

A  
4-376

THE  
WORKES  
OF THAT  
FAMOUS PHYSITIAN  
D<sup>r</sup>. Alexander Read,

Doct<sup>r</sup> of Physick, and one of the Fellows  
of Phyticians-Colledge, London.

CONTAINING

- I. *Chirurgicall Lectures of Tumors and Ulcers.*
- II. *A Treatise of the first part of Chirurgery, which teacheth the re-union of the parts of the body dis-joynted; and the methodicall Doctrine of Wounds.*
- III. *A Treatise of all the Muscles of the Body of man.*

Delivered in severall Lectures at *Barbar-Chirurgians-Hall*, upon Tuesdaies appointed for these Exercises, and the keeping of their Courts.

Published in his life time in severall TREATISES,  
and now in one Volume, corrected and amended.

*The second Edition.*

LONDON,

Printed by E.G. for *Richard Thrale*, and are to be sold by  
*Iohn Clarke* at the lower end of *Cheapside* entring into  
*Mercers-chappel*. 1650.

R. 3727

21197395X

BIBLIOTECA HOSPITAL REAL GRANADA	
Sala:	A
Estante:	4
Numero:	376



A  
S  
349

To the Right Honourable and his  
much esteemed Lord,

**THOMAS Lord WINDSOR,**  
Baron of *Bradenham*, and one of the Knights of  
the Noble Order of the *Bath* :

**ALEXANDER READ,** Doctor of Physicke,  
wilteth health, and all happineffe.

**R**Or many ages past it hath been a custome amongst those who have endeavoured to leave to posterity any monument of their Learning and skill, to dedicate it to some eminent Personage : partly to expresse their gratitude for benefits received (whereof I may alledge many examples) partly to procure with the Readers a more easie acceptation of the worke, and a more firme protection for it from the reproachfull tongues of malicious censures, which no age hitherto ever wanted. I purposing to publish my *Chirurgicall Lectures*, which I delivered to the Worshipfull Company of the *Chirurgeons* of the famous City of *London*, on Tuesdaies appointed for the keeping of their Courts, and the performing of these Exercises, these three yeeres last past; and willing to keep on foot this laudable custome, have made choice of your honour as most fit, unto whom they should

*The Epistle Dedicatory.*

be consecrated: For who can be a more fit Patron, yea, I adde, a more competent Judge to these my labours, then he, who hath pierced even into the mysteries of the Art. Let no man thinke it any disparagement to any Noble personage to have taken paines to attaine some reasonable measure of knowledge in this Art; But rather let him perswade himselfe, that it belongeth properly, and of right, to such as are renowned for their greatnesse and valour, to be well versed in this Art. *Achilles* is no lesse famous for his curing of *Telephus* by Art, than wounding of him by his strength and magnanimity. Besides this, seeing your Honour hath graced this Company, by desiring to be admitted into it rather then into any other, hath been beneficiall unto it, and hath embraced me with extraordinary favour and respect: I thought it meet that some testimony of deserved respect rowards your Honour should be left to posterity of all the Company in generall, and of me in particular. Receive then with a cheerfull countenance this first Volume of Chirurgicall discourses into your favour and protection. 'Twill serve you at the least for an Index of such things as you have read set down in other Authors dispersedly concerning these subjects, and will further your directions, when occasion shall be ministred by any imploring your advice. This benefit will redound unto me, that the worke will finde the better entertainment at the Readers hands, because it sheweth in the beginning your Honours name. In *London* the fifth of *August*. 1634.

