HORNE's
INTRODUCTION
TO THE
Art of Chirurgery.

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MICRO-TECHNE;

OR, A

Methodical Introduction

TO THE

Art of Chirurgery:

In which every Branch thereof is handled in a most Natural, Compendious and Perspicuous Manner; and constant References are made, under each Head, to the Best Authors who have treated on that Subject more largely.

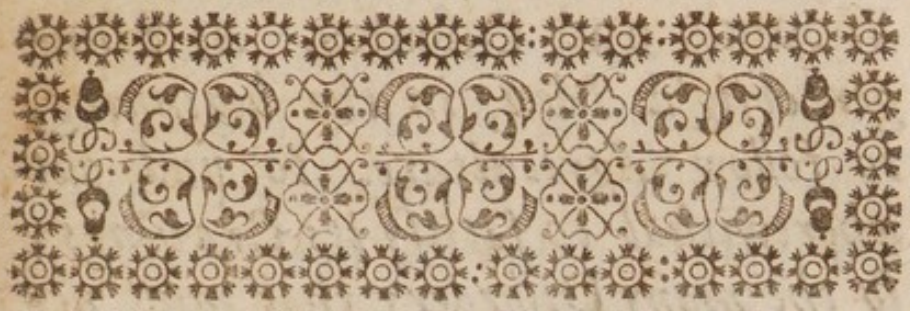
Together with a CRITIQUE on the most Eminent Writers in the Art.

Written in *Latin* by
JOHANNES VAN HORNE, Professor of Anatomy and Chirurgery in the University of *Leyden*.

Translated with Additions,
By HENRY BANYER, Surgeon.

Quam quisque novit Artem, in ea se exerceat. Tull.

LONDON:
Printed for JOHN OSBORN and THOMAS LONGMAN, in *Pater-noster-Row*; and FRANCIS FAYRAM at the *Royal Exchange*. M.DCC.XXX.



THE PREFACE.

IT would be needless to say any thing here in Commendation of the Art of Healing, for its Usefulness; since every body, one time or another, has been afflicted with Sickness, and consequently cannot but have a just Value for an Art, whose Province it is to recover the greatest of Blessings, Health. Nor does it yield in Antiquity to any other Art or Science: for, as Celsus *says,* There was never any Place without Physick; since the most unciviliz'd Nations had the Use of Herbs and

other familiar Remedies for Wounds and Diſeaſes. *As Hunger oblig'd Men, in the beginning, to follow Agriculture, to find out wherewithal to ſatisfy its Cravings; ſo the many Diſorders that muſt neceſſarily happen in their Bodies, put 'em early upon ſeeking out Remedies, from the Art of Medicine.*

THE Human Body is a very curious Machine, conſiſting of Parts extremely fine and delicate, which are both fluid and ſolid; and the mutual and uninterrupted Action of one upon the other, is what conſtitutes Life and Health. The latter, by their Contraction and Dilatation, give motion to the former, and keep them from ſtagnating and putrifying; whilſt they furniſh what is ſubtile and active enough to continue and preſerve to the ſolid Parts their Energy and Vigour. By theſe means the Circle of the Humours *is kept up, and the* Nervous Syſtem *is always replete with a very fine Subſtance, by*

whoſe

whose Mediation the Mind is able to move the Body at pleasure; and likewise thereby, thro the Avenues of the Senses, are let into it all the Stores of Knowledg and Science it is able to attain to, during its Abode here.

BUT since the CREATOR *of this wonderful* Fabrick *design'd its Duration to be but short, having made it of such Materials as are apt to decay, standing in need of continual Reparation; and at length to be so worn out by its constant Action, as to be altogether unfit to perform its proper Offices: it is impossible, but it must meet with many Impediments from every thing that surrounds it. The finer and more delicate the Parts are, whereof it is compos'd, the more liable is it to be put out of order. And tho in the first Ages of the World, before Luxury in some, and Study and Contemplation in others, had weaken'd their Bodies, Men may be suppos'd to have not been so subject to Diseases as at present; yet they*

could not then always prevent their Bodies from being wounded or bruised by what was sharp or hard; therefore that part of Medicine, which is call'd CHIRURGERY, *is the most antient.*

THIS was very much improv'd by Æsculapius, *as his Name, which, in the* Phænician *Language, signifies a* Man of the Knife, *demonstrates; and seems to have been brought to Perfection by* Hippocrates, *as appears from his immortal Writings. Many Distempers, judg'd incurable now, were not so heretofore. The* Antients *made use of more efficacious Remedies than we:* [1] Cauterizing *was very familiar to them; People not having then such an Horror and Aversion to it. The* Scythian Nomades *caused themselves to be burnt in the Shoulders, Arms, Breast, Thighs and Loins, to render their Bodies and Joints more lusty and strong, in order to draw their Bows, and launch their Javelines.*

[1] Prosp. Alpinus de Med. Ægypt. lib. 3. c. 12.

IF these Means seem too cruel, they had others more gentle. The Use of Musick *was very antient in Physick.* Homer *mentions the stopping* Ulysses's *Bleeding thereby.* [2] Pindar *says,* Æsculapius cured Ulcers, Wounds and Pains, by *soothing Incantations,* edulcorating Potions, Incisions, and external Applications: *and* [3] Galen *reports the same of himself; quoting the Authority of* Æsculapius *for such Practice. Musick is used in* Italy, *at this day, for curing the Bite of the* Tarantula: *and tho* [4] Cælius Aurelianus *relates, how* Soranus *blamed the Vanity of such as pretended to sooth Pains by the means of Musick; yet I am persuaded something might be done that way. An intelligent and sober Person assur'd me, that when he was infected by the* Plague *at* Lynn, *he was for two Days and Nights in the most ex-*

[2] Pythior. Od. 3. [3] De San. tuend. l. 1. c. 8.
[4] De Morb. acut. & chron. *Amst.* 1709. p. 555. *ad finem.*

quisite Torment, except whilst the Waits *were playing under the Window of the Chamber where he lay, at which time he experienc'd the greatest Pleasure he had ever known in his Life, by an immediate Cessation of the Pain, till the Musick left off; and then it return'd again.* [5] *Several of the Moderns have attempted to account for the Effects of Musick on our Bodies; by supposing the Air to strike upon and shake the contractile Fibres of the Body, from the Vibrations made in it by the Musical Instrument.*

I SHALL not here attempt an Account of the Progress of Chirurgery; since that has been in some measure done by our Author in his Introduction. However, it is worth being observ'd, That this Art, as it is more antient, so it has been less corrupted than the other Branches of Physick. It would be equally difficult and needless to enumerate the

[5] *See* Mead *of Poisons, p.* 75.

very

very many different Hypotheſes, *which have been from time to time introduc'd, to the Detriment of the Art of Healing, ever ſince it has been join'd to the Study of Nature. Theſe cannot but have had fatal Influences in the Adminiſtration of internal Remedies; when Chirurgery has receiv'd thereby no Detriment, ſince its Indications are taken from Cauſes that are certain and evident. Superſtition likewiſe has not prov'd a little prejudicial to the* Pharmaceutick Part *of Medicine. This was very early in the hands of the Prieſts, who, to keep up their Eſteem amongſt the People, pretended that what they were able to effect this way, was owing to a ſupernal Power.* [6] Iphyclus *conſulted* Melampus, *becauſe he wanted Children; and was anſwer'd, after he had pretended to ſleep in the Temple in order to conſult the Deity, that he muſt ſacrifice to* Æſculapius, *then ſtick the Knife he ſacrific'd with, in an Oak; and, when it became ruſty,*

[6] Apollodor. lib. 1.

ſteep it in Wine, which drunk, would render his Wife fruitful. As this ſeems to be no improper Remedy, being nothing elſe than a Preparation of Steel, tho cover'd under this Diſguiſe to beget the more Reverence; ſo many Medicaments were recommended by theſe means to the People, that were very pernicious. The Prieſts of Æſculapius *at* Epidaurus *(where he was worſhipped under the Form of a Dragon, and thence frequently call'd* Draco Epidauri*) and at* Pergamus, *were very dextrous in drawing in Bubbles by theſe Cheats; which were kept up till the Emperor* Antoninus, *as appears from a Marble* Table, *to be ſeen in the Palace of* Maphæo, *and whoſe Inſcription is tranſcrib'd by* [7] Mercurialis. *This Weakneſs of Mind has more or leſs Influence on Mankind, in proportion to their Ignorance. Hence came in all thoſe ridiculous and vain Methods of pretending to cure by*

[7] De Arte Gymnaſtica, lib. 1. c. 1.

Charms,

Charms, Amulets, &c. *so frequent in use in the more barbarous Ages.*

I AM sensible it may be here objected, against what I am saying in behalf of Surgery, in respect to its having continu'd pure and free from superstitious Trifles, That many things of that nature are to be found in Writers of no mean Repute in that Art; that so solid an Author as [8] Berengarius *has given a* Charm *to be said in Wounds of the Head, tho it must be confess'd he does not allow much credit to it, any more than to the other Fooleries of the like sort, extant in* Theodorick, *and* [9] *others. But this is soon answer'd; for I take Chirurgery in the same sense with our Author, and think it ought not to be confounded with the other Parts of Physick, as was done by those Writers; whereby these idle Fancies got*

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[8] De Fractura Cranii, p. 80. a. Ed. Venetiis, Anno 1535. [9] Ars Chirurgica apud Juntas, Venetiis 1546. & de Chirurgia, Scriptores Opt. per Gesnerum, Tiguri 1555.

admit-

admittance, at the ſame time the operative Part remain'd uncorrupted.

AND indeed we muſt acknowledg that Superſtition was not admitted into the other Parts of Medicine, except by Prieſts, Empericks, or in the moſt dark and ignorant Ages; for real Phyſicians, to their Credit be it ſpoken, were of all Men the freeſt from this Weakneſs, ſo unworthy the human Nature. Hippocrates, *the oldeſt Writer, in his Reaſonings, Obſervations and Remedies, has not the leaſt Tincture of this Folly; and in his Book of the* Epilepſy, *laughs at the vain and idle Ceremonies and Superſtitions that were at that time uſed in order to cure that Diſeaſe. What he mentions as* Divine *in Diſtempers, cannot be of this kind; for many, not without Reaſon, believe with* Galen, *that he there means the Effects of the Air. This, by its different Gravities, at different times, its being impregnated with various heterogeneous Particles, and poiſon'd by bale-*

baleful Steams, that ſometimes aſcend from the Earth; cannot but have conſiderable Effects on our Bodies, and more eſpecially when they are indiſpos'd. And a great [1] Man *has lately endeavour'd to account for the orderly Returns that happen in ſome Diſtempers, from the regular Alterations that are produc'd in the* Atmoſphere *by the Celeſtial Bodies.*

THIS moſt antient, uſeful and certain Branch of Phyſick, as it is exercis'd by a dextrous Uſe of the Hands; ſo it is only to be acquir'd by Practice and Obſervation. And this was the Method of Inſtruction in the Family of the Aſclepiades, *and is kept up in ſome meaſure to this day among the Surgeons; who before they attempt to practiſe, have been for the moſt part brought up under ſome Maſters expert therein. However ſince they cannot learn every thing neceſſary in this Art from a Maſter, tho of the moſt extenſive Buſineſs; and*

[1] Mead de Imperio Solis ac Lunæ, &c.

they

they being apt to forget what they have obſerv'd, it is expedient they join Reading with their Practice. But in order to benefit thereby, they ſhould chuſe ſuch Authors as have deliver'd their Precepts in a manner natural, clear and ſhort; for to what purpoſe ſerves Prolixity here? they can't pretend to inſtruct the Ignorant, how tedious ſoever they are; and thoſe that are regularly inſtituted, will be capable of improving, tho they uſe Brevity. Nor ought they to be burden'd with that tireſome uninſtructive Theory which vulgar Books of Chirurgery abound with. Therefore I recommend to all Pupils in this Art, the Micro-Techne *of* Van-Horne, *as wanting nothing requiſite for a Book on this Subject. The Method is natural and inſtructive, ſhort but ſufficiently clear to the Intelligent, and may ſerve as a Guide to ſuch as want larger Inſtruction; for under each Head, he refers to the moſt celebrated Writers, that have treated on that Particular, after a more diffuſive manner.*

THE

THE Character the Author has acquir'd in the Republick of Letters, will speak better for the following Treatise, than any thing so obscure a Person as I shall be able to say. He was Professor of Anatomy and Chirurgery in the University of Leyden, *which has for a long time been famous for producing Men eminent in this Art. He had improv'd the Instructions he receiv'd at home by Travel, and was for some time with the great* Marcus Aurelius Severinus; *at the Profoundness of whose* Works, *the illustrious* Bartholine *profess'd himself astonish'd. Nor does our Author want the* Encomiums *of the Learned: the celebrated* [2] Swammerdam *confesses all his Skill in Anatomy he deriv'd from* Van Horne. *A late* [3] *Author, who wrote on purpose to instruct his Pupils in the Study of Medicine, speaking of the Writers in Chirurgery, has these words:* Here

[2] Miraculum Naturæ, p. 93. [3] Schelhamer Via regia ad Medicinam. Kiloni 1705. p. 123.

be-

beyond Diſpute, is to be prefer'd to all others, *Johannes van Horne*, who in his *Micro-Techne* has in an elegant Stile, and with the exacteſt Judgment, happily comprehended the whole *Art of Chirurgery* in a few Pages. *And below he adds, that* it is as inſtructive as more and larger Volumes; *but laments* its being ſo rare and difficult to be got.

AT the Concluſion of the following Treatiſe, the Author has been pleaſed to give a Character of ſome of the moſt eminent Writers in Surgery; in imitation whereof we ſhall endeavour to ſay ſomething of ſuch as have been publiſh'd ſince, and of ſome he has not mention'd, but with all due deference to better Judgments; for we profeſs our ſelves more ready to learn than inſtruct.

AMONG our Engliſh *Writers, whereof he has taken no notice, occur* Gale, *who was the firſt here that obſerv'd*

ſerv'd Gunſhot Wounds were not venomous, contrary to the Opinion of Vigo *and others*; Baniſter, *who tranſlated* Weckar, *adding ſome Annotations of his own*; Woodall, *who ſo commended amputating a Limb in the mortify'd Part, and congratulates himſelf very much, for having frequently perform'd it after that manner with Succeſs*; Read, *whoſe* Chirurgical Lectures *are extant, but not finiſhed by him*; *and* Wiſeman, *whoſe Works are well known, and the many Editions thereof ſufficiently ſhew the kind Reception he has met with amongſt his Countrymen. But theſe Writers, except* Woodall *in ſome of his Tracts, handle Surgery after a mix'd manner, ſaying little of the Operations. There has been lately tranſlated out of* High-Dutch *the* Chirurgia Curioſa *of* Purmannus, *and embelliſh'd by the* Tranſlator *with the Figures of* Solingen; *tho there are ſome Trifles in this Book, yet it contains many things worth Obſervation. At p.* 210. *he ſays he has*

ſeen

ſeen try'd twice without Succeſs, the manner of amputating according to Botallus, *mention'd at p.* 60. *of the following Treatiſe.*

SUCH as have only deliver'd the Operations, *are,* Nuck, *the famous Anatomiſt;* Charriere, *whoſe Book is made up of the excellent* Du Verney's *Lectures, and publiſh'd contrary to his Mind; and* Dionis: *the laſt would be more uſeful, if he was leſs given to wander from his Subject.*

THE Writers of Obſervations are Foreſtus, Petrus de Marchettis, Stampert vander Wiel, *and* Job Meckeren; *the two laſt are tranſlated out of* Dutch *into* Latin. *To theſe may be join'd that elaborate Treatiſe of* Bonetus, *which he calls* Sepulcretum, ſeu Anat. Pract. *on account of the Chirurgical Obſervations he there collects, which contain the Diſſection of the Part affected; the beſt Edition of this Work is that publiſh'd by* Mangetus *at* Geneva *in* 1700.

THOSE

THOSE that have wrote well on particular Parts of this Art, are Maiter Jan, *who has treated very largely on the Diſeaſes of the Eyes:* Mauriceau, *who in a compleat*[4] *Treatiſe on that Subject, and in his* Obſervations, *has handled the Diſtempers of pregnant Women better than any before him, and ſeems to have left room for little Improvement to be made by others. Nor muſt we forget*[5] Belloſte, *who has, after* Magatus *and* Septalius, *ſhewn the great Abuſe of* Tents, *and added a new manner of* Exfoliation. *In this Author are to be met with ſome curious Obſervations, ſhewing the Power of* Diuretick *Medicines in carrying off Matter collected in the* Thorax. *All theſe are in* French, *and of that Nation is* Petit, *who has wrote of the Diſeaſes of the Bones. Among Writers*

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[4] Traité des Maladies des Femmes Groſſes, &c. 4 Ed. a Paris, 1694. [5] Le Chirurgien D'Hôpital, 2 Ed. a Paris, 1705.

of

of the Lues Venerea, *besides such as have deliver'd a System of Surgery, a Collection of* [6] *Authors on that Subject publish'd at* Venice *in Two Tomes, are much esteem'd, by reason the* Italians *are thought to be very skilful in the Cure of this Disease, tho I cannot think so, from what I observ'd when I was in that Country. From* De Blegni *we may learn the* French *Method, who, by too liberal a use of* Diureticks, *frequently cause* Caruncles. Musitanus *is commended by many, and especially the* French *Translation, on account of the Notes added by the* Translator. *Of that stubborn Disease the* King's-Evil, Andreas Laurentius *has wrote well, tho his first Part is wholly taken up in a ridiculous Endeavour to prove the King of* France *able to cure it by Touching. The Writers of other Nations have been guilty of the like superstitious Folly with respect to this Distemper.*

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[6] Scriptores de Morbo Gallico, Venetiis 1566. & 1567.

AS to the following Translation, I leave it entirely to the Judgment of the Reader: I hope I have not missed the Author's Sense in many places; in some I have taken the liberty to make Additions; of which nature is §. 32. at p. 127. but have been careful to put 'em in a different Letter, and between two [] Brackets, that the Failings of the Translator might not be imputed to the Author.

ERRATA.

PAGE 4. line 8. dele Comma after *Saliceto.* P. 20. l. 2. read *Durants* for *Duretus.* P. 23. l. 21. r. *Hæmorrhoid.* P. 32. l. 20. r. *Luxation.* P. 47. l. 18. r. *Conringius.* P. 83. l. 5. for *lesser* read *better.* P. 104. l. 19. after *either* add *for.* P. 135. l. 2. r. *Oedema.* P. 147. l. penult. r. *Gluteus.* P. 158. l. 23. r. *arterial.* P. 159. l. 1. r. *arterial.*

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MICRO-

MICRO-TECHNE,

OR

A Methodical Introduction to CHIRURGERY.

The Introduction.

§. 1.  S no Man ſhou'd ever eſteem himſelf a *Phyſician*, who has not thorowly acquir'd the Knowledg of curing all curable Diſeaſes in a human Body; ſo in order to merit ſuch a Character, he ought to be well in-

ſtructed in the ſeveral Branches of the Art of Healing, by whoſe aſſiſtance he muſt be enabled to exerciſe himſelf in the Profeſſion of Phyſick. The Body of Man is ſubject to various Diſtempers, which, it is certain, are not alike dangerous to Life, nor of the ſame difficulty of Cure; for, as *Celſus* ſays, *lib.* 2. *c.* 3. *Some are removed by Reſt and Abſtinence, yet others there are, require more powerful Means:* and as the ſame Author obſerves, *lib.* 2. *c.* 11. *An obſtinate Diſeaſe muſt always have a ſevere Remedy.* *Hippocrates* has well deliver'd down to us the diſtinct Offices in this Art, *Aph.* 6. *lib.* 8. *Whatever Diſeaſe*, ſays he, *Medicines will not cure, Inciſion may; and if that fails, we muſt have recourſe to Cauterizing.* And this is that *Medicina efficax*, which, with a Hand, *Herculean* as it were, furniſhed with Inſtruments and Fire, cures the moſt ſtubborn Diſeaſes; and is called by the *Greeks*, from the uſe of the Hand, χειρουργία or χειρουργεῖν, *i. e.* CHIRURGERY.

§. 2. FROM this Diviſion, into which the Art of Medicine is deduced,

duced, agreeable to *Celſus* in the Preface of his firſt and ſeventh Book, that Part of it which cures by the Operation of the Hand, is not only the moſt antient, but alſo in many reſpects preferable to any other part of Phyſick, for its Certainty and Expedition in curing. The Invention of Surgery is aſcribed to *Æſculapius*, whoſe two Sons *Podalirius* and *Machaon* are celebrated for giving much Relief to their Fellow-Soldiers in the famous Expedition againſt *Troy*, by their extraordinary Skill and Dexterity in the uſe of Inſtruments and Medicines. And this Art was very much improved by *Hippocrates*, who was the ſeventeenth in deſcent from *Æſculapius*, as appears from his Books, *de Officina Medici*, *de Articulis*, *de Vulneribus*, &c. After him it was cultivated by the *Greeks* his Countrymen, more than by any other Nation. The next who apply'd themſelves to improve the Inſtruments and Operations of Surgery, were the *Arabians*, which we learn from the Writings of the famous *Albucaſis*, who is the only one left of them, and from

Prosper Alpinus, in his Book *de Medicina Ægyptiorum*. The Writers of Surgery who succeeded afterwards, and introduced it into *Europe*, as *Guido de Cauliaco*, *Joannes de Vigo*, *Petrus de la Cerlata*, *Bertapalia*, *Lanfrancus*, *Gulielmus de Saliceto*, *Placentinus*, &c. have deliver'd to us only a mixed sort of Surgery, wherein they have been more sollicitous in prescribing Medicines, than in teaching the uses and manner of applying the Instruments of Operation; which is a method I can't but think very foreign to the proper Business of such Authors. Thus *Jac. Hollerius* has a Book entitul'd, *de Materia Chirurgica*, wholly treating of Medicines.

§. 3. IF any one shou'd desire Proofs of the Usefulness of this manual Art, I wou'd advise him to consider *Celsus* in the abovementioned Places; who says, *When you are doubtful concerning the Advantages of Medicines in Diseases; yet in those cured by Surgery, it is plain, all or very much of the Cure depends upon that Art:* and I add, that oftentimes

times the whole Cure immediately proceeds from the Operation of the Surgeon. For what is more obvious to the Senſes, than the Benefits that accrue from the Amputation of a ſphacelated Member, for the Preſervation of the whole Body? Or from the reducing diſlocated Bones to their proper Places? Or from the ſtitching of the Lips of Wounds together, for the more ſpeedy healing them? *&c.* Probably 'twas the Conſideration of theſe uſeful Conſequences, which follow from the operative part of Phyſick ſo evidently, that firſt induced the antient *Aſclepiadæ*, or Deſcendants of *Æſculapius*, in their method of inſtructing their Pupils in the Art of Phyſick, always to exerciſe them firſt in thoſe things which belonged to the Chirurgick Cure of Diſtempers; as may be ſeen in *Hippocrates*'s little Book περὶ ἰατροῦ, or *de Medico*, with the Comments of the Learned *Zwinger* upon it. And becauſe the Method of treating them falls moſtly under the Senſes, conſiſts chiefly in Experience, is more eaſy to be apprehended, and conſequently leſs difficult in the Ad-

miniſtration; therefore *Chirurgery* was amongſt them the firſt ſtep they took in the Study of Phyſick; ſeeing it was more accommodated to the Underſtanding of Learners.

§. 4. IN the next place we may ſee how Surgery is like to be treated of in this our Age, when the Medicinal part of Phyſick is introduced and blended with it. For my part, I muſt declare, I am of opinion with the moſt Learned Writers; *Vidus Vidius Jun. Stephanus Gourmelinus*, *Joannes Jeſſenius a Jeſen*, and *Aquapendens*, in his Book of *Chirurgical Operations*; together with *Marcus Aurelius Severinus de Efficaci Medicina*; that the Art of Surgery ought not to be conſidered in the *Concrete*, (as the Schools love to ſpeak) but in an *abſtracted* Method, *i. e.* entirely ſeparated from any other part of Phyſick: by which means we ſhou'd not ſee thoſe Diſeaſes treated of in Books of Surgery, which want no aſſiſtance from manual Operation; nor ſhou'd we find tedious Harangues on the Nature of Diet, and impertinent Forms of Medicines, when

when at the ſame time we hear little or nothing ſaid of the operative Part. Almoſt every Author, who has wrote on the Chirurgick Cure of Diſeaſes, has been guilty of the ſame Error; ſome of whom I have ſet down in §. 2. and from them you may ſee how promiſcuouſly all Diſtempers of the external Parts have been diſcourſed of, as falling under the Art of Surgery, *viz. Tumours, Ulcers, Abſceſſes, Puſtles*, &c. Not only the *Diagnoſtick Signs*, but alſo the internal and external *Cauſes*, the *Diætetick* and *Pharmaceutick* Method of curing them, have been ſo abundantly enlarged upon, that *Chirurgery* properly ſo called, makes the leaſt part of their Books.

§. 5. BUT I muſt think thoſe worthy Men, who firſt broke the Ice into this Art, do not deſerve the ſame Cenſure; for if they did err, they did not ſo without great Authorities. They followed *Hippocrates* their Leader, who not only underſtood every Branch of Phyſick, but gave us a perfect Cure of all Diſeaſes; as may be ſeen in *lib. de Morbis*,

and likewiſe in thoſe Chirurgical Caſes to be found ſcatter'd here and there, in his Books of *Epidemicks*. They deliver'd to us his Method of *Practice*, not that of *Inſtruction*; but in this, there is greater Exactneſs, which we ſhall chiefly follow in our Book. But what ſhall we ſay of thoſe, who write of Chirurgical Operations, and at the ſame time premiſe an Anatomy of the Parts affected? Truly they do only what has been done, by inſerting thoſe things which ſhou'd be taught in another place. However, as the Civilians ſay, *Abundans cautela non nocet*, much Care never does any harm; and therefore they are rather to be tolerated, than reprehended by us: beſides, they have *Celſus*'s Authority, who notwithſtanding took that method but ſeldom, and only in the moſt difficult Caſes, where never enough can be ſaid, becauſe enough is never to be known.

§. 6. WHOEVER propoſes to form a methodical Diſpoſition of the Art of Surgery, or deſigns to inculcate it to others, ſhou'd take

a different Course from what has been, and he will certainly write best of it, who puts it into a method abstracted from all other Precepts of Physick; as has been done by those famous Men I cited in the beginning of §. 4. Amongst them, nothing is to be found foreign to their Subject, or not a Syllable is said of Diet or Pharmacy, any more than Arithmeticians treat of Magnitude, or Geometricians of Numbers. They concern themselves no further in any other part of Medicine, than in mentioning the names of Diseases, in a cursory manner. They have employ'd themselves in describing the Instruments and Operations, by which we must expect to cure Chirurgick Distempers, and also in digesting those into distinct Classes, for the better understanding them. They were mindful of what *Galen* says of *Hippocrates*, in *Comment.* III. *Artic.* 35. of his Book *de Officina Medici*, That he don't remember in that Book, any Advice given concerning the use of Medicines; altho he does recount there some Affections of the Body, to the curing of

which, Medicines were neceſſary; becauſe what he did at that time propoſe to treat of, was only Aſſiſtance exhibited by manual Operation.

