b \), but it is flattered some propagations, three in number. The first of these, \( e \), is called Vena Phrenica the vein of the Liver, which is distributed in both sides into the Mediastinum, or Pericardium, or Parts of the Heart growing threes, as also into the Mediastinum or partition of the Neck.

Another \( e \) Vena Coronaria the Crown-vein, \( h \), which encloses the edges of the heart in manner of a Crown, diffusing many Surcles to the point of it. The third is the vein Azygos, or without a mate, the Hinter part of this, as far as to the Holes of the Neck \( m \), and makes the forepart of the eye, through the second hole of the Mediastinum, in the neck.

The division of the Ascendent Trunk about the Hollow of the Neck, \( f \), into two branches \( c, c \); the one \( c \) goes to the Midriff, which is divided into both sides into the Liver, and the other \( c \), into two branches \( c, c \), of which the one called Profundus, \( f \), is variously distributed into the Muscles of the Liver, or Liver, and the bone called irides, \( c, c \), into the Tongue, the Palm, and hollow of the Neck, and lastly into the skull with three propagations, of which the first \( p \) passeth out, of the fortpart of the eye, through the second hole of the Mediastinum, is very well distributed here. The other called Subcutaneous, \( c, c \), of all branches \( c, c \), is carried behind the ears, and makes the forepart of the eye, through the second hole of the Mediastinum, is very well distributed here.

The fourth vertebra, \( c, c \), into the Liver, is divided near to the skull into two branches called \( c, c \), of which the one marked \( f, f \), is distributed through the sides of the thick membrane, which passes with its fellow toward the top of the eye, and makes the forepart of this, then it passes out another hinder branch, which partly creeps upward along the Temple \( c, c \), and partly is carried behind the ears to the sides of the Skull, and makes the forepart of the eye, through the second hole of the Mediastinum.

The fifth \( e, e \), is the vein of the hollow of the Neck \( m \), divided into two branches, the Cephalic \( G \), and the Basilic \( G \), which enters into the Armpit.

The sixth \( c, c \), is the third part of the Armpit \( m \), and makes the vein called Saphena, which, before its division, continues through thepreads of the thick membrane, which before its division, passes out of the Arm, propagates two small veins, which is marked \( m \), and goes to the Muffle of the Hand, and the other \( c, c \), which is the outer \( c, c \), goes to the Muffle of the Arm, and is divided into two branches, the Cephalic \( G \), and the Basilic \( G \), of which the one \( c, c \), is called Epigastrick, and is distributed near to the Skull, and makes the vein called Saphena.

H.

When the Basilic \( G \), comes to the joint of the Clavicles, at the outer branchings of the Arm, is cut into three branches \( h \), The first, \( e, e \), is the upper, or left goes to the Muscles of the Arm, and makes the vein called Mediana. The second \( e, e \), or outer goes to the making of the vein called Mediana. The third \( e, e \), or outer goes to the making of the vein called Mediana. The fourth \( e, e \), and makes the vein called Saphena, which, before its division, is cut into three branches, the Cephalic \( G \), and the Basilic \( G \), and makes the vein called Saphena.
An Explanation of the Table of the Veins.

0, to the heads of the muscles of the Calf; and then another notable one P, which being carried downward obliquely, before its furcates upon the Muscles that arise from the outer preturbation of the arm.

The division of the Basilic vein L, into two branches, the one called Prelatudur; the deep one, the other Subcutaneous, or branches under the skin. The deep one, when it comes to the bend of the Cubit, it divides into two, M, one of which called Radieus N, or the Radieus orffer bone of the Calf; the other called Cubitas, O, at the greater bone of the Cubit, goes to the hand.

Subcutaneous, or the branch next under the skin P, near to the inner preturbation of the arm it divided, Q into two other, of which the inner R, together with the inner branch of the Cephalieum, makes up the vein Mediana S, which is likewise divided into two branches, the outer of which T is called by some Cephalitica trunks, and goes to the Thumbs, the inner S, to the fore and middle fingers: The outer S, going to the wrist, is joined toward the little finger with the outer branch of the Cephalieum vein above T.

The little twigs, which are found in the veins of the joints, are handomely cut out here, as it were to be first thrown.

The dependent Trunk E of the Hume-vein which begins about the Region of the Liver T, and ends about the fifth Back-bone of the loins V. There are four twigs growing from this. The first w, called Adiposa or fatty vein distributed to the membrane of the Kidneys. The second x, the emigrant going to the Kidneys. The third y, preparatus vein, the preparing vessel, the right one z, arising out of the Trunk TV; the left s, out of the left Emigrant, both afterward going into the Tricipites V. The fourth is the three Lumbraces in Loins, XX.

The division of the Dependent Trunk V, into the two Hume-veins XX, both which are again divided into two others, an inner one Y, and an outer Z. But before these divisions two propagations are added forth, Muscles umbilicals, or the Hume-veins of the loins Y, and Sacra, or the Holy-vein Z.

The Inner Hume-vein, before it goes out of the Peritoneum, or rim of the belly, shoots out two propagations, the first called Glutaeus, and the second Hypogastricus. The remainder of it passing through the Peritoneum, it goes upon the sides of the Thigh.

The outer Hume-vein having path through the Peritoneum or rim of the belly enters the Cuts, and begins to be called the Crural Trunk T, that is divided as far as to the inner heads of the Thigh, but it reaches forth four propagations before its division. The first y is called Saphena, which creeps through the vein of the Legs, under the skin as far as to the ends of the toes. Another z, called Within is spread out into the vein upon the Hip-bone. The third A, named Muscula is sent to the Muscles, which extend the Leg. The fourth E, named Fopitica is distributed into the Calf of the Leg.

The vein Saphena also scatters from it self four further, the first f, into the upper part of the skin of the Transit the Leg. the second g, about the middle of the thigh: the third h into the knee: the fourth i is carried forward and backward to the middle of the Leg.

The division of the Crural Trunk, near to the two lower heads of the thigh into an inner branch k and an outer one l.

The inner distributes little branches to the Muscles of the Calf 21, and then over drawn under the inner side of the great Toc 22.

The outer presently is cut into two branches, an inner 2; and an outer 2. That is sent wholly upon the Muscles of the Calf; this passes near to the Final or inner bone of the Leg, through the outer and back side of the Leg.
TRACT II.
CONCERNING THE ARTERIES.

CHAP. I.

Shows the upper or ascendent Trunk of the great Artery, with its propagations that are distributed through the Head.

Here is no controversy among Writers of Anatomy concerning the number and original of the Arteries, but an unanimous consent, that all the propagations which are scattered throughout the body, take their rise from one, which they call Aorta, and that this is derived out of the Heart. But the Heart consisting of two fums or cavities, a right and a left one; this great Artery grows out of the left fume or ventricle [A], where it is largest, and more hard, and grilly than elsewhere. But as soon as it is grown out, and before it fall out of the Pericardium or Purse of the Heart, it presently propagates two small fprings [a and b] one of each side, which they call Arteria Coronaria, the Crown Arteries.

But they are more and greater about the left than the right ventricle, as we have also formerly said concerning the Vem, because the Heart needs a greater plenty of blood on that fide, as which beats with a perpetual high more violent motion, wherein more blood is digested than the right fume of ventricle does: yet that propagation is bigger and longer, which arises out of the right fide of the Artery: sometimes also there is one only, at whole orifice a little valve is found. Those propagations being thus differentiated, the Artery ascends somewhat under the Trunk of the heart, and having got above it, is cleft [B] into two branches, which because of their natural greatness we will call Trunks [C] and because one ascends [C] and the other runs downward [Q] that shall be the ascendent Trunk, thif the descended. Yet the dependent and lower one is bigger by much than the upper, because that serves more parts than this; For the ascendent one goes only to some parts of the Cheft, to the Head and Arms; but the lower to very many parts of the Cheft, to all the lowest belly and the legs. That therefore we may treat of the great Artery with more perfituity, we will firft fhew the ascendent Trunk, and its propagations through the Cheft, and lowest belly, and laftly through the legs. Then we will fall upon the descended one, and explain the manner of its distribution through the Cheft, and lowest belly, and lastly through the legs.

The ascendent therefore or upper Trunk of the Aorta [C], being fattened to the Osophagus, or Gullet, climbs upward between the rough Artery, and hollow Vein, and the mediastinum or partition of the Cheft. Which situation of it they ought diligently to observe, who desire to know the reason of that Apothecary, which is the four and twentieth of the fifth Section in Hippocras: For fays he, cold things, as Snow and Ice are enemies to the breast, provoke Coughs, and caufe eruptions of blood, and distillations. Truly they are enemies to the breast, because while they are swallowed down through the Gullet, they cool the rough Artery that lies next to it, together with the Gullet, which part being of it felt cold, does easily take harm from its violent cold: hence the Cough, and other diseases of the breast follow one another in a long row. But if issues of blood happen in like manner, the great Artery being cooled, whereby the vital Spirits and the blood are driven back to the Heart, and from thence are sent up forcibly to the Head, which being flushed, eruptions of blood are caused by its dropping forth at the Noftils, as alfo Catarrhs and Diftillations, it being driven down unfigured to the inferior parts. And hence also a reason may be rendered, why none upon drinking of cold water after vehement motions and exercitse of body, have preffently been fuf- fected, the pallion of the heart, and grievous swounings following thereupon. For the Artery being vehemently cooled, the blood is congested, as well that which was in the Aorta or great Artery, as that which slided in the Heart's from whence happen at firft heartly fymptoms, and then fudden death. But we have fen in these men, that a vein being opened, the blood hath come out thick, and cold; and with very great difficulty, whence we have not found a more prefent remedy for them, than fuch things, as by reafon of the thinnefs of their parts have a power of difolving the clots of blood. Hence alfo a reason may be given, why in burning Fevers the Tongue becomes black, and the defecated can hardly swallow. For although it be true (which is the caufe commonly alleged) that many vapours are furst up from the whole body to the head: yet we may alfo acuize a main caufe of this blackness to the neareft of the Artery, which being fett on fire and inflamed, procures much mischief to the Gullet, and confequently to the Tongue it felt.

But the ascendent Trunk, whilst it propagates thus upwards, is divided into the two subclavian Arteries [DD], of which one runs to the right fide, and the other to the left. They are called subclaviae of the ascendent Trunk.

As long as they are in the Cheft, for the fame reafon as the subclavian veins are so called, because they run under the clavicles or collarbones; but as long as ever they are taken out of the cheft, they change their name, and are called Axillares [E]. From both the subclavian Arteries, when they have attained to the firft rib (for before that they fend forth no propagations) many fprigs issue out, vian Arteries, as well from their upper as lower part. From the lower, issues the upper intercostal Artery, or inter-costalis.

Bk 3
Concerning the Arteries.