To



## To my Courteous READER.

**H**ere I present to thy view my Chirurgicall Lectures of two the first points of the first part of Chirurgery, which I call *Zwischen*, to wit, of Tumors and Ulcers, delivered these three yeeres last past in the Chirurgicall Hall, upon the daies appointed for this Exercise. I have laboured to instruct thy mind, and to direct thy hand in the knowledge and curation of the diseases mentioned in these two Treatises. If thou shalt think that I have attained to my purpose, and have not frustrated thy expectation, I have my desire. If thou think that they are onely clouds without rain, and that I have deceived my Readers, let me intreat thee to lay them down out of thy hands, and to have recourse unto such Authors as thou shalt best like of, they serving thy taste. I dare be bold to affirm, that I have more methodically set down the nature of every disease, and prescribed more effectually meanes for the curing of them than thou shalt finde in the most, who have written of these subjects. I have not concealed from thee my own observations, which I would not have thee to slight. I have (I thank God) so much literature, as is sufficient to guide me in these studies: and I have practised Physick and Chirurgery now 42 yeeres. But with what successe I will referre it to the testimonies and relations of such as have been my Patients in sundry parts of this Realm. If thou doubt of the verity

## To the Reader.

of any thing delivered by me in these Lectures, I will labour to cleare it, if thou acquaintest me with it. If thou prove evidently that I have declined from the truth, I will acknowledge my error, and render unto thee thanks for thy friendly admonition. Untill thou effect this, let me intreat thee to accept of my labours, which I have undergone to further the publique good. One thing I would not have thee to be ignorant of, and that is this, that hereafter I mean not to adde, detract, or change any thing in these Treatises; but to goe through the rest of the points of Chirurgery, if God grant me life, which are to be added to these now published, to perfect the Art of Chirurgery. Wishing unto thee increase of knowledge, and experience in this study, I will commit thee to the protection of the Almighty God, and rest,

Thy well wishing friend

Alexander Read.

---

The



## The Contents of the Treatise of Tumors.

1.	OF the definition and the parts of Chirurgery	<i>page</i> 11
2.	The generall doctrine of Tumors	12
3.	Of the generall indications of curing of Tumors	15
4.	Of the four times of a Tumor, and the indications taken from them	26
5.	Of curing of a Tumor come to suppuration.	28
6.	Of a Phlegmon	36
7.	Of an Erysipelas	45
8.	Of an Oedema	53
9.	Of a Scirrhus	60
10.	Of an aqueous Tumor	67
11.	Of a flatuous Tumor	72



## The Contents of the Treatise of Ulcers.

1.	OF the Authors who have written of Ulcers, and of the definition of an Ulcer	<i>page</i> 76
2.	Of the causes of Ulcers	80
3.	Of the generall differences, and signes of Ulcers	86
4.	Of the generall prognosticks of Ulcers	89
5.	Of the generall curation of Ulcers, and of their times	92
	6. Of	92



## The Contents.

6. Of the Medicaments befitting Ulcers in generall	95
7. Of the curing of a plain and hollow Ulcer being simple	105
8. Of the compound, but milder Ulcers in generall	110
9. Of a hollow Ulcer without callosity	116
10. Of a sinuous Ulcer without callosity in generall	122
11. Of the curation of Fistulae in generall	129
12. Of <i>Fistula laerymalis</i>	135
13. Of the Fistulae of the breast	142
14. Of Fistulae of the belly and joynts	150
15. Of <i>Herpes exedens</i>	157
16. Of Phagedæna and Nome	161
17. Of a Cancer and a cancerous Ulcer	169
18. Of the Leprosie, and a leprous Ulcer	178
19. Of the abating of superfluous flesh	186
20. Of the scaling of corrupt bones	191
21. Of a discoloured and various Ulcer	198
22. Of a verminous and lowlie Ulcer	206
23. Of the Ulcers of the hairy scalp	215
24. Of Ulcers of the eares, and Ophthalmia	224
25. Of Ulcers of the eyes	232
26. Of Ozena	241
27. Of Ulcers of the mouth	249
28. Of Ulcers of the lungs	256
29. Of Ulcers of the back, <i>abdomen</i> , and joynts	263

The Contents of the Treatise  
of Ulcers.