§. 7. THIS Method was confirm'd by that remarkable Diviſion of Phyſicians, which happen'd about *Eraſiſtratus*'s time, and is continued almoſt every where to this day. Whether it proceeded from that Tyrant, *Cuſtom*; or becauſe to cure by *Diet*, *Medicines*, and *manual Operation*, were different *Offices*; I ſhall not determine. *Celſus* very elegantly ſays, in the Preface to the ſeventh Book, *I conceive one Man to be ſufficient to practiſe all the ſeveral parts of Phyſick; and where they are divided, I muſt commend him, who is moſt knowing in them all.* And the ſame Author ſays in the Preface to his fifth Book, *The parts of Phyſick are ſo intimately connected together, that they cannot be well ſeparated at all.* But wherefore then, you may ſay, are ſome called *Phyſicians*, and others *Surgeons*; whereof *Thoſe* reſtore Health, in curing Diſeaſes, which want not the Aſſiſt-

ance

ance of the Hand, by *Diet* and *Medicines*; and *These* undertake such Cases as do require *manual Operation? Vesalius*, in the Preface to his great Work, laments this too nice Division of Physick into separate Professions, and amongst different Artists; whose several Parts constitute the same Art: and he thinks it matter of great Indignation, to see Physicians (who boast themselves to be the Philosophers) delegate the principal, and most antient part of Physick to those, whom they made use of as Servants: from whence an Opinion prevails at this time, that the Practitioners of Surgery are inferior in Dignity to them, who practise the more Medicinal part of Physick. Notwithstanding this, I do esteem it a worthy Cause, to vindicate the Surgeons, in opposition to those, who are *emphatically* called Physicians; seeing this Branch of Physick depends as much upon Philosophy as any other: the *Diagnosticks* and *Prognosticks* are equally necessary and difficult, and the *Indications* of Cure are built upon the same Principles. Besides, the

Evi-

Evidence and Certainty of a *Chirurgick* Cure exceeds any other. However we muſt take notice, there was formerly a twofold Order of Phyſicians, according to *Ariſtotle*, in *c.* 2. *lib.* 3. *Politic.* One ſort of them were αρχιτεκτονικοὶ, who aſſiſted as Architects by their Advice only. The others were δημιουργοὶ, who performed the Buſineſs of manual Operation, either in *letting Blood*, *applying Emplaiſters*, *making Medicines*, or ſome ſuch matters. The Original of all which ſeems to me thus, that when ſome of them were not diſpoſed to handle fætid *Ulcers*, *Wounds*, *Fractures*, and the like diſagreeable Caſes; thoſe who were perhaps their Scholars, or of an inferior Order, were commanded by them to perform the manual Operation, till by continual Practice, they acquir'd ſuch an Underſtanding of them, that they excelled their Maſters, who had neglected that Buſineſs. And altho *Ariſtotle* ſays, in *Chap.* 4. of the cited Book, *'Tis not neceſſary for him who preſides as Maſter, to know how to act himſelf; but only to command how the Operation*

ſhould

ſhould be perform'd; yet I can't well conceive, how it is practicable for any one to dictate to others the Manner of performing a difficult Operation, who is ignorant in performing the ſame himſelf. But undoubtedly it is more ſervile to act by Precept; which is the reaſon, Surgeons are at this time eſteem'd inferior in Dignity to Phyſicians. And ſince it is thus their Lot, I would adviſe them to live contented in their Station, and act in ſubmiſſion to thoſe, whom Cuſtom, which has always the Force of a Law, has placed above them.

The Firſt Section.

§. 1. CHIRURGERY, according to the Signification of the Original Words, ἡ χειρὸς ἔργον, is an *Operation of the Hand* only; but from what has been ſaid above, it may more properly be defin'd, an *Inſtrument of Medicine, conſiſting in an artful Uſe of the Hands.* In this Definition of Surgery, *Inſtrument* is the *Genus*, which is common to it with *What Surgery is.*

with the other two, *Diet* and *Pharmacy*, by whose Assistance the Physician accomplishes his Business. Therefore in the undertaking an Operation, all these things are to be carefully thought of, and prudently disposed in order, so as they may be in perfect Readiness on all occasions, that we may succeed in the Operation happily, and according to our Wishes. The *Difference* appears by the *Operations of the Hands*; but they are not to be understood any other than what are *Dextrous* and *Artful*, acquir'd by long Use and Experience, and such as are conducive to the Health of a human Body. When I speak of Manual Operations, I comprehend those that are perform'd by the Master-Surgeon, as well as them done by his Servants. *Celsus* [1] elegantly describes a *Surgeon* thus: *He ought to be a young or middle-aged Man, of a strong, steddy and never-trembling Hand; as ready with the left, as with the right Hand; of a piercing clear Eye: He must be of an*

[1] Lib. 7.

undaunted

undaunted Courage, and unrelenting; fully resolv'd to go through with the Cure he has undertaken; unmov'd at the Cries of his Patient, lest he either makes greater haste than is convenient, or cuts less than is necessary. But although a Surgeon is able to perform all the Operations necessary to preserve or restore the Health of a human Body; yet Women, through Modesty, chuse rather their own Sex to assist them in some Diseases peculiar to themselves: and for this reason they are to be taken in under this Head, and reckon'd, in some measure, Operators in Surgery. So now in most places, it is customary for particular and dangerous Operations, to be perform'd by certain Men, who have had extraordinary Experience therein, and make them entirely their Business, separated from other Parts of the Art: and those Men *Hippocrates* [a] calls ἐργάτας; *Jul. Pollux* χειροτέχνας; we in our Language, *Operators:* but they receive still more particular Names accord-

[a] *In his* ὅρκῳ, *or Oath to be taken by Physicians.*

ing

ing to the Part of the Body the
are famous for curing of: As tho
who depreſs a Cataract, and remed
Diſeaſes of the Eyes, are call'd *Ocu*
liſts; and others, who are much ex
perienc'd in extracting the Stone i
the Bladder, are term'd *Lithotomiſt*
And this is not matter of Novelty
but deriv'd from Antiquity: for *Hi*
rodotus [3] relates, there was a Cuſtom
amongſt the *Ægyptians*, that ſevera
Diſtempers ſhould have peculiar Phy
ſicians; ſome were appointed for th
Eyes, ſome for the Diſeaſes of th
Belly, and others for thoſe they cal
led *Occult*. *Galen* [4] takes notice c
ſuch a Diviſion in *Rome* in his time
and according to [5] *Proſper Alpinu*
the ſame is at this day in *Ægyp*
Thoſe who act as Aſſiſtants, need no
neceſſarily be Pupils in the Art; it
only requiſite they ſhould have a nic
Hand, and be accuſtom'd to preſen
an Inſtrument, or any thing elſe th
Surgeon wants in the Operation.

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[3] Lib. 2. [4] Lib. 10. de Uſu Part. c. 11.
[5] De Medicin. Ægyptiorum, cap. 1.

§. 2

§. 2. THE *Operations* are divided by us into those which are perform'd by the Hands alone, or into them that require the Use of Instruments, and sometimes Machines; whence [6] *Galen* calls such Physicians ὀργανικοὶ. To the undertaking either of these, a proper *Place*, and convenient *Light* is necessary. The *Place*, [7] *Hippocrates* sollicitously admonishes his Pupil to make a careful choice of; and it ought to be such, as the Surgeon may handle, as occasion is, the affected Member without Trouble to himself, or Pain to the Patient; for which those little Beds, we commonly call Couches, are very convenient. The *Light*, as [8] *Hippocrates* says, is twofold, either *common* or *proper*; the first we all use, and the last may be so manag'd by the Surgeon, as to serve the Occasions of his Business. Thus sometimes the Windows are to be shut, sometimes open'd; and at other times a Candle is to be us'd, which we may place

Of Operations.

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[6] Lib. 7. de Usu Part. Cap. 14.
[7] Lib. de Medico.
[8] Lib. de Offic. Chir. & Lib. περὶ ἑλκῶν.

nearer

nearer to, or farther from the Part as occasion requires. Of Light we make a double Use, either in bringing it near the Part, when we want a clear Light, or removing it at a distance when 'tis offensive, as in Inflammations of the Eyes, or when 'tis less Modesty to expose too much the Parts affected.

Operations with Instruments.

§. 3. AMONGST all the Operations which effect the Cure of Diseases those, which bring about their Purpose by a dextrous Application of Instruments, make the principal Appearance. The most celebrated *Vidius* [9] contends, that immediately after the Assistants, Instruments may be named; for they are inanimate Servants, and necessary Companions in the Business to be effected. The Masters of Mechanick Arts, first of all generally teach their Scholars the Knowledg and Names of the Instruments; whose Example I shall not disdain to follow in this Work, but describe shortly the Instruments,

[9] Lib. 1. Cap. 6.

which

which Surgeons commonly make uſe of; although I would adviſe my Readers to look now and then into the Armory of a Practical Surgeon, and ſometimes to examine the Figures of *Ambroſe Parey*, *Gulielmeau*, *Joh. Andr. a Cruce*, *Fabritius Hildanus*, *Gab. Ferrar*, or the *Armamentarium* of *Scultetus:* where a Student in Surgery will find many of *rare* uſe, amongſt the reſt that are more common, and thoſe which are carry'd about by every Surgeon in a proper Caſe; as an *Inciſion-Knife*, *Forceps*, *Probe*, *Spatula*, *Sciſſars*, &c. But there are many more call'd Capital Inſtruments, kept always at home in a convenient dry Place.

§. 4. THE *Inſtruments*, in general, may be divided in a threefold Manner; with reſpect to their *Matter*, *Form*, and *Uſe*. 1. According to their *Matter*, ſome are made of *Gold*, as the [1] *Thread* which connects factitious Teeth to thoſe that are ſound; and ſome Surgeons uſe a Golden Caute- *Inſtruments, their Diviſion.*

[1] Paræus, Lib. 23. Cap. 3.

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ry, as [2] *Severinus* advises. 2. Other of *Silver*, as the *Needle*, [3] *Duretus Schacch* appoints to couch *Cataract* with; altho [4] *Parey* has rightly preferr'd a Steel one; and also the *Plat* us'd to supply the Deficiency of the *Os Palati*, according to [5] *Parey*; and the *Catheter* made use of to search the Bladder, in [6] *Parey*. 3. Of *Brass* as the *Meningophylax* of [7] *Celsus* whereof consult [8] *Pavius*: and co such Metal *Syringes* should be made 4. Of *Tin*, as *Ventose* Instruments for *Cupping*. 5. Of *Lead*, as the *Probe* for *searching* Sinuosities, according to *Vidius* [9]; and also a [1] *Leaden Annulus*, to secure the Eye in any Operation; and a *Malleus*, after the use of the *Trepan*, as *Botallus* [2] teaches. 6. Of *Iron*, and such are those which are used in Cutting and Perforation

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[2] Pyrotech. Chir. l. 1. p. 2. c. 5.
[3] Subsid. Med. l. 1. c. 2.
[4] Lib. 17. c. 22. [5] Lib. 23. c. 4.
[6] Lib. 17. c. 35. [7] Lib. 8. c. 3.
[8] In Hipp. de Vulner. Cap. p. 257.
[9] De Chir. l. 1. c. 2.
[1] Vid. Aquapend. de Oper. Chir. tit. de Ung Oculor. & Par. l. 10. c. 25.
[2] P. 676. Edit. Lug. Bat.

as the *Needles*, *Knives*, &c. 7. Of *Glaſs*, as the *ocular Cucurbitula* deſcrib'd by *Aquapendens* [3]; and the *Mammary* ones, according to *Ferrarius* [4]; alſo *Ambr. Parey* [5] has farther added a *Glaſs Eye*. 8. Of *Horn*, as the *Cupping* Inſtruments much uſed in the *German* Baths, made of the Top of a young Ox's Horn; [6] alſo *Catheters* may be made of Horn; which are introduc'd much more commodiouſly into the Bladder than Silver ones, from their Flexibility. They are made fit for uſe by being immerged in warm Water. 9. Of *Ivory*, ſuch are the Extremities of Syringes, which are uſed in the *Anus*, *Penis*, or *Matrix*, when 'tis neceſſary to inject a Glyſter into thoſe Parts. 10. Of *Wood*, as the *Gloſſocomium*; or *Splints* for the ſecure Poſition of fractured Legs and Arms. 11. Of *Cork*, *Gentian*, *Sponge*, or *Elder-Pith*; and ſuch are *Tents* for the Dilatation of *Ulcers*, *Fiſtula's*, &c.

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[3] Lib. de Oper. Chir. tit. de Suffuſione.
[4] Lib. de Art. Med. Infant.
[5] Lib. 24. c. 35.
[6] Caſtellan. de cucurb. c. 3. l. 1.

12. Of *Linen* and *Wax*, ſimple or medicated, as Wax-Candles, *&c.* of which *Gorræus* may be conſulted in the Word μόλος. Alſo *Bandages* of many kinds, and *Lint*. 13. Of *Silk*, as in a *Seton*. 14. Of *Woollen*, as ſome ſort of *Splenia*. 15. Of *Hemp*, as *Ligatures*. The ſecond Difference is from their *Form*: as ſome are Circular, ſo others are of an Oval Figure, as *Peſſaries*[7]; ſome are Triangular, as *Cauteries*, *Plates*, &c. ſome are of a *Lenticular*, *Pellican*, or *Crows-Bill* Form. The third Difference is taken from their *Uſes*, as ſome are adapted to *Inciſion*, *Perforation*, *Extraction*, *Dilating*, &c. ſome are peculiar to Wounds of the Head, others to Diſtempers of the Bladder, *&c.* Their Number cannot well be determin'd, ſince every day there are new ones invented, or others ſubſtituted of more commodious Uſe than thoſe were heretofore.

Operations, their Diviſion various.

§. 5. 'TIS now time to come to the *Chirurgical Operations* themſelves, the Diviſion of which is yet various,

[7] Vid. Scultet. T. 17. f. 7, & 8.

according

ccording to those famous Men I com-
nended in §. 4. of the Introduction.
Gourmelinus divides them into three
pecies; *Synthesis*, [or Reuniting;] *Di-
resis*, [or Dividing;] and *Exæresis*,
or Extracting;] and according to
im, *Synthesis* is either common, as
n *Deligation*, *making Bandage*, &c.
r it is special, when 'tis employ'd
n Fractures or Luxations; or a So-
ution of Continuity in the fleshy
arts. *Diæresis* is divided, by the
ame Author, into Incision of the
oft Parts of the Body, as in *Phlebo-
my*, *separating mortify'd Flesh*, *Aper-
on of the Bladder*, &c. or into those
perations which separate the hard
arts, by *Terebration*, *Sawing*; or by
uching Cataracts, *penetrating the Ab-
omen* of an *Hydropick* Patient; or
ening the Hæmorroid Veins, by *Leech-*
; or by *Divulsion*, as plucking off
upping-Glasses, and taking out
eeth; or by actual or potential
auteries. Lastly, *Exæresis is the
extrous extracting any extraneous Bo-
ies which wound us*; as *Bullets*, *Darts*,
r those things which may happen
o fall into the Eyes, Ears, Jaws,
c. or any noxious Substance that
should

ſhould be generated in the Bodi
as the *Urine*, *Fœtus*, *Secundines*, &c
Jeſſenius ſays in his Preface, that th
Operations of Surgery conſiſt, firſt
in a Solution of Continuity; ſecond
ly, in reuniting Parts divided; third
ly, in extirpating ſuperfluous Parts
and, fourthly, in ſupplying thoſ
which are deficient. [8] *Vidus Vidii*
gives this Diviſion of Surgery:
either, ſays he, 1. is aſſiſtant only
or, 2. it aſſiſts and acts; or, 3.
ſimply acts. The firſt Member
this Diviſion, he further ſubdivide
into three others. It aſſiſts us in our
Knowledg, or in our Knowledg and
Practice, or in our Practice only. *A*
gain, what helps us in our Knowl
ledg is neceſſary either before we
attempt to cure, as *Anatomy*; or af
terwards, as *Exploration*: that we
may come at the Knowledg of Mat
ters, and act at the ſame time, there
are neceſſary the ſhaving off the Hair
deterging the Sanies, *&c.* but the
Practice only, are requir'd, the *Ap*
plication of *Medicines*, *Venæſection*

[8] Lib. 1. Cap. 8.

breakin

Breaking a Stone, &c. The ſecond Member of the firſt Diviſion comprehends what aſſiſt as well as act; and theſe are, the making *Bandage*, *Extenſion*, *Friction*, &c. To the third Member belongs what acts only, and is either by correcting what is amiſs, by *Conjoining*, *Dividing*, *Directing*, *Compounding*; *Reſtoring* what is Diſlocated, *Raiſing* what is Depreſſed, *Supplying* what is Deficient; or in *Remedying* what is Superfluous and Preternatural, by *Tranſlation*, or *Detraction*, as a Stone is tranſlated; and Detraction is performed by *Inciſion*, *Evulſion*, *Cauterizing*, &c.

§. 6. I HAVE been the more prolix on theſe ſeveral Diviſions given by Authors, that the difference of our Method from theirs might thereby appear plainer, and how eaſy it is to be underſtood, by any one who has a mind to learn the Chirurgical Operations, in a compendious manner. I divide them into General and Special. I call them General Operations, which have a place in all thoſe Diſtempers, that are cured by Manual Operation (a few only except-

The Author's Diviſion of Surgery.

Of Operations general.

excepted) and they are three, *viz.* *Exploration*, *making Bandage*, and *Application of Splenia*. Again, they are *Special*, and are either *curative* of Diſeaſes, and are comprehended under *Syntheſis*, *Diæreſis*, *Exæreſis*, *Aphæreſis*, *Proſtheſis*, *Diorthoſis*; or *Applicative* of *Medicaments*: and theſe are either *Natural*, as *Leeches* and *actual Cauteries*; or *Artificial*, which are *Liquid*, as *Injections*, *Fomentations*, *Inſtillations*, &c. or *Solid*, as *Emplaiſters*, *Peſſaries*, &c.

Of Exploration.

§. 7. WITHOUT doubt when a Surgeon is called to a ſick Perſon he will, as he ought to do, before any thing, examine what, and how dangerous a Diſtemper it may be, that the Patient labours under. This is either to be immediately apprehended by the Eyes, or by ſome other Means, as of the whole Hand or ſometimes one or two Fingers only; *v. g.* for the diſcovering *Oedematous*, *Ventoſe*, or *Eriſipelatous* Tumours; or inveſtigating the Stone in the Bladder, by intruding the Finger *in Ano*. Not only the use of the Hand, but *Inſtruments* too

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are required to a perfect Knowledg of ſome Diſeaſes; and thus by a *Probe*, we find a Caries in Bones, a Fiſſure in the Skull, the Depth of Wounds, Ulcers, and Fiſtula's, the Caruncles in the Urinary Paſſage, or any extraneous Matter that lodges in Wounds, *&c.* *Probes* have a globous Form at the end, or are thin and broad. They are made of *Silver*, *Lead*, *Iron*, or *Wax-Candles*, which are commonly uſed to extreme ſenſible Parts, where a dextrous Hand is chiefly required. Here alſo belongs the *Catheter*, which *Hildanus*[1] thinks ſo neceſſary to a certain Knowledg of the Stone in the Bladder; together with the famous *Ambroſe*[2] *Parey*, whoſe Figure and Uſe is different from the reſt. Here likewiſe muſt be reckon'd the *Speculum Oris*, *Ani*, and *Matricis*, whoſe Figures may be ſeen in *Vidius*[3], *Parey*[4], or *Scultetus*[5]. They are uſed in thoſe Diſtempers which af-

[1] Lib. de Lithot. Veſ. cap. 3.
[2] Lib. 17. cap. 35. [3] Lib. 2. Chir. c. 3.
[4] Lib. 24. c. 76. [5] Tab. 17. Fig. 1, 2, 3.

fect Parts, where they cannot be dis-
covered by the Eye, or cured by the
Hand, unless their Lips are dilated
and separated from one another.

Of Bandages.

§. 8. I NEED not spend any time
in proving the Advantages of *Bandage* in Surgery, since from its Usefulness, *Hippocrates* [6] has prescribed
that it shou'd be studiously observed
Rollers are to be made generally of
Linen, smooth, and free from
Seams, not new; but strong enough
for any useful Purpose; and for the
greater ease of the affected Part
shou'd be cut according to the Course
of the Thread. As to their Figure
some are simple with one Head, o
thers with two Heads, which are
very commodious to be used by both
Hands; and some are yet more com
pounded, such as we use in Rupture
and the Deligation of the wounded
Perinæum, after Extraction of the
Stone in the Bladder [7]. Their length
every expert Surgeon varies, accord

[6] Lib. de Off. Med. & Lib. de Fract.
[7] Vid Scultet. Tab. 29, 31. Fig. 9. Tab. 44

ing to the neceſſity of the Caſe. They are uſed either to keep on *Dreſſings*, or with a ſmall *Compreſs* to prevent Bleeding again, after the Operation of Phlebotomy; to preſerve the ſides firm and ſteddy in violent Coughs, or Succuſſations; to prohibit an Influx of Humours; and alſo to retain fractured and diſlocated Bones in their proper Places. Secondly, They are uſed to reduce the Lips of Wounds together; and Thirdly, to diſlodge Matter in a declive *Sinus*, by binding tightly on the bottom of the Sinuoſity, and ſo all along till you come to the Orifice, where it muſt be looſe, that the contain'd Humour, may flow out by a *Canula*, or hollow Tent. In all ſorts of Bandage particular regard is to be had to its Security: for when it is lax, it is uſeleſs; and when too ſtrait, always produces Inflammation, Pain, and oftentimes a Gangrene. Therefore *Galen* [8] very prudently adviſes a Surgeon to exerciſe himſelf often in this part of his Bu-

[8] Comment. 1. in lib. de Off. Med.

ſineſs, by making Bandage frequentl on ſome ſound Perſon. The Quaa lity and Compreſſion of the Bam dage is to be known, partly from the Complaints of the Patient, an partly from the Tumour about th Extremity of the Member; therefor Queſtions are to be often asked com cerning it: but if the Day after th Operation, the Tumour ſhou'd b little and ſoft, it ſignifies a goo Bandage; if hard, a too ſtrait one and if there be none at all, the Mem ber is not well bound, but too looſ and ſlack.

Of Ligatures.

§. 9. I MUST not omit adding t the account of Bandages, thoſe call led *Laquei*, or *Ligatures*, which ar commonly made of Linen or Hemp Their Names were various amongſ the Antients, according to their dif ferent Purpoſes. One ſort was call led *Modus Nauticus*, from the Sai lors manner of making it; anothe was *Paſtoralis*, or Shepherd's Faſhion *&c.* Their *Uſes* are in Venæſection in any Part, to ſtop the refluen Blood, that the Vein may ſwell; o in the Operation of the *Hernia*, b

Caſtra

Castration of the Testicle, to constringe tightly the Process of the *Peritonæum*; or also in the Operation of the Aneurism, where a strong thick Thread is made use of, by the means of a curved Needle, to intercept the Blood from the great Vessels: and Ligatures are necessary in Amputations; and they likewise serve to stir up Pain in the Extremities of the Limbs, to make a Revulsion of the too impetuous Blood. They are sometimes employed to make strong Extensions in Fractures, and Dislocations, and afterwards to bind on the Splints, *&c.* [2]

§. 10. 'TIS not unusual to reckon amongst Bandages, *Pulvilli* or *Splenia*, so called, from being commonly oblong, and thick, resembling a *Spleen*; always made of Linen. They may be adapted usefully to fill up the Cavities, which are under the Ham, and between the Calf of the Leg and Heel; whereby they may be the better compressed by the Bandage. They are very often moisten'd with *Of Splenia, or Compresses.*

[2] Vid. Scultet. Tab. 29. Fig. 4.

Oxycrate, and oftentimes applied dry, that they may defend the Parts from the Stricture of the *Fasciæ* or *Ferulæ*.

Of the special Operations.

§. 11. NOW after having been very particular on the general Business of a Surgeon; I think those Chirurgical Operations follow in Course, which I call *Special*, whereof those that are *Curative of Diseases* obtain the first Place; for they are designed as Remedies to a whole Class of Distempers, which they relieve to the utmost of their power. The

1. Synthesis.

first of them is *Synthesis*, which is a *Conjunction* of what is *disjoined*, whether it be a Bone, Flesh, or any other soft Part. Bones are disunited two ways; either with respect to their Contiguity, which is called ἐξάρθρημα, a *Luxition*, whereto belongs a proper Operation, ἀρθρεμβολον, *Reduction:* Or with regard to their Continuity, which is termed, κάλαγμα, a *Fracture*, whereto is opposed, συνθεσιμὸν, *Composition*.

Of Fractures.

BONES are fractured either Simply; or with a Wound, when their acuminated Extremities perforate the Muscles and Skin. The same happens,

pens, when in a Gun-ſhot Wound, the Bullet breaks the ſubjacent Bone. A ſimple Fracture may be three ways; καυλωδὲς, *Tranſverſly*, like the broken Stem of a Plant; or ῥωδακωδὲς, as of a Joiſt *Obliquely*; or ἀλφιτωδὲς, when it is ſhattered into ſmall Fragments like Bran. Theſe Names are given by *Hippocrates* [1], but more diſtinctly by *Ægineta* [2]. In all theſe Caſes there is only one Intention, that the Parts of the fractured Bone may be united again. But the Surgeon cannot effect this Union, it is the work of Nature alone, which, in Children and Young Perſons, is made by an intrinſik and immediate Coherence of the disjoin'd Parts; but in Adults the broken Extremities are conjoined together by an intervening *Callus*, like Glew. However you muſt be ſenſible, that in both there is an intervening Subſtance, *viz.* the very Nutriment of the Bone, which effervesces there, until it is concocted, and ſwells the Sub-

[1] Lib. de Articulis textu 28, 32.
[2] Lib. 6. c. 89.

ſtance of the Bone, as we ſee in the Stocks of Trees grafted upon. But because this Effervescence is greater in Adults, whoſe Bones are drier, hence it is that oftentimes much thick Matter flows together, which makes a remarkable Callus round the Bone like a Circle; and this is what the Surgeons call curing by the *ſecond Intention.* But the Surgeon does this Buſineſs in a diverſe *Extenſion* of the fractured *Member:* for, when the Fibres of the Muſcles, being left deſtitute of the ſtrength of the Bone, follow their own natural Determination, and are contracted within themſelves; it is neceſſary that thoſe, together with the broken Bone, ſhou'd be removed by Force to their natural State. This is done, either with the Hands only, or with Ligatures, or with Linen Bandages conveniently fixed round the Member, or with a Cord run thro a Pulley, ſuch as *Hildanus* [1] has given an Example of, and likewiſe according to *Scultetus* [2]. Next to Ex-

[1] Cent. 5. Obſ. 86. [2] Fig. 1. Tab. 22.

tenſion

tenſion follows *Conformation* or *Coaptation*, when the Surgeon endeavours to reduce the Member to its priſtine Figure, holding it with either Hand, and by compreſſing this or that way, forwards and backwards, *&c.* until the diſlocated Parts are reſtored to their own Situations; which is known by the Ceſſation of Pain, Equality in the Superficies of the Bone, and by a Compariſon with the ſound Member. It needs not concern us, if the Limb, after being reduced, ſhou'd appear longer; for this is owing to the violence of Extenſion. The Bones being thus well placed, they are to be retained exactly ſo, by *Deligation* performed by two Rollers, with many Circuits, from the Right to the Left, and ſo on the contrary; or by the Bandage of many Tails, (of which you may ſee Figures in *Scultetus* [1]) which is of great uſe when the affected Part requires frequent Inſpection; as when a Wound is joined with a Fracture, or when it is in the middle or ſu-

[1] Tab. 27. fig. 1. & Tab. 28. fig. 8, 10.

periour

periour Part of the Thigh. After Bandage is made, *Reposition* of the Member is necessary, and it is to be done either in a Wooden or Leather Case; such a one as *Hildanus* describes [1]; or in a soft Pillow, so as, in consideration of the succeeding Inflammation, the Extremity of the Limb may lie highest, and the Foot perfectly free from any Pressure.

Of Luxations.