TRACT II.

arteries of the skull, or rather the upper bonder, are feveral, and in the root of the neck, those of it, that is featured at his processes, and throughout the length thereof are dispersed the inferior arteries, of which one is the outer, the other the inner.

The division of the neck. The outer, or branch of the face.

The inner, or branch of the brain.

The division thereof into a lesser and greater branch.

A subdivision of the greater.

Concerning the Arteries.
TRACT. II.

Concerning the Arteries.

substance of the brain, to the original of the spinal nerves. The outer being reflected and sustained with the thin membrane, goes into the forward ventricile of the brain, being divided into many fissures, which are united with those little arteries which arise from the vertebralis or artery of the vertebræ alone with those which the vertebral artery feters through the hole of the head under the brain, but others with those which it differentiates through the thin membrane and substance of the brain, together with which they make the pleurae choroids.

CHAP. II.

Declares the History of the Axillary Artery, being distributed through the Arm.

The Axillary Artery therefore when it is come to the arm, taking the name of the Arm-trunk (FF) is carried in one undisposed flock, beyond the bend of the cubit through the inside of the arm, dispersing some small propagations on both sides to the muscles that lie on the inside of the upper part of the arm. But it goes full by the inner or deep branch of the Basilic vein, as an unseparable companion of it, whole conduct and steps it every where follows. But perfectly falling down by the back-side of the upper part of the arm, where the muscles which extend the cubit back to it, it finds two such propagations [1 and m] the lower of which is a very notable one, and so it is whirled back toward the rest of the cubit, and having attained thence it reaches out two furfide [m] one of each side, to manifest, that the pulse is there oftentimes evidently enough perceived. Then going under the best of the cubit, through the inside of it, and finding down between the two muscles that bend the second and third bones of the fingers, it is cut [c] into two notable branches, one of which is an outer, the other an inner one. The outer [H] is carried along the radius, or lesser bone of the cubit (whence I call it Radio) and goes directly to the wrist, in which place physicians feel the pulse, it being very manifest, by reason that the artery lies next under the skin. But not far from the root of the wrist it forms out a little branch [a] which runs under the tendons of the muscles which extend the thumb, into the outside of the hand, and is sent under the muscles, which are placed between the nail bone of the thumb, and that of the after-wrist, which supports the fore-finger. This branch being propagated, going under the inner semicircular ligament of the wrist, and the broad tendon of the palm muscle, it is divided into three branches [pp] like the vein and nerve that are its companions. The first of these goes to the inside of the thumb, the second to the inside of the fore-finger, and the third to that of the middle. The first and second are each of them parted into two branches, the third is undivided. The inner branch of the trunk of the arm [I] runs straight along the ulna or greater bone of the cubit (and for that reason I call it Cubitum) and is dispersed in the palm of the hand. But it is hidden among the muscles, that it is hardly perceived to heat, unless in lean fellows; and therefore physicians always lay their hands upon the outer branch when they feel the pulse in the wrist. But it passes on under the transverse ligament of the wrist, and the tendon of the palm muscle, in company of a vein and serve, and disperses two branches into the little finger, as many into the ring finger, and one into the outside of the middle.

CHAP. III.

Shows the Inferior or Descendent Trunk of the great Artery, and the propagation thereof through the middle and lower parts.

We have said above, that the great artery [A] as soon as it is gotten above the Percutium or Purse of the Heart, is divided [B] into two branches of which one goes upward, the other downwards to the parts below. We have already handled the upper branch, it remains that we explain the other also.

The descendent trunk thereof [Q] answering in proportion to the flock of a Tree, is carried down to the fifth rack-bone of the chest, and declining somewhat to the left cleaves to that side of the body of the rack-bones, and so descends itself. When it has now past the midrib through that division reforming a femilicircle, which is between the prenervations of the femur transfuseum or midrib, presently it runs out by the rack-bones of the loin, leaning upon the middle of their body, till it come to the lat of them, where near to the Os sacrum it is divided [R] into two notable branches [SS] which with our Anatomists we will call Iliaea, the Iliac arteries from their situation. In this journey it fatters many propagations from it felt, which are very worthy to be diligently observed, because from thence we may easily give a reason of many accidents in Difficultes. But they are in number eight, the Intercoital arteries, the two Feminae or arteries of the midrib, the Cocciad one, then the upper Mafenerticles, the two emulgents, as many phrenic nerves, at last the lower Mafenerticles, and the Lucheines, or arteries of the loin. Of these the Intercoitals are fattered, whilst the trunk is yet in the chest, or the rest, whilst it goes on through the lowest Belly. But some of them accompany the branches of the gate-vein, as the Cocciad, and both the Mafenerticle arteries, others those of the hollow vein, as the rest. Now we will treat of these in order, beginning from the Intercoitals or arteries between these, which are placed upon the femur. Presently therefore after the descendent trunk [Q] is 1ifled forth, from its backside it sends over little branches on both sides to the divisions of the eight lower ribs, which they call Intercoitalis inferiores, the lower arteries between the ribs [nn] in respect of the upper Intercoital, of which we have spoken above. Thence apposing themselves with the veins and nerves, of the same name, go straight on by the lower side of the ribs whose peculiar four or channels are cut off for them. But as the Intercoital veins reach in the true ribs only to the griffels, but in the baffle ones somewhat farther, to wit, to the sides of the adomem, so also the arteries end in them together with the bony parts of the ribs, but in their run out a little farther.
further. And these arteries send over some propagations through the holes of the nerves to the spinal marrow, and to the muscles that lie upon the rack-bones of the back, just as we have said the intercostal veins were propagated. But the use of them is to diftribute the vital spirit, and the blood and the muscles between the ribs, beside which they have also another nautical office, to wit, of carrying down the water and pertinent matter that is gathered together in the chest, into the great artery, and from thence to the emollient branches to the bladder. Although I am not ignorant that the most learned Fallopii and others, who have read before me in this most famous University of Padua, have thrown another way to their Annotators, by which either pertinent matter or water might be conveyed forth by help of the history, to wit, the veins fine part, or without a companion, a little branch whereby in the left side goes into the emollient of the left kidney. But this way which we flew through the Intercostal arteries, is by much the shorter, that I pass by this, that any matter heaped together may be more easily dispached away through the arteries than the veins. Nor needs any one here to be afraid lest the vital spirits should be infected from these excrementitious and ill humours, whereby the heart may incur fatal symptoms; so that we unwillingly grant (which experience also hath often taught us) that whilst the corrupt matter is emptied out by the urine, the sick parties have often fallen into fits of swooning, and other difficulties; sometimes also have died suddenly when the peasant humour hath been of too great a quantity, or too bad a quality, and hath offered so much violence to Nature, that the heat and spirits have been overcome therewith. But here a certain place in the description of a place in Hippocrates calls upon me to explain it, which hath long and often troubled my mind. The place is in Coecis praecoculis, where he says, They, who together with the heart have their whole lungs inflamed, so that it falls to the side, are deprived of motion for seven or eight days, and the parties do dislocated cold, hot, and cold, and die in the second or third day. But if this happen to the lungs without the heart, they live not so long; yet some also are preserved. I have often thought with myself, what should be that sympathy of the heart and lungs with the brain and nerves, that from the inflammation of those parts, the Patient should be deprived of sense and motion all over, when the same Hippocrates teacheth in the same place, that the diflocated fitter fuch deprivation in that part, and livid spots appear on the outside about the ribs, whereby the Aera (to be he seems to call the lobes or division of the lungs) being inflamed fall to the sides. But if they be not much inflamed, so that they fall not down to the sides, he says that there is a pain indeed all over, but no deprivation of sense or motion, nor any spots appear. Having deliberated often with myself, at length I came to be of this opinion, that it was no other cause, but the sympathy between the Visceral arteries, and the marrow in the back-bone. This sympathy arises from those propagations which we told you past through the holes of the rack-bones of the chest into the back-bone. Wherefore if the lungs and heart be so entirely inflamed, that great plenty of blood rush into the great artery, whereupon it swells, as also their vessels between the ribs, and consequently those arteries which go to the marrow of the back-bones truly cannot be, but that both the marrow and the nerves which Issue out of it, be compreft, from whence what side can follows but the resolution of those parts, into which those nerves are implanted; and to which they impart the faculty of motion? This opinion seems to me to be wonderfully confirmed by a certain pretty observation, which the learned Carolus Gemma hath in his Book, De Historia Pellestis. A certain physician young man, says he, through the whole course of his disease, had his left eye left from the other. He was pain'd in the left side, especially all the time the fit raged; but about the crasis or judgement thereat, the artery of his left leg being swoln up, was moved according to its length, that being to be seen by us it seemed to be turned upward and downward like a Apostle pulled back. Who will not here willingly confess, that this matter was in the arteries, when the crasis was made by them? But from this that hath been said a reason may be also given of another observation of Galen, which is 14d. Le boeuf. Aéf. e. 4. where he says thus: In a certain man who was troubled with a vehement inflammation of the lungs, as well the outer as the inner parts of his arm, from the cubit to the very ends of his fingers laden with difficulty of sense, and their motion also was somewhat impaired. In the same man also the nerves which are in the arm and in the sides between the ribs, fulfill'd harm. And a little after, This man was quickly restored to health, and a medicin being applied to the place from whence the superficial artery, near to the first and second spaces between the ribs. By reason of the fine branches between the ribs, John Valeria, the son of that Physicians, whose observarions we have, being yet a boy, suffered Convulsion-fits in a grievous Pleurisy. The arteries called secreting of the midriff. [XX] are two; one of each side, which arising out of the Trunk, prettily after it is come forth of the hollow of the chest, being divided into more branches, are scattered into the midriff, but especially lower side of it, near to the rack-bones of the back. They send forth some small twigs all over the upper part, which afterwards go to the Pancreas or pudic of the heart, thence it grows to the midriff. The Caelica or Stomach arteries are but one, so called, because it feeds over branches to the Koax, that is, the Stomach. This being most like to the splenic branch of the Gate-vein, affords many branches to the Stomach, Liver, Bladder of Gall, Kall, the Gut De deceased, the beginning of the Jejunum or empty Gut, a part of the Colon or Cecum Gut, the Sweet-bread and Spleen. But it arises out of the fore-side of the body of the trunk, and being laid up all the way by the upper part of the lower membrane of the Kall, is divided into two notable branches, but of unequal bigness; one of which goes to the right the other to the left; that is the left, this is the greater. The right branch therefore is lined with the dependent Gate-vein in the Pancreas or Sweet-bread, that is placed under the hinder part of the stomach, and leaning there upon the membranes of the Kall goes; and its smallness is worth the taking notice of, if you look upon the large-ship of the Liver, which the Ancients call the great, and many at this day have made the World-houple of the Bloud. But it is infected in the hollow part, near to the trunk of the Gate-vein, and is so small, because that part of the Liver which entertain the roots of the Gate-vein, needed not a greater artery; but the other part which
Concerning the Arteries.

hath the propagations of the hollow vein, receives great plenty of vital spirits sent over from the heart through the hollow vein. Yet before it enters into the liver, it differenates in the way many furcles, and proportionally to the great increasement it undergoeth in the liver, its propagations are divided into many little branches, which I call Propyterum, which arise in the midway, and being divided into many little branches is distributed into the backside of the right orifice of the stomach. The outer is called Cyntia givens, the Twin-arteries of the bladder of gall, which are two little branches, and go into the bladder of gall, and proportionally to the little divide of the hollow vein, into the branch of the hollow vein to the heart, or Colick gut, or empty gut; the other named Cyntia givens, the right stomach and hollow-artery, somewhat larger than the former, transmuted to the right side of the bottom of the stomach, and being supported by the upper membrane of the kail, issue out some shoots from the upper part to the fore and back-sides of the stomach; but from the lower to that membrane of the stomach upon which it leans.