The

1. Of the Authors who have written of Ulcers, and of the  
definition of an Ulcer

2. Of the kinds of Ulcers

3. Of the general characters, and names of Ulcers

4. Of the general symptoms of Ulcers

5. Of the general curation of Ulcers, and of their



# A TREATISE OF TUMORS.

---

The first Treatise.

---

LECT. I.

*Of the definition and parts of Chirurgie.*



Any learned discourses have been delivered out of this seat, of sundry points of the renowned Art of Chirurgery by Master Doctor Gwyn of famous memory, who by reason of his not vulgar learning, hath left an eternall memory in the minds of those who knew him inwardly, to himselfe. God having called him out of this transitory life, and vale of misery, to rest from his labours; it seemed good to the Governours of this worshipfull Company to have this exercise performed by the most able of the Brethren as it should come to every one according to his place and dignity. And undoubtedly this office hath been performed by most, laudably, and fruitfully to the praise of the Hall, and mutuall communication of skill, for the better performing of duties, which so high a Calling doth require. And surely if this course had been continued, it had mightily increased in Readers the theoricall or contemplative part, which doth consist in the knowledge of the Precepts, had made them able to give greater contentment to their Patients by their ratiounall discourses, and more emboldened them in particular operations, having sufficient warrant of

B

Art

Art for their practice, and ability to convince Empericks and malicious Calumniators. But seeing (as I understand) the highest power of this Realm, from whom there is no appeale, hath decreed that this exercise shall be performed by a Doctor of Physick, and that the worshipfull Company hath for the present made choise of me, who profess my self to be a Member of the Company; I shall labour by diligence to supply all defects in me, which sundry may find in me, if they compare my weakness with the ableness of my Predecessor. Howsoever the matter falleth out, I will endeavour to deliver what is for the purpose of that subject whereof I read, although not all peradventure which might be alleaged to the purpose. Nevertheless I mean not to be so sparing in my discourses, as that you shall have occasion to think that any thing absolutely requisite hath been kept back. And if it fall out that at any time I check or controule those Authors, who by some are highly esteemed, I desire that none ascribe this to any ambition or vaine glory in me before they weigh my reasons in the impartiall balance of judgement. And as it is impossible for any man, who curiously and scrupulously treadeth in another mans footsteps, to compass a long journey in a day: So let none think that ever he shall be famous in his Art, if he give himself only to imitation of others. The Ancients have left not a little to be found out by the diligence of Posterity. Whosoever is industrious and judicious, shall find my words to be an Oracle. Many of them have set down sundry things not tryed by experience, but imagined by their fancy, which the sickle of triall will prune. Nevertheless in reprehension I will use them respectively, by reason of reverence, which is due to Antiquity. Besides this, nothing can be both invented and perfected at once. Now seeing in all the Discourses and Lectures which have been delivered out of this place, only particular points of the Art have been handled, and none hath taken the pains to touch any Præcognita, or generall notions, which may be in stead of an introduction to the particulars, seeing no Subject hath been delivered, or commended to me, I will briefly touch some Introductory points, which will give no small light to the Lectures, which hereafter shall be read. The first shall be of the antiquity and dignity of Chirurgery. The second shall be of most famous Authors, who have taken the pains to illustrate it, by their writings. The third shall be of its place in the course of

The Præcog-  
nita.