§. 12. THE Bones also are loosed from their Continuity in *Luxations*, which has properly a place amongst those Bones, whose Structure determines them to a manifest Motion; as are all those Joints united by *Diarthrosis*, for we see as often as they are displaced, the Motion of the Joint ceases. But in Bones join'd by *Synarthrosis*, where there is no manifest Motion to be seen, it cannot be lost indeed; but from the Compression of the Tendons, or Ligaments, Pain arises, and the Action of the Part is hindred: as for Exam-

[1] Lib. de Ichor. & Melic. cap. 29. *and also in* Scultet. Tab. 56. Fig. 1, 2, 3.

ple,

ple, in the little Bones of the Wrist and Ancle. Luxations happen in a twofold Manner, either perfectly or imperfectly; one Species is call'd by the *Greeks* ἐξάρθρημα, or *compleat Luxation*; the other ὑπάρθρημα, or *Subluxation:* but whether such a one ever happens, I very much doubt; if it does, it is occasion'd by an internal Cause only. For the internal Cause of Luxations is either a natural Laxity of the Ligaments, or a Humour collecting in the Cavity, which gradually increasing, extrudes the Head of the Bone: The external Cause is a Fall, Blow, Leap, or Extension, and violent Motion of the Part. In either kind, the only and common Indication is reducing the dislocated Member to its proper and natural Seat; which Operation the *Greeks* elegantly call ἀρθρέμβολον. But whoever intends to perform this Operation successfully, ought first of all rightly to understand the Nature of all the Articulations in a human Body; for by that way the Bone was dislocated, it is to be reduc'd to its own Place again. But to this Reduction are necessary, 1. ἀνάλυσις; for

for a luxated, like a fractured Member, requires Extension, as well on account of the Contraction of the Tendons, as also that the Head of the Bone may more directly be intruded into its Seat. This Extension is made either by the Hands alone, and is call'd *Modus Palæstricus*, because amongst the Wrestlers, dislocated Members used to be reduc'd after this most simple manner; or by Ligatures or Towels; or by Instruments, or great Machines, when the Luxation is difficult and inveterate. But on this matter consult *Hildanus* [1]. Next to Extension follows the *intruding* of the Joint into the natural Cavity; which likewise may be effected by the Hands only, or by the Heel (as when the Head of the *Os Humeri* is fallen into the Arm-Pit) or by the means of Ladders, Doors, Pestles, or *Hippocrates*'s Instrument call'd αμβη, *Ambi*: This Method is term'd *Methodical*, for Distinction of the third, which is call'd *Organical*, because it succeeds

[1] Cent. 5. Obs. 69, & 86.

by

by great Inſtruments and Machines [a], which is now altogether out of uſe. *Gourmelinus*, beſides theſe, adjoins ἐπόθεσις, when the Member is reduc'd into its own Place in the very Fact; which is to be known by the Sound, that is uſually heard, or alſo from the Uſe and Motion of the reduc'd Joint. But becauſe, from the Laxity of the Tendons, *&c.* the Bone cannot remain in its natural Poſition, it is neceſſary yet further to apply Compreſſes and Bandage, by whoſe means the Articulation is preſerv'd ſafe, till the Ligaments may acquire their uſual Strength of Elaſticity and Aſtriction.

§. 13. THE like Chirurgical Operation commonly occurs in the *fleſhy*, or ſoft Parts, whoſe *Continuity* likewiſe is diſſolv'd, or *Contiguity* vitiated. Of the firſt ſort is a *Wound*, which is a freſh and bloody Solution of Continuity: but if it be inveterate and ſanious, it is is call'd an *Ul-* *of Wounds*

[a] Vid. Oribaſium in Lib. peculiar. & Scultet. Tab. 22. Fig. 4.

cer.

cer. Of Wounds there is a great Diversity in respect of the Parts wounded, and also according to their Situation, or whether they are inflicted in an oblique, transverse, or right Line. Again, one Wound is simple, another with Loss of Substance, and another with Læsion of the internal Parts. A simple Wound has a simple Indication, which is that the divided Lips may be united again. Where these are recent and bloody (or, if they are not so, their Callosity is to be remov'd, by the means of Scissars) they are to be brought towards one another, and kept so together, till Nature can, by the Mediation of some natural Balsam, unite them firmly together; not much otherwise than what we see in the Graftings of Trees. *Adduction* is perform'd either by Suture, Deligation, or some glutinous Mixture, which they call a dry Suture; or by an Instrument compressing the Parts: and all these may be used separately or conjointly. *Gourmelinus* calls this Operation Επαγώγην, or *Induction*, and reduces to it the *Surgery of supplying deficient Parts by*

In-

Inoculation; of which we have a particular Book by *Taliacotius*: but this Matter is to be left to its own Author. We ſhall content our ſelves with the *Suture*, which is chiefly of uſe in tranſverſe Wounds; or when the Place does not admit of Bandage, or where the Part is not compleatly ſeparated from the whole, but ſtill adheres by a little Piece of Skin. To the performing rightly the Operation of a Suture, we make uſe of a *triangular Needle*, whoſe Point ought to be ſomewhat crooked, armed with *Thread* or *Silk*; and of a *Canula*, commonly call'd a *ſtitching Quill*, whoſe extreme Part is *perforated*, againſt which the Lip of the Wound is preſſed; leſt, while the Needle is piercing, it ſhould move away. But ſometimes when we have occaſion to make a Suture, it requires that we leave one or more of the Needles in the Fleſh, and roll around them the Thread or Silk, as is uſual in *Hair-Lips*, or *deep Wounds*[3]: and ſometimes, after having convey'd the Nee-

[3] Vid. Par. lib. 10. cap. 26.

dle

dle and Thread through both Lips, we only tie a Knot, and cut off the superfluous Part of it; which, in superficial Wounds, that do not exceed the Skin, may be sufficient. Sometimes we use a *Glover's Stitch*, as in Wounds of the *Intestines*, *Abdomen*, or *Parts depending*. Sometimes *Deligation* alone is sufficient, as in *Wounds of the Limbs made longitudinally*, and it is to be perform'd by applying Compresses on both Lips; and over all, a *simple Bandage*. The *Emplastrum glutinatorium*, or *dry Suture*, is made use of in *Wounds of the Face*, to avoid the Deformity, which the Punctures of the Needle usually leave behind. Formerly they were made by triangular Pieces of Linen, brought together by Strings or Ligatures, as is to be seen [4] in many famous Authors. But now we only apply sticking Emplaisters, about the Breadth of the little Finger, firmly adhering to the Skin, amongst which, *Diapalma* right-

[4] Apud Joh. Andr. á Cru. lib. 2. Tract. 2. Paræum, lib. 10. cap. 26. & Gulielm. Tab. 6. Fig. 2.

ly

ly prepar'd excels. But I ought not to omit the *Instruments*, which, by compressing the Orifices of the wounded *Veins* or *Arteries*, do not a little administer to their Consolidation; and the rather, because I remember the Illustrious and Noble *Hooffdius*, in the nineteenth Book of his *History of Holland*, relates, how *Leonardus Botallus* stopt a Bleeding in the *Jugular Vein* of the most High Prince of *Orange*, *William* the First, only by imposing a Finger on the Orifice. This Artifice has been formerly describ'd by *M. Gatinaria*, who lived about the Year 1440[5]. Most certainly instead of the Fingers, compressing Instruments are to be preferred.

§. 14. IN treating of the *vitiated Contiguity* of the *soft Parts*, I hope the Reader will not be offended, or think it strange, to see it refer'd to this Class: since it is evident to any one, who considers the Matter, that there is a great Affinity between the

Of the Dislocations of the soft Parts.

[5] Lib. de Ægrit. cap. de Apoplex.

Luxa-

Luxations of Bones, and the falling out of the *Viscera* from their natural Situations. The *Omentum* and Intestines frequently fall into the Groin or *Scrotum*; also the *Uterus* it self or the Neck of it, suffers a *Prolapsus*; and very often the *Intestinum Rectum* slips out of the *Anus*; and sometimes the Navel shoots out too far. The Operation that remedies these Disorders, is call'd τάξις, or *Reposition*; but the Intention of the Surgeon must be not only to reduce the Parts to their pristine State again, but likewise to retain them there, by obstructing the Passages thro which they elapsed. *Reduction* is either Spontaneous, without manual Assistance, as in the *Prolapsus Ani*; where by the use of a warm Fomentation only, the Intestine returns, by the *Musculi Elevatores* being corroborated, and thereby the Substance of the Intestine corrugated. *Hippocrates*[6] teaches another sort of Surgery; he also advises, in a *Prolapsus Uteri*, that a *Cupping-Glass* be apply'd

[6] Lib. de Fistulis, §. 4.

about

about the Hip [7]; or it is [8] perform'd by the *Hands*, as when the Inteſtines fill the *Scrotum*, or the *Uterus* is ſlipped out of the *Abdomen*; or by a ſhaking of the Body, or ſetting the Patient on his Head, as in the Caſes already mention'd; and in a Prominency of the Navel. The Parts are to be *detain'd* in their natural Poſition, either by Bandages, ſuch as we uſe in Ruptures; or in the *Exomphalus* of the Navel by a Compreſs, with a Knot upon it: *Hildanus* [9] has delineated the manner of performing both theſe Methods, and added the Cures effected by himſelf. Or by *Circular Peſſaries*, eſpecially thoſe made of *Cork*, and intruded into the *Vagina*: for the Subſtance of the Cork being porous, will ſwell and keep it ſelf in the Paſſage, which is very much to be doubted of thoſe *globous* or *pyriform Peſſaries*, that are deſcrib'd by *Hildanus* [1], being made of *Box-wood*. *Gu-*

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[7] Lib. 2. de Morb. Mal. §. 38.
[8] Hild. c. 3. Obſ. 76.
[9] Cent. 3. Obſ. 64. Cent. 6. Obſ. 69, & 73.
[1] Cent. 4. Obſ. 60.

lielmeau

lielmeau was the first Author of these circular ones [1]. In all these Cases, Nature, if assisted with proper Medicines, will so straiten, and sometimes close up the Passages, as to prevent any Relapse hereafter.

2. Diæresis. §. 15. THE *second Species* of Chirurgical Operations comes now to be treated of, and is directly contrary to what we have already recounted; for it is *Diæresis*, or a *Division* of *entire Parts*; and those are either joined naturally, or tied together by some other Connection. This kind of Operations is exercised either on the hard or soft Parts. The Continuity of the *Bones* is dissolv'd, 1. by *Perforation*; and we perforate a Bone either with a Mechanick's *Terebra*, or Piercer; so *Hippocrates* [2] advises to bore the Rib in a Dropsy of the *Thorax*: or by a *Trepan*, which is a hollow steel Instrument, smooth and round, having its under-Margent indented like a Saw; but with this

[1] Lib. 3. de Gravid. & Part. cap. 29.
[2] Lib, de intern. affect.

we

ve do not ſo much perforate, as we ut out a Piece from the Middle of he Bone. The Trepan is of two inds; the *Male*, which has in the niddle of it a ſharp Pin, or the *Fe-nale*, which wants that: the firſt ve uſe from the Beginning, till the Trepan has deſcrib'd a Track to cir-ulate in; and the other, till both Tables are perforated. Their Ex-ellency conſiſts in being ſo contriv'd, s they cannot be immerg'd or thruſt nto the Bone, without the Deter-nination of the Surgeon. [*To which End it had heretofore two ſharp* Wings *n each ſide, as may be ſeen in* Beren-arius de Fractura Cranii, *at* Venice, 535. *but* Coringius, *in his Edition of hat Author, has delineated it wrong; iving a Figure of it conformable to its reſent Structure, having many ſharp* Wings *all around the* Cylinder.] But ecauſe it muſt be turned around, it s neceſſary to adapt a *Handle* to it, ither having the Figure of the Let-er T, or like a *Joiner's* Tool call'd *Wimble*, which is to be kept firm y one Hand, and moved round by he other: and as this is more ex-ellent than the former, ſo it is more in

in use. [*The former of these we call in* England *a* Trafine, *and, contrary to our Author, prefer it to the latter which we call a* Trepan, *tho Mr.* Wiseman *was of his Opinion. The Figure of the* Trafine, *as made in* England *may be seen in* Woodall's Surgeon's Mate; *where at Page* 313. *he gives Reasons for its Preference, and pretends to be its Inventor; tho* Aquapendent *had describ'd it before him in his Operations, where he gives a large Account of these Instruments, as you may find at Page* 201. *of the* 25*th Edition at* Padua *in* 1666.] 2. By *Sawing*, if we use little Saws of many sorts to the *Os Cranium*. 3. By *Excision*, as with excisory *Forceps*, after the Use of the Trepan. 4. By *Scraping*, when the Bone is affected with Blackness or Inequality. Here also is to be reckon'd *Limation*, or *Filing*, which is perform'd on the Teeth. The Figures may be seen in *Parey*'s tenth Book, and in *Scultetus*, Tab. 2. & 6.

A Division of the *soft* Parts is made various ways. 1. By *Punction* with a *Needle*, as in depressing a *Cataract*[1]

[1] Dur. Scach. Subsid. Med. l. 1. c. 11.

or when Blisters in the Eyes are to be pricked; or when a *Seton* is made in the Neck [1]; or when the Skin, together with the *Pericranium*, is perforated in a *Hydrocephalus*; or in the Navel elevated into a Tumour by *erum* [2]; or the *Scrotum* swell'd with Water, is likewise to be perforated or also by a peculiar cannulated Instrument, such as *Barbette* describes [3], and is used in the Operation of a *aracentesis* in the *Abdomen* of *Hydropicks*: or by the *Point* or Edg of *Launcet*, as in Scarification, and in pricking of varicose Vessels. 2. By *section*; and that is done with the *point* of a *Launcet*; as the Incision of *eins* and *Arteries*, and the Apertion of Abscesses or *Vomicæ*, and the *arynx*, *Anus*, *Penis*, and *Vulva* imperforated, are to be open'd by this means; Examples of which may be seen in *Hildanus* [4], and *Wierus*, in the end of his little Book of Observations: altho for an imperforated

[1] Vid. Hildan. Cent. 1. Obs. 40.
[2] Vid. Tulp. lib. 4. Obs. 42.
[3] Chir. Part. 1. cap. 15.
[4] Cent. 1. Obs. 73. Cent. 3. Obs. 60, & 61.

Anus, there is now an Instrument u
sed little differing from that whic
is extant in *Scultetus*[5]; also for tha
Scarification, which is made in moo
tify'd Parts, and in the Legs of Hy
dropick Patients[6]: or by the *whoo*
Body of the Instrument, as in th
Incision of the Scalp, in the Apere
tion of the intercostal Space in a
Empyema, in the Cutting of th
Bladder in the Operation of *Lithh*
tomy. Or a Separation of the sco
Parts is made by *Probe-Scissars*, as i
laying open Sinuosities; or when th
Fingers are join'd together by
Membrane from the Birth; or whe
the Ligament under the Tongue
too long; or the *Uvula* corrupted
or when the Prepuce adheres to th
Glans[7]; or a *Fungus* is left in th
[8] Ear. 3. By *Divulsion*, as is don
in the Use of *Cupping-Glasses*. All
by a *Thread* wrung tight every day;
or by a *Weight* hung to any Par

[5] Tab. 14. Fig. 20, 21.
[6] Alpinus, lib. 3. cap. 9.
[7] Vid. Hildan. Cent. 3. Obs. 54.
[8] Id. Cent. 3. Obs. 1, 3.
[9] Vid. Celsum, lib. 7. cap. 4.

grow

grown together, for the ſake of ſeparating them; an elegant Example of which way of Curing, is extant in *Hildanus* [1]. 4. By *Uſtion*, and that is either *Actual*, as by a *hot Iron*; or *Potential*, by a *Cauſtick* prepar'd from a *Lixivium* of Pot-Aſhes.

§. 16. I MAKE the *third Species* of Operations *Exæreſis*, or *an extracting noxious Subſtances ſticking in* our Bodies. Theſe are either generated in our Bodies, or otherwiſe they come from without. Thoſe things which are generated within us, may create much Uneaſineſs and Pain: as, 1. The *Urine*, which, if it remains too long in the Bladder, brings cruel Pains, and alſo Death it ſelf, unleſs reaſonable Aſſiſtance be given. The Operation that brings Relief is call'd καθετηρισμὸς, becauſe it is perform'd with a *Catheter*, i. e. a Silver Tube, smooth and curved, as *Celſus* describes it, and alſo accurately delivers the manner of uſing it [2]; for by this the Urine is evacuated. 3. Exæreſis.

[1] Cap. 6. Obſ. 7. [2] Lib. 7. cap. 26.

2. A *Stone:* this ſometimes is ſo ſmall, as to be forced out of the Bladder, and to ſtick in the *Urethra*, out of which an Orifice being made by Inciſion, it is to be extracted by a little *Spoon-like* Inſtrument[3]: but that which remains in the Bladder after an Inciſion in the *Perinæum*, is extracted either by a greater Inſtrument, call'd *Lapidillum*, or the extracting *Forceps*. All the Inſtruments may be ſeen in *Hildanus*'s particular Treatiſe of the Stone in the Bladder. 3. The *dead Fœtus*, the Head of which is to be laid hold on by a Hook, and thus the *Fœtus* is to be brought away entire, or in pieces, being cut one part after another. *Hildanus*[4] relates the manner of extracting a *Mole*, practiſed by himſelf ſucceſſfully. 4. The *Secundines*, or *Uterine Placenta*; this, by the means of the Navel-ſtring, the Hand only immitted into the *Uterus*, is to be leſurely ſeparated and brought away. 5. *Teeth*, which are to be extracted

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[3] Vid. Hild. Cent. 6. Obſ. 56. & lib. de Lithot. Veſ. cap. 26. [4] Cent. 11. Obſ. 52.

by *Forceps* of various kinds, ſuch as are deſcrib'd by Authors [5]; but there is ſcarce any one who has not invented ſomething peculiar to himſelf. 6. *Little Bits of the Skull* in that *Species* of a Wound, which is call'd σφλασις, or with a Fracture; and by *Ægineta* ἐκπίεσμα, i. e. when the *Cranium* is broken into many Pieces, ſo that the ſeparated Bones preſs upon the Membrane of the Brain [6]. The Instruments are to be ſeen in *Ambr. Parey* [7]. 7. I add to this Claſs *extravaſated Blood*, or any other Liquid converted into *Pus*, being collected either in the *Abdomen*, or Breaſt; which, with little Diſturbance to the Patient (if a Wound of thoſe Parts happens) we evacuate by the means of a Syringe.

THOSE noxious things which lodg in our Bodies, and were ſent from without, are, 1. *Darts*, or *Bullets*. All Darts, ſays *Celſus* [8], are to be ex-

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[5] Vid. Par. lib. 17. cap. 27. Gab. Ferrar. Sylv. Chir. lib. 2. Fig. 34, 35, 36, 37. Scultet. Tab. 10. Fig. 3, 4, 5, 6, 7, 8.

[6] Hild. Cent. 5. Obſ. 23.

[7] Lib. 10. cap. 6. [8] Lib. 7. cap. 4.

tracted by that way through which they enter'd, or by that towards which they tended. In the first Case the way by which it is to return, is made by it self; in the last, by the Knife, whereby we cut the Flesh opposed to the Point of the Dart. The Instruments are those, which are called by a particular Name, βελόνκοι, or those belonging to the Business of Darts: some are of Steel, sharp-pointed like a *Terebra*, or Piercer[1]; others made hollow like a Spoon[1]. 2. *Fish-Bones*, or any little Bones sticking in the Gullet; to the removing which, the Instrument ἀνακαθαρτόλον so call'd by *Paulus Ægineta*, is serviceable; or that of *Gualtherus Riff* mention'd by *Hildanus*[2]; and both of them are extant in *Scultetus*[3]; likewise another you may see in *Hildanus*[4]; or a Spunge tied very fast to the Extremity of a thin flexible Piece of *Whalebone*, and so introduc'd into the Gullet. 3. *Little Stones*, Me-

[1] Hild. lib. 1. Obs. 88. Par. lib. 11. Sculte Tab. 15, & 16. [2] Cent. 1. Obs. 36.
[3] Tab. 10. Fig. 1, & 2.
[4] Cent. 6. Obs. 34.

tallick

llick Bodies, Fruits and Seeds of lants; alſo *Animalcules* creeping in- o the Paſſage of the Ear. Some- mes theſe things are to be ſhaken ut, by the Concuſſion of the Part, nd the Declivity of its Situation; ometimes an *Auriſcalpium* is made ſe of; or a *Probe* rolled round with int, and dipped in *Turpentine* [5]. . *Little Straws*, ſmall Shot, or any ther *Sordes* that may happen into ounded Parts, to the removing of l which the *Volſella* is uſeful [6]; or otton, or fine Linen. 5. *Iron In- ruments*, as a Piece of a Knife, ac- ording to *Hildanus*, Cent. 1. Obſ. 62. ent. 3. Obſ. 24.

§. 17. The *fourth Species* is *Aphæ- ſis*, which may be defin'd, an *Ab- tion of whatever is ſuperfluous*. And his is done either *occultly*, or *mani- ſtly*. *Friction* apply'd to the Body, romotes Perſpiration *inſenſibly*; ſuch 4. Aphæ- reſis.

[5] Vid. Hild. Cent. 1. Obſ. 4, 5, 6.
[6] Vid. Hild. Cent. 2. Obſ. 13. Cent. 4. bſ. 17. Cent. 5. Obſ. 21. Cent. 6. Obſ. 78. lem de Vuln. Sclap. graviſſ. p. m. 947.

as is uſed in Baths. The Inſtrumentt of Chafing are ſtrong coarſe Lii nen; and Fleſh-Bruſhes, which *Merr curialis* deſcribes [1]. Alſo to this Heaa belongs violent *Extenſion* [2]: and herr may be related the Account of *Cupp ping-Glaſſes without Scarification*, whicc tranſlates Matter from one Part tt another, as *Hildanus* [3], and the urn exceptionably great *Hippocrates* [4], att teſt. But of theſe things we haw treated in §. 4. The Manner of app plying a Cupping-Inſtrument is vaa rious; ſome make uſe of kindlee Tow, others of a Piece of Wax-Carn dle, *&c.* Formerly in *Ægypt*, ann now in *Germany*, they draw out thi Air by Suction through a little Holee which afterwards is to be ſtoppee by a Piece of Wax, or the like Matt ter: In Imitation of this, I uſuallly take a Copper Tube, whoſe inferioo Circle is about the Breadth of hall

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[1] Art. Gymnaſt. l. 1. c. 8.

[2] Vid. Hild. Cent. 1. Obſ. 79.

[3] Cent. 1. Obſ. 80.

[4] Lib. de Medico, §. 6. Lib. de Loc. in hoo mine, §. 20, & 24. Lib. 2. de Morb. §. 2 Lib. de Affect. §. 4. Aph. 50. §. 5.

a Crown; and being apply'd to the Flesh, by sucking very powerfully, it elevates the Skin to a considerable degree. [*Now in* England *we affix* Cupping-Glasses, *by the means of a small* Air-Pump. *The* Glass *is commonly in the Shape of a Bell, and has at its bottom a small Perforation, which is armed on the outside with a male Skrew, and cover'd by a Membrane, which serves as a Valve, by permitting, when the Glass is fixed on any Part, the internal Air to be drawn out, but not re-enter. The* Pump *is a brass* Tube, *about the Bigness of a common* Syringe, *at one end has a* Female Skrew, *adapted to the* Male *one of the* Cupping-Glass. *In its Cavity is a movable* Embolum, *furnish'd with a* Valve, *as in the* Glass. *In order to fix it on any Part, having first skrew'd on the* Tube, *we set its Mouth on the assign'd Place, and by* Depressing, *and then* elevating *the* Embolum, *we exhaust the Air contain'd in the Cavity of the* Cylinder: *for, by* Depressing, *the Air in the* Tube *escapes by means of the* Valve; *but, in* Elevation, *it is hinder'd by the same Valve from returning. In the mean while, the* Pressure *on the Air within the* Glass

being thus remov'd, that *by its Elasticity rushes into the* Tube. *By repeating this* Process *three or four times*, the Air *in the* Glass *will become exceedingly rare*; *insomuch that the Weight of the incumbent* Atmosphere *being the same*, *the* Glass, *by that* Pressure, *is fastned very firmly*, *and the subjacent Skin will be very sensibly elevated into the* Cupping-Glass.] Superfluous Matter may likewise be taken away from the Body *manifestly*, or so as it may be very apparent to the Eye; and this is done, 1. By these *Cupping-Glasses with Scarification*. They are often substituted in the room of *Venæsection*, and very frequently used for extracting Poison communicated to any Part by a *venenate* Bite of an Animal[5]. 2. By a *Knife* that is either *strait*; or *crooked*, that it may comprehend the greatest Part of the Circumference of any Tumour. Such as these we use in taking off a cancerated Breast, and all large Tumours, either those that are pendulous, or have a larger *Basis*[6]. By

[5] Vid. Severin. de Vipera, p. 3. c. 5.
[6] Vid. Hildan. Cent. 6. Obs. 16.

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the ſame means alſo the *Penis* is to be cut off, according to *Hildanus* [1], and the Prepuce [2]. Sometimes alſo a *hot Knife* is to be uſed, as the ſame Author ſays [3]. Likewiſe a *peculiar Inſtrument* for this purpoſe may be ſeen in *Hildanus* [4]. 3. By *Sciſſars*, which are uſed in the cutting off a Teſticle that is putrid, or any ways affected with a Cancer, after a Ligature being made of the Seminal Veſſels; alſo by theſe a cancerated Part of the Tongue or Lips is commodiouſly remov'd. 4. By *exciſory Forceps*, and thus may the Extremities of Bones and Cartilages be cut off [5]; and thus alſo a *Polypus* may be ſeparated from the ſpungy Bones of the Noſe, but it is rather to be extracted entire. In corrupted or ſuperfluous Fingers, *Parey* adviſes [6] the Uſe of this Inſtrument; but *Hildanus* [7] preſcribes little *Saws* inſtead

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[1] Cent. 3. Obſ. 88. [2] Cent. 4. Obſ. 11.
[3] Cent. 2. Obſ. 32. [4] Cent. 1. Obſ. 1, 2. Cent. 2. Obſ. 79. Cent. 5. Obſ. 27, 28.
[5] Vid. Paræum, lib. 10. c. 6. & Scultet. Tab. 1. Fig. 2. [6] Lib. 17. cap. 30.
[7] Lib. de Gangr. & Sphac. cap. 19.

thereof,

thereof, to avoid the Danger of breaking the Bone into Fragments. 5. By *Ligatures*; as the supernumerary sixth Finger, or Warts may be taken away, by being tied round with a Thread, straiten'd every day, till at length they are deprived of their Nourishment, and fall off[8]. By the like Means a *Fungus* growing in the Ear[9], and another also out of the Navel[1], were cured by *Hildanus*. 6. By an *expulsive Bandage*, which expels Matter contain'd in any *Sinus*. 7. By a *great Saw*, which is used in amputating *sphacelated* Members[2]; unless any one had rather use an Instrument described by *Botallus* in Page 790 of the *Leyden* Edition. Its Form is thus: Two wooden Columns are to be fixed into a heavy Stock, each having a Groove on its Inside cut longitudinally. In the bottom Part of the Stock a broad Knife is to be fixed very firmly, with its Edg upwards, having the Edg of another Knife opposite to it, that

[8] Vid. Hild. Cent. 6. Obs. 79.
[9] Cent. 3. Obs. 11. [1] Cent. 5. Obs. 62.
[2] Vid. Hildan. lib. de Gangr. c. 19.

may be moved through the Channel. When the Member is to be amputated, that ſuperior Knife, either being loaded with Lead, or ſtruck with a weighty Hammer, falls down and cuts through the Fleſh and Bone together. *J. Regius* declares this Method to be very expeditious, without Pain, and to be perform'd in a moment, ſo as the Patient may imagine, that only a Spark of Fire fell upon his Limb.