The left and greater branch is called Arteria Gastrica, the Spleen artery, which flowing to the lower membrane of the kail and the glands placed therein, pulsates on together with the Spleen-vein, to which it is united, and in the like manner distributes its propagations to the Spleen. But in the way likewise it distributes branches from both parts of it: from the upper issues Gastro-intestinalis from the stomach artery, which reaches into the middle of the hinder part of the stomach, or that wherein it then upon the back, and ascending from thence it supplies the left orifice of the stomach round about like a Crown, and disperseth little twigs, partly upward to the end of the Gullet, partly downward, and to the greater and more numerous, into the stomach, and so it makes the \textit{Arteria Contaritis or Crowns-artery, like to the Crown-vein, which arises from the Gate-vein, as we have said in the foregoing Tract. But from its lower side the Spleen-artery breaks out the \textit{Epiplois fojigha or left Kail-artery, in the way that whereas it now attains to the Spleen, which runs out into the left side of the membrane of the lower part of the kail. This artery presently after its rise, is cleft into two branches, which part very far Subject from each other, from which many other arteries arise, that are all consumed upon the said membrane of the Kail, and the Colick gut that is tied thereon. These branches being issuing, the Spleen-artery draws nearer to the Spleen, and just like the vein of the same name, which accompanies it all the way, is cleft into two branches like the letter Y, one of which may be called the upper, the other the lower, which afterward entering by the hollow part of the Spleen are splintered into an infinite number of little frings, so that there are five times more arteries there than veins. Whence it comes to pass, that in inflammations of the Spleen, if you lay your hand to the left Kail, it is very feem, that the propatitions of the arteries is not less than the veins, which seems to be the cause, that upon a full stomach we make little water, but more when the concordion therein is furnished.

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Concerning the Arteries. T R A C T. 15

Their use. 


An objection.

An obser va- tion.

Why meaning of the term with such things in purge loosens the belly.

When the Co-lick is changed into the Guts; and on the contrary.
Concerning the Arteries.

Tract, if. convenient way. Nor is there any reason, that we should be afraid of that pollution of the vital spirits, which they will object to us if the excrementitious humors pass through the arteries; for this, by its own nature, makes all that is therein more fit to flow. And who will not believe that excrements are carried through the arteries, who considers the flowing down from the faeces, in which there being five times more excreta, than there are veins, truly it is necessary that that ballast of the faeces be carried out through the Arteries. ...

The four, Lumbans or loin-arteries [v. y.] arise out of the backside of the trunk of the great artery, all along as it passes through the region of the loins. They run through the common holes in the rack-bones of the loins, and to their marrow, and also into the neighbouring muscles. And at the side of the marrow, after they have entered the rack-bones, they climb up on both sides to the brain together with the veins of the loins. But they are all equally big, if you except those two, which issue out near to the Os facrum or holy-bone, which are not only derived into the rack-bones to the marrow and to the muscles thenceforth, but are also sent with other things through the Peritoneum and muscles of the Abdomen. The two last are by some called Mutolites superseris, the upper muscle-arteries, and are dislinguished from the Lumbans. And those are the arteries, which if we observe, we shall easily give the reasons of many things, of which Physicians do fully dispute very hotly but especially of that most difficult question, which is controverted among Physicians, by what ways, and in what manner the colick ends in a palsy or in the falling sickness. For we have the observation in Pantaeus, where he says: the colick, as it were by a certain pestilential contagion ended, the cause of the disease being carried to another place into the palsy, were most of them preserved. For the humor that caused the disease came back through the meenterical arteries, from whence being afterward transported into the trunk of the great artery, it came also to the Lumbars or arteries of the loins, which swelling with blood pressed together the neighboring nerves, from which came the palsy in the feet. And this we have often observed, as well in our selves, as in others, especially in former years, when these diseases at Athens were Epidemical. Yet the Palsy is not always a perfect one, but often as I am wont to call it imperfect, because the power to walk is not wholly taken away, but the diseases stand on their feet with a great deal of difficulty. Many at that time being deceived in the knowledge of the disease, mistaking this for a great weakness of body contracted by their sickness, endeavouring to take it away by eating and drinking largely, but in vain. This also is the cause, why the Falling-distems, and Lethargies too, as we have oft-times seen, follow after the Colick, because the matter being sent over from the Miferentetics arteries to those of the loins, may easily go from them into the brain, to which thefe very vertles are carried.

But the trunk of the great artery, when it is come to the last rack-bone of the loins, having taken its journey all the way, which we have shewed, under the hollow-vein at the left side here gets above the vein, lest it should be worn away in that continual motion by the hands of the holy-bone. But it is divided, no otherwise than the hollow-vein is into two notable branches [SS.], which are called by Anatomists the llaical arteries, from their situation, and being carried downwards obliquely to the thigh resembling the T of the Greeks turned upside down. But they also just like the llaical veins, to which they are exactly answering, before they be implanted into the thigh, shew a plenty number of branches. But from the lower side of the artery before the llaical branches be divided, rise forth from the holy arteries, [3] which are notable ones, and carried downward, leaving upon the holy-bone, path through the holes thereof, and run to the marrow and backside of the bone, and through and also there is a way for the matters, that makes the Colick to cause the Palsy of the legs. After this a little below the division of the Trunks, the llaical arteries are subdivided into two branches, one of which is the inner and left, the other outer and greater. The inner [3] shews out our two propagations, one from its outside, the other from its inside. The latter [4] is commonly called I phage, by its more directly Glanta the muscle of the buttocks, because it runs down with its name like vein, between the holy and hip bones, where they part one from another, and shews many twigs into the muscles which be upon the Os coxae, or bumb-bone, called Glanta, or the muscles of the buttocks: because they are the authors of them. The inner is called Hippoglossis [2] which is very notable, and large, and being carried directly down to the lower side of the holy-bone, it affords certain propagations in men to the bottom and neck of the bladder, as also to the first gut, which also may be called the Hamorrhoidal arteries, but in women to whom this branch is somewhat large, it distributes a great number of propagations, before they are divided in the lower part of the womb, and likewise into its intreces. Hence we may gather the reason, why, in the womb reache to the middle of the hip, Convulsions are called, as Hippocrates witnesseth, lib. de natura mutabilis. As also if the womb fall down to the hip, the monthly flowers are foppered, and a pain is caused in the parts of the fakes, and in the womb itself. For the blood which nature drives to the womb, cannot be laid in there, the arteries being pret together with the falling down of it, so that necessity flowing back, it fills the neighboring veins and arteries, which swelling up cause that pain we have oft-times seen in dermaties; these veins be women, that they have been even folded bigger then themselves. Hence also a reason may be given of the thirty second Aphorism of the fifth booklet in the same Hippocrates, where he witnesseth, that a woman vomiting blood is rid of her diseases upon the falling.
Concerning the Arteries.

Propagations of the outer or greater Iliacal branch.

After that the outer branch \[V\] hath propagated the fore-mentioned branches, it departs out of the Peritoneum or rim of the belly, and at the groin is carried into the Crus, or great feet, containing the thigh, leg, and foot.

The Propagations of the outer Iliacal branch, which are distributed through the Crus, or great feet, containing the thigh, leg, and foot.

1. Epigastrica, or the Artery of the upper part of the lower belly.
2. Pudenda, or the Artery of the Privy Parts.

The Trunk of the Crural Artery lies in the Ham \[Y\], it sends forth a propagation from its out-side, which is called \[\text{Muscula cruralis exteriour,} \] the outer Muscel Artery of the Crus, which being carried downward is propagated into the Muscles that cover the fore-side of the bone of the thigh. Sometimes over against this, but oftner a little below, yet on the in-side another is brought forth, called \[\text{Muscula cruralis interna,} \] the inner Muscel-artery of the Cruse, which is distributed in many branches.

Concerning the Arteries.

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**An Explanation of the Table of the Arteries.**

This Table comprises the Delineation of the great Artery, entire and free from all the Parts.

| A | T he large beginning of the great Artery, before it issues out of the left ventricle of the heart; but presently after its rise, and before it yet falls out of the Pericardium or parts of the heart, it issues forth the two Coronary Arteries a,a, which incompleat the bulk of the heart in manner of a Cirtain. But presently having past the Pericardium, it is divided B into two trunk y one of which is the attendant C, the other the dependent Q. The anterior trunk, C, is by and by divided into the three subclavian Arteries D D, both which, when they have attained to the first rib, scatter many propagations, partly from the higher partly from the lower side. From the lower side afford Intercostalis superior. The upper Artery between the ribs h, communicating particular twigs to the distances of the upper ribs. From the higher side afford three. The first is Vertebrealis, the Artery of the rack-bones c, creeping on by the transverse processes of the rack-bones of the neck, as far as to the neck. The second mammaria, the Artery of the dairy d, which defending under the breast bone, runs out as far as to the first of the navel, and distributes twigs into the distance of the greats of the true ribs, and then into the muscles that lie upon the breast; as length about the navel it is joined by anastomosis or communication s, with the ascending Epigastic artery. The third Carotis, or the Artery of the back side of the neck c, is propagated to the muscles on the back side of the neck, as far as to the navel of the chest.

| B | These branches being siffed out, the subclavialis Artery goes to the arm-pit, and takes the name of Axillaris about E, and is diffibled into the arm. Yet before it enters thorax. it flows out from twigs from both parts of it: from the lower three, of which the first f, is called Scapularis interna the inner blade Artery, because it is fixed upon the muscles that cover the hollow side of the shoulder-blade. The second is Thoracis superior, the upper chief E of which, is diffibled into the muscles on the foreside of the chief. The third is Theoriae inferior, the lower Artery of the chief, which defending along the sides of the chief, is infused into the muscles called Anticlipal, that move the upper part of the arm backward. Between E and h, a little branch is placed one of them which hence are distributed into the glans-dots of the arm-pit. From the upper part issues tw a, called Scapularis externa, the outer-blade Artery, being diffibled into of the muscles, on the outside of the shoulder-blade. In this place the anterior Artery changes its name, and is called Brachialis, the trunk of the Arm that is undivided as at a, issueing two twigs and one into the muscles that cover the bones of the upper part of the arm on the back side, and two other n n, one of each side about the bending of the cabin,

| C | The parting in twain of the Brachial Artery under the length of the cabin, into an outer H, and inner branch l.