Phi-

Philosophie. The fourth of the definition of it. The fifth of the division or parts of it. Which things when I have set down, I shall shut up this Lecture; permitting election to the Governours, whether they will have me proceed methodically, through the whole course of Chirurgery, or scatteredly to handle dispersed parts of the same as hitherto hath been done. My opinion is, that it will be both more fruitfull and pleasing to intelligent Hearers (if God will grant me life and health) to pass through all the points of Chirurgery methodically: For first, the coherence of the parts will help the memory: And who shall be assiduous hearers shall not by latches take a hungry morsel, but have a full banquet, fully to answer the appetite. When I come to particulars, I will not only deliver the principles of *Hippocrates*, and *Galen*, and their sectators the Arabians: But I will acquaint you with the Theorems of the Chymists and compare the opinions of both, that it may be known who have been most familiarly nursed in the bosome of nature. Of the Chymists *Paracelsus* is the Generall. He hath sundry Colonels under him, as *Petrus Severinus* the Dane, *Quercetan*, *Petreius*, and sundry others, who are oftentimes clouds without raine; more fraughted with bountiful promises, than reall performances. Now to come to touch the first generall point of Chirurgery, which is the Antiquity of it, I dare be bold to affirme, that of all Arts liberal, it was the first which was invented after the fall: For as for *Agricultura* and *ars pastoralis*, husbandry and grazing, they would have been required of man, if he had continued in the state of innocency, to have furnished unto him nourishment, and other things requisite for the enjoying of this life contentedly, untill he should have been translated from earth to heaven to enjoy the beatificall vision of his Creator. Now it is most probable, I may say demonstrative, that what strange event did first minister occasion to invent an Art, that that Art was first enquired for & found out; Such was the wounding and killing of *Abel*, by his brother *Cain*, by reason of emulation. This could not but move *Adam* and *Cain* himself to study how they might not only repel violence, but have in readinesse means to cure hurts also, if they should have been wounded, and their lives spared. All things which were done before the flood are uncertaine and unknown, if you except those things which that eminent Prophet *Moses*, by the inspiration of the Holy Ghost, hath recorded. You may read of bragging

The invention  
of the Author.

The chiefe  
Chymists

The antiquity  
of Chirurgery.

*Lamech, Gen. 4. 23*, who boasted of murdering, Besides this, the wickedness of man encreased, *Gen. 6. 5*. sufficient to set him on, and that there were before the flood Giants and mighty men, *ver. 4.* and so able to performe by violence of villany. Shall any man think that men unable to resist, did not think upon remedies to cure their hurts, being endued with reason; but as dogs licked their own wounds, and provided no means for curing contusions, fractures, dislocations, and such accidents as follow after violence offered? As for internal Physick, being so neare to the Creation, living long, even to 969 yeares, *Gen. 6. 27.* as *Methuselah* did, it is like they used none, seeing they had no other sickness but that of old age: which falleth out, the natural and accidental heat exhausting the radical moysture, and was unavoidable after that the sentence of mortality was pronounced against *Adam* and his Posterity, *Gen. 3. 10.* Thus we see that as the practice of Chirurgery was necessary before the flood, so we cannot gather by any obscure conjectures, that that part of Physick which cureth by exhibiting internall medicaments, was in use. Yea, untill the time of *Hippocrates*, Physick it self seemeth to have been only a knowledge of simples, fit for curing of internal diseases, and outward griefes, found out by experience: and that there were but few precepts concerning the Art, shewing either the knowledg of particular griefes, or the method of curing of them; They, who are accounted the Authors and inventors of Physick, prove this to be true. Amongst the Grecians, *Apollo* the son of *Jupiter* and *Latona*, is accounted the first, which gave his mind to the study of Physick and Chirurgery. Of him thus writeth *Ovid. 1. Metamorph;*

*Inventum medicina meum est, opifexque per orbem  
Dicor, & herbarum subiecta potentia nobis.*

Physick is my invention, and throughout the world

Helpful I am said to be, & the faculty of herbs is subject to me. *Aesculapius* his son followed his father, who added much to that which his Father invented; wherefore he was accounted amongst the gods. His two sons *Podalyrius*, and *Machaon* accompanied the Grecians to *Troy*, unto whom they did good service in curing the wounded persons. *Chiron* *Achilles* his Master is said by *Plinie* to have had great skil in the knowledge of simples, and that he was skilful in dressing of wounds, both his name sheweth, (for it is likely he was called *Chiron*, because he was skilfull

Physick not so  
ancient as Chi-  
rurgery.