§. 18. THE *fifth Species* of Operations is termed *Proſtheſis*, or *a ſupplying by Art what is deficient*; and this has a place in Mutilations of the Limbs, and other Parts of the Body. Although this is but a Palliative, and therefore not ſo properly call'd a Chirurgical Operation; yet, ſince it conduces not a little to the Beauty of a human Body, and Art reſtores, as much as poſſible, the natural Defect, it belongs to Phyſick, and in particular, to that Branch of it called Surgery. Thus we ſupply the want of an Eye with a Glaſs or Golden one colour'd: and the loſs of an Ear by thick Paper or Parchment painted; 5. Proſtheſis.

painted; we repair the want of Nose by Silver Plates: and though we are not so happy as to imitate the famous *Taliacotius*, as *Hildanus* affirms of *Griffonius*; yet we can restore lost Teeth, if the Speech be deficient, by factitious ones of Ivory; and we fix a Silver *Lamina* or Plate, when a Portion of the Palate is eaten away [4]. *Ambr. Parey*, in his twenty second Book, makes mention of a certain Person, who lost a large Portion of his Tongue; yet, by the Assistance of a wooden Instrument, which he kept in his Mouth, he could pronounce Words articulately. Thus likewise we use wooden Legs to walk with, and an Instrument, made of Iron, may be fixed to the Arm; by which, in defect of a Hand, its Use may be somewhat supply'd [5].

6. Diorthosis.

§. 19. THE *sixth* and *last Species* is call'd *Diorthosis*, by which all those Members, that, from the Birth or afterwards, have contracted an ill

[3] Cent. 7. Obs. 31.
[4] Vid. Hild. Cent. 2. Obs. 22.
[5] Vid. Paræum, lib. 22. cap. 12.

Confor-

onformation, are to be reduc'd to
heir natural Figure again, that they
ay be able to perform their pro-
er Functions. *Hildanus* [6] gives a
ery remarkable Example of this
nd. This Operation is always per-
rm'd by Steel Instruments, such are
hose used about the *Thorax*, con-
rning which *Hildanus* and *Parey* are
be consulted [7]. Or the *Boots* [8],
which the Bones are gradually to
e forc'd into a contrary Bent; or
re so carefully loosed from them-
lves, as that Bone which was too
uch compressed before, is render'd
ee from Pressure; and is able to
eceive Nourishment more plenti-
lly, and thereby encrease to its
st Magnitude: a Demonstration of
hich is to be seen by inspecting any
bbose Skeleton. In the City of *U-*
echt there lives a famous *Scotch*
rtist, who undertakes to cure ma-

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[6] Cent. 1. Obs. 83. & lib. de Ichor. & Me-
er. cap. 27.
[7] Cent. 5. Obs. 67. & Par. lib. 23. c. 8.
[8] Vid. Hildan. Cent. 5. Obs. 86. Cent. 6.
bs. 89, 90. & Paræum, lib. 23. cap. 11. &
lysson. de Rhachit. cap. 29.

ny

ny Patients of this kind, who resort to him from distant Countries, and does to a Miracle rectify *distorted Feet*, *gibbose Spines*, &c. In this place I think may be ranked those Instruments call'd *Elevators*, whose Use is to raise Depressions of the Skull, that they may be reduc'd to their pristine State. Consult *Hildanus*, who has expressly treated of these things, *Cent.* 2. *Obs.* 4, 5.

The Second Part of the *First Section.*

The Operations applicative of Medicines.

§. 20. THESE things being finish'd, we come now to the Operations, which are also deservedly ranked among the Chirurgical ones, because the *Hand* does claim not the least Part in them. But in these Cures, manual Operation is subordinate, for the Diseases are such, as cannot be cured without Medicaments; as *Celsus* declares in the Preface of his fifth Book. But although the principal End depends upon the Virtue and Efficacy of simple or compound Medicines; yet since every

y one cannot apply these according o Art, and seeing a previous Prac- ice is requir'd; hence it is, that hese Operations obtain the Name of *Applicative of Medicaments.*

MEDICINES, which are ap- lly'd to our Bodies by the means of he Hands, may be divided into *Na- ural* and *Artificial* ones. *First*, in he account of *Natural* Medicines oc- ur *Leeches*[9]; and these, after they ave disgorged a venomous sort of Quality, by being kept a few days in lear Water, are to be held between he Fingers and Thumb (being rolled n a piece of Linen or Lint, lest hey slip away) and apply'd to the *Hæmorrhoid*, or other *Veins:* but it is ecessary first of all to chafe the Part vith a rough Cloth, or to dawb it vith Pidgeon's Blood, or to make a nall Puncture in it; for by these neans they will fasten the better. They fall off when they are full of lood; but if you would take away greater Quantity than they can ontain, you must cut off their Tails,

1. *Of Natural Medicines.*

[9] Vid. Moufet. Theatr. Insect. lib. 2. cap. 41.

and

and then they will never be ſatiſ fy'd, but by being cheriſh'd with th Steam of warm Water, will ſuc perpetually, and as much Blood wil flow out as you deſire. When the have done their Buſineſs, they ar not to be forc'd off, leſt they leaw behind them a ſort of Sting tha may be troubleſome, but are to b diſguſted by ſalt warm Aſhes, co ſome ſuch things, as may be ſeen in *Vi dius* [1], and others. In the *ſecond* plac is to be mention'd *Actual Fire*. Thi is different, according to the Variet of the Matter uſed; for one place it in Tow, another in kindled Coall another in Parts of Plants, *Spani* Wax, and in Pyramidal Pieces co Linen, according to *Proſper Alpinus* [2] ſome uſe Gold or Silver, but what i moſt commonly approv'd is a ho Iron [3]. Likewiſe *Severinus*, in his *Chi rurgia Spiritalis*, never yet publiſh'd adviſes the uſe of the Flame it ſell

[1] Lib. 2. Chir. cap. 9. & Claudin. de ingre ad infirmos, lib. 2. c. 5.

[2] Lib. 3. c. 21. Medic. Ægypt.

[3] Vid Severin. in Effic. Chir. lib. 1. Pyrotech p. 2. c. 1, 2, 3, 4, 5.

blow

own through a Pipe. *Hippocrates*'s venty ſeventh *Aphoriſm*, in the ſixth ook, and ſixth *Aphoriſm* in the ghth Book, ſufficiently prove the e of Fire to be very antient in hyſick. It is apply'd to diſcuſs, rroborate, concoct, to reſiſt Pu-efaction, to the opening Abſceſſes, d to induce an *Eſchar* on any Part. he *Inſtruments* are of various Fi-ires, but all of them call'd *Caute-rs*; ſome are plain, others round, d ſome are curved, *&c.* Their Fi-ires are to be found in *Albucaſis*; d likewiſe in *Scultetus*[4], and *Gabr. rrara*[5]; but particularly deſcrib'd *Guido de Cauliaco*, in his ſeventh *eatiſe.* Sometimes an actual Cau-ry is to be apply'd through a *Cap-la*, to prevent any Terror from the ht of it: this Method was inven-d by *Placentinus*, and deſcrib'd by *ultetus*[6], after *Aquapendens* and *andorpius.* When we undertake to e any ſort of Cautery, we are to ve particular care in defending the

[4] Tab. 19. [5] Lib. 2. Tab. 28, 29, 30.
[6] Tab. 1. Fig. 10.

neigh-

neighbouring Parts, either by a *L*
mina, defensive Emplaister, or Lin
moisten'd in *Oxycrate*; and sometim
a hot Iron is transmitted through
Copper *Canula*, for the greater Saf
ty of the adjoining Parts. The D
gree and Manner of applying it
various, according to the nature
the Distemper, and the Part affecte
In a *Sphacelus*, or Mortification, w
cauterize more freely than in an
other Case; in the soft Parts mo
sparingly, in moist Parts more lib
rally; in a Flux of Blood, or *Carr*
of a Bone, we reiterate the Oper
tion till an *Eschar* is induc'd, or th
Humidity of the Bone destroy'd.

2. *Of Artificial Medicines.*

MEDICAMENTS, which w
call *Artificial*, are those which a
prescrib'd by a Physician, and pr
par'd by the Apothecary for imm
diate Use. They are Liquids or S
lids: The *Liquids* are exhibited
the Form, 1. of an *Injection*, whe
we have occasion to inject any liqu
Preparation into the more inwar
Parts of the Body. Thus an Inje
tion is frequently made into the *A*
nus (which ἀπὸ τοῦ κλύζειν, from Wash
ing

g, is call'd κλυσῆρ, a *Clyſter*) *Uterus*, *enis*, and ſinuous Ulcers. The Inrument is a Syringe, or a ſlender ube, to which is faſten'd a Bladr: but Injections are to be admiſter'd gradually, and, if into the *nus*, the Patient muſt lie on the ght Side. Sometimes alſo this Oration is to be perform'd with Vionce, ſo as the injected Liquor may ſh out the ſame way it enter'd, z. when any *Sordes* lurks within. Of an *Inſtillation*, and this is leſs tificial than the preceding; but is rform'd in a threefold manner. he Liquor is either pour'd out by rops from a Veſſel, having a narw Spout, or expreſſed from a wet onge; or laſtly, (which is very mmon amongſt the *Italians*, as is ain from *Claudinus*, who calls it *illicidium* [1]) the Liquor is to be diſlled by Drops, thro the Spout of wooden Veſſel, from a high Place, on the Head, Stomach, Liver, or y other infirm Part. *Horace* [2] takes tice of it, and ſpeaks of thoſe

[1] In Append. lib de Ingreſſ. ad infirm. §. 11.
[2] Epiſt. 15.

who

who ſubmit to it, thus; *Qui Caput & Stomachum ſupponere fontibus audent*[3]. 3. Of a *Lotion*, or *Irrigation*, which is very much like to the former, unleſs with this difference, that after the Part is waſh'd with the Liquor, a moiſten'd Piece of Linen is apply'd to it: thus a Rag wet with *Oxycratt* is to be put around the Teſticles in an Hæmorrhage of the Noſe, according to *Hildanus*[4]. It is call'd *Irrigation*, when we ſprinkle Water or Drops of Vinegar upon the Face in a *Lypothymia*, or Swooning. 4. Of a *Fomentation*, which is ſometimes uſed in the ſame manner as Lotions, and ſometimes it is different, as when an Oily Liquor being incloſed in a Bladder, or a Bag filled with a dry Subſtance made warm, are apply'd to the Part. 5. Of a *Bath*, which is either *moiſt* or *dry*, and both ſorts are either *total* or *partial*: in one the whole Body is immerged, in the other only a Part, or perhaps half of it; and from hence it is call'd

[3] Vid. Hipp. Aph. 21, & 25. lib. 5. & Baccium de Therm. lib. 2. cap. 14.

[4] Cent. 2. Obſ. 45.

Semi-

Semicupium: the Figures of which are decipher'd by *Heurnius* [5], and *Severinus* [6]. Again, either of them is *Natural* or *Artificial*. The liquid natural Bath is made of Bath-Waters, but instead thereof are prescrib'd Decoctions of Herbs in common Water. The natural dry Bath consists of an Exhalation of warm Vapours rising from subterraneous Cavities; and an artificial one is made of kindled Coals, or Spirit of Wine: for thus, if the Patient be well cover'd with Clothes, he will sweat plentifully. 6. Of a *Suffumigation*, or *Vapour*, which, that either of them may be convey'd to the Part affected, the Exhalation is to be receiv'd by a Funnel, or the Patient is to sit on a perforated Stool or Chair. Any one may assist himself with the Smoak of Tobacco, to the provoking the *Anus*, by an Instrument lately invented in *England* by Mr. *Woodall* a Surgeon there, who has publish'd a Delineation of it; and after him it is

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[5] In Meth. ad Praxin. l. 1. p. m. 45.
[6] Pyrotechn. Chir. l. 1. p. 3. c. 47.

deci-

decipher'd by *Bartholine*[7]. 7. Of *Inunction*, which is perform'd by the Fingers, or a Spunge.

Of Solid Medicines. *SOLID Medicines*, whose manner of Application ought to be taken notice of here, may be comprehended under these Titles: 1. The *Insperſion of Powders*; and this is done either by a Puff of Wind, as when we ſprinkle Pepper on a relaxed *Uvula*, by the Inſtrument invented by *Hildanus*[8]: or by a common Inſtrument made uſe of amongſt *Goldſmiths*, [*which they call a* Burras *Pipe, and*] which is nothing elſe but a Copper Box, with a Spout, having Teeth like a Saw. Alſo we ſprinkle reſtringent Powders on Tow, and apply to any Part of the Body. 2. The *Intruſion of Suppoſitories*, or *Peſſaries*. 3. The *Applying of Emplaiſters*, under which Head are comprehended *Sparadrapa*, *Dropaces*, or *Picationes*, concerning which conſult *Gorræus*. Alſo here belong *Veſicatories*. 4. The *Application of Potential Cauteries*; as when we apply to the Part an Em-

[7] Cent. 6. Obſ. 66. [8] Cent. 2. Obſ. 21.

plaiſter,

plaister, with a small Hole in the middle, upon which a Piece of Caustick is put, and upon this a Compress and Bandage: after an hour or two, the Caustick will be dissolv'd, and the Skin burnt and rendred insensible, which the Incision-Knife may penetrate easily without Pain.

SECTION the Second.

Part the First.

§. 1. SINCE, according to *Hippocrates*'s Advice, we ought to reduce Theory to Practice, *i. e.* confirm universal Precepts by particular Examples; so we purpose to subjoin the *Practice* distinctly, of the *Chirurgical Method* just now deliver'd: but it will consist only of those Operations which occur most frequently in the Medical Art, and in which most of them follow successively, one after another. Herein we shall observe the Method and Order of the celebrated *Fabricius ab Aquapendente*, in his *Book of Chirurgical Operations*; in beginning with those of the Head, and so descending in course to the Limbs.

The Order of the Operations.

Of a Fontanel, or Issue in the Head.

§. 2. IN the first place occurs th making an *Issue in the Coronal Suture* and this is a Practice very commo amongst the *Italians*, who fancy tha the noxious Humours generated i the Head, and which thence flow t the inferior Parts of the Body, ma be evacuated this way. What Trut there may be in this Opinion, ha been shown by the most Learne *Schneider* [1]. But if this Operatio should be order'd, the Surgeon ma find out the most commodious plac of performing it by *Celsus*'s Rule [2] whom we always find just and faithfu A Thread is to be drawn from th Nose to the Crown of the Hea and another from the middle of on Ear to that of the other; in tha place where the Threads cut one a nother, the Issue is to be made, b an actual Cautery invented by *Aqua pendens*, and delineated by *Scultetus* [3] After the hairy Scalp is burnt pret deeply [*as may be likewise done by th Lunar Caustick*] the Separation of th

[1] Lib. 4. de Catarrhis, cap. 11.
[2] Lib. 2. c. 7. [3] Tab. 1. Fig. 1, 2.

Escha

ſchar is to be procur'd by *Ungt. Ba-*
ic. or freſh Butter; and a Pea is to
e put into the Cavity to keep it
pen, and the capital Bandage o-
er all.

§. 3. IN dangerous Wounds of *Of the Trepan.*
e Head, Phyſicians have oftentimes
courſe to an *Aperture of the Skull*,
at, through a *Foramen* made in it,
travaſated Blood or *Sanies* may be
acuated. Therefore, the Hair be-
g ſhaved off, an Inciſion is to be
ade into the Skin and *Pericranium*
a ſimple Line, or in the Form of
Croſs, or of a triangular Figure,
ways having regard to the Sutures
d Temporal Muſcles. The Tegu-
ents being remov'd, and the *Peri-*
nium ſcraped off the Skull, with the
ils, or by a *Spatula*, the Wound is
be filled with Lint ſprinkled with
tringent Powders, as well to co-
r the naked Bone, as to ſtop any
ux of Blood. Thus much being
ne, you may, after a few hours,
oceed to the Operation it ſelf, by
ing the Patient in a convenient
ſture, his Head being held ſteddily
a Servant, and his Ears ſtopped

with Cotton, to prevent his heari
the Noiſe of the Inſtrument's gr
ting: then begin the Work with tt
Male Trepan, thereby to keep tt
Head of it from moving aw
which it would otherwiſe do, a
make different Inciſions with
Teeth; but after the Trepan h
taken ſufficient Hold, the *Pin* is
be remov'd, to avoid any Dang
from it, ſince we know ſome Sku
are extremely thin. The Trepan
often to be taken out, during the
peration, as well to prevent
growing too hot, from the conſta
Motion (which we moderate by dl
ping it in Oil, Roſe-water, or Mil
as to cleanſe the Teeth of it [*with*
little Bruſh] and examine what Dep
it has penetrated. When you fi
Blood in the Teeth of the Inſtr
ment, you may be aſſur'd it has p
ſed through the firſt Table of t
Skull, and is come to the *Diploe*,
Meditullium: after which you m
turn more circumſpectly, leſt y
ſhould wound the *Dura Mater*; a
often try the Equality of the Per
ration [*which, if it be not juſt, m*
be remedy'd by a dextrous bearing

Inſtr

ſtrument on the uneven Place] by a oad Probe, or the like. When u perceive the Piece of Bone, you e about to take away, is almoſt t through, and begins to ſhake, you uſt attempt, by gentle means, to ing it away by the *Volſella*; which ing done, there always remain, in e bottom of the Aperture, ſeveral tle Aſperities, which are to be pa- d off by the *Lenticular Inſtrument*. here are many, when this Opera- on is performing, who hold over e Patient's Head a hot Pan to con- mperate the Coldneſs of the Air; t in the Summer Seaſon it is need- ſs: and in Winter the Air will be arm enough by having a Fire in e Chamber; always obſerving to arm the Linen that is apply'd to e Wound. Upon the *Dura Me- nx* of the Brain there is to be oured a little warm Oil of Roſes; d, that the *Sanies* may more com- odiouſly come away, it is to be mpreſſed by an Inſtrument call'd *ecuſſorium* [*or that Part of the above- ention'd Knife which reſembles a Len- l:*] but in the mean time we muſt der the Patient to hold his Breath,

for by this means the Matter co
tain'd between the *Dura Mater* an
Cranium, which lies deep, will b
more easily evacuated. To deter
the Membrane, we use a Piece
fine Linen dipt in *Mel. Rosar.* and
little Spirit of Wine, gently intro
duc'd between the Skull and the *Du*
ra Mater: but a Thread must b
passed through the middle of it, fo
drawing it out again in dressing th
Wound. For the Cure of the cutt
neous Wound, *digestive Medicine*
are to be used; but to the *Exfolia*
tion of the Bone, we apply *Cephalic*
Powders. During the whole time o
the Cure, the Head is to be well co
ver'd with Cloths, that it may b
defended from the cold Air. If th
Fissure should be only *superficial*, th
Integuments are to be remov'd, an
the external Table of the *Cranium* i
to be scraped away, till no Mark o
the Fissure remains. The same I ad
vise to be done in a *Contusion*, whe
the external Table is yet entire; bu
the *Meditullium*, being somewha
bruised by the Pressure, the Blood
that flows from the Rupture of it
small Arteries, is to be discussed b

Resol

ſolvents. But to undertake the *E-vation* of any *Depreſſure* by the eans of a *Cupping-Glaſs*, or *ſticking mplaiſters*, as *Hildanus* [1] perſuades , is plainly ridiculous and trifling. o reſtore the *fractured Parts* of the *anium* to their priſtine Seats again, d thereby to free the Membranes their Preſſure, if they are not ſe-rated from the whole, it is neceſ-ry to make uſe of *Elevatory* Inſtru-ents. In the *Perforation of a Dart*, metimes Fragments are to be taken t, the Eminences ſmoothed, and ſo ſometimes *Terebration* is uſeful, pecially in ξυμφορᾶ *Hippocratica*, *viz.* hen the Blow was in one Part, and e Fiſſure in another.

§. 4. WE are not to omit, in the xt place, mentioning the *Hordeo-m*, or *Chalazium* of the Eyelids; or who is able to diſtinguiſh theſe?) *They are ſmall Tubercles, of the big-ſs of a Barly-Corn, generally of a atomatous Quality*;] and are beſt red by introducing a waxed Thread

Of Hordeoli in the Eye-lids.

[1] Cent. 2. Obſ. 5.

through their *Basis* in a crucial Form and thereby drawing them out, and cutting them round with the Point of a Knife, afterwards applying *Cicatrizing Medicines.* If it should be a *Meliceris*, or *Atheroma*, oftentimes it breaks without any Assistance; and then applying one or two Grains of *Troch. de Minio*, the Remains of the *Cystis* is brought away by Suppuration.

Of Couching a Cataract.

§. 5. NEXT in order succeeds that nice and delicate Operation call'd, *Couching a Cataract*; which is a certain thin *Pellicle*, or *Membrane* such as we sometimes see upon Wine or Beer, and adheres to the internal Part of the *Uvea*, spreading over the *Pupil* to the *Chrystalline Humour*, and thereby hindring the Transmission of the Rays of Light. Where this has acquir'd a due Consistence, *i. e.* being neither too soft, nor too old and hard, it is to be depressed by the means of a *Needle.* Therefore, the Body being purged, in the Decrease of the Moon, then in a clear Day, the Patient is to be plac'd in a Chair, with his Face turn'd towards the

Light,

ight, and the Surgeon ſitting di-
ectly before, but ſomewhat higher
han him, a Servant behind keeping
is Head firm and immovable. All
hings being diſpos'd in this manner,
he Patient's ſound Eye is to be bound
p; and after having humected the
fected one with the Vapour of maſ-
cated *Fennel*, and chafing it a little
ith the Fingers, he is to turn it
wards the Noſe; then the Needle,
eing firſt run thro a woollen Cloth,
make it warm (uſing the left Hand
the right Eye, and ſo on the con-
ary) is to be boldly run thro the
unica Conjunctiva, within the breadth
a Crown from the *Iris*, gradually
enetrating, and, as it were, boring
s way till it arrives under the *Cor-*
a. When the Needle has pene-
ated into the empty Space, one
oderately skill'd in the Matter may
the Buſineſs; for there is nothing
hinder his Preſſing. Then the
eedle is to be inclin'd to the Cata-
ct, which, with the Point of it, is
be ſeparated leiſurely from the
lg of the *Uvea*, and gather'd about
by gently turning the Needle,
d afterwards depreſſed below the

Pupil, towards the *external Angle* co the Eye, and to be so pressed upon till it sticks there. The Operatioo being thus perform'd, the Needle ii to be gently drawn out, and th *White* of an *Egg* curdled with *Allum* to restrain the *Inflammation*, is to bb apply'd between two fine Rags; ann over this, a Compress and Bandage. After thus much, the Work is comm pleated by Rest, Abstinence, liquii and cooling Diet.

Of a Fistula Lachrymalis.

§. 6. ABOUT the Region of th Eyes, we meet with a Distemper which is call'd *Ægylops*, or *Fistull Lachrymalis*; because it affects th *Caruncle*, seated in the *greater Angl of the Eye*. If, after an Inflammatioo of the Part, there is *Pus* collectee and lodged for some time, so as th Sides become callous, and the subjacent Bone affected with a *Caries*; th Callosity is to be remov'd, and th corrupted Bone to be exfoliated b the means of an actual Cautery, introduc'd thro a *Canula* delineated i *Dur. Scacch*[1]. But when the Bone ii

[1] Subsid. Med. lib. 3. c. 2.

not foul, the Cure may be more easily accomplish'd by *Astringent Medicines*, such as are describ'd by the famous *Bartholine*[2]: and that they may be the lesser detain'd upon the affected Part, *Aquapendens* has invented a convenient Instrument, whose Figure may be seen in *Scultetus*[3].

§. 7. THAT Surgery is excellent, and without Pain, which corrects the *Squint-Eyes* of Infants. *Ægineta*[4] has deliver'd the *Method* of *Cure*, and after him, *Parey*[5] has decipher'd it; *viz.* by keeping upon the Face a *Mask* with two Holes in it, opposite to the Eyes; which will accustom the Child to see thro these Holes, and the Eye will thereby acquire a Habit of beholding Objects in a right Line. [*Perhaps the Cause of many* Squint-Eyes *is a wrong Position of the* Optick Nerve *and* Retina; *and in such a Case, this, or hardly any other Method, will be found available.*] *Of Squint-Eyes.*

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[2] Cent. 5. Obs. 84. [3] Tab. 8. Fig. 1.
[4] Lib. 3. c. 22. [5] Lib. 23. c. 1.

§. 8.

Of a Polypus.

§. 8. A *POLYPUS* is a fungous Excrescence, form'd in the Cavity off the Nose, inducing a Difficulty off Speech, as well as Respiration. This is not to be remov'd by Medicines, which are only troublesom, but by Surgery; as *Jul. Cæsar Arantius* teaches [6]: which is practised very commodiously by an Instrument, whose Figure may be seen in *M. A. Severinus* [7], and in *Scultetus* [8]. *Aquapendens* boasts very much of the Invention off this Instrument, but *Severinus* proves it to be of far more antient Original. However, it may be improv'd by adding, in the Concavity of the superior Part, two or three square sharp Teeth, that it may lay hold the more firmly. After the *Polypus* is extracted by this *Forceps*, the Remains are to be cauteriz'd by an actual Cautery, transmitted through a *Canula*. [*But when the Root is brought away, as is frequently done, a little* Acet. distillat. *snuffed up is sufficient.*]

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[6] Lib. de. Tum. p. n. cap. 21.
[7] De Med. Eff. p. 115.
[8] Tab. 12. Fig. 1, 2.

§. 9.

§. 9. CHIRURGERY is alſo practiſed upon the *Lip*, not only for the ſake of the Beauty of the Face, but likewiſe to procure an Articulate Speech. It oftentimes happens, that there is a *Fiſſure* or *Diviſion* in the Upper Lip, more eſpecially; (ſuch as we ſee in Hares, from whence they are call'd *Hare-Lips*) and that is either natural, when the Child is born with it, or is cauſed afterwards by an accidental Wound. It is not difficult to remedy this Defect, if you can bring the divided Parts to a mutual Contact, and preſerve them ſo together, that Nature may do her part in conglutinating the ſame. But in performing this Operation, you muſt firſt of all cut off the Calloſity of the Sides with your Sciſſars; and if there be too great Loſs of Subſtance, the Lip is to be ſeparated from the *Jaw-Bone*; whereby it may be more largely extended, and conſequently the *Cleft* better filled up. This being done, you are to paſs thro the Lips one, two, or three Needles, and leave them in the Fleſh, often rolling Thread around them *Of Hare-Lips.*

above

above and below, as *Ambr. Parey* has delineated [9]. Also Compresses and Bolsters are to be plac'd on each Cheek, that the carnous Fibres which are generated *de novo*, being very tender, may be less liable to a Rupture, and remain agglutinated, till they become strong, and the opposite Parts are grown into one another; which will come to pass about the end of a Fortnight, at which time the Needles are to be taken out. The only Danger of Needles is in Children, when from the Softness of their Flesh, they cut thro the whole Lip, and render your Endeavours of no effect; and this likewise happens from a Plenty of Snivel, continually descending from the Nose, which rots the Thread, and renders the new Flesh too moist, wherefore the Lips cannot be kept together as they should be: for which reason, in this case you would do well to fix a thin Plate of Lead, or little Piece of Leather, such as is used in the Soles of Shoes, to the Ends of the Needles on

[9] Fig. 2. c. 26.

each

each ſide; alſo an *Emplaiſter* may be placed aſlant, that the Moiſture may flow over it. Sometimes it happens that not only the Upper Lip, but alſo all the ſuperior Part of the Palate, even that Portion of the Bone which makes the Roof of the Mouth, is affected, by adhering to the *Septum Narium*. Tho this Caſe is difficult, its Cure differs not from the former; unleſs that we muſt ſeparate the Oſſeous Particle from the *Septum Narium*, by an Exciſory *Forceps*, deſcrib'd in *Scultetus*, Tab. 12. Fig. 4.