| D | The outer branch of this division, or Radiatum, running straight along the Radius or offer bone of the cabin to the wrist, and distributing a branch o into the muscles placed between the first bone of the thumb and that of the metacarpium or after-nail, which supplies the fore-finger, and then three other p p p, which are diffibled into the five finger arteries, the thumb and the two fingers next thereunto.

| E | The inner branch or Cubitalis passing along the greater bone of the cabin, in a length confirmed in a double branch upon the two inner fingers, the ring-finger and the little one.

| F | The remaining part of the Ascendent trunk, which near to the upper part of the breast-bone is chief into two branches MM called Carotidias, or the bloody arteries. Toes tend directly upward by the sides of the neck, and being come to the chops are divided into two branches about N, one of which is the outer O, the other the inner P.

| G | The inner Caroticus passing twigs to the Buccaneers or cheek-puffs, and to the muscles of the face; but about the ear it is cut into two branches, a foregoing r, which is carried through the Temples, and a border one t, that is diffibled along the back side of the ear under the skin.

| H | The inner Caroticus, going to the skull is divided near to the balls thereof into two branches s, of which one and other y, which go into the sinus on the side of the thick membrane, is cut off here, whereabout is fixed into the skull: the other and greater e enters the skull through a peculiar hole bored for it in the temple bone. The Descendent Trunk of the great Artery, reaching downward to the rack-bone of the back.

| I | From this before its division at R, many propagations are scattered, which we shall now rehearse in order. First there are Intercostalis inferiores, the lower arteries between the ribs u u, distributed to the distances of the eight lower ribs, from which propagations are brought to the marrow of the back-bone, and to the muscles that grow to the back and chest. After this the trunk p p p on, distributed two more, called Phrenicus, the arteries of the midst c c, because they are diffibled into of the midst. Then follows, Cardio or the sinus-head-artery. After that, Mecentica superior, the upper artery of the Mafculaty y, reaching out into the Great Jejunum and Ileum, as off into that part of the Colon which reaches from the hollow of the Liver as far as the right Kidney. After this the Emultgent Arteries z, propagated to the Sif.
An Explanation of the Table of the Arteries.

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In this plan the outer Iliacal artery having passed the Peritoneum enters the Crux, and begins to be called the Crural Trunk, which issues out more propagations. The first is Muscula cruralis exterior, the outer muscle artery of the Crux, that is propagated into the muscles that cover the forse of the thigh bone. The second is the inner muscle artery of the Crux, degenerated through the third branching muscle of the thigh, and the third, which goes into the muscles of the back of the thigh. The fourth is Poplitas, the bone-artery of the musculature, on the back side of the thigh. The fifth is Suralis, the calf-artery, which is double, issuing out there, where the crural trunk is hid between the two lower heads of the thigh, and spreading out on both sides into the joint of the knee, and the two heads of the first extending muscle of the foot.

The trunk descending by the back side of the leg.

A higher branch issuing out of the back side of the trunk.

A lower branch issuing out of the back side of the trunk.

The remainder of the trunk descending by the leg, which offers a little branch to the inner ankle.

The division of the trunk, that is, into an inner branch of the great toe, and the two next and an outer, propagated to the little toe, and the two next to that.
CONCERNING THE NERVES

Of the Nerves of the Brain.

Among those eight Conjugations which arise from the Marrow of the Brain drawn out in length, whilst it is yet contained within the limits of the skull, that offers itself in the first place, which makes the Optic Nerves, that are so famous among all the Matters of Anatomy. For these are not only the biggest, but those that look upon their thickness; but also without doubt the largest of all the Nerves of the body. But they arise out of the middle of the body, on the fore-part, according to the opinion of the Ancients, but indeed, if the head be turned upside-down in the dissection (which is the proper way) out of the beginning of the former trunks of the spinal marrow, that their original is as it were in the back part of the head, and presently each of them by little and little making towards its mate, they are united (not only joined, as some would have it) over the saddle of the wedge-bone, and making one common square body, the marrow within them being mixed.

While this Nerve receives much moisture in the centre of the eye. In this pair we may easily view those two membranes, which are derived to the own side, entering the orb thereof through the first hole of the wedge-bone, and entering at the very centre of the eye. In this pair we may easily view those two membranes, which are derived to the Nerves from the two Meninges of the Brain, as also the very inner marrowy substance, which comes from the body of the Brain. Yet the Nerve itself is not cut into more branches, (as the other are) but lying hid makes the coats of the eye; and out of the thick membrane it forms that coat which is called Cornea, the horn' one out of the thin membrane that is called Retina, the Grapy one, but out of the substance of the marrow the Retina, or Coat like a Net. For as soon as it is arrived at the centre of the eye, these membranes are displayed, and making a sphere contain the humour in them. These Nerves convey the faculty of seeing to the eyes, wherefore, they being obliterated, or compressed, a blindness follows. Galen hath described holes to them, and Hesychius for the same reason called them Descri Ortiz, the passages of the light, teaching that there is a sensible hollowness plainly to be seen in them, whom for all that almost all Anatomists do contradict.

But I have heretofore shewed in the University of Padua, and in a great Assembly of them, that there are certain passages continuing from the beginning of these Nerves, as far as to the place where they meet together, and presently after that vanish away toward the eye. And therefore I shewed that the Ancients may not only be excused, but also that they write the truth, especially when none of them have laid that these passages were great, but only such as did not altogether escape the light, if one would already thrust thereof in a great living creature, and by a clear light, and presently after it is killed. For Galen himself required these three conditions, 7. placit, 4. and lib. 5. suis, that one may see them. But before we depart hence, I will bring in some Problems, that Besides the History it fell, I may also shew the use of that which I say, especially when in our time they only for the most part follow the study of Anatomy, who employ their industry in the behalf of Physick. The fact therefore shall be, what is the cause that many upon sneezing often (especially when they have provoked it for the nonce) have of a sudden fallen blind. This happens, either because the branches of the steepy Arteries, which are so near to the Optick Nerves, that they touch, are killed, and being so, press together those Nerves; or else because the phlegm which is contained in the throat is pressed outward, and by the pressure of the phlegm the Nerves, and obstructed them. I have seen those that have been blind through the first cause, sometimes cured by a Seton; But I never remember that any, in whom this arose from phlegmatick humour, have recovered, except one having the French Pox, who being anointed with Quick-fitter, all the humorous matter away, was returned to health. But it is not the part of a good and pious Physician to make use of those things, which being full of danger, may do more harm, if they prove hurtful, than they can procure good, if they be profitable. And truly it is better not to cure blindnes, than to cause death, although oftentimes Raisines helps them, whom Reason helps not, as the most elegant of Physicians Gaffier says elegantly. In the mean time in dif¬ eases of the eyes, they who practice Physick, may learn rather to administer those things which bring the phlegm out by the Palat, than to draw the noxious humour to the nostrils. That I may conceal besides the danger which they avoid, that more profit arise from the medicines that void the phlegm out of the head through the mouth, which both long experience hath hither¬ to taught, and Antiquity heretofore, when the Optick Nerves in their original are not far distant from the palat, but farther from the spongious bone, and it is a preternatural way, by which the humours are carried, as hath been already demonstrated by the learned Velein. Then it is disputed by what means the Eye can fall out of its orb, the Optick Nerve not being broken, whereas we may have very many histories. But it is not hard to give an answer, for, that the Nerves may be very much extended in length. Whilst therefore this Nerve receives much moisture in the inflammations of the eyes, it-easily comes to pass that it is slackened, but the muscles themselves
Concerning the Nerves.

TRACT III.

The second pair arises, as the ancient Anatomists say, from the sides of the **obelix** of the forehead, near to the original of the first pair. But the new dissection shows, that it issues out at the middle of the beginning of the temporal marrow, and that they are so united in their original, that they make one common angle, which is the cause why both the eyes are moved together to the same sides. It is much smaller, if you compare it with the first pair, and harder, and goes out of the skull through the second hole of the wedge-bone, which is somewhat long, and so it enters into the orb of the eye. By and by it is divided into many fibres, which go to the muscle of the upper jaw, and the first cleaving up above the first pair or the Optic Nerves, it is divided into the two muscles, as well that which lifts up the eye-lid, as that which lifts up the eye. Another very conspicuous one is disseminated in many fibres into the muscle which moves the eye inward. The third, no contemptible one neither, being divided into two fibres, and by and by into more, is sent into the muscle that draws down the eye. The fourth, into the lower or outer of the oblique muscle that rounds the eye about toward the outer angles at length it issues out three thin fibres, which being joined with the first pair are distributed to the outer membranes of the eye, so that this second pair is propagated only to four muscles of the eye, and to that which lifts up the eye-lid.

The use of this pair is to impart the faculty of motion to the muscles of the eyes. The third pair arises from the forehead, and by degrees the upper part of the oblique muscle of the eye, or that called the muscle of the Pulley, which is to move the eye inward, and the inner part of the oblique muscle of the eye, which is to move it outward. The upper and greater of the oblique muscles of the eye, or that called the muscle of the Pulley, and the inner part suffer convulsions afterward die. In some also a precursor of the Falling-sickness is wont to arise from the same cause in the eye-lids, the eyes and the whole face, when this third pair is caused. The second branch is carried downward, and falls out through the hole of the fourth bone of the upper jaw, behind the caruncle, that is to say through the hole of the face-bone bone, and runs directly forward under the skin of the eye, being tied to the second conjunctiva; together with which it enters into the orb of the eye through the said second hole of the wedge-bone. By and by it is divided into four branches, of which the first offers a little branch to the upper and greater of the oblique muscles of the eye, or that called the muscle of the Pulley, and the fourth branch is divided into many fibres into the muscles of the eye, which move the eye inward.