The inventors  
of Physick.

in the manuell part: ~~see~~ in Greek is a hand) and *Achilles* his practice in curing wounded persons: for he cured *Telephus* King of *Nyfia*, whom he had overcome and hurt, and from him the herb *Millefole* is called *Sideritis Schillea*. Of this, which hath been spoken, we may gather that these eminent and worthy men did more practice Chirurgery than Physick. *Hippocrates* is the first we have, who committed to writing Precepts concerning the practice of Physick: He did not only practice Chirurgery himself, but wrote sundry Treatises concerning sundry operations of it: as of fractures, *lib. I.* of joints, *lib. I.* of reducing bones by instruments, *lib. I.* of ulcers, *lib. I.* of fistulaes, *lib. I.* of wounds of the head, *lib. I.* of drawing out of the womb a dead child, *lib. I.* All these are in the sixth section of his works. *Galen* succeeded him about six hundred yeares after, a man worthy of eternal memory, who did illustrate *Hippocrates* with his learned commentaries, and by adding of those things which were wanting, did perfect the Art. In his works are sundry Treatises, concerning Chirurgical subjects. The rest of the Greek writers follow him, as *Paulus* of *Egina*, *Aetius*, *Alexander Trallianus*, *Oribasius*, *Aetnarius* and the rest. Amongst the Latines *Celsus* excelleth, who hath written accurately of all Chirurgical operations, whom all modern writers do exceedingly commend, as *Fallopins de tumoribus præter naturam, cap. I.* And *Fabricius ab aqua pendente* in sundry places, and the rest. Of some, who went before him, thus he writeth: *lib. 6. cap. 1.* And in Rome sundry reasonable good professors (he meaneth of Chirurgery, which he calleth *vestutissimam* most ancient) but chiefly of late *Triphon* the Father, and *Enelpistus* added somewhat to that discipline. Arabians follow; amongst whom *Avicen* is the chiefest, who lived 1100 yeares after Christ: of Chirurgical matters he discourseth in the third book of his Canon, and in the fourth part of his Canticles. *Rases* 2. Continent. *Albucasis*. Amongst our moderne writers these excell, *Guido de Cauliaco*, whom *Tagaultius* hath exprest in good Latine: *Fallopins*, with whom none is to be compared: *Ambrosius Paracelsus*, *Iohannes de Vigo*, *Hieronymus Fabricius ab aqua pendente*, *Gulielmus Fabricius* in his Centuries, and Master *Gale*, Master *Bunister*, and Master *Clowes*, while they lived, brethren of this worshipfull company, who by their writings have commended themselves to all posteritie. So much I thought good to deliver of the antiquity, dignity, and of the

chief professors of Chirurgery; which ought to stir up your diligence in labouring to excell in the particular operations of it, and to resolve to contemne the obloquies and calumnies of rude and ill bred persons, who shall seem to slight this excellent Art. If you inquire for the beginning of it, it is *vetustissima* most ancient, according to *Celsus* in the place above mentioned: If you require certainty, it is grounded upon experience, and offereth it self to the eye: If you aske who did of old practice it? you shall find that either they were numbred amongst the gods, or were renowned person, called heroes, as *Hercules*, *Chiron*, *Achilles*, or men of eminent learning and worth, as *Hippocrates*, *Galen*, *Avicen*, and sundry others. It hath for its subject the body of man, and in this point no whit inferiour to Physick it self. And whereas many will stick to take a dangerous medicament; yet they will not stick to admit Chirurgicall operations, although they be full of perill, as incision for the stone and dropsie, dismembring, and such like, as we may see day by day. Now to know to what part of Philosophie Chirurgery is to be referred, we must consider that there be two parts in Philosophie: whereof the one is speculative, whose end is knowledge; The other practick, whose end is practice. Now practice hath two differences, Action, and Effectiion. Action leaveth no worke behind it: Effectiion doth. Of the active part of Philosophie, there be three parts; Ethick, which frameth the manners of a private person: Oeconomick, which sheweth how a family is to be governed, and Policy, which teacheth how a Commonwealth is to be ruled: These we will leave, because they belong not to our purpose: as neither those Arts which are meerly factive, commonly called mechanical and so unworthy of a Philosopher. The speculative part of philosophy comprehendeth under it the Metaphysicks, natural philosophy, and the Mathematicks; Of the first and last we will speak nothing, because they belong nothing to that subject which we have in hand. The subject of naturall philosophy is *corpus naturale*, or a natural body: Now of all natural bodies, the body of man is the chiefest and most excellent, which moved the kingly Prophet to burst out into this resolution: *Laudabo te, quia mirabiliter formatus sum*: I will praise thee, because I am wonderfully framed: the admirable composition of the body of man drew from *Galen* him selfe, not the best master of piety, a hymne to his Creator. Now natural philosophy considereth the body of man, as it is a species or kind of natural body: but medicine as it is