Of a Cancerous Lip.

§. 10. AMONGST the Chirurgical Buſineſs of the Lips, *Aquapendens* makes mention of that which is practiſed on the *Lip*, when a *Cancer* hath infeſted it. Altho in this Caſe there is no Operation perform'd, that is different from what is exerciſed upon other cancerous Parts, *viz.* the Extirpation of the Malady with the Part affected; yet I would caution young Men, not to uſe the Method of *Aquapendens*, which is to extirpate the Part by a Piece of Silver, or Wood made ſharp, and dipt in *Aqua Fortis*: for a *Cancer* will by this

this means be irritated to a dangerous degree.

A Contrivance to convey Liquids into the Throat.

§. 11. AMONGST the Operations of the Teeth, the ſame Author ranks the manner of *dieting* ſuch *Patients*, whoſe Jaws are ſo fixed together, that their Mouth cannot be open'd. This Inconveniency he remedies by a *Pipe*, like a Funnel, but ſomewhat recurved; the ſmall end of which is to be put into the Mouth, whilſt the liquid Suſtenance is pour'd in at the other: but leſt it ſhould ruſh too violently into the Gullet, it muſt be hinder'd by a *Cock*, which *Aquapendens* does not ſeem to take notice of. This Contrivance is very convenient; but to introduce the Pipe into the Palate by the Noſtrils, ſeems very abſurd; eſpecially ſince there is always, about the hindermoſt Teeth, a Space ſufficient to admit the Inſtrument. See *Scultet.* Tab. 10. Fig. 5.

Of remedying Tongue-tied Children.

§. 12. THE *Tongue* is alſo an Object of Surgery, which is exerciſed upon it in cutting the *Ligament* that ties it down. But young Practitioners ſhould always have in their

Minds

Minds the Advice of *Aquapendens*, who cautions against the rash undertaking this Operation, because if wrong perform'd, it not only oftentimes induces the troublesom Symptoms mention'd by *Hildanus* [1], but also a continual Salivation, by wounding the Extremities of the Salival Ducts, as *Riolan* affirms [2]. Moreover, *Aquapendens* assures us, that in a hundred thousand Children, scarce one of them is born with such a Ligament as requires the Operation; yet we see too many ignorant Women run to the Surgeons: but the Midwives are the most dangerous Persons of all, who tear away, with their Nails, the *Bridle* which Nature has bestow'd upon this Part.

§. 13. NOT only a common, but easy Operation is perform'd upon a *relaxed Uvula.* It is raised up again, Universals being premised, by blowing on it, thro the *Uvula-Spoon*, *Astringent Powders*; or sometimes those that stimulate, as *Pepper*, *Burnt Allum*, *Of the falling down of the Uvula.*

[1] Cent. 3. Obs. 28.
[2] Lib. 4. Anthropol. cap. 10.

Ba-

Balauſtines, &c. But where it becomes putrid, it is to be held by the *Volſella*, and cut off with a Pair of Sciſſars. Alſo ſometimes it muſt be cauteriz'd by a hot Iron introduc'd thro a *Canula*.

Of the Exciſion of the Tonſills.

§. 14. IT has been often matter of Admiration to me, that the antient Phyſicians dare cut out the *Tonſills*, being indurated after an Inflammation, as *Celſus* [1] makes mention of. For my part, I muſt declare I could never think the Exciſion of theſe Parts to be ſafe, becauſe they are of great Neceſſity in the Body, and are interwoven with Nerves, and Branches of the *Carotid Arteries*; but what is more, *Aquapendens* is of the ſame Opinion. *M. A. Severinus* [2] is for extirpating by Exciſion: *The Tonſills*, ſays he, *frequently grow out into unſeemly Eminences, by a thick viſcous Humour, either proceeding from a Venereal Diſtemper, or a Rheumatiſm*: ſuch are the *Mariſcæ*, or *Fig-like Tumours*. Altho I have not hitherto

[1] Lib. 7. cap. 12.
[2] Pyrotechn. Chir. lib. 2. cap. 64.

ſeen

ſeen this Caſe, yet I ſhall relate the Manner of performing it, for the ſake of Tyroes in the Art. The Tongue being depreſſed, the Gland is to be elevated by a little Hook, and cut out by a crooked Knife; and ſometimes it is to be cauteriz'd by a hot Iron. [*Notwithſtanding the Author's Fears, I have ſeen this Operation of Exciſion perform'd with Succeſs, in* St. Thomas's Hoſpital, *according to the Manner deliver'd by him.*]

§. 15. WHEN a *Thorn*, little Bone, or any other ſuch thing adheres to the *Jaws*, or *Gullet*, Chirurgery brings Relief, by removing the Cauſe with a long *Volſella*, according to *Paulus*; which may ſucceed when we can diſcern the Place where it lies: but if the Cauſe ſticks deeper in the Gullet, we ſhall do beſt to introduce a Piece of *Spunge*, tied very faſt to a thin *Whale-Bone*, and drawn to and fro very often. *Hildanus* [1] has another Inſtrument, which ſerves to thruſt down, at once, more ſolid Bodies

Of Extraneous Bodies ſticking in the Jaws or Gullet.

[1] Cent. 1. Obſ. 36.

dies towards the *Ventricle* or *Stomach*. Vid. Cent. 6. Obſ. 34.

Of noxious Bodies falling into the Ear.

§. 16. CHIRURGERY alſo belongs to the Ears, and is chiefly employ'd about the *Meatus Auditorius*. This is ſometimes obſtructed by *Ear-Wax*, which may be extracted by an *Auriſcalpium*; or brought away by injecting warm Water, *&c.* Sometimes a *Membrane* ſhuts the external Paſſage, which is to be perforated; and afterwards *cicatrizing Medicines* are to be apply'd. It alſo oftentimes happens, that a *Cherry-ſtone*, *Pea*, or the like, falls into the Ears, which may be taken out by a *Spoon-like Inſtrument*. But laſtly, if Inſects ſhould creep in, they are to be killed by injecting a great Quantity of *Liquids*; or to be extracted by a *Spunge* dipped in *Turpentine*.

Of Bronchotomy.

§. 17. NEXT in order comes the Operation of *Bronchotomy*, which the celebrated *Renatus Moreau* teaches me to write inſtead of *Laryngotomy*: but what ſhall I ſay of it? ſince ſo very few have been courageous enough to put it in practice, on account either of

of the Danger, want of Opportunity, or being deter'd by the Friends of the Patients; and therefore *Aquapendens* calls it by that barbarous Term *Subſcanatio*. But, as *Celſus* ſays, it is better to try a hazardous Remedy, than none at all; and I am perſuaded, it ought to be practiſed in extreme Neceſſity; eſpecially when we have Examples of thoſe, on whom this Operation has ſucceeded well, as the above-mention'd *Moreau* teſtifies, in a Letter to the famous *Bartholine*. Beſides, in this Caſe there is no reaſon to fear hurting the noble Parts, or greater Veſſels. And laſtly, the famous *Tulpius* [1] aſſures us, Wounds of this Part heal very ſoon. The Manner of performing the Operation is thus: The Patient is to be plac'd in a Seat, with his Head reclin'd backwards, as much as is poſſible, without danger of Suffocation; and the Servant ſtanding behind, muſt take up the Skin of the fore part of the Neck, whilſt the Surgeon makes a Longitudinal Inciſion of it, together

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[1] Obſ. 50. lib. 1.

with

with the ſubjacent Muſcles, from the Region of the *Aſpera Arteria*, near the *Scrobiculum Juguli*; and then divide the Space between the Cartilages, with a broad Launcet, and put into the Orifice a Silver Canal, winged, leſt it ſlip in too far, and a little crooked at the end, directing to the Lungs. By this way the Loſs of Reſpiration is ſupply'd, till the Inflammation is diſcuſſed or brought to Suppuration, or a Liberty of breathing thro the Jaws is recover'd again.

Of a Paracenteſis of the Thorax.

§. 18. IN the *Thorax* occurs the moſt antient, and now alſo a very common Operation in Surgery; which is call'd by the *Greeks Paracenteſis*, and may be defin'd, an artificial Wound penetrating into the Cavity of the *Thorax*. It is to be perform'd when Blood, Water, or *Pus* are contain'd in either ſide of the Breaſt; which, by their remaining there, not only make an uneaſy Preſſure upon the *Diaphragma*, but alſo corrupt the neighbouring Parts, and thereby bring Danger of Life. Before all things we are to be well aſſur'd of the Side affected, which may be known,

known, as well from the Heat and Pain, as from a ſenſe of Weight in it; which the Patient will feel to ſlide upon the *Mediaſtinum*, if he lies upon the ſound Side. In the next place, you are to make an exact Deſignation of the *Place* of Inciſion; and this is accurately done by the famous *Aquapendens*, in his Book of *Chirurgical Operations*, who deſerves well to be conſulted. In ſhort then, we declare the Apertion is to be made in that Space, which lies between the fourth and fifth Rib, reckoning from the ſpurious or inferior ones. But if any one ſhould urge, that *Hippocrates* [1] adviſes the Inciſion to be made between the third from the laſt Rib; I anſwer, that our Meaning is the ſame: for *Hippocrates* began to number, as we almoſt always are wont to do in fleſhy Subjects, from the eleventh, which is taken for the firſt; when the twelfth is ſo cover'd with muſculous Fleſh, as it can ſcarce be perceiv'd by the Touch. Moreover, it is neceſſary

[1] Lib. de int. affect.

to be aſſur'd of the *Space* you have: for if Inciſion be made towards the Back, the Thickneſs of the Muſcles, the Multitude of Tendons, and the Nerves coming out from the Spine make it prove dangerous: and again, if Section be perform'd towards the Breaſt, we fear hurting the Diaphragm; or if we avoid that, it is doubtful whether we ſhall be able to purge out the Matter commodiouſly on account of the Aſcent of the Diaphragm that way. That you may avoid theſe Dangers, take a Thread, and meaſure from the *Cartilago Enſiformis* to the Points of the *Vertebræ* of the Spine; then divide this whole Space into three Parts, and in that Place where two Thirds of the Thread touch, beginning from the *Sternum*, you muſt perform the *Paracenteſis*. The *Inſtruments* in this Operation are a Knife, armed with Linen; with which, the Place being firſt mark'd with Ink, you may at once perforate the Skin, Muſcles and *Pleura*; or we apply a potential Cautery to divide the Skin, and prevent a Flux of Blood. Inciſion being thus perform'd, I would not of-

fend

end against the 27th *Aphorism* of the ixth Book, but, by introducing a vinged *Canula*, evacuate the con-ain'd Matter gradually. But I must ow acquaint my Readers, that this Operation is oftentimes perform'd, nd nothing comes away; the Rea-on of which is, because the Matter oes not fluctuate upon the Dia-hragm, but is enclos'd in a *Cystis*, orm'd by a Connection of the Lungs vith the *Pleura*. Also I cannot but hink this Operation more dange-ous than is commonly imagin'd: for he Lungs always flow gently by the nternal Superficies of the Breast, and n Exspiration recede very little from he same; insomuch that the Lungs an scarce possibly escape the Edg of he Knife; besides, the *Pus* cannot vithout difficulty come away, bnt if should discharge it self, I must say may probably come from the very ungs, after the wounding their Tu-ick: which is the Cause, why this peration so rarely succeeds, but ve-y often the Patient dies a little af-er it.

Of extirpating Cancers, &c.

§. 19. WOMEN are afflicted very frequently with a *Cancer* of the Breast, which is sometimes *occult* and sometimes *ulcerated* or *manifest*. Moreover, sometimes the Malady infests only a Part, and sometimes the whole Breast; nay sometimes it creeps further, and occupies the Glands in the Arm-pits. You must forbear handling this Distemper, or attempting to cure it by Medicines; for Experience has sufficiently evinced the Folly and Danger of such a Method. In this Case, says *Aquapendens*, there is no other Cure to be had, but what takes away the Part with the Disease. I cannot sufficiently wonder, that he, so learned a Man, and versed in such abundance of Practice, should only once have seen a Breast cured by Abscision, and that perform'd by another Surgeon, when now amongst us, scarce any Operation is more common. Also he is too fearful of the Pain, and the Flux of Blood; when the first is only momentary, and the second of no bad consequence; since only very small Arteries are cut asunder. To

per-

erform this Operation, first, two
Needles must convey a strong Thread
ıro the *Basis* of the Breast in a cru-
al Form; or the Breast may be held
st by a Pair of *Forceps*, made of two
lf Crescents; whilst with a sharp,
t and crooked Knife, beginning be-
w, the whole Tumour is cut off,
d separated from the rest of the
ody: but this is to be done by those
ho are experienc'd in the use of
ch Knives, that the Operation may
perform'd by two or three Inci-
ns at most. After this is done, the
ssels are not to be cauteriz'd, but
e Blood is to be stopt by applying
tringent Medicines. The Patient need
t always be tormented with the
inful use of the Needles; for some-
nes the *Cancer* may be taken hold
by the left Hand only, *viz.* when
is sufficiently movable. After
is manner all sorts of *Tumours*,
owing in any Part of the Body,
y be taken off. What I said a-
ve in §. 21. that the cancerous part
a Lip might be very fitly remov'd
a Pair of Scissars, was because I
d once seen such an Example; yet
hall add here, for the sake of

young Practitioners, an Obſervati of the moſt famous *Scultetus*; *w* that a Pair of Sciſſars are very inco venient in an Operation of this n ture, becauſe that Inſtrument alw leaves ſome of the Evil behind, fr whence it comes to paſs, that it Diſtemper revives again: which declares to have ſeen twice in co Patient, being too little mindful a Caution he had from his Maſſ *Spigelius*, and which I have thoug worthy to mention, out of rega to the Patients Lives, and the R putation of the Surgeon. *Vid. Sc tet. Obſ.* 33. *ad Tab.* 43.

Of a Paracenteſis in the Abdomen.

§. 20. AMONGST Authors me tion is alſo made of a *Paracenteſis* the *Abdomen*, when it is diſtenc with Water. There is oftentime Neceſſity for this Operation, wh yet many dread the performing either becauſe they fear woundi the *Viſcera*, which many times ſo corrupted by the continual ſtay the Water, that they cannot reco their priſtine State; or becauſe, ter the Apertion, they cannot h der a copious Efflux of the Wate

aft

ter which, according to *Hippocra-s*[1], Death usually follows. Nevertheless it is to be consider'd, that Nature her self, who is not to be controul'd by any one, hints to us all those things that are convenient, and has pointed out to us this very Operation, when the Sick has oftentimes been reliev'd from an *Ascites*, and present Death, by opening the Navel rais'd into a Tumour. Altho the Navel is perforated with Difficulty, yet, where that is protuberant, no other Place is to be chosen: but when Nature does not mark out any particular Place, you are to make choice of that which is three [*or four*] Fingers breadth below the Navel, on the left Side of the *Abdomen*, and about the same distance on the Side [*to avoid hurting the* Linea Alba.] First of all, the Patient standing upright, if there be but a small Quantity of Water; or kept sitting, or lying upon the Bed, when the *Abdomen* is full and tumid, the Place is to be diligently mark'd with Ink. Formerly this Operation was per-

[1] Aphorism. 27. lib. 6.

form'd by a *Launcet*, not without danger of wounding the Inteſtines and afterwards a Silver *Canulla* ſmooth and winged, exactly fitting the Orifice, was put in: but this being of difficult uſe, the Moderns have invented a *perforated Canula*, that contains a ſharp Steel Inſtrument having a triangular Point in the Extremity of it, which may be ſeen delineated in *Barbette*[1]; and by this Inſtrument the *Abdomen* is to be leiſurely pierced, and when it comes into the Cavity, the Water immediately flows out thro the little holes which are on all Sides of the acuminated Extremity of the *Canula*: if you would hinder a too plentiful Flux of the Water, you may ſtop the *Canula* with a Silver Stylet, and ſo by taking it out ſuffer the Water to run again as you pleaſe. When you have occaſion to repeat this Operation, you may either make a new Orifice, or open that which was before; a little Piece of ſticking *Emplaiſter* being apply'd upon the Wound, is ſufficient to ſecure it. [*Every Writer of Surgery deters us from taking away all the contain'd Water*

[1] Chir. Part. 1. cap. 15.

t one time; but I have seen it practised very frequently, and always without danger. I have assisted at the Operation, when five Gallons of Water have been taken away at once, from a Woman of about forty years old, and of a very lax Habit of Body, without any danger from Fainting: but care was taken to supply the wonted Pressure of the Water, upon the great Vessels, by large Compresses of Napkins, moisten'd in Spirit of Wine, and a Bandage of Rollers over all. When I was a Pupil to that judicious Surgeon, Mr. Fern, *I have heard him say, that he took away the whole Quantity of Water, being about five Gallons, from a Gentlewoman who brought forth a healthy Child in the same year: and I have been assur'd since, that Mr.* Fern *was the first Surgeon who practised this Method in* London.]

§. 21. IN the lower Region of the *Abdomen*, comes now to be consider'd a remarkable Operation of Surgery, *viz.* the *Extraction of the Stone from the Bladder.* The Manner of performing this *Operation* is different in Men and Women; as also on Children or Adults. Generally, Au- *Of Lithotomy.*

thors have propoſed three Places, by which the Stone may be brought away, *viz.* 1. Thro the very Orifice of the Bladder, as it is in Women; which way *Proſper Alpinus* [1] ſays he ſaw practiſed in *Ægypt* upon Men, by dilating the *Urethra* with Wind. 2. By that Part of the *Hypogaſtrium*, which, in a large Acceptation of the Word, we call *Pubes*: and *Rouſſetus* [2] endeavours to prove this Place very convenient and preferable to any other, by many Arguments, after he had heard that *Petrus Franco* ſucceeded once very happily in it; who yet himſelf had no Opinion of this Method. 3. By the *Perinæum*, which is the common receiv'd Place by every one, either Men or Boys. When therefore we would undertake this Operation, Univerſals being premiſed, we order the Patient to leap often, that the Stone may incline downwards to the Neck of the Bladder. Then, if he is a *Boy*, we ſeat him upon the Lap of a ſtrong Man; but, if he be an *Adult*, he is to be fixed

[1] Lib. 3. cap. 14.
[2] Lib. 3. de Part. Cæſar. cap. 7.

upon

upon an inverted Seat, obliquely turning upwards, ſuch as you may ſee Figures of in *Ambroſe Parey* [1], and *Scultetus* [2]. In both Caſes, the Legs, being drawn towards the Buttocks, are to be tied faſt to the Hands in two places, *viz.* the Wriſt with the Ankle, and the Arm with the Knee; but they are to be kept aſunder by Aſſiſtants plac'd on each ſide. Then the *Lithotomiſt*, dipping his Forefingers of the left Hand into Oil, introduces them into the *Anus* of a Boy, lightly preſſing the *Abdomen* with the right Hand, in order to direct the Stone under the *Os Pubis*, and bring it, as near as poſſible, to the *Perinæum*, ſo that oftentimes it may be felt thro the Skin by the Bystanders. Thus much being done, he takes, with his right Hand, the *Biſtory*, armed with a Fillet half way, and directs it into the left Side of the Suture in the *Perinæum*, obliquely, thro the Skin and Muſcles, till the Edg of the Knife touches the Stone, which oftentimes breaks forth

[1] Lib. 17. cap. 44. [2] Tab. 41.

and comes away of its own accord: but oftentimes there is occasion to enlarge the Incision, on account of the Greatness of the Stone, and then to extract it with the *Lapidillum*, delineated in *Hildanus*[1]. After this the Wound is to be bound up with proper Bandage, and the Patient kept quiet and undisturbed. In Men the *Greater Apparatus* is requir'd, for in them the Surgeon cannot reach the bottom of the Bladder, and consequently cannot bring the Stone down to the *Perinæum*. Therefore a *Catheter* is to be used, which is curved, so as it may pass into the Bladder, but with a *Sulcus* or *Furrow*, like a half Canal[2]; and the furrow'd Extremity of it is to be turned towards the *Perinæum*, that it may be a Guide and Direction to the Incision, by receiving the Edg of the *Bistory* into its Channel. When the Knife has penetrated as far as the Bladder, and part of the *Catheter* appears in the Wound, then you are to direct into its *Sulcus*

[1] Lib. de Lithot. Ves. cap. 14.

[2] Vid. Par. lib. 17. cap. 44. Pet. Franc. pag. 127.

ano-

another Instrument, like a small Piercer, that is commonly made use of to taste Cheese with, which is call'd a *Conductor* [1]: this being introduc'd into the Bladder, the *Catheter* is to be drawn out, and into the Cavity of the *Conductor* must be convey'd a *Dilator*; by the means of which the Wound is to be enlarg'd, so as the Stone may be laid hold of, and by the *extracting Forceps*, brought away either entire, or in pieces; *viz.* if the Stone is too big, or of too tender a Substance. The same Dressings and Bandage are used afterwards as in Children; and you may see, concerning all the Instruments in *Hildanus*'s Treatise of *Lithotomy*. [*The* Forceps *used in* St. Thomas's Hospital, London, *are so contriv'd, as not to quite shut, whereby there is no Danger of pinching the Bladder; perhaps it would not be amiss if those sharp Teeth within their Cavity were away, for they are apt to break a soft Stone into Fragments.*] In the Female Sex, either in Maids or married Women, this

[1] Vid. Figuram apud Hild. lib. de Lith. cap. 6. & Franco, p. 127.

Opera-

Operation may be performed with much less Trouble, and without Incision, or a great Loss of Blood; because the Orifice of their Bladder almost appears externally: therefore it is sufficient to introduce the *Catheter*, and within its Furrow the *Dilator*, and lastly to extract the Stone with the *Forceps:* yet sometimes, by reason of a large Stone, a small Incision is to be made in the Orifice of the Bladder, from which, as also from a too violent Dilatation, there is some Danger, lest the *Sphincter* should be hurt, and an involuntary Emission of Urine should ensue. After the Stone is extracted, 'tis proper to search gently, whether there may not be more remaining behind, and so to bring them out. But as to the Gravel and extravasated Blood, they are most conveniently brought away by *Syringing*, which may be done by the Assistance of a *Canula*, describ'd by *Parey* and *Hildanus* [1]: for, by the means of this being left in the Wound, we have

[1] Lib. 17. cap. 45. & Hild. lib. 6. cap. 21.

not

not only an Opportunity of introducing the *Syringe*, but alſo there is a continual Emiſſion of whatever remains hurtful to the Bladder.

WHATEVER has been ſaid in the firſt Edition of this Book, upon the Faith and Authority of others, concerning the Dexterity of the *Lithotomiſt* of *Nimes* in *France*, named *Raoves* (*viz*, that he ſeated his Patients upon the Lap of a Servant; that he uſed no other Inſtrument beſides the *Biſtory*; that he could hinder the Egreſs of the Urine by the Wound; that he could ſo order the Inciſion, that the Lips of the Cutaneous Wound, Muſcular Fleſh, and Bladder it ſelf, ſhould exactly anſwer one another; and that in the ſpace of five or ſix Days he was able to heal up the Wound, ſo as the Patient might go abroad:) It has been ſince found, that all thoſe things were merely Impoſture. For in a certain Gentleman, he made a ſuperficial Wound in the *Perinæum*, and ſhew'd him a ſuppoſititious Stone, in the room of a true one, under which he labour'd, and which afterwards was extracted by another Surgeon. He

was

was a *Lithotomist* of *Paris*, named *Collot*, descended from antient *Lithotomists*, and has cut several with Success in the city of *Amsterdam*; from a careful Observance of whose Operations, and from an intimate Acquaintance with him, *Noah Smalzius*, a diligent Surgeon of *Haerlem* made so great a Proficiency, and became so dextrous, in this part of Surgery, that he performs it daily, not only in Infants of two Years old, but also in old Persons above sixty; whom, in a short time, he restores to Health again, although some have had nine, and others thirty Stones in the Bladder. But he always uses the great *Apparatus*, according to the Method of *Collot*, in Patients of all Ages; because he thinks, from the introducing the Fingers *in Ano*, and also by the violent Compression of the *Abdomen* (such as is practised usually in the old Method) not only violent Pains are excited, but sometimes an Inflammation and Gangrene of those Parts. This is attested by those who have been searched for the Stone, by intruding the Fingers *in Ano*; for they loudly

loudly declare, neither the Incision, nor extracting the Stone, are so painful, as the Exploration of it: and how much more this may be said of Children, whose Parts are very narrow and tender, any one will easily conceive.

§. 22. IN the next place follows *the Manner of extracting a Stone from the Urethra.* Sometimes a small Stone is thrust out of the Bladder into the *Urethra*, where it is wont to stick, so as to intercept the Passage of the Urine: in which case all Remedies are first to be prescrib'd, to bring it away without Incision. Amongst the Remedies appropriated to this Use, we must reckon *Diuretick* and *Emollient Potions*, together with a further Relaxation of the Parts by bathing in a *Semicupium*, which is describ'd by *Scultetus* [1], but first of all by *Hildanus* [2]. Afterwards succeeds the *Inflation* of the *Penis*, by blowing Wind into it with the Mouth, and tying that part of it which lies to-

Of the Extraction of a Stone out of the Urethra.

[1] Obs. 66. [2] Loc. Cit. cap. 26.

wards

wards the Belly; for thus the *Urethra*, being dilated, admits a Passage to the Stone: and this *Prosper Alpinus*[1] remembers to be a common Practice amongst the *Ægyptians*. But altho this Method may be practised with Success, where the Stones are small, yet when they are large, it is very improper, since the Urinary Passage in Men is not to be dilated, as the Mouth of the *Uterus* in Women, notwithstanding what *Alpinus* affirms to the contrary. The third Method of extracting a Stone in the *Urethra*, is by *Suction*, which *Alpinus*, in the Place already cited, delivers from a Relation of *Octavian Roveretus*'s, and it is perform'd by drawing the Breath with the utmost Force: but *Hildanus*, in the above-mention'd Place, condemns this Method; because he thinks the Urinary Passage is rather contracted by it: but *Alpinus* supposes it to be first of all distended with Wind. The fourth Manner of effecting this Work is *Ambrose Parey*'s[2], who does it by breaking the Stone

[1] Lib. de eorundem Medicin. 3. cap. 14.
[2] Lib. 17. cap. 40.

with

vith little Piercers. *Hildanus* has nvented for this purpoſe a *Tenacu-um*; and others a *Probe*, which in its Extremity is hollow'd like an *Ear-poon*, of which Figures may be ſeen n *Scultetus*[3]. But the fifth and laſt Remedy is *Inciſion*; the Place of per-orming which is much diſputed. *Parey* ſays it ought to be made on he ſide of the *Penis*, to avoid a *Fiſ-ula*, which might be occaſion'd from he continual Paſſage of the Urine; nd *Hildanus* makes choice of the in-erior Part, leſt the Nervous Bodies hould be wounded, eſpecially near he Root of the *Penis*, where it is over'd by the *Muſculi Acceleratores*, o call'd by *Riolan*[4]. If you ſhould uſpect a *Fiſtula's* ſucceeding, you muſt blige the Patient to make Urine hro a Silver *Canula*, or one made of vaxed Parchment; which is alſo uſe-ul to prevent the *Urethra's* growing oo narrow and ſtrait from the *Cica-rix*, or a *Caruncle* being generated within it. Inciſion being perform'd, he Stone is to be extracted, and *defen-ative Medicines* apply'd to the Yard.

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[3] Tab. 40. Fig. 4. [4] Vid. Tulp. 4. 34.

§. 23.

Of an imperforated Glans, &c.