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call that the smaller root, which we set down for the third pair; that the thicker, which we make the fourth. But we distinguish them, because indeed they are not joined together, neither in their original, nor in their projects. But that which they project for the fourth pair, seems not to be distinguished from the third; as \textit{Palavero} himself grants, \textit{Lec. Anatom.}. The fifth pair lies out of the narrow of the brain drawn out in length, on that side whereon a The fifth pair of the ear is called \textit{After-brain}, joined to it, arising out of two Nerves, of which the one is softer, the other harder. Those do go out of the membrane together, and enter the organs of hearing through the hole of the temple bone, that is bored in the hairy process thereof, being a large one and winding. After this that harder part goes forthwith to the fore-side, being carried through a peculiar channel, and returns backward again obliquely through the same bone, and departs into the first cavity of the inner ear. From thence being more reflected, it forms forth two propositions, one higher, the other lower; but both pass through their peculiar holes. The upper is carried through the transverse hole of the same bone, through which also a little vein pulses into the organs of hearing; and a little after it is come forth of it, it is joined with that branch of the fourth pair (as we have delivered, but as others commonly count the pairs of the third) which we told you was whirled about, like the tended of a Vine. The lower goes out through the third hole of the same bone, which is very narrow and winding; and being carried over the above the muscle of the lower jaw, that moves it sideward, descends into the chops, having differentiated a pretty many propagations into the nostrils. But forthwith it is joined with the propagation of the fourth pair, that resembles the tended of a Vine, or that spring which goes to the tongue, from which it pulses to the roots of the teeth and muscles of the cheek, as also to the skin that goes about the root of the outer, or little ear. Anatomists do believe, that by the means of the branch it comes to pass, that they who are born deaf, are for the most part dumb also. But that softer part of this pair is carried together with the hard part; and when it is come to that first cavity of the inner ear, it is spread throughout it in numerous of a membrane, and do deliver to be called the Auditory Nerve, as mingling all the spirits that serve for hearing. The fifth part sits somewhat more toward the lower and hinder part than the fifth, and not with one, but with many little Nerves severed from each other, which for all that are perfectly joined together, although they do not close so as to make one only, but two distinct ones always; yet are contained in one membrane, arising from the Dorsum genome of the brain, which hath deceived many, so that they have accounted them for one. Being thus joined, they defend both together out of the skull, through the second and third hole of the oval bone; through which fame the softer branch of the Arteries, and the greater of the Jugular vein enter into the skull. There being then two Nerves, the one in its exergue inclines more to the outer side of the hole, and is the softer of the two; the other to the hinder part, and is the greater. That presently after it goes forth of the skull, tends straight downward to the muscles of the tongue and chops, and to the parts placed in the mouth, upon which it is wholly consumed. This on the contrary sends its first propagation to the muscles situated on the back side of the neck, especially to the first muscle of the shoulder-blade, called \textit{Cuscullatus} or the Cowl-muscle, and then adhering to the seventh pair, and the said Artery and Vein, by the benefit of certain membranes, it runs down to the side of the throat, to whose muscles, especially thole situated in the inner cavity, it distributes furcles overquarter. Here many propagations of Nerves meeting together, and parting afunder again, a certain texture is made, wherein knots are found not unlike to the glandules that are tied to the diverticula of the vessels; which was first observed by the most learned Anatomist \textit{Palladino}, who would have it resemble the body of one alive. But the greater Nerve it self going into the middle between those veins vessels which I spoke of, is carried leftrily from the throat to the rough Artery, and running down at the side thereof, tends to the chief. But before it enters thereinto, it is divided over the hollow of the neck into two branches, of \textit{The greater Nerve}. which one is the outer and left, the other the inner and greater. We shall now speak briefly of the greater Nerve, and its distribution and propagations of them, but so that being the right Trunk is dismembered into another manner than the left, we let down the History of each by itself 1. and first of the right, then of the left. The outer branch then of the right Nerve sends out propagations presently after the division to \textit{The propagation} of the muscle that bends the head, called \textit{Mastoidis}, as also to that of the bone \textit{bynder}, called \textit{ferronateron}, and that of the \textit{Larin} or throat, called \textit{ferronateron}; after this it enters the cavity of the chief, and when it comes to the first of the rough Artery, lies off from its side sometimes three, sometimes two furcles, one under another, which are turned about the said Artery, as it were an axel-tree, or (to say truly) a kind of pulley, and doth together make one Nerve, which being balled to the root of the throat, from the benefit of a membrane, runs back from the lower part thereof to the highest, and balles to the right side of the throat, leaning upon a glands which is placed at the root of the right side. Having paid this, it is forthwith divided into many furcles, which are spent upon the muscles of their own side, which are placed in the throat, and have their heads downward, giving motion to them. And this Nerve is called \textit{Recurrent}, the returning one from its progress, and is very famous among all, being made by skilful Nature with great wisdom, that it might be infused into the muscles of the throat, whole heads look downward, when all the Nerves that give motion, ought to be infused into the head, and to look towards the end, not on the contrary. And because the throat is an organ of the voice, but the voice cannot be uttered without motion of the muscles, that either open the cartilages of the throat, or that them; therefore thee Nerves, which according to the muscles the power of moving and contracting themselves, being either bound hard or cut off, it happens that the case, that the voice is taken away. This may be very handlyly shown in Dogs; or in a Hog, because one continually makes a noise with barking, the other with grunting.
For one of these Nerves being cut off, half the voice is taken away; but both being cut, it is wholly lost. The current propagation being thus cut off, the outer branch running down obliquely under the hollow of the neck, after that by the way it hath distributed furcles of indifferent bigness into the Pleura, or membrane of the ribs, and into the sides of the lungs, and given over the heart, and to the heart it fell, it defends farther within the duplication of the costal cartilages, and near to the rach-bones is divided into two branches, which make the right and left branch of the left Nerve of the stomach, carried obliquely, and then piercing through the midst, together with the gut, to which for all that they afford never a branch, are consummated upon the left orifice of the stomach, with many branches like a little Net, and so encompass it together the left orifice of the stomach, with that it seems wholly to confitit of Nerves. Hence there is so great a sympathy of the stomach, not only with the heart but with the heart also; that each suffers as much as the upper orifice, seem to be of the heart, and indeed to be, the same heart suffering pain, because of this Nerve being pained. And this is the true case, to wit, the continuation of this Nerve, not the branches of it, as others say.

The inner branch goes to the inner side of the root of the first rib of the chest, and cleaving to the Rach-bones under the Pleura, runs down through the roots of the ribs, taking to it a little branch from every one of the intercostal Nerves that issue out of the back bone; then passing through the midst with the Descendent Trunk of the great Artery it is carried as far as to the Oesophagus or great bone, at the region whereof it issueth out three propagations, which are distributed into the natural inner parts. The first goes to the lower membrane of the Kall, and descending through it is parted into three little branches, of which one is distributed to the right side of the same membrane, and to that part of the Colick gut that is joined into it: Another the leaf of them, and a very small one, to the guts duodeum and the jejunum about its beginning; the third to the bottom of the stomach on the right side, and to the upper membrane of the Kall, which is something the larger. That which remains of this propagation is spent upon the hollow part of the Liver and the bladder of Galen. The second goes into the right kidney, and the membrane thereof. The third, which is greater than either of the former, descending to the first rach-bone of the bones, reaches into the right side of the Medenery and into the guts that are tied thereto entering the center of the Medenery in company of an Artery and a Vein. The remainder goes into the bladder, and in Women into the right side of the bottom of the Womb. But the outer branch of the left Nerve having that in its defence it hath offered sprigs both to the Pleuras, or membrane investing the rib, and to the cost of the lungs, and that outwardly, as also to the pore of the heart, and heart it fell inwardly, at that part of the right orifice, takes its progress upwards, and is propagated into the muscles of the Lungs, or thorax.

After this it issueth out a small sprig, which is distributed through the hypos of the heart, and cost of it in manner of hairs. Afterward the remainder defends inclining it fell obliquely to the right, and goes to the upper orifice of the Stomach, in the right side whereof it is defirous, as the right branch was before into the left side, being divided into many little branches in manner of a Net. From this a furcle is carried down along the upper part of the Stomach to the Pyriform, or lower orifice, which when it hath as it were interwoven with fome sprigs, it goes into the hollow of the Liver. The inner branch furcul of all takes it propagations from the intercostal Nerves, and then passing through the midst is divided into three. The left of them goes overwhast to the Liver, and in the way they cut out two sprigs one, which is likewise sent into the lower membrane of the Kall and part of the Colick gut, which is tied thereto; another into the left side of the bottom of the stomach, and into the upper membrane of the Kall. The second propagation goes into the left side of the Medenery, and the guts of that place, and sometimes also it issueth sprigs, which run out with the tympanical veils through the prococce of the Pericardium, or rim of the belly to the teftiles, and goes to the left kidney, and the fat membrane thereof. The remainder of the teftiles branch paffes to the left side of the bladder and of the bottom of the Womb. The use of this pair is manifest enough, as being very notorious, when the outer branch befores little boughs upon the middle bowels, but the inner upon all those of the lowest belly, and the right branch upon those of the middle bowels, the left on those of the left. Besides this use it conduces by the returning branches of the right side, the left on those of the left. Besides this use it conduces by the returning branches of the right side, the left on those of the left.

The seventh pair sits in the utmost part of the rach-bone, where the marrow of the brain is ready to go out of the skull, and so is counted the hardened of all the Nerves that have their original in both sides of the skull. But it issueth in some roots separated from each other, which joining together on both sides into one, it goes out of the skull through the fourth and fifth holes of the rach-bone (which are planted betwixt that greatest one, which openeth the way for the defcent of the spinal marrow, and that, at which the tenth pair goes out) and presently after its erupis is involved in one common membrane with the sixth pair, whence so fome do not distinguite it, have believed the seventh pair to consist of two, that they were mixed one with another; and this they defend together. When it comes to the root of the tongue, it distributes furcles into all the muscles thereof, feeding over fome alfo to the root of the tongue, it distributes furcles into all the muscles thereof, feeding over fome alfo to the root of the tongue, it distributes furcles into all the muscles thereof, feeding over fome alfo to the root of the tongue, it distributes furcles into all the muscles thereof, feeding over fome alfo to the root of the tongue, it distributes furcles into all the muscles thereof, feeding over fome alfo to the root of the tongue, it distributes furcles into all the muscles thereof, feeding over fome alfo.
performed by turning it upside down, hath taught us that they arise at the utmost tides of the brain,
in that part which is above the holes of the ears, whereby it is manifest, that hitherto onely one half
of them hath been known. They are very sharp at their original, and ditinct one from the other, but
going forward by degrees, between the uppermost and middle prominence of the brain, they grow
thicker, and draw nearer one to another, and at a length they lie down above the fossa or cavities
of the upper bone within the skull. These are thrust into the maxillary processes of the brain; but
Galen and Marrow, to whose almost all Anatomists have followed, would not call them blood
or any thing to the essence of the Bones, nor that to the essence of the Nerves.

Concerning the Nerves of the Spinal Marrow properly so called, and first of the back-bones of the Neck.

Nature, the wise Parent of all things, as the hath framed the Nerves, that they might serve for the
conveying of the faculties and spirits that are generated in the brain, because the brain itself could not be diffused
through the whole body; so when the same could not conveniently bellow Nerves upon all the parts, by reason of their too great distance, the made the Spinal Marrow, which is nothing else but the marrow of the after-brain and brain, extended through the long Conduit-pipe of the back-bones. And therefore we having already viewed Nerves which take their origin from the marrow of the brain, which is yet contained in the skull, it remain now that we take a view of them also which come from the spondaids of the back-bone: But it is called Marrow not that it hath any affinity by reason of its substance with the marrow of the bones, but because like Marrow it is contained within the back-bones, but the flesh
things of the brain, which it is also Pleas called Marrow; and it is called the Spinal Marrow, or, of the back, to distinguish it from both those that are contained in the Back-bone, but either in the skull, as the brain, or in the hollows of the bones, as that which is properly
called Marrow. This substance is covered with two membranes, no otherwise than the brain is.
For it is wrap up into two Membranes.