The subject of Chirurgery.

To what part of Philosophie Chirurgery is to be referred.

Parts of Philosophie,

*Arist. 6. Ethic. c. 4. Et l. 1. mag. moral. c. 35.*

*Arist. 6. Metaphys. c. 1.*

The parts of Medicine.

curable by art. Of medicine there are two principal parts, *Præservativa*, and *Securativa*. The first teacheth the preservation of health by convenient dyet, exercises, and such like: The second teacheth, how health lost may be recovered. There be two meanes to repaire health: for this is done either by medicaments, or manuell operation. The first is performed by that art, which here is called Physick; the second by Chirurgery. So that Chirurgery is the second branch of the curative part of medicine, without the which neither Country, City, Town, Village, Hamlet, yea, no private Family can well continue or subsist. This we must confess, if we consider to how many external injuries the body of man is subject, as to scaldings, fractures, luxations, wounds, ulcers, ruptures, stone, and to what not: So that the use of Chirurgery is by reason of absolute necessity more often required than the ministrations of medicaments. And seeing the operation of a Chirurgeon is more subject to the eye and other senses, than the exhibition of medicaments is, it becometh every one to be well versed in that which he taketh in hand, seeing his practice is more subject to censure: There be a number of emperical knaves, filthy bauds, and bold queanes, who daily minister medicaments boldly, who notwithstanding dare not meddle with any curious operation in Chirurgery. Such impure hands dare not touch such a chaste and undefiled Lady. Now it is time to come to the fourth point, which I intended in my proposition: which is to shew what Chirurgerie is: Now there is a double *quid*, or what; *quid nominis*, & *quid rei*: The first sheweth the reason why this terme was found out to expresse this art: The second delivereth the nature of the art it self. *Chirurgia* is a Greek terme composed of *χειρ* which signifieth a hand, and *εργαζομαι* to work: Because it restoreth health to the bodies of men by manual operation. Chirurgery then may be thus defined: it is a branch of the curative part of medicine, which teacheth how sundry diseases of the body of man are to be cured by manuell operation. It is not a Science properly, because it resteth not only in knowledge; but an art as Physick it self is; for it leaveth an effect after the operation, to wit, health: So that for the *genus*, it hath the same with Physick it self: Both Physick and Chirurgery propose to themselves one end: yet the means are divers. Physick restoreth health by ministrations of medicaments; but Chirurgery by manual operation. Seeing then the definition which I have assigned to

Chi-

1.  
11.

IV. Point.

The Etymon.

The definition  
of Chirurgery.



V.  
The parts of  
Chirurgery.

The kinds of  
solution of uni-  
ty.