§. 23. UPON this Head also is to be mention'd the *imperforated Glans*, or when there is an Orifice of the *Urethra* in an uncommon Place. The first Case has been certainly very rare, for in such a Number of Writers no mention is made of any such Cure, *Wierus* only excepted in his *Observations*. But the Method of remedying this Defect seems to be such as is describ'd by *Albucasis* [1], *viz.* the perforating by a Launcet the Membrane which covers the *Foramen* of the *Glans*: but if this Malady should lie further in the *Urethra*, a *Canula*, having within it a Needle, is to be made use of: which Artifice was deliver'd formerly by *Amatus Lusitanus* [2]. Sometimes there is an Orifice at the Root of the *Penis*, near the *Scrotum*, thro which the Child makes Urine, and such Examples may be seen in *Tulpius* [3], and *Horstius* [4]; and I saw the like Instance my self a few years since; which was cured by cutting up the Skin in the inferior part of the

[1] Lib. 2. cap. 55. [2] Cent. 1. Cur. 23.
[3] Lib. 4. Obs. 35. [4] Lib. 4. p. 2. Obs. 16.

Yard,

Yard, and afterwards providing the Place with a Silver Channel, by ſowing the Skin over it: for the Boy made Water continually through the Pipe, and there was reaſon to hope that an artificial Channel might be form'd, through which the Urine might afterwards run out. But I cannot think the Seed could be ejected this way into the *Uterus*: and much leſs do I agree with *Fabricius*, who believes Children might be gotten by him who has an Orifice of the *Urethra* under the *Glans*.

§. 24. OUT of the *Abdomen*, but very near it, occurs an Operation, which is call'd *Caſtration*. Oftentimes one of the *Teſticles* is affected with a *Cancer*, or corrupted from other Cauſes; and oftentimes a Dilatation of the Proceſs of the *Peritonæum* is ſo great, in either ſide, that the Inteſtine ſlips through it into the *Scrotum*, and cannot ſometimes be reſtor'd again by any other means, but by the Ablation of the Teſticle. Therefore the Patient being fix'd upon a convenient Place, ſo as he cannot move himſelf, the Surgeon, the *Scrotum* being pinch'd *Of Caſtration.*

pinch'd up, makes an Incision in it lengthways, not far from the Flexure of the Thigh: then he must introduce his Fore-finger into the Orifice, and gently separate it (taking particular care of the Spermatick Vessels) from the *Elythroid* Membrane, which is a Continuation of the Process of the *Peritonæum*, until he comes to the Process it self: then taking hold of it with his Fingers, or the Instrument call'd *Castrator* (such as is delineated by *Joh Andr. à Cruce*; but *Scultetus* says it should be call'd *Retinaculum*, because it hinders the Intestines slipping out of the *Abdomen* into the Process of the *Peritonæum*, being now separated from the *Scrotum*, in order to be perforated with a Needle, tied fast with a Thread, and cut off with a Pair of Scissars [2]:) He must keep it fast; and in the mean time find out with the Fingers the *Vasa Deferentia* and *Preparantia*, between which he must convey a Needle with Thread, and tie a double Knot, lest it slip away; then with a Pair of Scissars

[1] Fig. 2. Tab. 17. [2] Tab. 39. Fig. 2, 3.

cut

cut off the *Testicle*. But this Operation is not to be perform'd rashly or without Deliberation, because oftentimes, after the Intestine is reduc'd, by the means of a *Truss*, together with the Use of *internal and external astringent Medicines*, and a Regulation of Diet, the Patients are freed from a *Prolapsus Intestini*; nay many times, beyond Expectation, they are entirely cured, by the Benefit of Nature; as is testify'd by *Hildanus*[1], and others. If a *Hernia Aquosa* should be in the *Scrotum*, it does not require any other Operation, than what is perform'd in a Dropsy of the Belly. The *Scrotum* is to be perforated by the *Trocart*, spoken of in the Paragraph of a *Paracentesis* of the *Abdomen*, and the Water is to be let out, as is there advised, but always having a great regard to the *Testicle* and *Vessels*. If any one should be so curious as to take a little of this Water in a Spoon, and put in upon the Fire, he will find it turn to a perfect Jelly; which is a Sign, that it flow'd from the *Lymphatick* Vessels.

Of a Hernia Aquosa

[1] Cent. 2. Obs. 82.

§. 25.

Of Hermaphrodites. §. 25. I HAD determin'd to say nothing of *Hermaphrodites*, but partly because *Fabricius* has wrote upon this Head, and also because I have seen and examin'd an *Hermaphrodite* Girl about two years old, I could not well forbear adding a short Account: but he who desires to know more of this, may consult the famous *Caspar Bauhine*'s particular Tract upon this Subject. When we saw this Infant alive, we could not judg what Sex it was of, for it had a *Penis* long enough for its Age, and also an external Image of a Woman's Privities. After opening the dead Body, we found a *Uterus*, *Testicles*, and *Fallopian Tubes*, together with a *Sinus* of Virginity; and in the superior Part of it was the Urinary Passage, so obscure, that when the Infant was alive it could not be discern'd. Moreover, the *Penis* had no Communication with the Bladder, and it being cut asunder, no *Urethra* appear'd, but only two nervous Bodies, which adher'd to the Bones of the *Pubes* by little Legs, like those of the *Clitoris* in Women. This, without doubt,

loubt, might have been cured, when t was very young, by cutting off the *Penis* as a superfluous Part, and afterwards treating the Wound as *Æineta* directs, *lib.* 6. *cap.* 69.

§. 26. THERE are three Causes which hinder Womens admitting Copulation either not at all, or imperfectly; and these are to be removed by Chirurgical Means. The first is, when the Membrane, seated in the fore part of the *Vagina*, call'd *Hymen*, is too thick and tough, and without a Perforation [1]; this is to be divided by Incision, and a *leaden Tent* put into the Orifice. The second cause is, when in the middle of the *Vagina* there sticks any Obstacle so far within as cannot be discern'd by the Eye; and this is to be cured by introducing a thin Bodkin or Probe, and after it a furrow'd *Catheter*: and lastly, by the means of that is to be directed in a Dilating Instrument, (such as we use in *Lithotomy*) by which the Interstice is to be leisurely torn asunder, and partly by lacera- *Of Impediment to Copulation.*

[1] Vid. Hildan. Cent. 3. Obs. 61.

ting,

ting, or partly by Dilatation, a Pa
ſage is laid open, which is to be kep
ſo afterwards by *ſolid Tents of Bo*
wrapt in Hogs Bladder, till the *Va*
gina is fit to receive the *Penis*, an
will admit the Seed to be thrown i
the Neck of the *Uterus*. The thir
Cauſe is, when after a difficult La
bour the Sides of the *Vagina* an
join'd together[1]; which Inconvenien
cy is remedy'd by Inciſion, Dilata
tion, and *leaden Tents*, anointed wit
Ungt. Diapompholigos, or the like.

Of other Obſtacles to Conception.

§. 27. WE ought not to forge
enumerating, amongſt Faults hin
dring Conception, the Repletion o
the Cavity of the *Uterus*, with a vi
cid Humour, corrupted Seed, or ex
travaſated Blood: all which are t
be cured by waſhing the Cavity plen
tifully with any Liquor, by the mean
of a Syringe; and this is the Prac
tice *Hippocrates* teaches, in *L.* 1. *de*
Morb. Mul. text. 3.

Of the Procidentia Uteri.

§. 28. CONCERNING the *fa*
ling out of the Womb, I muſt advertis

[1] Vid. Hildan. Cent. 6. Obſ. 67.

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ny Readers, that it ſeldom or never ıappens, that the Body of the Womb s protruded out of the *Vulva*; but f it ſhould be ſo, this Diſtemper is ot ſo frequent as is commonly be-ev'd. For the *Midwives*, and with ıem, a great Part of the *Phyſicians* re deceiv'd (which alſo *Roonhuyſe*, a ırgeon of *Amſterdam*, confirms in is *Obſervations)* by the Rugoſity of ıe *Vagina*; which, after a difficult abour, or from the Unskilfulneſs of e *Midwife*, being torn away from e ſubjacent Parts, is ſo relaxed by Afflux of pituitous Humours (ſuch we oftentimes may obſerve in the wer Eye-lid) that it very frequent-hangs out of the *Vulva* in a pyri-rm Figure; alſo the more it is pro-ɔſed, the greater Narrowneſs ap-ars in the Root of it: and there-e, when we are oblig'd to make cision of it, by reaſon of a *Gan-ne*, it is done with very little nger.

§. 29. I MUST declare, I never saw a *dead Fœtus extracted*, and Mother living: but I readily be-ve *Aquapendens*, that it is difficult *The Extraction of a dead Fœtus.*

and laborious; and alſo the celebra ted *Rolfinckius*[1], who ſays he has per form'd it with Succeſs, and alway according to his Wiſh: *Hildanus*: alſo aſſures us he has ſucceeded in more than forty times very happily We learn from *Hippocrates*[3], who ha wrote diſtinctly upon this Head, tha the Operation is very antient. Sinc it oftentimes happens that unhap py Women hazard Death from th Want or Unskilfulneſs of Surgeon who are not well experienc'd in th Operation; I cannot ſufficiently com mend the Prudence of the *Magnif cent Magiſtrate* of the *Republick* o *Amſterdam*, by whoſe Command Surgeon has a publick Stipend, an is ready always to give Aſſiſtance t thoſe in difficult Labours: in m time *Petrus Porgieterus* was there, whoſe Place *Henricus Roonhuyſe* ſu ceeded afterwards.

Of the Cæſarean Birth.

§. 30. ALTHO *Aquapendens* do not mention the *Cæſarean*, or *Cæſoni*

[1] Anatom. Synthet. p. 182.
[2] Cent. 6. Obſ. 64.
[3] Lib. 1. de Morb. Mul. Text. 96.

Birt

Birth, as *Riolan* chuſes to call it; yet, for the ſake of publick Good, we ſhall inſert an Account of it, notwithſtanding we are equally deſtitute of Experience in this Caſe. *Franſcus Roſſetus* has publiſh'd a *very large Treatiſe of this Matter*; the chief Heads of which Book, *Scultetus* has recounted in the Explanation of *Tab.* 2. But thoſe, who deſign to practiſe this Branch of Surgery, muſt underſtand, that there are three Conditions, in which the Child is extracted from the Womb: 1. When the *Fœtus* is dead, and the Mother lives. 2. When the Mother is dead, and the *Fœtus* lives. 3. When the Mother and *Fœtus* are both alive. In the firſt Caſe, it is not neceſſary to declare the Woman in eminent Danger, becauſe if the *Fœtus* cannot be extracted by Surgery, yet Nature finds out other ways by the *Anus*, Navel, Groin, *&c.* as may be ſeen in *Langius* [1], and [2] others. The ſecond Caſe frequently happens, ſo

[1] Lib. 2. Epiſt. 39. [2] Hildan. in Reſponſ. ad Spring. Marſil. Cagnat. Var. Obſ. 4. cap. 9. Ranſſeum, Epiſt. 1.

that the *Embryo* (which is much to be lamented) *is loſt in Darkneſs, and periſhes with the Mother*; as the *Emperor* ſpeaks[1]. But where lies the Blame? whether in the *Magiſtrate*, without whoſe leave ſuch Operations muſt not be undertaken; which before we can obtain, the Occaſion is loſt? or whether the Fault lies on the Surgeons, who perhaps dread the ſame Fate with *Veſalius?* who whilſt he was diſſecting the *Thorax* of a certain Perſon, whom he thought was dead (ſome ſay he was making a Section in the Belly of an Hyſterick Woman for the *Cæſarean Birth*) found the Heart palpitating; as *Melchior Adamus* relates in the Life of *Veſalius*, and *Jeſſenius* in *Præfat. in Examen Veſalii ad Obſ. Fallopii.* However it is, Inciſion muſt be made, if you would have Succeſs, almoſt in the very moment in which the Mother expires; tho there may be hope ſo long as you find the Infant moves and leaps about. It is only a common Error, that the Child lives by the Mother's Reſpiration, and there-

[1] Lib. 11. Digeſt. Tit. 8.

for

ore it is in vain to keep open the Mother's Mouth, in hopes of giving Assistance to the Infant. The third Case is, when a living *Fœtus* is to be extracted by Incision, from a live Mother. This is the true *Cæsarean Birth*, upon which *Rossetus* wrote his whole Book: but what Danger attends this Operation, every one easily imagines. Altho it must be confess'd there oftentimes is a Necessity of making this Incision; yet there are so many Circumstances, and they momentous, to be observ'd, that no one, in a doubtful Case, dare perform it thro fear of Calumny: for, what is worthy of notice, not one has been an Eye-witness of this Operation since *Rossetus*; only *Dorinius* excepted, who says in an Epistle to *Hildanus*, that he has cut into the *Uterus*, fallen into the Groin, and extracted an Infant well grown; but the Mother died of the Wound in three days: the like also *Rolfinc-ius*[1] declares to have happen'd to him, who therefore dissuades us from all Attempts to this Operation in a

[1] Dissert. Anatom. p. 182.

live Woman. But I very much ad
vise the *Cæsarean Section*, when it i
certain the Infant has broken thr
its Inclosures into the very Cavity o
the *Abdomen*, as many Histories prow
from *Bartholine*[1], and *Joh. Casp. Fan
cius*[2], and such are very lately delli
neated by *Roonhuyse*[3]. Truly I can
not only think a *Fœtus* may be con
ceiv'd in the *Fallopian Tubes*, which i
confirm'd by *Riolan*[4] in many re
markable Examples; but likewis
must believe, in all those mention'
Cases, the *Fœtus* broke thro the *Tubb*
when it was deny'd a Passage other
wise; and by an Incision in the Groi
was taken out, as the famous *Dorin
gius* declares to have seen.

Of an imperforated Anus.

§. 31. ACCORDING to th
Example of *Aquapendens*, I have pier
ced with a Launcet an *imperforate
Anus*, which was from the Birth, i
that Place where the Mark appear'd
The *Excrements* did not come away

[1] Cent. 6. Obs. 92.
[2] Apud Strauſſium, p. m. 37.
[3] Observ. Chirurg. p. 21.
[4] Anthr. cap. 35.

which

which would have reliev'd the Infant, as happen'd to *Hildanus*[1]; therefore it was reasonable to suspect, that some fleshy Substance was generated higher in the *Intestinum Rectum*, as *Benivenius* thought[2]: which, if we would cure, we must attempt it, by introducing a *Canula*, containing a short triangular Point of Steel, with which, when we come to the Obstacle, it is to be pierced through.

[§. 32. *IN this place occurs the* Operation *for a* Fistula in Ano, *which was omitted by our* Author. *A* Fistula in Ano *is a deep, callous, and sinuous* Ulcer, *near the* Anus, *and frequently penetrating the* Intestinum Rectum. *The* Operation *is either perform'd by* Deligation *or* Incision: *The* former *is well describ'd by* Celsus[3], *altho his Admirer and Imitator* Aquapendens, *in his* Pentateuch, *prefers the* latter, *which was the constant Practice in* St. Thomas's Hospital, *while I was there.* Incision *is perform'd by dividing the Sinuosity with a Pair of* Probe-Scissars, *or an* *Of a Fistula in Ano.*

[1] Cent. 1. Obs. 73. [2] Cap. 30.
[3] Lib. 7. cap. 4.

Instrument *call'd by* Galen, Syringotomus, *which is delineated by* Sculteetus [1], *having a* Button *at its end, and resembling a* Sithe, *from whence it is call'd by the* Italians, Fallcette. *The Method of Deligation is thus describ'd by* Parey [2]: " *The* Surgeon *having introduc'd his Finger into the* Anus *of the* Patient, *let him direct in at the* Orifice *of the* Fistula, *a thick leaden* Needle, *drawing after it a* Line, *consisting of Thread and Horse-Hair interwoven; and then with his Finger, taking hold thereof, and bending it somewhat, draw it forth at the* Fundament, *together with the End of the* Thread. *After this, let him knit the two ends of the* Thread *by a* draw *or* loose Knot, *in order that he may straiten it at his pleasure. But before he ties them, he must draw the* Thread *somewhat roughly towards him, as tho he meant to saw the Flesh asunder, that he may thereby cut the* Fistula *without any fear of an* Hæmorrhage. *If the* Fistula *does not penetrate the* Intestine, *he may boldly make way into it by a*

[1] Tab. 14. Fig. 3. [2] Lib. 13. cap. 23.

" *sharp*

" *ſharp Probe*, &c." *Thus far* Parey. Aquapendens, *in* Lib. de Operat. Chirurgic. p. 288. *confeſſes*; " *That at* " *firſt he was afraid to perforate the* " Rectum; *but Neceſſity, and what* " Hippocrates *ſays* in Lib. de Hæ- " morrhoidibus, *tho you cut, ſow, or* " *burn the* Inteſtinum Rectum, *there* " *is no Danger, encourag'd him to at-* " *tempt it, which he has often happily* " *perform'd.*" *I ſhall moreover add here a* Method of Ligature, *which was always practiſed with great Succeſs by my* Worthy *and* Ingenious *Maſter, Mr.* Goodwin *of* Lynn-Regis. *It is perform'd by directing into the* Fiſtula, *firſt a* Probe, *having at its Extremity a ſmall* Knob, *whereby it may receive the* Ligature; *then the middle Finger of the left Hand, armed at its Extremity with a* ſilken Thread, *having a* looſe running Knot, *is to be introduc'd into the* Anus *of the* Patient: *when the* Operator *has thus done, he muſt guide the* Probe *thro the* Orifice *of the* Fiſtula, *and ſhift the* Ligature *over its mention'd* Protuberance; *and giving notice to his* Aſſiſtant, *who, by immediately drawing the outward Extremity of the* Thread, *thereby fixes it upon the* Probe, *by*

which it may be extracted thro the Fistula *with much Ease. It is afterwards to be tied upon a small* Compress of Linen, *so as it may divide the enclosed* Substance *in a short time; to facilitate which, it will be convenient to snip the superficial* Skin *with a Pair of* Probed Scissars. *For this* Operation *it will not be amiss to consult* Les Operat. Chirurg. par Mons. Dionis.]

Of a Seton and Issues. §. 33. WE are come at length to consider those *Chirurgical Operations* which are perform'd upon the *Limbs*. In treating of these, *Aquapendente* gives the first place to *Fonticles*, or Issues. A *Fonticle*, improperly call'd *Fontanel*, is an Artificial little Ulcer made in the Skin, to produce an Evacuation. There are many Places in the external Parts of the Body where this Operation may be perform'd; but the most common Place of making Issues is the Nape of the Neck, between the first and second *Vertebræ*, where there is a notable Hollowness; and because this is done by drawing thro a Skain of Silk, therefore it is call'd by the particular Name of *Seton*: formerly in this

Opera-

Operation there was uſed a great *Apparatus*, as may be ſeen in *Sculte-tus*, Tab. 7. and eſpecially they pinched up the Skin with a Pair of perforated *Forceps*, thro which they paſſed a Needle with a Skain of coarſe Silk, ſometimes the Needle was run thro hot, and at other times cold, according to the Intention of the Phyſician. At preſent we forbear the Uſe of the perforated *Forceps*, and the hot Needle; but the Place being found, and mark'd with Ink, the Skin is to be pinched up by one hand of the Maſter, and another of the Servant's, till it is pierced with a ſtrong Launcet, and afterwards a Skain of Silk or Thread is introduc'd by the means of a Probe, or the like: the Perforation is to be often anointed with ſome *digeſtive Medicine*, as is alſo the Silk, which muſt be moved to and fro every day. *Iſſues* are very often made alſo in the Limbs, in which we are oblig'd to chuſe the Interſtices of the Muſcles, as well that the Pea may be more commodiouſly kept in, as alſo that we may have a more copious Efflux of Humour from the Veſſels branching thereabouts.

bouts. In the Arm therefore, we make choice of that Space, which is between the *Deltoid and Biceps Muscles*, either that which is internal or external; also in the Thigh, that which is between the *Vastus internus* and *Gracilis Muscles*; in the Leg between the *Soleus* and *Gastrocnemius*: *Spigelius* also did use to make an Issue between the two Bellies of the *Musculus Gastrocnemius*; and the same may be done between the two *Heads* of the *Biceps*. To perform this Work, we sometimes use an actual Cautery convey'd thro a *Capsula*, to avoid terrifying timorous Patients: or sometimes we apply a Potential Cautery, and that is either liquid, or solid, being boiled to the Consistence of a Stone. In applying either of these, great care is to be had to the neighbouring Parts, by affixing a Piece of sticking *Emplaister*, with a small Hole in the middle of it, about the Bigness of the Place you intend to burn; where you may apply the Caustick, and afterwards a Compress and Bandage: but in making use of the liquid or dissolv'd Caustick, we shall better

pre-

prevent its ſpreading to the adjacent Parts, by applying Lint twiſted about in the Form Sailors quoil their Cables. This Artifice of making Iſſues by Cauteries, is calculated for thoſe who are very timorous. The moſt certain and ſpeedy way of performing this Operation, is by pinching up the Skin, and dividing it by Inciſion with a Launcet, and immediately fitting the Orifice with a Pea, which, by the affluent Humour, is ſwell'd, and thereby keeps the Place continually open; for, by this means, we are not perplex'd with Fears of the Cauſtick's ſpreading about, and ſo not doing its Buſineſs in Depth; nor do we loſe a long time, as in waiting for a Separation of the *Eſchar*, before the Iſſue is made. From this being firſt a Wound, it becomes ſhortly a little Ulcer; and at length, the Sides growing callous, the irritated Part continually emits a thin Humour, flowing thro the Interſtices of the Muſcles, from the neighbouring Lymphatick Veſſels. The only Art in this Buſineſs conſiſts in finding the Interſtice; but that is not difficult to any one moderately vers'd

in

in *Anatomy:* however, in fat Bodies it will be convenient to press your Finger upon the Space between the two Muscles, and oftentimes put the Member into an extended and flexed Posture: for if the Finger remains in a Cavity, and is not elevated by the subjacent Muscles, that is the Place to be mark'd with Ink, *&c.* Many things concerning these Matters may be seen in *Glandorpius*'s *Gazophylacium*, or *Store-House of Issues.*

Of the Amputation of Limbs.

§. 34. AMONGST all the Operations in the Art of Surgery, there is not one makes so terrible an Appearance as the *Amputation of a Member.* This Operation is perform'd in a *Mortification* either of the soft or hard Parts of the Body, to prevent a further Infection of them, and thereby the Loss of Life. That Distemper, which is call'd by *Avicenna*, [1] *Spina Ventosa*, is very often the Occasion of this Operation. Perhaps, says *Severinus* [2], it had this Name bestow'd on it, because Ven-

Of a Spina Ventosa.

[1] Lib. 4. Fen. 4. Tract. 4. cap. 9.

[2] Lib. de Nov. Obs. Abscess. Part. 5. seu Padarthrocaces, cap. 1.

tosity

tosity amongst the *Arabians* is the same with *Ocdema*, or Tumour; and it is term'd *Spina*, because in this case there is felt a continual Pain, like the pricking of a Thorn. He also thinks it to be [3] the same Distemper which the *Greeks* call Τερηδὼν. The Noble *Tulpius* [4] believes it the same which *Celsus* [5] terms a *Cancer of the Bone*. But I cannot think so; because if we compare those things which he says [6] relating to a *Cancer* of the Mouth, also that [7] of the *Penis*, and likewise what he writes [8] concerning a *Cancer* of the Bladder; we shall find he means a *Gangrene*, which turns to a Mortification: and *Tagaultius* [9] is of the same Opinion with me. But what need we be sollicitous concerning the Name, any further than to make the Matter rightly intelligible? says that most Antient Surgeon, *Petrus de Argell* [1]: "who describes the "Generation of it to be a Collec-"tion of Matter in the Substance "of the Bone, proceeding from a

[3] Cap. 14. [4] Lib. 4. Obs. 12.
[5] Cap. 10. lib. 8. [6] Lib. 6. cap. 15.
[7] Cap. 18. §. 3. [8] Lib. 7. cap. 27.
[9] Lib. 4. Chir. cap. 3. [1] Lib. 5. cap. 2.

"Weak-

" Weakneſs of the *aſſimilative Vir-* " *tue:*" and I add from *Severinus* [2], because " the Matter is not concoc- " ted nor expelled, but remaining " there, elevates the Part into a Tu- " mour." Some curious Perſon per- haps will be inquiſitive to know, why I ſhould treat of this Diſtemper in a Place, which ſeems not altoge- ther proper for it; but I anſwer, becauſe this Caſe does always require Amputation, and that about fifteen Months ſince, I ſaw *the moſt Illuſ- trious Lady Baroneſs of Merode* infeſted with it; which, after various Judg- ments of Phyſicians, I immediately upon ſight declared to be the ſame I had ſeen at *Naples*, in the Preſence of the famous *M. A. Severinus*, which he has delineated in his Book ſo of- ten quoted [3]. When therefore, ac- cording to the Advice of *Argellata*, the *Morboſe* Bone could not be re- mov'd otherwiſe, it was neceſſary to have recourſe to the laſt Remedy, *viz.* the *Amputation* of the Leg. But I ſhall add an Account of the Bone, as it appear'd to us afterwards by

[2] Cap. 8. [3] Pag. 467.