Why it is called Marrow.

Concerning the Conjugation or Part of the Spinal Marrow.

The second pair [tab.1.2.e] with its fore-branch [tab.1.d] (which is thinner than the hinder one,
though both of them be near small enough) arising from the fore-part of the Marrow, goes forth betwixt
the inft and second rank-bones at the side of the tooth-like process, which branch is distributed into
the muscles that lie upon the neck, as well as the fore-branch of the first pair, which is wrapped to
gather with it, and is almost wholly upon the skin of the face. With its hinder branch [tab.2.1.e] it
riples out through the sides of the backward processes of the second rank-bone, but presently
is divided into two branches of unequal bigness, of which that which is the thickest [tab.2.1.f] sends
from the fore-parts and thence where the Muscles lie fastened on both sides of the hinder part of the neck
do meet together, and there being mixed [tab.2.1.g] with the third propagation of the third pair of the nerves, it runs out through the middle of the said muscles, returning from the hinder to the fore-parts, and so is distributed into all the skin of the head, as far as to the top of the Crown and forehead; The other branch, which is the thickest, is inserted into the best thin
muscles, and the lower oblique ones that extend the head. Galen makes mention of these branches
as
Concerning the Nerves.

TRACT III.

lib., de loc. aff.

which place we shall not think much to transcribe him, it making very much to the illustration of the use of this kind of learning. Not long since, says he, they ulcerated the head of a man with, by laying on magnets vehemently heating, than after the known course of his face, that was greatly impaire, might be recovered. But we cured this very man, having found out the seat of the disease as well from other accidents, as from the primitive or procrastincous causes. For we diligently examined him about every one of them, and found that this was one; when he had walked in much rain caufed by a violent wind, he was wet about his neck, so that he felt himself affected with a vehement cold in that part, so then if you know that four Nerves ascend from the first Rack of the back-bone to the head, from which the skin about it receives its sensibility, you will caily find out the seat of the disease; that therefore being healed, the skin of the head was healed also, as having no primary disease.

The third pair [tab.1.i.] fifies out of the common hole in the fides, which is between the fourth and third Racks-bones, and prefently after it goes out, is cleft into two branches, of which the more forward one [tab.1.i.] is subdivided into four propagations. The firft [tab.2.i.] goes to the firft bending muscle of the neck, or the long one: the second [tab.1.i.] runs down, and being united with a fpring of the fourth pair [tab.1.q.] ends in the muscles that lie under the gullet. The third [tab.1.m.] climbs up, and joining with the thicker branch of the fourth pair but now mentioned [tab.2.f.g.i.1.] is fprung upon the skin of the hinder part of the head. The fourth [tab.1.n.] is impared to the transverse muscles, or to the pair of the extenders of the neck, and to that which lifts the shoulder-blade, or which two Joints of the neck, that terminate from the front, and at length it is digested into the fquare muscle that draws down the cheeks, which is called by Galen Glandellus poniis. The hinder branch [tab.2.f.g.i.1.] is implanted into the fide of the pair of muscles that extend the chin.

The fourth pair [tab.1.m.m.m.] fifies out of the common hole of the third and fourth Racks-bones, and like the third pair is divided into two unequal branches. The more forward and greater [tab.1.f.] is cleft into three other twigs, of which the firft [tab.1.o.] is joined with another branch of the third pair [tab.1.l.] and goes to the firft long pair of muscles that bend the neck. Another [tab.1.r.] goes to the transverse muscles, or of that fide which extend the neck, and to the fpring of the shoulder-blade, called Caudalcuta, the Cowl-muscle. The third [tab.1.q.] is being smaller than the other, and being united with a fperson of the fifth pair, and another branch of the fifth pair, near to the mediasigmoidum or membrane that parts the cheft in the middle, and above the Pericardium paffes on downward, that out of thefe three principles the Nerve of the midrift may be made up. The hinder branch [tab.2.f.g.i.1.t] goes toward the spine or ridge, under the muscles which are placed thereabout, to which also it affords a good number of branches, and from thence being led downward between the muscles on both fides of the neck, it is carried to the fquare muscle that draws down the cheeks. In this place it is worth our labour to inquire what may be the fceon, that they who are troubled with a Refolution, or deprivation of motion in the whole body, have nevertheless the motion of their midrift for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may be diffused out of the marrow of the back. But thefe men beg the quefion, for a while free: fome make anfwer that this happens, because, although no spirits are fent over from the heart, yet they may
Conceiving the Nerves of the marrow of the rack-bones of the Chest.

The first pair then [tab. i, num. 8.] of the nerves which issue forth from the marrow of the chest, the first pair, goes out of the common hole of the seventh rack-bone of the neck and the first of the chest, in the same manner as the five pairs last mentioned do, and in like part is forthwith divided into two branches. The forwarder and greater [tab. i, s.] is united with the seventh nerve in its fore-hole of the neck, partly with the second of the chest, in that manner which we have before explained, and in afterward is wholly confirmed upon the arms, excepting one propagation [tab. i, a.] which ariseth at the beginning of it, is joined with the said nerves, and runs into the fore-parts near the length of the first rib of the chest to the breast-bone, befoeing a spring uppon the subclavian manner, by which being reflected upward is sent upon the muscles, which take their original from the top of the breast-bone: thus are the muscle that bends the head called Masticus, that which draws down the bone hyoid or sternohyoides, and the first of them which extend the backside like gristle of the throat, called thyrohyoides, or the muscle sternohyoides. But to the two last sometirnes branches are fast over from the first conjuction of the brain, and the third of the chest. The same branch also when it hath parted the arm-pits, being ready to go to the arm, issueth forth a certain other propagation from its hinder part, which goes to the hollows in the shoulder-blade. The hinder and left branch [tab. i, fig. s.] lies hid under the muscles which grow to the rack-bones, and import some propagations to the second bending muscle of the neck, and to them which extend the head and neck's but when it hath attained to the spine of the seventh rack-bone, it goes overthwart to the lower side, and distributes forks into the first muscle of the shoulder-blade, or that like a Monk's Coll, and in the third of the same, called Rhombus, as also into the upper of the hindmost few-muscles.

The second pair [tab. i, num. 7.] breaks out betwixt the first and second rack-bones of the chest, and is chest likewise into two branches. The forwarder [tab. i, s.] is united with the first pair of the chest, and thus the first and second pairs of the chest are united by turns, with the fifth, sixth, and seventh of the neck, that the one are not discerned from the other, but make a sort not unlike to those things which hang at Cardinals hats; from which afterward the nerves that go to the arms, issueth forth and take their original. This proceedeth with a branch [tab. i, r.] which goeth forward through the first distance betwixt the ribs, according to the course of the first arm, as far as to the breast bone, making the first intercostal nerve, from which forks [tab. i, s.] are distributed into the muscles that lie upon the chest. The hinder branch [tab. i, fig. s.] hath the same differentiation with that of the foregoing pair.

The other ten pairs [tab. i, num. 10, 11, 12, and so on to 19 inclusively] of the nerves of the chest, observe the same manner both of their rise and distribution. For they all issue out of the common holes of the rack-bones of both sides, and proceed after their agents are chest into two branches unequal bigness, one of which is the forwarder and greater, the other the inner and left. The forward branches [tab. i, s.] (which make the nerves between the ribs) are carried into the fore-side, and each of them affordeth a little branch in order according to its length, to the inner branch of the forth pair, which descends under the plane of the ribs, and the other under the intercostal Veins and Arteries, together with which they pass along the rib of the fore-part through the channel, which is cut out on the lower and inside of the ribs. But they which belong to the true ribs, goon as far as to the breast-bone, but they which belong to the bastard ones, are carried into the fore-part of the abdomen above the Peritoneum or skin of the belly. From these nerves many branches are disseminated into the muscles between the ribs, not only in the bones, but the other ones also, as well into the other [tab. 1, c.] which lie upon the chest, such as are the fourth and fifth muscles of the shoulder-blade, or the two foremost Saw-muscles, as also to the broad one, called Ligg. om. [tab. i, c.], which moves the arm backward from the breast. In like manner a propagation goes from the fifth intercostal nerve, about the middle of the rib passing through the intercostal muscle into the forth pair of the muscles of the abdomen [tab. i, c.] as also into the skin of the chest, and being divided in four parts is disseminated into the pectoral muscle that moves the arm forward to the breast, and also into the skin, from which some springs do afterward go to the nipples of the breast [tab. 1, s.] and impart to them their true form. The hinder branches [tab. i, fig. s.] go backward to the spine or ridge, between the muscles going to the rack-bones, which have the charge of extending the chest branches.

Yet are they not wholly spent upon the muscles, but when they have now attained to the tops of the ribs, they fall out between the muscles of both sides, whereabout they are joined one to another, and to afterward give nerves to all the muscles which arise out of the tops of the ribs of the rack-bones.
Concerning the Nerves.

CHAP. IV.

From the spinal Marrow, while it is carried through the first of the Loins, although there be only four holes, yet five pairs issue forth, the first being between the last rack-bone of the chest, and the first loin. But they go forth through the common holes, and being gone forth, are distributed in like manner as we have said of the Nerve of the chest; when from every one of them, presently after its going out, one branch, and that the greater, spreads it forward; the other and left backward. The foremost branches run to the muscles of the abdomen, or outer and fore-part of the lowest belly; the hindmost to them which lie upon the spine of the rack-bones, and the bones without a name, from whence they impart some little branches also to the skin that covers the loins. But the fore-branches are knit together, the first with the second, the second with the third, the third with the fourth, and the fourth with the fifth in the same fashion as we have said the nerves of the arm were, whilest they make the net-like complication.

The first pair.

The first pair then [tab.1.num.20.] as the left do also, issuing out under the Periosteum or rim of the belly, through the common hole of the rack-bones, which is betwixt the last rack-bone of the chest, and the first of the loins, presently after its egres is cleft into two branches. The fore-branch, which is greater, goes into the filthy parts of the midrifh, and into the beginning of the first bending muscle of the thigh, called Rectus.

From this Nerve a certain circle [tab.1.num.26.] takes its beginning, reaching out for the most part with the preparing artery to the tofficle. The hinder branch [tab.2.fig.1 mum.22.]... funds propagations into the muscles that lie upon the back side of the rack-bones of the loins, such as are the first and third of them which extend the chest, that being called Dorsi longus, this fossorumus, as also the muscles which extend the loins; but when they issue out from the top of the spines, whereas the said muscles are joined one to another, they run to the sides, and are implanted into the broad muscle that leads the arm outward from the chest, called Latissimus.