I. Part of Chi-  
rurgery.

Chirurgery doth consist of *genus* and *differentia*, according to Schoole termes, it must be an essentiall definition, fully expressing the nature of it. The first point whereof I intended to speak of this Lecture, was of the parts of Chirurgery, which must be assigned according to the maine differences of operations. Those are foure in number, and consequently so many parts: for either by Chirurgery, solution of unity is removed, and union restored, or things unnaturally united are separated and disjoined; or or things superfluous taken away: or last of all defects supplied. Now solution of unity is either gathered by reason, or deprehended by sense. In tumors, although the parts seeme to the eye united; yet reason teacheth us, that there is a divulsion of them: The doctrine of tumours therefore ought to be the first particular Treatise. Solution of unity apparent to the senses, to wit, sight and touch, are either in the soft parts, or in the more solid and hard. In the soft or fleshy parts there be two differences of solution of unity: *vulnus & ulcus*, a wound, and a ulcer. In the hard parts there are found a fracture, and a luxation; two distinct sorts of solution of unity to fill up the fourth and fifth places. This part may be called *συνδετικὴ*, or *pars composivix*, the part joyning together. The second part of Chirurgery opposite to the first, teacheth to separate parts unnaturally united: where either the comely composition of the body of man is defaced or empaired, or the actions of the same hindered. Sundry have been brought into the world with the *anus & vulva* quite shut up. The consideration of that membrane, which is found in the neck of the matrix of some women, is in this place to be noted and considered: Seeing there have been, and yet are so many concertations amongst both skilful Physitians and Chirurgions. Here also is the cure of the wry neck to be set down. In this griefe the head on the one side by reason of one or more tendons of the muscles of the neck shortened, the head is drawn towards the clavies more than on the other: whereby it commeth to pass that the face groweth awry and distorted: and so the beauty of the countenance is much impaired. To this part belongeth the curing of tongue-tyed children, in whom sucking and speech are hindered. Not only fingers and toes cleave together in the same person: but twins also, and double members of one person. The consideration of such doth belong to the history of Monsters; not to any Art: seeing such things are to be ranged amongst *raro contingia*,

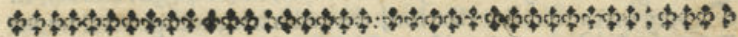
*gentia*, and so belong not to Art, which is of things necessary. This part may be termed *ἀφοριστική*, or *separatrix pars*, the separating part. Now followeth the third part of Chirurgery, which sheweth the meanes to remove from the body things superfluous, which may fitly be called *ἀφαιρητική*, or *ablatrix pars*, the nipping or removing part. Things superfluous are such, either by event, or by their owne nature. Things superfluous by event are sundry: And first a dead child in the womb, or staying too long to the prejudice of its owne and the mothers life. Here shall be set the manner how to bring women to bed (as we terme it) artificially and safely. Secondly, a falling of the small guts into the cod by enlarging or renting of the production of the *Peritonæum*, which we call a rupture. When I come to this point, I will set downe the diversities of ruptures, and the meanes of curing of each: which are either incision, or trusse, or application of medicaments; sometimes used solitary, sometimes concurring most or all together. Thirdly, the amputation of a limbe by reason of a mortification, or some other accident. Here shall be set downe the most accurate method of dismembring. Fourthly, the extirpation of any part, as the breast, when a cancerous either tumor or ulcer doth possesse it. Here you shall be acquainted with the safest way of extirpating a cancer and a lupus. Fifthly, bloud offending either in quantity, or quality, is drawne by phlebotomy, leeches, ventosæ, of all which I will particularly discourse. Things by their owne nature superfluous, are either somewhat familiar to nature, or altogether adverse: Of the first sort, are Wens, and *Struma*: when I come to them I will set downe the diversities of them, and how they also are to be cured. Secondly, the couching of a cataract offereth it selfe. Here I meane to set downe the variety of cataracts, the prognosticks of them, whereby it shall be knowne which are curable and which not; and the most exquisite manner of couching of such as are curable. Things adverse to nature, are stones in sundry parts of the body; but chiefly in the bladder. The incision for extracting of it, is called *λιθοτομία*: of it I meane diligently to discourse; because it is a dangerous operation, and many times scandalous. Last of all, I come to the fourth and last principall part of Chirurgery, which is the supplying of the defects of the body, which may be called *προσθετική* or *additrix* the supplying or adding part. Now things which are added, are either of the body it selfe, as restoring of the Nose lost,