Diſ-

Diſſection: " The Skin being re-
" mov'd, which was very thin, we
" found the Tendons of the Muſcles
" of the Leg, and alſo the great
" Tendon, which is fixed to the
" Heel, and naturally has a remark-
" able Thickneſs, as thin as Paper:
" The *Os Calcis* was the only Bone
" affected, which was ſo encreas'd in
" Magnitude, that it weigh'd one
" Pound and a half: it was not only
" porous, but thoſe Pores were fill'd
" with a Cartilaginous Matter, like
" the Cartilage that covered the
" Bone, upon which was grown a
" callous Subſtance." In this Ope-
ration we are to be very circum-
ſpect in making choice of the Place
to perform it in: Many Moderns are
pleas'd to appoint the Place of Am-
putating in the very Joint it ſelf, al-
tho the contrary is obſerv'd in Prac-
tice, almoſt every where, as well
from the Difficulty which occurs in
the very Inciſion, becauſe the Con-
junction of the two Bones is not ea-
ſily to be found, as alſo becauſe a
Cicatrix there is very ſlowly and diffi-
cultly procur'd. But ſince the Evil is
not always near the Joint, but alſo a-
bout

bout the end or middle of the Member, we are moreover to enquire whether or no the Operation is to be perform'd in the mortify'd or sound Part. Those who affirm the first (amongst whom is *Aquapendens*) do it upon account the Patient feels less Pain, and because there is in this Method no great *Hæmorrhage*, from which oftentimes follows a Loss of Life, and the Patient dies in the Operation. But this Advice is full of dangerous Hazard, because we are not certain the small Remains of the mortify'd Part we leave behind may not encrease again; besides, how shall we be able to know whether the subjacent Bone is corrupted higher, or not. Therefore it is more eligible to make Incision in the sound Flesh, about a Finger's Breadth from the Mortification. Yet still there is an Exception to this Rule in the Leg; for, if the *Sphacelus* be above the Ancle, it is to be taken off near the Knee, because what is left below it, affords no Use, but on the contrary, much Inconveniency in walking with a wooden Leg: moreover, by making Incision in the tendinous

Part

Part of the Muſcles, the Conſolidation of the Wound becomes far more difficult. But in the Arm you are always to obſerve the mention'd Rule, and leave as much of the Member as you can poſſibly. The *Inſtruments* neceſſary to this Operation are the large diſmembring *Knife*, ſomewhat *curved*, the ſmall *two-edged ſtrait Knife*, the *Saw*, and ſometimes, but rarely, the *exciſory Forceps*. In the firſt place give the Patient a little *cordial Liquor*, leſt he faint in the Operation; then the Skin and Fleſh is to be drawn upwards, as much as can be, by ſome robuſt ſtrong Man, that afterwards when it is looſed, it may the better cover the naked Bone. This being done, a Ligature is to be fixed immediately below the Knee, to keep the Fleſh firm and ſteddy; and another above it, which muſt be ſtraiten'd by the *Turn-ſtick*, or *Tourniquet*; underneath which, upon the crural Artery, is to be plac'd a thick Compreſs, and a ſmall Piece of Paſteboard, to hinder it from pinching the Skin, and being painful to the Patient: by the means of this Ligature, you may command the Blood, and let

let out as little or much of it as you judg convenient. Sometimes alſo, when a Mortification does not infeſt the inferior Part of the Leg, we faſten another Ligature beneath the Place of Inciſion, to prevent the Blood's flowing out of the *Veins*: for altho it does not hurt the Patient, yet the Quantity of it may terrify the By-ſtanders. After theſe things being perform'd, the Surgeon takes his diſmembring Knife, which ought to be leſs crooked than is commonly delineated in Authors, and cuts thro at once the whole Muſculous Fleſh all around the Member, then ſcrapes off the *Perioſteum* from the Bone, leſt it be lacerated by the Saw; and alſo in the Legs and Arms, where there are two Bones, the little double-edged Knife is to be introduc'd between them, by an Aſſiſtant, as well that the *Perioſteum* may be remov'd, as that the Veſſels lying there may be divided: laſtly, the Saw is to be apply'd, but it is to be firſt ſet upon that Bone, which is moſt liable to move from its Articulation; and therefore in the Leg you muſt begin with the *Fibula*, taking care to pre-

ſerve

ſerve the ſuperior Appendage in its place, by fixing one hand thereabouts. The Amputation being perform'd, if a great *Hæmorrhage* of Blood ſhould ſucceed, which but ſeldom happens, the Ligature may be ſo ſtraiten'd, that not above three or four Ounces need be loſt; ſome make uſe of an actual Cautery, to procure an *Eſchar* upon the Veſſels. But there is reaſon to fear a new Flux of Blood may enſue upon the Separation of it; and before the Surgeon can be call'd to ſtop it, the Patient may be dead. I ſhall ſay nothing of this Method, becauſe *Parey* [1] aſſerts, that cruel Pains and Convulſions are excited by it: wherefore he [2] adviſes a *Deligation of the Veſſels*, by taking them up with a *Volſella*, or convenient Pair of *Forceps*: but *Gourmelinus* juſtly condemns this Method [3], as we alſo reject with *Hildanus* the Method *Ambroſe Parey* deſcribes [4], of bringing the Edges of the Skin towards one another, by paſſing a Needle and Thread in three or four Pla-

[1] Lib. 12. cap. 35. [2] Cap. 31, & 33.
[3] Syntag. Art. Chir. p. 125. [4] Cap. 32.

ces,

ces, and thereby taking great care to cover the naked Bone, lest it should be injur'd by the Air. For, wherefore should we torment the Patient after this barbarous manner? when the Cure may be obtain'd much more happily, if we would bring into use that *Fungus* which is call'd *Crepitus Lupi*, or *Puff-Ball*; *viz.* by applying Pieces of it between the two Bones, fill'd with Stiptick Powders, and moisten'd with the White of Eggs; or we may form a sort of Buckler from a *Fungus* made hollow, and filled with some *Stegnotick Powder*, which we may apply to the Stump, and keep it there by the means of a defensative sticking Emplaister, apply'd in a crucial Form; over all which is to be put an Ox's Bladder, *&c.* until the Fear of an *Hemorrhage* is over. These things are to be continu'd whilst we think proper to use Digestives, prepar'd of *Oil* of *Whelps*, and so proceed to *cicatrize*. I shall add nothing here concerning *Botallus*'s Method of Amputating, because I have inserted it in the Paragraph of *Aphæresis*. [*Our Learned Author is pleas'd to prefer the Use of*

Stiptick

Stiptick Medicines, for restraining the Hæmorrhage in this Operation, to any other Process, out of regard to the Patient's Ease; but I am well assur'd, from many Observations, that such a Ligature of the Vessels, as is mention'd above, creates no bad Symptoms, and perhaps excites less Pain, than the Application of those Stipticks which are effectual; and is undoubtedly the most certain, and therefore the constant and successful Practice of those Eminent Surgeons of St. Thomas's Hospital: *altho I must declare, I have seen, four or five times, the Use of Vitriolick Applications succeed happily.*]

§. 35. I CAN'T but be a little surpriz'd to find *Fabricius ab Aquapendente*, who always condemn'd cruel and painful Surgery, approve of *Ustion of the Joints*, which was very rarely practised in his time. But that *Neapolitan* Surgeon, *M. A. Severinus*, has restor'd this Method of curing; who in his Book *de Efficaci Medicina*, in that Part of it *de Pyrotechnia*, has not only prov'd its Usefulness by various Reasons, but also has shown, after what manner, according

Concerning Ustion of the Joints.

cording to the different Matter which is made uſe of in the Operation, the ſame may be temper'd for Uſe. I remember I once formerly ſaw this ſort of Uſtion adminiſter'd by *Severinus* himſelf, in his own Houſe, exactly according to that Method which *Alpinus* deciphers [1], *viz.* by the means of Tow or Cotton made into a Pyramidal Form: but I don't remember how the Pyramid was formed, that the Fire might deſcend gradually, and at length, after the Part was inured to it, burn more vehemently. But ſomething is to be added to the Tow or Cotton, ſo as the Fire being kindled in the Top, might encreaſe lower down by degrees; which Artifice *Alpinus* ſeems not to have known, or at leaſt has not divulg'd it. Moreover, *Aquapendens* would perſuade us to make uſe of the Wad of a Muſket; but by this way the Succeſs does not anſwer the Expectation. [*Perhaps if the Materials, whereof theſe* Pyramids *were made, be ſteeped in a Solution of* Nitre *in* Aq. Commun. *it would perform what our Author relates*

[1] Lib. 3. pag. 101. [2] Lib. 4. cap. 22.

he

e had seen done by Severinus.] *Se-*
erinus calls this an *Arabian* Burning,
ecause *Alpinus*, in the Place cited, not
nly attributes it to the *Ægyptians*,
it says it is much more familiar to
e *Arabians*, who live in Tents.
his kind of Cauterizing is chiefly
use in Pains of the Joints, ari-
g from a cold glutinous Humour
pacted there, as we may learn
m *Hippocrates*'s last *Aphorism* of the
th Book, and also in *Celsus*[1]. It
useful likewise in *Phlegmatick* Tu-
urs generated in the *Superficies* of
e Body, when the Matter is so ob-
nate as not to yield to any other
medy: only one Instance of this
d is to be read in the Noble *Tul-*
s[2], of a certain Person whom he
nmanded to burn himself on the
p with a hot Iron; from which
erwards, by a copious Efflux of
tter, he was freed of an *Ischiatick*
n. Undoubtedly if here had been
rgeon skilful of the *Arabian* man-
of Burning, the Patient had suf-
d less Torment. *Hippocrates* ad-

[1] Lib. 4. cap. 22. [2] Lib. 3. Obs. 26.

vises the Use of raw Flax, *lib. de affect. text.* 30 & 32.

Of Tumours.

§. 36. TUMOURS which require Surgery, properly so call'd, are either those that come to Suppuration, and arise from Blood: or those which proceed from anomalous Matter, and cannot be brought to Maturation; or such whose Matter is contain'd in a *Cystis*, or Bag. In the first Case there is no Difficulty, only two Rules are to be observ'd: 1. That the Apertion of it be such as make a Passage thro which all the contain'd Humour may flow out; for any remains that has not an Exit it will create Sinuosities in the neighbouring sound Parts. 2. We must have regard to the Course of the subjacent Muscular Fibres, and be very careful how we wound them; but in the Flexure of the greater Joints as in the Groin, Ham, or Arm, we are not to mind this Rule, because in these Places the Inconveniences would be greater, by the Motion of the Joints, which would bring the Lips of the Wound together, and thereby shut in the Matter: there-

fo

fore Incision is here to be made transversly. The Manner of Incision, which is observ'd by skilful Surgeons, is best express'd by *Aquapendens*, *viz.* that the Point of the Instrument be thrust in till it comes to a Cavity; but then it is to be directed to the Perforation of the opposite Place; and so by drawing the Instrument back again, the Interstice of the Skin is to be divided. The second Case is, when besides the Humour there is an intervening solid Substance, as in *Steatomatous* and other Abscesses containing a Cartilage, little Bones, Hair, *&c.* but of such we have treated in the Paragraph of the *Cancer* in the Breast. These, together with the Skin, to which they firmly adhere (which, being attenuated in proportion to the Increase of Bulk and Weight, is oftentimes broken, and a *cancerous* Ulcer succeeds) are to be cut from the subjacent musculous or bony Parts; as I remember I saw lately a *Steatoma* upon the posterior Part of the *Os Ilium* in a Woman, taken off, with the Skin, from the *gluteous* Muscle. The third Case is, when the Matter being

either pulpy, or like Hony, as in a *Meliceris* and *Atheroma*, is contain'd in a *Cystis*, the Skin being loose and free from any Connection with it: such a one I have seen in a young Woman, who had, about the bending of the Arm, a Tumour immediately under the Skin, in Hardness, Magnitude, and Figure, resembling a *Sheep's Heart*. The Cure is thus; the Skin is to be pinch'd up, and divided either in a simple, or cruciall Manner, *viz.* when the Tumour is large, and in a Place not very obvious to the Eye, then it being separated every where about by a broad *Spatula*, or the Handle of the Incision-Knife, until the whole *Cystis* appears, which, after tying the Vessels that nourish the Tumour, is to be cut out from the bottom. We are to be circumspect in this Operation, lest we wound the *Cystis*, for by so doing, the contain'd Matter not only flows out, but the Tumour will be regenerated, unless it can be consum'd by *Escharoticks:* yet oftentimes the Tumour is plac'd in such a narrow Compass, and the Pellicle so thin, that it comes asunder with the

least

east Touch. In this Case *Aquapen-ens* advises to separate the new *Cys-s* by a broad Instrument, before it as join'd it self firmly to the Skin; or then we must have recourse to the Use of Medicines.

§. 37. BEFORE I conclude, I all add something concerning that most common Operation in Surgery, *Venesection*. Altho this may seem to require little Care and Diligence, yet frequently happens, that it excites o small Pain to the Patient, nor Trouble to the Surgeon: for some-mes the *Vein* does not appear at l, especially in fat Bodies, whose *eins* are not only small, but also rapt up in Fat. In such a Case the urgeon must chafe the Arm with a arm Hand; then the Ligature is be plac'd a little above the *Cubit*, r *Ancle*, and that not too strait, lest he Pulse of the *Artery* be intercep-ed; nor too loose, that the Blood ay not return without swelling the *ein*: this being done, the Thumb is be grasped within the Palm of the Hand, and compress'd there by the ingers, that, by the Tensity of the *Of Vena-section.*

Muſcles, the Blood may be the better expell'd from them. Then the *Vein* is to be divided, which ſometimes ſlips from under the Launcet; alſo ſometimes when the *Vein* is cut, the Wound of the Skin, and that of the Vein, does not agree exactly. In the firſt Caſe there is reaſon to fear the Launcet may wound the *Nerve* or *Artery*, and in the ſecond an *Ecchymoſis* cannot be avoided: but either of theſe Inconveniencies may eaſily be prevented, as the Situation of the *Vein* may be remedy'd by adding another Ligature below the Place of Inciſion; ſo alſo, if the Surgeon elevates his Launcet when it is inſerted in the *Vein*, he will divide the *Vein* and the Skin alike. The beſt Form of Inciſion is that of an *Oblique*; but where the Narrowneſs of the *Vein* does not admit of it, a *longitudinal* one may be ſubſtituted, but a *tranſverſe* Inciſion is never to be made. The *Inſtruments* in this Operation are twofold; one ſort is uſed in *Germany* and *Swiſſerland*, which being held in one hand, is to pierce the *Vein* by the means of a *Fillip* with the Fingers of the other: but it is evident, that from

rom this there is great Danger of wounding a *Nerve* or *Tendon*; for ho the other, which we call a *Launet*, and was invented by the *French* r *Spaniards*, is not without Danger, et it is of common Use amongst us, when the former has not at all obain'd. That *Vænesection* may be ightly perform'd, it is convenient he Surgeon be *Ambidexter*; not only because the left Arm and Ancle equire to have *Phlebotomy* perform'd by the left hand, but on account of other Business that often occurs. There are many *Veins* to be open'd according to the Advice of the Physician; the principal of which we shall enumerate. In the first place occurs the *Vena Frontis*, the Incision of which *Hippocrates* advises [1], and it is done by the same Method as those under the Tongue, *viz.* by twisting a Linen Towel round the Neck, gradually straiter, that the Return of the Blood may be hinder'd, or the *Veins* swell. In the Borders of the Head are the external jugular *Veins*,

[1] Aphor. 68. lib. 5.

which I remember to have ſeen open'd by *M. A. Severinus*. Nor is there occaſion to fear opening theſe more than any other *Veins*, as may be ſeen in the Famous *Moreau's Epiſtle* to *Bartholine*: but it is neceſſary to uſe your utmoſt Endeavours to keep them firm, leſt they ſlip away; and after they have bled ſufficiently, they are to be cloſed as the *Veins* in the Arm. The *Veins* of the Arm are threefold; the *Cephalick* in the outward Part, the *Baſilick* or *Liver-Vein*, and the *Median*, which is form'd from them both in the Bending of the Arm. Every common Surgeon knows this, but yet no one is open'd with greater Hazard of Danger, on account of the *Tendon* of the *Biceps Muſcle* lying under it. The *Cephalick* is not properly ſo call'd, becauſe it has a nearer Connection with the Head (tho *Veſalius* has endeavour'd to perſuade us ſo[1], with whom you may compare *Highmore*[2];) nor does the Apertion of it conduce more to remedy Diſeaſes of the Head than any other.

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[1] Tab. 1. lib. 3. [2] Tab. 17.

This

This Scruple being remov'd, you will open that Vein which is moſt apparent and eaſy. In the Back of the Hand, *Veins* alſo may be open'd with great Benefit; partly becauſe they are plainly to be ſeen, and without any Danger; and likewiſe by reaſon a great Quantity of Blood may be taken away without Fainting, upon account of the Veſſels being ſmall and capillary: which is the reaſon why the *Salvatellæ*, or *healthful Veins* are ſo call'd; altho this Name is given particularly to that *Vein* between the Ring and little Finger in the left Hand, according to *Jac. Carpus* [1]. But we muſt lay aſide theſe Miſtakes of the *Arabians*, and believe with the *Engliſh* [2] *Hierophilus*, that amongſt the neighbouring Veins, none deſerve Preference, ſince they all receive promiſcuouſly their Liquor from one common Artery; yet if the Surgeon ſhould find a *Vein* that preſents it ſelf near the affected Part, he ought not to ſlight the Opening of it. What we have ſaid concerning the

[1] Comment. in Anat. Mundini, p. m. 166.
[2] *Harvey*.

Veins of the Arm, is likewise to be understood the same in the *Veins* of the Feet, amongst which the *Saphæna* is the only one in use; and this requires the Immersion of the Foot in warm Water.

Arteriotomy. BESIDES the Apertion of the *Veins*, the *Arteries* also may be open'd: but this Operation is not very common in our Country, altho it was practised by *Galen*, as is very plain from his Writings [1]. *Prosper Alpinus*, speaking of the *Ægyptians*, whose *Masculine* Surgery came from the *Greeks*, says, that they made use of this Remedy very happily: nor does *Fernelius* [2] omit declaring the Usefulness and Manner of performing it. Also you may consult *Severinus* [3], and the Noble *Tulpius* [4]. But altho this Operation was known to the *Antients*, yet there were not many who dare undertake to perform

[1] Lib. 5. M. M. cap. 7. ut & lib. 13. cap. 22. ejusd. Oper.

[2] Lib. 2. M. M. cap. 18.

[3] Efficac. Med. part. 2.

[4] Obs. lib. 1. cap. 48.

it,

it, as you may learn from *Heurnius*'s *Comment* on the twenty third *Aphorism* of the first Book: for they always fear'd, that the *Arteries*, when divided, would not close again, or if they might happen to grow together, lest an *Aneurism* should be generated afterwards. But *Galen* [1] would persuade us to be easy in this Particular, because, tho it may be more difficult to close than a *Vein*, yet the Manner of performing the Operation is the same: and the chief Difference is, that it requires a straiter Bandage, and the Use of more powerful sticking Medicines; by which only the Noble *Tulpius* says [2], an incipient *Aneurism* has been cured. The Manner of performing *Arteriotomy* is thus: The Hair being shaved off, the little *Arteries*, crossing the *Temporal Muscle*, are to be wash'd with a Spunge dipped in warm Water, and the Patient's Neck is to be bound with a Towel, his Head also is to be put into a declining Posture, that the tumefy'd *Arteries* may appear the

[1] Lib. 5. M. M. cap. 7.
[2] Lib. 4. cap. 16.

plainer;

plainer; which are then to be pierced transversly, that the Blood may flow out freely. But if there should be reason to suspect a future *Aneurism*, you must cut them asunder, that the Ends being drawn under the Skin, and by being corrugated, the Flux of Blood may be stopped. With my Reader's leave, I shall add, in this place, something concerning the Nature and Cure of an *Aneurism*.

Of an Aneurism.

Truly I could never, as yet, conceive after what manner an *Aneurism* might be generated, by a Rupture of the internal and thick Coat of the *Artery*, and the *external* one remaining whole, notwithstanding it is much the thinnest, resembling a Cobweb; yet thus *Sennertus* is pleas'd to talk [1]. But I must confess, I think this Distinction of the Coats to be entirely erroneous and false; altho I do acknowledg it may be generated from an external and internal Cause: the external Cause is a Wound of the *Artery* made by an imprudent Surgeon; for the *Artery* is only consolidated

[1] Lib. 5. pag. 1. cap. 43.

on

on the Out-ſide, but not ſo ſtrongly, as to guard off the impetuous Blood; which ruſhing into the weak Part of the Coat, elevates it into a Tumour. The internal Cauſe is an Aperture, or *Anaſtomoſis* of little *Arteries*, from which the Blood flowing out into an Interſtice of the *Muſcles*, is coagulated into a *Thrombus*, which gradually encreaſes, and after a long Stay there, becomes of a fleſhy Maſs, not much unlike the *Muſcles*, which is found hollow, and contains in the middle of it a black concreted Blood. I do not declare theſe things without Experience, it being acquir'd by diſſecting this Diſtemper in *Venice* 1643. which *Caſe* I publiſh'd in the Year 1644. And I have lately ſeen this Experience confirm'd by the Famous *Bogdanus*[1]. The firſt Caſe may be cured by a Compreſſion of the Tumour; but the ſecond ſcarce ever admits of one, unleſs any one would compreſs the Artery, and then by dividing the Skin, take away the congeal'd Maſs, and afterwards fill

[1] Obſ. Medic. 8. Subjunct. Cult. Anat. Lyſeri.

the

the ruptur'd Artery with new Flesh, by the Use of *Sarcotick Medicines.*

Of the Infusion of Liquors.

§. 38. I HAVE been very particular upon *Venæsection* for the Benefit of Evacuation; and I hope it will not be ungrateful to the Reader if I subjoin a few things concerning *Venæsection*, that is perform'd for the sake of Repletion. This I understand to be the *Chirurgia Infusoria* of *Jo. Dan. Maj.* or the *Clysmatica nova* of *Elsholzius*, when any Liquor, either purging, cordial, or alterative, is injected into the Blood, by the means of a Syringe introduc'd into the Apertion of a *Vein*; which passing to the Heart, and afterwards into the *Arteries*, and so round the whole Body, produces the Effects of those Medicines in a much shorter time, than if they had been given by the Mouth. This Artifice has been since improv'd by *Transfusion* of the *arterious* Blood of a *Dog* into the *Veins* of another. Nay, the last Year's *Journal des Scavans* gives an account, that this Experiment was try'd upon two Men, into whose *Veins*, being emptied of a few Ounces, was transfused

Of Transfusion.

fused the *arterious* Blood of a *Lamb*, from which time they had a better State of Health: nor is it strange, since instead of the bad Blood, that which was substituted, was pure and uncorrupted. Dr. *Tardy*, a Physician of *Paris*, proposes another sort of *Transfusion*, from one Man to another: but seeing it is not safe to open the greater *Arteries* in a human Body, he advises the Blood may be deriv'd from the *Vein* of one Man into that of another, by the means of a small *Tube:* as we have shown upon two *Dogs* in the Presence of many. I shall add nothing farther, because this *Chirurgical Operation* is new, and its Usefulness must be confirm'd by repeated Experiments.

SECTION the Second.

Part the Second.

§. 1. WE have now delivered Practical Examples of our particular *Chirurgick Method*, in those Operations which are *Curative of Diseases*; it is also equally expedient, that we give particular Examples *Of Injections.*

amples in those Diseases which are cured by the *Application of Medicaments*. For it is manifest, that there are many Distempers which are committed to the Care of Surgeons, cured chiefly by the Use of Medicines. We shall begin with *Artificial Medicines*, amongst which have been reckon'd, in the first place, those that are apply'd in the Form of an *Injection*. Altho to this may be reduced what is said in the next *Paragraph*, yet we shall here treat of *Clysters*, forasmuch as they are of the most antient Origin; and they are such Medicines as are injected into the *Anus*, Variety of which, according to the Intention of the Physician, may be seen in *Sennertus*'s *Institutions* [1]. But because they are not injected by Surgeons, altho they more properly belong to them, than the Apothecaries, we shall say nothing of these, but proceed to give an Account of those which are common in use amongst Surgeons; *viz.* 1. *Injections* for the *Uterus*: and these are either

[1] Lib. 5. p. 3. §. 3. cap. 24.

used

uſed to cleanſe the Parts, as thoſe made of the Juice of *Smallage*, a Decoction of the *Tops* of the *leſſer Centaury*, *Leaves* of *Agrimony*, *Southernwood*, *Wormwood*, *Roots* of *Birthwort*, &c. Or Injections are made uſe of to conſolidate; and theſe are prepar'd of the *Roots* of *Comfry*, *Biſtort*, *Tormentil*, the *Leaves* of *Shepherds Purſe*, *Plantain*, *Horſe-tail*, *Milleſoil*, *Mouſe-ear*, &c. The Inſtrument is a *Syringe*, whoſe Extremity ſhould be globoſe, and full of Holes, that it might pour the Liquor every where into a large Cavity. In the ſecond place, we inject into the *Penis*; the occaſion of which is very often a virulent *Gonorrhœa*: therefore to mitigate the Pain, we make Injection of warm *Milk*, *Roſe-Water*, or that of *Mallows* and *Nightſhade*, with *Troch. Alb. Rhaſ.* and a little *Sacch. Saturn.* Alſo *Balſ. Peruv.* mundifies Ulcers very much; but in ſtubborn Ulcers of the *Proſtatæ*, a little *Verdigreeſe* may be added: yet this might better ſucceed, if it were pour'd in by Drops thro a proper Funnel. Thirdly, in a *Sinuous Ulcer*, where *Ointments* cannot reach, *Spirit of Wine camphorated* may be injected,

injected, with the *Juice* of *Smallage*, *Celandine*, or with *Aloes*, *Myrrh*, *Verdigreese*, white *Vitriol*; with a *Decoction* of *Agrimony*, *Scordium*, *Flowers* of *St. John's Wort*, &c. Also *Balſ. Peruv.* and *Sulph. Aniſat.* are of great uſe in all theſe Caſes.

Of Inſtillations.

§. 2. MEDICINES that are uſed as *Inſtillations*, either excite Warmth in the Parts, as thoſe prepar'd for the Head, of *Sage*, *Roſemary-Flowers*, *Betony*, *Stæchas*, *Marjoram*, &c. or they are cooling, as theſe made from *white Poppy Heads* with their *Seed*, *Flowers* of *Violets*, and *Water-Lillies*, the *Leaves* of *Lettice*, *Nightſhade*, &c. To promote Digeſtion in the Stomach, there may be Preſcriptions, of *Crete Wine*, *Cinnamon*, *Cloves*, *Nutmegs*, *Mace*, *Calamus Aromatic.* *Leaves* of *Mint*, *Wormwood*, and *Red Roſes.* But Sulphureous *Bath-Waters* are preferable to Decoctions; yet ſtill becauſe many Countries want theſe, we ought to preſcribe ſuch Medicines, as will beſt imitate the Strength and Virtues of natural ones.

§. 3.

§. 3. THOSE Medicines that are administred in the form of *Irrigation* or *Sprinkling*, are little different from the last; for a Liquor is squeez'd out of a Spunge, then the Part is gently chafed, and at length the moisten'd Spunge is apply'd to the Part. So a liquid *Epithem*, if it is prepared for the Heart, should be compos'd of *Rose* and *Balm Water*, *Vinegar* of *Roses*, and *Orange-Flower Water*. Sometimes there are us'd Waters distill'd with *Orange* and *Citron Rind*, *Wood Aloes* and *Saunders*; sometimes also a little *Confection* of *Alchermes* and *Hyacinth* are to be dissolved. For the Liver, *Decoctions* of *Red Roses*, *Plantain*, *Endive*, *Red Saunders*, *Balaustines*, and *Troches* of *Camphire*, are very convenient and useful. Here also belongs *Oxyrhodinum*, which is a mixture of Oil of Roses and Vinegar. *Of Irrigations.*

§. 4. A FOMENTATION is twofold, moist or dry: The *moist* one is made of fresh or salt *Water*, or *Milk* being warm; or *Mint*, *Wormwood*, *Galengal*, and *Mace*, are to be decocted *Of Fomentations.*

decocted in Wine: yet the Simples are commodiously included in Linen Bags, and those being steep'd in the Liquor, are to be apply'd warm. Sometimes a Bladder is fill'd with the Decoction, and put upon the affected Part, and also Fomentations are made of live Animals cut thro in the middle, or only with Parts of them; as with the *Lungs*, *Caul*, &c. A dry Fomentation consists of Simples cut and bruis'd, and inclos'd in a Bag. Thus for Affections of the Head or a cold Stomach, we prescribe Leaves of *Mint*, *Laurel*, *Red Roses*, *Cloves*, *Galengal*, *Calam. Aromat. Nutmegs*, &c. put into a Bag, which is to be sown in many Forms.