The second.

The second pair [tab.1.num.21.] goes out under the first bending muscle of the thigh, called Adductor, betwixt the first and second rack-bones of the loins. The fore-branch thereof is distributed to the second bending muscle of the thigh, that fills up the cavity of Or Ilium, or the hanch-bone, and the first bending one of the leg, called Fajalis, as also to the skin of the thigh. The hinder branch going out of the Abdomen is distributed to the three muscles that extend the thigh, or the Glutis, and to that which extends the leg, called Membranous, the membraneous muscle.

The third.

The third pair [tab.1.num.22.] issues forth likewise under the first bending muscle of the thigh, betwixt the second and third rack-bone. The fourth branch thereof passes over near to the hanch-bones, distributing two propagations; one which goes to the knee, and its skin, another [tab.1.num.1] which accompanies the vein of the inner ankle, called Saphena. The inner branch is reflected and distributed into the muscles which lie upon the loins.

The fourth.

The fourth and fifth pair [tab.1.num.23.] issues betwixt the fourth and fifth rack-bones, the fore-branch whereof passes through the hole which is betwixt the hip-bones, the Os pubis or hanch-bone, and the Os Ilium or hanch-bone, and distributes some propagations to the two muscles that turn the thigh about, called Obturatoria, others to the second and third bending ones of the thigh, and others to the muscles of the yard. The hinder branch goes into the muscles and skin upon the rack-bones.

The fifth.

Concerning the Nerves of the Marrow of Os sacrum, or the great bone.

The first pair.

The fifth and last pair [tab.1.num.24.] issues betwixt the fourth and fifth rack-bones, the fore-branch whereof passes through the hole which is betwixt the hip-bones, the Os pubis or hanch-bone, and the Os Ilium or hanch-bone, and distributes some propagations to the two muscles that turn the thigh about, called Obturatoria, others to the second and third bending ones of the thigh, and others to the muscles of the yard. The hinder branch goes into the muscles and skin upon the rack-bones.

The other five pairs.

Concerning the Nerves of the Marrow of the Rack-bones of the Loin.

Of this sort are the first and third muscles seated upon the back side of the bones Sacrum, to the first of them that extend the thigh, or the greater as also into the skin of the buttocks. The second and third of them which extend the chest, that being called Dorsi longus, as also the muscles which extend the loins; but when they issue out from the top of the spines, whereas the said muscles are joined one to another, they run to the sides, and are implanted into the broad muscle that leads the arm outward from the chest, called Latissimus.

Memhranaus, to that which extends the leg, called...

The inner branch is reflected and distributed into the muscles which lie upon the loins.

The fourth.

The fourth and fifth pair [tab.1.num.23.] issues betwixt the fourth and fifth rack-bones, the fore-branch whereof passes through the hole which is betwixt the hip-bones, the Os pubis or hanch-bone, and the Os Ilium or hanch-bone, and distributes some propagations to the two muscles that turn the thigh about, called Obturatoria, others to the second and third bending ones of the thigh, and others to the muscles of the yard. The hinder branch goes into the muscles and skin upon the rack-bones.
extending muscles of the chest, or Defi longifimus, the long muscle of the back, and serratissimus, that
which binds the loins called fissus, and the broad muscle that leads the arm away from the breast; as
also the three which extend the thigh, being the authors of the buttocks, and therefore called glutei, 
the buttock muscles. And this is the utmost end of the spinal marrow, which reaching into the
rump bone, called Or coccygis is in this manner terminated: And thus is the history of the thirty
pairs of the nerves which go out of the spinal marrow, which is diligently and accurately to be committed
unto the memory, that we may know to what place remedies ought to be applied, if at any time
from some external cause, as by a fall from aloft, or a bruise, or some notable compression any part
shall have left either motion or sense, or both. For the remedies must be applied always to the be-
ginning of the Nerve, not to the place in which the symptom is perceived.

CHAP. VI.

Concerning the Nerves which are distributed through the Arm.

These nerves being now enumerated, which are disseminated through the muscles of the three
different, and the parts contained in them: it remains that we define those also, which are
propagated through the arm, as extreme parts of the body. Here we meet with them first
which are distributed through the arms, whereas there are six pairs commonly set down by Anato-
mists arising from the fifth, fourth, and seventh pair of the nerves that come out of the marrow of
the neck, and from the first and second of those which issue out of the chest. These nerves go out through
the common holes of the neck-bones, on both sides, and preferably after their going out are united one
among another with their forwarder and greater branches, by and by are separated one from another
again, and joined again, and finally separated, so that they seem to make out a certain net-like texture,
which cannot be better likened than to the fringes of Cardinals Hats. This implication of
Nerves goes forth under the clavicle or collar-bone, about the place where the Auxiliary Veins and Ar-
teries go out of the hollow of the chest, and from this all the nerves of the arm take their origin.
But their rise is very uncertain by reason of their being so knit together; whereas we in our relation
of them will rather follow the footsteps of other men than our observations, lest we should seem
to affect new opinions rashly, and without necessity.

The first Nerve then [tab. X] which is carried to the arm, is a double propagation, namely the first
third and fourth of the fore-brace of the fifth pair of the neck. For the one branch [tab. X] is nerve of the
arm, which is carried to the second muscle of the upper part of the arm called Deltoides, and to the skin that lies upon it; the other [tab. X] goes toward the neck of the shoulder-blade, where it is cut into two branches
the former of which [tab. X] goes into the muscle Deltoides, where it arises from the collar-bone; the
latter [tab. X] is cut into the fourth pair of the muscles of the bone hyoides, called Gracilis, and
from thence affords a little branch to the upper superficial muscle, and the Deltoides at what place it arises from the spine of the shoulder-blade. This Nerve runs out through the hinder side of
the arm; but the other free are carried through the arm into the hand, and in the same are
fatteried into more branches.

The second Nerve [tab. X] is thicker, and takes its original from that net-like complication of
which we spoke; yet from what nerve, cannot be evident enough. This is carried down through the
middle and fore-part of the arm, into which it enters under the inner bend of the cubit, or the
double-headed muscle, at that part where its two heads are united one with the other, and where the
tendons are inserted both of the pedoral muscle that leads the arm to the breast, and of the
Deltoides that lifts it up. Being hid then under this muscle it sends forth two propagations [tab. X].
one of each side, which enters into the two heads of the muscle biceps, and after that about the middle
of the length of the upper part of the arm, going under the frame double-headed muscle, it shoots
forth another [prop. [tab. X]] by means whereof it is joined with the third nerve, and from thence
defending it distributes in its progress a flower [tab. X] from its out-side to the head of the longer of
the two muscles of the radius or wand that turns the palm of the hand downward. When it is
come to the bending of the cubit, being led to the flabby membrane, near to the out-side of the ten-
don of the said double-headed muscle, it is distributed into the skin, being divided into two branch-
es, of which one is the outer, the other the inner; that is the biceps, this the thicker. The outer
then [tab. X] being carried down a good way with a branch of the Cephalick vein through the in-
side of the cubit, is distributed [tab. X] to the second bone of the thumb. The inner branch [tab.
X] is subdivided under the common vein of the arm, or the middle one called Mediana, into two
branches, the outer whereof [tab. X] going on obliquely under the skin leaving the vein goes away
toward the radius as far as to the wrist; but the inner [tab. X] being fastened to the inner branch of
the Cephalick vein, when it goes more obliquely in the region of the lesser bone of the cubit, the
other [tab. X] through the region of the greater bone to the wrist, and from thence, that being pair,
to the skin of the inside of the hand.

The hinder Nerve of the arm [tab. X] or the third, which is carried to the arm, lies next under the third,
the second, and in like manner with it arises from that net-like texture. This Nerve, which it passes
through the arm-pit, before it hath yet attainted to the arm, brings forth a propagation [tab. X] which
is distributed under the skin between the pedoral muscle that leads the arm to the breast, and the muscle
Deltoides that lifts it up. But when it hath attainted to the arm, it hides it under the muscle biceps,
and being carried to the head of the cubit, and falling on downward together with the second nerve,
it sends out a little branch [tab. X] into the head of the second bending muscle of the cubit. After
this defending it receives a branch [tab. X] from the second Nerve, by means whereof they are join-
ed one with the other, and then it goes further through the fore-part of the arm unto the bending of

Tet
Of the Nerves, which are distributed through the Crura, or Thighs, Legs, and Feet.

There are four pairs of Nerves which are propagated through the Crura. They arise from the three lower con�ugations of the loins, and from the four upper ones of the Coxae, or great bones, which after they are gone forth through the common holes of the back-bones as well as the Nerves, which are distributed through the arm, make a certain complication as the neighbors that comes farther than that other. Now are these Nerves of equal bigness, but the first [tab. 1, fig. 1.] is somewhat thicker and reaches to the leg, but the fourth [tab. 1, fig. 4.] is thinner than the three other put together, and is carried down as far as to the utmost end of the toe.

Concerning the Nerves.

TRAÇT. III.

The fourth Nerve [tab. 2, fig. 1.] is the biggest of all them which are carried to the arm, as being almost thrice thicker than the rest. This arises as well as the other, from the net-like complication, and from hence is carried down through the arm, in like manner as the third is, lying deep every where among the muscles, having the bursick vein, and auxiliary artery for its companions. But after it hath entered the arm, it derives many, but small sprigs [tab. 2, fig. 2.] into the heads of the muscles that extend the cubit; and before it is come to half the length of the upper part of the arm, it is contracted obliquely downward to the bone thereof, and passes on both sides that between the muscles which extend the cubit. But before it be wholly reflected, it sends forth a sprig [tab. 2, fig. 1.] from its own, which goeth between the said muscles, as also the second of them that bend the cubit, and is spent upon the skin that clothes the inside of the arm, some fibres being propagated upward and downward. Having disseminated this propagation it goes by degrees through the hinder part to the outside of the arm, being carried through the cavity of the outer protuberation of the upper bone of the arm that is cut out in the back side thereof, where likewise it sends out a sprig [tab. 2, fig. 1.] going to the skin, that covers the lower part of the outside of the arm; and then another [tab. 2, fig. 1.] which is distributed into the skin, as far as to the wrist. After that near to the joint of the cubit it is divided into two branches, an outer and an inner one, which being hid deep, and among the muscles, as the whole Trunk also, are defended to the wrist. The outer branch [tab. 2, fig. 1.] goes along the radius or wrist, and when it is come to the wrist, passes through the transverse ligament of the outer part, and by and by is subdivided [tab. 2, fig. 2.] into two branches, of which one goes with a double sprig into the outside of the thumb, the other is spent partly upon the fore-finger, partly on the middle one. But the inner branch [tab. 2, fig. 1.] reaching along with the cubit, fends more propagations; the first [tab. 2, fig. 1.] into the inner muscle that extends the fingers, the second [tab. 2, fig. 1.] into the fascia that extends the fingers; the third [tab. 2, fig. 1.] into the inner muscle that extends the wrist. But in its progress [tab. 2, fig. 1.] it affords propagations to the three beginnings of the muscles that take their origin from the ulna, or greater bone of the cubit. The remainder of it ends in the wrists. [tab. 2, fig. 1.]

The fifth Nerve [tab. 1, num. 3.] arising lower than any of the fore-mentioned, out of the same net-like complication, and being joined to the fourth, descends through the inside of the arm, between the muscles that bend and extend the cubit. This fcarce no propagation from it fell, but remains entire till it be come to the inner protuberation of the arm, at which place cavity it is reflected, and is distributed afterward in the same manner with the third Nerve, which passes through the fore-side of the arm. For both of them below propagations [tab. 1, fig. 3.] upon the muscles which grow out of the inner protuberation of the arm, and keep the inside of the cubit. It affords a propagation also [tab. 1, fig. 4.] which being carried through the radius or wrist, goes between the muscles which bend the second and third joints of the fingers, and to the palm of the hand, and sends out the third branch, which being parted into two, is implanted into the inside of the little fingers, then another, which being also cut in two, goes into the ring-finger, and at last another that goes to the outer part of the inside of the middle finger. But from this same fifth Nerve, and from the outside near to the middle of the length of the radius or wrist, there grows out a certain other branch, being divided into three branches is disseminated into the outer part of the middle, the ring-finger, and the little one.

The sixth Nerve [tab. 1, fig. 6.] affords out of the lowest part of the net-like complication, and going through the arm-pit and inside of the upper part of the arm and of the cubit, under the skin does make haste to the inner protuberation of the upper bone of the arm, dispersing many furcules in its way to the neighboring skin [tab. 1, fig. 7-37.] But as soon as it hath attained to this protuberation, it is divided into many propagations, some of which lie under the branches of the bursick vein, some other, and so being carried under the skin, when they are come down to the wrist, they end [tab. 1, fig. 5.].
Concerning the Nerves.

The first Nerve then [tabl.1.46.] grows out of the higher part of the Net-like complication, where the third Nerve of the loins is joined with the fourth [tabl.1.47.]. But it is precisely carried downward under the rim of the belly, to the thigh's flying, upon the outside of the tendon of the first bending muscle of the thigh, to which when it is come, it sends out a propagation [tabl.1.48.] which runs out through the skin on the fore-part of the thigh, as far as to the point of the knee, and there ends, and affords furcles [tabl.1.49.] to the first bending muscle of the leg, as also to the second and third that extend the same.

The second Nerve [tabl.1.50.] strikes out of the same complication, and below the first, over against the connection of the third and fourth rach-bones of the loins. This together with the crural Vein and Arteries, (which are the outer iliacal branches) descends through the groin into the thigh, which when it hath attained to, precisely it issues forth a notable propagation [tabl.1.51.] from its inside, lying upon the saphena or vein of the inner ankle, on the fore-part, all the way it goes under the skin through the inner parts of the one to the great toe. But as the vein saphena is felt distributes some fringes in the way to the skin next to it, to allo this Nerve finds out many propagations, of which that is the chief [tabl.1.52.] which it gives to the fore-side of the knee. But the trunk it self [tabl.1.53.] which it hath sent out this propagation, passes together with the trunk of the crural Vein and Artery into the thigh, and is scattered into the muscles seated on the inside of the thigh, especially into the obturatores, which are distributed into the skin on the backside of the thigh. But the trunk it self dihributes little Nerves into the skin that cloths the inner part of the thigh.

The third Nerve [tabl.1.55.] grows out of the complication under the second, over against the conjunction of the fourth and fifth rach-bones of the loins. This Nerve being carried down upon the second bending muscle of the thigh, called iliacus internus, passes through the hole of the thire-bone, and affords propagations [tabl.1.57.] to the two muscles that turn the thigh about, which they call Obturatories, the hoppers, to wit, of that said hole, as also to the two muscles that crest the Yard, which rise out of the bone of the ship. From thence like the two foregoing Nerves, it defends and distributes little Nerves into the skin that clothes the inner part of the thigh [tabl.1.55.] the remaining part [tabl.1.57.] lies deep, the chief propagation whereof [tabl.1.60.] is sent partly on the third, partly on the third muscle that bend the leg.

The fourth Nerve [tabl.1.61.] is made up out of the four branches of the four upper pairs of the great bone being united together. By reason whereby it passes the reef, yes and all the Nerves of the whole body, not only in thicknesses, but as being made of the leaf, that issue out of the spine, or ridge. This enters into the hinder part of the thigh through the cavity that is in the hinder part of the hip-bone. But presently it sends forth a notable propagation [tabl.1.62.] from its inside, which plays a pretty while under the first extending muscle of the thigh, or Gastrocnemius the great buttck-muscle, and from thence is diffipered into the skin that cover the buttckes, and the back-side of the thigh to the middle of its length. Then it sends other propagations [tabl.1.63.] on both sides, three for the moi part to the heads of the third, fourth, and fifth muscles that extend the leg, and to the third and bending one of the thigh. After this the trunk of the nerve defends among the muscles seated on the hinder part of the thigh near to the bone, as far as half the length thereof, and distributes another branch [tabl.1.64.] to that fatty lump of the fifth bending muscle of the leg, called Biceps, which grows to it on the inside, after it hath gone beyond the middle of the thigh. From hence allo other furcles proceed, which are dihsributed into the skin on the back-side of the thigh. But the trunk it self proceeding farther on, at length attains to the knee between the two heads of the bone of the thigh, and imparts a small branch [tabl.1.65.] on each side into the first extending muscle of the foot, and the sole muscle, called Plantaris, and by and by is divided [tabl.1.66.] in the inner cavity of the knee, or in the ham, into two unequal branches which are distributed along through the leg and foot. For there is not any Nerve which runs out through the leg, besides these two branches of the fourth, but you except only that notable propagation, which being derived from the second Nerve, as we have said, defends in company of the Vein Saphena through the inner part of the Crura. The outer branch [tabl.1.67.] is the smaller, and goes toward that part where the upper appendix of the fibulae, or lesser bone of the leg is joined with the tibia or greater bone thereof, scattering a propagation [tabl.1.65.] in the way which goes to the outer ankle under the skin, distributing in the mean time many fringes to the skin. But the branch it self [tabl.1.63.] passes between the muscles seated on the fore-side of the leg, and going through the long ligament of the tibia and fibulae, or two bone of the leg, passes together with the tendons of the muscles that extend the toes under the transverse ligament, and dif- putes little branches to the sides of the upper part of the toes. The inner branch [tabl.1.72.] is carried down through the backside of the Crura, lurking between the muscle of the one for of the feet, and the foot of them that move the foot obliquely, as also the long bending muscles of the toes and being placed afterward with the branch of the outer, which passes through the ligament, it goes to the sole of the foot, and distributes propagations into both the sides of the lower part of the toes.

Te 2 AN
An Explanation of the two Tables of the Nerves.

The thirty pairs of the Nerves of the marrow of the Brain, whilst it is carried through the spine or ridge, are exprest in these two Tables, the present and the following one. We have inscribed common Characters on both of them, though many also be peculiar to one after which we have presently the number of the Table.

The first nerve that goes to the arm, which is divided into three propagations, and especially in the distances of the ribs.

The fore-branches of these [fig.1] are scattered into the muscles scattered in the fore-part of the chefs, and partly into their upper regions, as y, partly in their lette, y, which in women go also to the breas t, and then they send other branches into the heads of the oblique defending muscles of the abdomen a, and into that which leads the arm from the breast b, another goes to the nipple of the breast y. The binder branch c.

The third nerve entering the arm p, before it attains to the arm, scatters a flig ht between the polar branches of the Third Table, c. By and by having entered the arm, it distributes another v, into the second branch that bends the cubit. After that it divides it receives a branch v from the fore-branch v, when it is past the biceps, it is distributed into many branches, at length about the palm of the hand it is divided into three branches.

The fourth Nerve entering the arm, which is the growth of all them that go to the arm, a, and is mixed with any letters in the second table, but in the third only, left the second should be too much blurred with letters. This suddenly after it has entered the arm, reaches out small fibers to into the muscles that extend the cubit, then another into the inner skin, upwards and downward, the head of the arm, another into the lower part, and another q, which goes as far as to the neck. After this near to the biceps, the arm is divided into two branches, an outer one a, and an inner one c.

The third pair of the neck, whose fore-branch is a, is united to, with the fourth pair of the neck and second of the chef, spreading a propaganda s, through the upper side of the first ribs. The binder branch t.

The second pair of the chefs, whose fore-branch sends forth a fore-branch t, running out through the fifth space between the ribs, and finding furetes is to the muscles of the chefs.

The thirty pairs of the Nerves of the marrow of the Brain, whilst it is carried through the spine or ridge, are exprest in these two Tables, the present and the following one. We have inscribed common Characters on both of them, though many also be peculiar to one after which we have presently the number of the Table.

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An Explanation of the two Tables of the Nerves.

The fifth that enters the arm, which about the inner proferioration of the arm, is short and deep. It first divides, its second is third 25.

The fifth nerve of the arm, which goes under the skin, is 61, which is implanted in the hand and third fingers that bend the leg.

The fourth, and that the chief of all the nerves of the crust, whose first branch is 62, which is inserted into the skin of the buttocks: another 63 is distributed into the heads of the muscles that arise from the appendage of the hips: a third 64 is given to the fifth muscle that bends the leg; and others 65 go into the outer calf-muscle, and that of the sole of the foot. But about the lower heads of the thigh it is divided 66 into two branches, an outer one 67, and an inner 71.

The outer branch, a propagation whereof 68 is fast under the skin that covers the outer part of the leg and the outside of the foot. But the branch it self 69 goes to the connection of the lesser bone of the leg with the greater, sending forth another fork 70 to the fore part of the leg under the skin: the remainder of it 71 reaches along the ligaments or lesser bone of the leg.

The inner branch, a propagation whereof 72 goes through the lesser bone of the leg toward the calf, and in the foot under the skin: and then another 73 it scattered into the skin, especially that which covers the calf: another also 74, 75, 76 goes into the fore part of the leg through the ligaments that joint the lesser bone of the leg to the greater, and afterward is spent on the upper part of the foot. The last propagation 76 runs out between the inner and outer calf-muscle. The remainder of the trunk goes by the inner ankle to the lower part of the foot, distributing two exterior spines to the inner part of all these.

The second and third figures of the second Table. Those two figures do exhibit the nerves of the arm and leg, in a larger form than the first Table does, so that all which concern these nerves, may be shewn more accurately herein. But they have common characters, and the same explanation of the same forces for both.
A General Table of all the chief things treated of in this Work.

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