Of Baths. §. 5. BATHS are of very common Use amongst the *Germans*, whose Country abounds with them; where also the *Balneators* are generally Surgeons. In private Houses they always prepare *Baths* themselves, which are the chief Cure of those Indispotions that arise from a Repletion of superfluous Humours, by deriving the Matter thro the Skin. But because this Book is designed chiefly for the

the Benefit of my own *Countrymen*, who are not provided with any natural Baths at all, we ſhall here ſet down ſome artificial Baths, ſo far as they belong to our preſent purpoſe, which are adminiſtred by Surgeons, for the eaſing of their Patients, and are to be prepared without difficulty. *Anodine* and *Emollient* Baths may be made of *Mallows*, *Marſh-Mallows*, *Mercury*, *Violets*, *Pellitory*, *Camomile*, *Linſeed*, *Fænugreek*, *Poppy*, *Bran*, &c. If *Aſtringents* are required, we uſe Leaves of *Plantaine*, *Myrtils*, *Red-Roſe Flowers*, *Balauſtines*, *Bramble Buds*, *Sumach*, *Alum*. In a Stoppage of Urine, where the Patient is afflicted with the Stone, we uſually mix, with Emollients, thoſe things that are conſtituted of more ſubtle fine Parts; ſuch are *Mugwort*, *Parſly*, *Nettles*, and *Lovage*. If you have occaſion to *diſcuſs* cold impacted Humours, you may ſucceed with *Southernwood*, *Wormwood*, *Ground-Pine*, *Calamint*, *Origanum*, *Savory*, *Thyme*, *Saven*, *Hyſſop*, *Marjoram*, *Hore-Hound*, *Laurel*, Seeds of *Carrot*, *Biſhopsweed*, and *Fennel*; ſometimes alſo we add *Nitre*, *Sulphur*, and the Aſhes of the *Vine-*

tree.

tree. These Simples are to be decocted in a large Kettle, and afterwards the Liquor is to be poured into a *Bathing-Tub*; where, Universals being premis'd, the Patient is to sit up to the Navel; or if the Malady is higher, the whole Body is to be immerged. Unless we had rather make use of the Invention of *Sanctorius* [1], which is, that the Sick be inclos'd in a Leather *Bag* containing Water, and shut about the Neck of it; on whom Water, impregnated with the virtue of the Simples, is to be poured from aloft, which runs out again into a *Vessel* underneath, by the means of a *Pipe*. For by this Method the Patient, who has not strength enough to rise without fainting, may have the benefit of a Bath, without rising from his Bed. Surgeons, to whom the Cure of the *Lues Venerea* is generally committed, put their Patients into a Sweating, either by the means of hot *Bricks* wrapp'd in course Paper; or they place them in a *Tub* or wooden Ves-

[1] Comment. in Prim. Fen. pag. 405.

sel,

ſel, where they ſit with their Heads juſt above it; or in a flat-roof'd *Cottage*, woven about with Lettice-work, and cover'd every where with Paper, that there may be no Paſſage for the Air: or they ſometimes lay their Patients in a ſupine Poſture upon a *Machine*, whoſe bottom is form'd of broad Bands, and above their Bodies are diſplay'd three or four wooden Hoops, upon which are to be put many Clothes; but underneath is to be plac'd a little *Veſſel* fill'd with burning Coals, or kindled *Spirit of Wine*: ſo that by this means the Pores of the Skin are open'd, and the Humours ſweat out, which are to be wiped away by Linen Clothes. You may ſee the Figures in *Severinus* [2]. I have invented, according to the Example of *Sanctorius*, another Inſtrument for this purpoſe, *viz.* a Pair of *Bellows*, having a long Pipe; and in the middle of it muſt be a burning hot *Ball*, thro which the Air becomes hot, and is to be tranſmitted to the Patient, lying in his Bed looſe-

[2] Effic. Med. p. m. 205, 206, 207.

ly,

ly, but inclosed every way in Linen; and he is thereby provoked to sweat very much, without any danger of fainting.

Of Suffumigation, &c.

§. 6. A FUMIGATION and *Vapour* differ only in respect to the Matter of them, being dry or moist. Also sometimes certain *Minerals*, being dry, are to be put upon the Fire, which otherwise, by being boil'd in Water, could not communicate their Virtues to the affected Part. A Fumigation is us'd to bring down Womens *Menstrua*, according to *Hippocrates*[3], which is chiefly made of *Myrrh*; but we add *Assafœtida*, *Galbanum*, *Sagapenum*, and *Amber*. And to corroborate and dry a *pituitous* Womb, we use *Calamus Aromaticus*, *Costus*, *Cypress*, *Lovage*, *Leaves of Sage*, *Penny-royal*, *Feverfew*, *Citron* and *Orange Rind*, &c. The manner of performing a Suffumigation of the *Uterus*, is describ'd by *Hippocrates*[4], *viz.* by putting the Patient into a *Basket*, and then to transmit the *Va-*

[3] Lib. 5. Aphor. 28.
[4] Lib. 1. de Morb. Mul. Text. 26.

pour

pour thro a *Reed*, having one end of a leaden *Pipe* inserted into it, and the other put into the internal *Mouth* of the Womb. Another Cause of Fumigation is a *venereal* Ulcer, especially if it infests the Womb or *Anus*; for then a little *Cinnabar* is to be mix'd with *Myrrh*, *Frankincense*, *Ladanum*, and *Benjamin*; after which the Patient is to sit upon a perforated *Stool*, and by closing all the Passages to keep in the Fume, to receive the Vapour. There is an Instance of Suffumigation in *Aquapendens*[5], *viz.* That the Patient, whose *Hemorrhoid Veins* are open'd by a Lancet, or *Leeches*, should sit upon a Tub of hot Water, where there is a *Cup* to receive the Blood flowing from the open'd Vessels, by the means of the hot ascending Steams of the Water. *Ambr. Parey*[6] also has another Example of this sort of Remedy, for the Cure of callous and inveterate *Caruncles* in the urinary Passage, *viz.* by putting little Pieces of Mill-stone, rendred burning hot, into a proper

[5] Lib. de Oper. Chir. Tit. de Hæmor.
[6] Lib. 19. cap. 25.

Place, where the Patient may receive the Vapour which arises from equall Parts of *Aqua-Vitæ* and *Vinegar* being sprinkled upon them.

Of Unction §. UNCTION being not at all artful, the Dexterity of the Surgeon is never desir'd: however, we may recount those Affections to which *Unction* is apply'd; for altho it may be doubted whether or no it produces any Relief, yet we had rather comply with Custom. In the mean time, adjudging the Cause of their Effects to arise from our Bodies being porous, and receiving from them some subtle *Particles* within the Skin, subjacent Parts, and Vessels, where the Blood being alter'd, conveys, by its Circulation, its acquir'd Qualities all over the Body: hence the famous *Major* commends this Practice, in a peculiar Book on this Subject, of anointing the Crown of the Head, for curing other Diseases besides those of that Part. Unction is perform'd promiscuously, by *Oils*, *Liniments*, and *Ointments*: so oftentimes we apply to a Part inflam'd the *white* of *Eggs*, mix'd with *Oil of Roses*; sometimes

times alſo we apply *Oleum Roſarum Omphacinum* with a little *Wax*, and *Ungt. Alb. Camphoratum*; but the beſt Liniment is prepared of *Oil of Roſes*, with *Vinegar* and *Litharge*. *Oil of Camomile*, *Keirin*, *white Lillies*, *Earthworms*, and *Palm Oil*, with *Ointment* of *Marſh-Mallows*, and *de Ranis*, together with the Fat of a *Hen*, *Ox*, or *Hog*, reſolve and mollify the Parts; alſo *Ungt. Diapomphol.* and *Populeon*, with a little *Saccharum Saturni*, egregionſly cool. We anoint *Gunſhot* Wounds with *Oil of Turnips*; alſo a *Liniment* is prepar'd of *Rain-Water* with *Spaniſh Soap* againſt an *Eryſipelas*. Here alſo is to be noted the *Aq. divin.* of *Fernelius*, againſt *malignant* and *venereal* Ulcers, prepar'd of *Sublimate*, gr. xii. and *Plantain Water* ℥ vi. but this is to be apply'd with judgment. Againſt a filthy Scab, *Ungt. Alb. Camph.* with a little *white Precipitate* and *Oil of Tartar per Deliq.* prevails. But, laſtly, to ſtop a *Gangrene*, or a peſtilential *Carbuncle*, *Butter of Antimony* is very beneficial, by anointing the ſound as well as the affected Parts.

Of Powders.

§. 8. THE *Powders* which Surgeons use, are various; but their Virtues are chiefly to dry up superfluous Humidity, and take away spungy luxuriant Flesh. *Astringent Powders*, to stop a Flux of Blood, are prepar'd of *Meal-Flower*, *Dragon's-Blood*, *Frankincense*, *Terra Sigillata*, *Gypsum*, *Burnt Spunge*, *Chalk*, *Lapis Hematitis*, *Aloes*, the *Bone* of the *Cuttle-Fish*, *Sarcocolla*, *Puff Balls*, *Roots of Comfry*, *Bistort*, *Cinquefoil*, white *Vitriol*, red *Coral*, and *Gum Tragacanth*. *Catheretick Powders* are made of *Burnt Allum*, *Frankincense*, *Myrrh*, and *Verdigreese*; and sometimes we add the *Powder* of *Rhodium Wood*. For carious and naked Bones, we make use of the *Roots* of *Birthwort*, *Orrice*, *Hog's-Fennel*, *Aloes*, *Myrrh*, *Euphorbium*, *calcined Pumice-stone*, and *Hartshorn*, &c.

Of Suppositories.

§. 9. SUPPOSITORIES are prepar'd by the Apothecaries, and generally administred by them: But we do not intend to treat of those Suppositories, which are given to render the Belly soluble; but of such as

are

re apply'd to the bottom of ſinuous Ulcers, after they are boil'd to the Conſiſtence of Suppoſitories. Thus the *Juice* of *Celandine* is form'd into Suppoſitories; alſo they are made from a Decoction of *Agrimony*, *Scorlium*, *Flowers* of *St. John's Wort*, with thick *Honey*, and ſprinkled with Powders of *Frankincenſe*, *Maſtick*, *Myrrh*, *Sarcocolla*, and white *Vitriol*, very uſeful againſt internal Ulcers of the *Anus*. Here alſo may be reckon'd thoſe medicinal *Candles* to be put into the *Penis*, for the Cure of *Caruncles* in the urinary Paſſage; which may be form'd of an *Amalgema* of *Mercury*, with *Ungt. Diapompholi.* and by the means of a *Wax-Candle*, on which it is to be anointed, you may ſo apply them to the *Caruncles*, as to avoid hurting the ſound Parts. When this Malady is obſtinate, I would adviſe you to conſult *Riverius in Obſ.* 12. *c.* 2. and *Borellus in Obſ.* 79. *c.* 1. or the Explanation of *Tab.* xl. of *Scultetus*, where you may find many things to your purpoſe.

Of Emplaisters.

§. 10. EMPLAISTERS are so generally the Instruments of a Surgeon, that scarce any thing is done without them. The *Emplaister* that first occurs is the *Defensative*, made of the *white* of *Eggs*, *Bole*, *Dragons Blood*, and *Frankincense*. Then the *Emplaister* of *Fernelius ad Herniam*, or another prepared of the Root of greater *Comfry*, *Cypress Nuts*, Flowers of *Balaustines*, *Red Roses*, *Oak Leaves*, *Dragons Blood*, *Acacia*, *Mummy*, *Pitch*, and *Colophonia*. *Empl. Diachylon* and *Oxycrocæum*, are commended in an *Oedema*. Sometimes, for a more powerful Medicine, we use the Root of *Pellitory*, *Sulphur*, *Nitre*, the *Ashes* of the *Vine*, the *Dung* of *Cows*, *Goats*, and *Pigeons*; also *Empl. de Ranis cum Mercurio* is useful in the like Case. *Empl. de Cumino* is very serviceable in Diseases of the Head, *ventose* Tumours, and in all those Parts where a Concoction of Matter is requir'd: A Description is thus extant in *Vigo*; ℞ *Ol. Aneth.* ℥ i. *Ol. Absynth. Myrtin. Succi Rhaphan.* ā ℥ iii. *Cumin. trit.* ℥ i. *Vini Odorat.* ℥ i. let them boil to the Con-

Consumption of the *Wine*, then strain it, and with a sufficient Quantity of *Wax* boil it to an *Emplaister*. To induce a *Cicatrix*, *Empl. Gryseum*, *Lapid. Caliminar. & de Tutia*, are very useful. In *venenate* Wounds we use an *Emplaister* prepared of boil'd *Onions*, *Venice-Treacle*, *Goats Dung*, the *Root* of *Angelica*, with *Honey* and *Wax*: But to bring a *venomous* Wound to Suppuration, there is to be added, *Gum Galbanum*, *Sagapenum*, *Oppoponax*, *Myrrh*, *Pigeons Dung*, *Mummy*, *Powder of Comfry Root*, with as much as is sufficient of *Oil* of *St. John's Wort*. Also here belongs what are call'd *Dropaces*, to pluck away the corrupted Roots of Hair; they may be form'd of *Pitch* and *Oil*, and some of the Hair being cut off, they are to be apply'd warm to the Part, and very often pluck'd off again; they are also conducive to remedy an *Atrophy* in any of the Limbs. *Vesicatories* must likewise be mention'd here, and they are made of the Powder of *Cantharides*, with any sour *Ferment*, and a little *Vinegar*. Concerning *Causticks*, we have treated in the second Part of the first Section, and in §. 33.

of the first Part of the second Section. We must also add in this place, Medicines that are term'd *Psilothra*, very much in use amongst the *Turks*, and are prepar'd of *Rusma* and *unslack'd Lime*; concerning which read *Bellonius*'s *Observ. lib.* 3. *c.* 33. they only leave the Skin naked and free from Hair.

The CONCLUSION.

§. 1. A MULTITUDE of Books, says *Seneca* [1], confounds the Mind; and therefore since we cannot read all, it is sufficient to select the choicest. That the Student in Surgery may not be ignorant of these, I thought it would not be improper to give my Opinion of the Writers in this Art, and at the same time to recommend those from whom the greatest Benefit may be re-

[1] Epist. 2.

ceiv'd:

ceiv'd: for as a weak Stomach covets Varieties, which rather corrupt than nourish; so the reading of abundance of Authors, and those of different sorts, has something in it vague and indetermin'd. Altho I am far from persuading any one to commence Surgeon from reading only, but would rather advise the diligent Observance of *Practice*, and from thence, with judgment, the forming of *Precepts* to act by; yet I would not have any despise and neglect the Improvement they may acquire from those silent Instructors, Books. Besides those Authors whom I commended in §. 4. of the Introduction, and which I advise may be always at hand; such occur first as have attempted to deliver a *Methodical System of Chirurgery*; and amongst them the chief Place is due to *Hippolitus Parma*, who wrote an *Introduction to Chirurgery*, printed at *Padua*, 1612. This Author seems to have been endow'd with a *Genius* superiour to the rest of this Tribe of Writers, who, mistaking the real Nature of Surgery, fancy'd it to con-

ſiſt only in the *Application of Medicines*, as may be ſeen by *Mercatus*, in his *Inſtitut. Chir.* from whom *Parma* ſeems to have compil'd his *Work*, (altho there is in it frequently mention made of *manual Operation*) becauſe he follows the ſame Method in ranging his *Materials.* In the ſame *Claſs* with *Mercatus*, are to be ranked all thoſe Writers, who confine Surgery to five ſorts of Diſtempers, *viz. Tumours*, *Wounds*, *Ulcers*, *Fractures*, and *Diſlocations:* ſuch are *Sebaſtian Cortilio*, *Stephen Calandar*, *Francis Peccettius*, *Peter Pigræus*, *Veſalius* in his *Chirurgia magna*, which *Treatiſe* is no way worthy of its Author; and *Marcus Aurelius Severinus*, in his *Synopſis Chirurgica*, which is lately publiſh'd under his name at *Amſterdam*, tho I dare to ſwear it was never wrote by that learned *Perſon:* The Chirurgery of *Riolan* the *Father*, and alſo the ſecond and third Books of the *Sylva Chirurgiæ* of *Gabriel Ferrara:* To this Tribe alſo may be added the *Enchiridion Chirurgicum* of *Chalmet*; and *Saporta*, who wrote profeſſedly of *Tumours*, brings up the

the Rear. *Jo. Bapt. Cortesius* took a more prudent Course, who tho he did not depart from the usual *Method*, yet subjoin'd under each Head, by way of *Appendix*, the manner of performing the *manual Operations*; and if he was not too lax in his *Theory*, would be useful to Beginners.

§. 2. BUT as it is not sufficient to point out to Mariners the Shelves and Rocks, without directing them how to arrive at their desir'd Haven, so now we shall set down the more eminent *Writers*. And since amongst these all do not equally please every body, we shall mention the greater number, that the Reader may chuse those that are to his Taste: for if we would have any thing make a lasting Impression on our Minds, we should take care to accustom our selves to such Writers as have the same turn of Thought. The universal Consent of the Learned yields the first Place to *Hippocrates*, whose *Writings* declare, that he not only understood, but constantly practis'd this *Art*.

After

After the *Greek*, I ſhall add the *Latin Hippocrates*, *Celſus*; he was excellent in this *Art*, and has deliver'd its *Precepts* in the politeſt Language. I am not ignorant, that ſome have imagin'd he never practis'd, but only interpreted and tranſcrib'd *Hippocrates*; but I cannot entertain ſuch Sentiments concerning him: for if it had been ſo, it was impoſſible for him to write ſo well in the ſeventh and eighth Books, inſomuch that he merits never to be out of the hands of thoſe who deſign for the Medical Art. Next to *Celſus*, tho not comparable to him, is *Paulus Ægineta*, who, to avoid Confuſion, treats in his *fourth Book* of *Ulcers* and *Apoſtems*, ſo far as they require *Medicines*; but in his *ſixth Book* handles them, as falling under *manual Operation*.

§. 3. AFTER theſe *Authors*, another ſort of *Surgery* was introduc'd by the *Arabians*. The chief and principal thereof (excepting *Albucaſis*, who liv'd about 1085, and deliver'd a *Maſculine Surgery*, and eſpecially that which is perform'd by *cauterizing*,

ing, and which is now in frequent uſe amongſt the *Arabians*) was the famous *Guido Cauliacenſis*, whom *Fallopius* ſcruples not to equal with *Hippocrates*, by reaſon perhaps, that as *Hippocrates* was the Reſtorer of the Medical Art, and whom all afterwards endeavour'd to imitate; ſo amongſt the Surgeons, *Guido*, as amongſt the Anatomiſts, *Berengarius*, was the firſt who recover'd this Art from Obſcurity, and whoſe Steps others have follow'd, tho not with equal Succeſs: therefore of *Guido* the candid *Fallopius* ſays, after *Hippocrates* and *Galen*, he ſurpaſs'd all the *Greek*, *Latin*, and *Barbarous Writers*, but eſpecially at that time, when Phyſick was at ſo low an Ebb, having added many uſeful and learned Things of his own. He lived about the Year 1363. We ought to excuſe this Author, conſidering the *Age* he lived in, if whilſt he endeavour'd to write a new and peculiar *Method of Surgery*, he did not ſeparate the *Operative Part* from that which *treated of Medicines*. *Tagaultius* only made this Author ſpeak more elegant Latin,

who

who lived about 1554. for tho he amended the Words, you will find the Matter to be *Guido*'s. *Joannes de Vigo* concludes the Account of Barbarous Writers. *Marianus Sanctus Barolitanus* was *Vigo*'s Scholar, and afterwards publiſh'd a *Compendium of Surgery*. The next that occur in order are *Brunus*, *Theodorick*, *Roland*, *Lanfranck*, *Bertapalia*, *Rogerius*, and *Gulielmus à Saliceto Placentinus*, who tho reckon'd laſt, yet for his Worth deſerves the firſt Place: all which were publiſh'd together by *Juntas* at *Venice* in the Year 1546. Nor ought we to forget *Petrus de Argillata*, who wrote about the Year 1490. But before all theſe, was *Conſtantinus Africanus*, who lived in 1080. and hath inſerted in his *Works* the *Chirurgick Cures* of a few *Diſtempers*. I ſhall not ſay much of *Dinus de Garbo* and *Bernh. Gordonius*; for they are to be ranged with thoſe at the end of the firſt *Paragraph*.

§. 4. WE come now to the *Writers* of the paſt and preſent Age, and ſhall firſt take notice of thoſe who have

have deliver'd to us a *Syſtem* of this *Art*. Amongſt theſe, *Gabriel Fallopius* has the firſt Place, who has follow'd the Example of *Guido*; and it were to be wiſh'd the Volume that appear'd under his Name at *Venice* in 1606. had receiv'd his finiſhing Hand; then ſcarce any thing would have been wanting: for he handles every thing ſo candidly, judiciouſly, nervouſly, and accurately, that it plainly appears, he was equally skilled in *Chirurgery* and *Anatomy*. After him ſucceeds the famous *Ambroſe Parey*, that moſt skilful Surgeon to the *French* Kings, who, inſtructed by a long Series of Practice, much improv'd this Art: but that vaſt Volume, which goes under his Name, was compoſed by the *Doctors* of *Paris*, whom *Parey* furniſh'd with a great number of *Caſes*; and to make the Work large, they adjoin'd many *Things* foreign and ſuperfluous to a Book of *Surgery*. This Experienced Man had better conſulted his Fame, if he had publiſh'd his Obſervations and particular Cures by themſelves, with the Remedies he had approv'd by long Uſe,

and

and the Practice of many Years: as did, to his great Glory, *Gulielmus Fabritius Hildanus*, the Ornament of *Germany*, whose Name will be mention'd by latest Posterity: for, as *Seneca* says, *the way by* Precepts *is long and tedious*; *by* Examples, *short and easy:* so every one experiences what a lively Impression particular Observations make upon the Mind, wherein the Case too often appears otherwise, than what is describ'd by Systematick Writers, insomuch that he who is instructed by Books only, will often be at a loss; whereas Observations will teach the Effects of the Medicines from day to day, the supervening Symptoms, and, at length, the Event, whether happy or fatal: besides which, if the Part affected could be examin'd after Death, that is prevented frequently by the perverse Superstition of the Relations, there would be little wanting, but we might obtain a compleat Knowledg of Distempers. I will add yet further, that I dislike the pompous Stile, and impertinent Prefaces which abound in *Hildanus*; I have therefore

some

ſome Thoughts to abridg him of thoſe Preambles, and reduce the Caſes under proper Heads.

§. 5. AMONGST *Chirurgick Writers*, there is no one ſo deſervedly Eminent as *Hieronimus Fabritius ab Aquapendente*; who, in his Book of *Chirurgical Operations*, delivers, according to the Example of *Celſus*, the *Manual Cure* of Diſtempers, in the ſame Order as the Parts retain in a human *Body*; inſomuch that he profeſſes himſelf an Interpreter of *Celſus*, and every where endeavours to illuſtrate him. The next Place, on account of his Merit, is due to *Johannes Jeſſenius a Jeſſen*, worthy of a better Fate; who, in his *Chirurgical Inſtitutions*, delivers the *Manual Operations* with great Perſpicuity and Elegance, always forbearing the mention of *Medicines*, unleſs where Neceſſity obliges him to it. *Stephen Gourmeline*, and *Vidus Vidius Jun.* were both employ'd in deviſing a *new Method*, whereby *Surgery* might be treated of ſeparately from other Parts of *Medicine*; and their Endea-

Endeavours deſerve our Commendation, inaſmuch as they durſt venture to forſake the old Path, to explore a new one more plain and uſeful; wherein their Succeſſors might follow with greater Facility. *Chirurgery* ought not to be clogged with that *Farrago* of Medicines, which vulgar Books are ſtuffed with; for it is moſt true, that Nature is content with a little, and that ſhe alone effects the Cure: inſomuch that it is only requir'd of the Artiſt, to watch an Occaſion, and opportunely to lend her a helping hand. He, who expects to acquire Reputation in remedying Diſtempers of a human Body, by the Art of Surgery, muſt attend eminent Artiſts, whilſt they are performing Operations; that thereby he may be able to imitate them. Nor will it be amiſs for any one, before he undertakes this Operative Buſineſs, to inſpect the elegant Figures of *Scultetus*, whoſe Explanations will inform him of the ſeveral Methods made uſe of by others, which he may abbreviate as he ſees occaſion; ſo that the Shortneſs of Life may

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in ſome meaſure be compenſated by the Brevity of Art.

§. 6. TO crown all, we ſhall adjoin the moſt approv'd of ſuch Authors as have handled ſome particular Branch of this *Art* in a diſtinct Treatiſe. *Ingraſſias*, no unlearned Perſon, has wrote of *Tumours*; but he is very prolix in reconciling the *Greek* and *Arabick* Names, and obſcures the Matter by his many Diviſions. *Jul. Cæſ. Arantius*, and *Marcus Aurel. Severinus*, deſerve Commendation on all accounts: it was the latter of theſe who left us that profound Book, *de Abſcondita Abſceſſuum Natura*, built upon the Experience of many Years; as likewiſe that extraordinary Piece, *de Medicina Efficaci*. That we enjoy that Excellent Treatiſe, *de Fractura Cranii*, of that Antient Writer *Berengarius*, is owing to the Famous *Conringius*. But becauſe in ſo noble a Part too much Diligence cannot be blamed, you may conſult the Treatiſes of *Jo. Bapt. Carcanus Leo*, *Andrew Alcaſar*, a *Spaniard*, and *Lewis Queirats*, a late *French*

French Author. There are almost an infinite Number, who have commented upon *Hippocrates de Vulneribus Capitis*; as *Arantius*, *Parma*, and, whom I durst compare, and even prefer to the rest, our Countryman *Peter Paw. Guillemeau* has wrote of the *Diseases of the Eyes*, but the *Chirurgick Cure* of them is owing to *Durants Scacch*, and *Peter Franco*, who have both wrote also accurately of *Lithotomy*, altho the first Writer thereof was *Marianus Sanctus Barolitanus*; but the most accurate of all is *Hildanus*, in a peculiar Tract on that *Subject*. *Taliacotius* is the only one who has talked of restoring lost Members by *Insition*. Of *Ruptures* we have *Franco*, *Scacch*, and *Geigerus*. Of *Wounds*, besides *Alcasar* and others, the Famous *Matthias Glandorpius* has treated of them professedly in his *Speculum Chirurgorum*. *Magatus* also, in a distinct Treatise, has recommended the seldom dressing of Wounds. Concerning the Prognosticks of Wounds, *Bernard Suevus*, *Melchior Sebizius*, and *Hieron. Welschius* have wrote; and to these may be added *Fortunatus Fidelis*, in

his

his Treatiſe *de Relationibus Medicorum:* for the Phyſician cannot have this Affair too much at heart, becauſe, on his Report, frequently depend the Determinations of Juſtice. Tho many have wrote of *Gunſhot-Wounds*, yet thoſe are chiefly to be depended upon, who were concern'd in *Camps*; as *Parey*, *Botallus*, and *Guillemeau*. As particular Obſervations, faithfully related, are of great Uſe and Advantage, ſo thoſe, who in deſcribing them, thro I know not what Malice or Envy, conceal their *Remedies*, deſerve to be had in the utmoſt Deteſtation: and amongſt theſe, *Gulielmus Loſellus* is to be diſtinguiſh'd. But, on the contrary, *Riverius*, *Borellus*, *Barbette*, *Scultetus*, and others, who have candidly communicated their *Secrets*, merit the higheſt Veneration.

§. 7. YOU have here, Courteous Readers, ſuch *Authors* as I eſteem, prefer, and acknowledg my ſelf much oblig'd to. I am perſuaded, there is not one, in the whole Liſt, ought to be wanting in your Cloſets; for, if they

they are perused leisurely, and with Judgment, they will all of them serve to prepare you for *Practice*. I congratulate my self to have thus pointed out the *Road* to you, it will be your Part diligently to follow it, and, if you shall make any Discoveries, candidly to communicate them for the Benefit of others.

FINIS.

BOOKS lately printed for T. Varnam *and* J. Osborn *at the Oxford-Arms in* Lombard-ſtreet.

THE *French* Inquiſition, or the Hiſtory of the Baſtile in *Paris*, the State-Priſon in *France*; in which is an Account of the Manner of apprehending Perſons ſent thither, and of the barbarous Uſage they meet with there. Alſo an Account of the leud Lives and ſtrange Adventures of ſeveral Priſoners, but more particularly of ſome Prieſts. Written by *Conſtantine Renneville*, who was a Priſoner there 11 Years.

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An Apology for the *Bath*. Being an Answer to a late Enquiry *into the right Use and Abuses of the* Baths *in* England, so far as may concern the hot Waters of the *Bath* in the County of *Somerset*. With some Reflections on *Fresh Cold-Bathing*, *Bathing in Sea-Water*, and *Dipping in Baptism*. In a Letter to a Friend. By *Thomas Guidott*, M. D.

A Practical Dissertation on *Bath-Waters*. Treating of the Antiquity of Bathing. Of the Original of Springs. Of the Cause of the Heat of *Bath*-Waters, and of their Ingredients. Of Drinking *Bath*-Waters. Of Bathing. Of the City of *Bath*, its Situation, Baths, *&c.* Design'd for the Use of the Nobility, Gentry, *&c.* who resort to the *Bath*. By *W. Oliver*, M. D.

Posteriors, S. the Breech