2. Part of Chirurgery.  
3. Part.

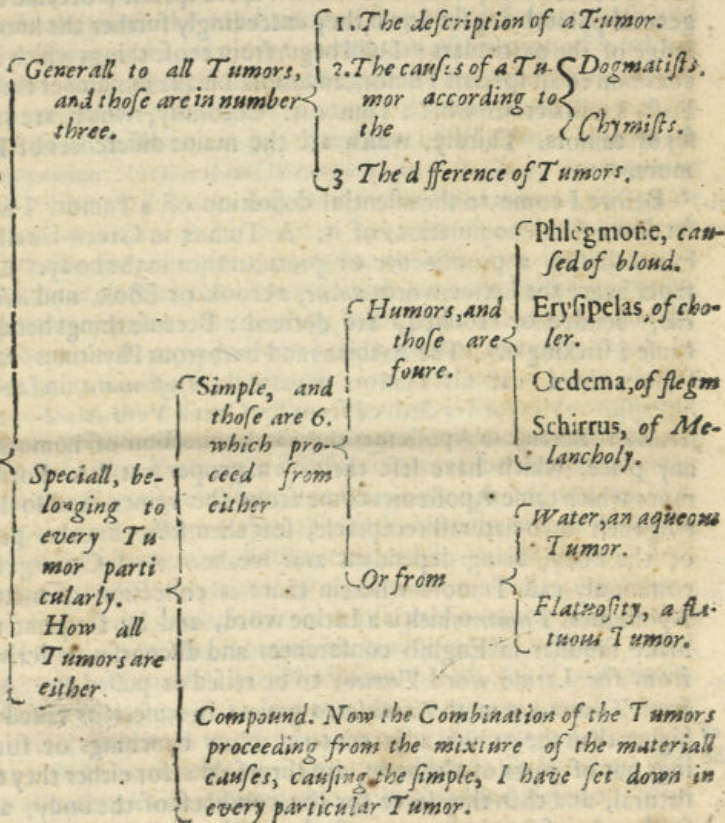
IV. Part of Chirurgery.

or curing of the haire-lip. Of the first, I will set down the method of the Bononian Physitians, and Chirurgeons: Of the second, my owne and other famous mens experiments in curing both the single and the double haire-lip. The matter of things, which is used for repairing of the losses in other parts, as the eye, the eare, arme, and legge, is no wayes of the nature of the body. Nevertheless when I am come so farre, I will make an end of the course of Chirurgery with touching these so much as shall seeme sufficient, to instruct such as have not bene verst in these practises. I have run through those five introductory points of Chirurgerie, to wit, of the antiquity and dignity of it: of the professors of it, of its place amongst the liberall Arts, of the definition and parts of the same. As concerning the two last points, I have varied from all who have written of this subject: Nevertheless I have the light of nature on my side, and the experience of all skilfull practitioners. So that it is needlesse to take further paines, either to confirme those things which I have alleaged, or to refute that which hath bene said by others; Seeing I intend rather to frame an able operating Chirurgeon, than to set out a contentious disputing theoretician: Besides, reprehending of others doth not so much instruct the hearers in the knowledge of the truth, as sheweth that, which is not to be learned, but shunned. Neither is a Chirurgeon contented to have performed so many duties to the body of man while it is alive, and the instrument of the soule for performing actions; but when it is dead, the spirit returning to God, who gave it, he ceaseth not to be officious to it, in dissecting of it, for the instruction of himselfe and others, and preserving it from putrefaction and annoyance, untill time and place fit for burying of it be offered: which he compasseth partly, by encearing of it, partly by embaulming: of the which two last, I meane also to discourse: That the Chirurgeon, which I meane to frame, may be compleat. I have now presented to the view of the eyes of your understanding, this Chirurgicall Canaan: Into the which I meane to bring you, not to use the native inhabitants hardly, as *Joshua* did the Canaanites and their things: but mutually to enjoy the use of those good things which you shall finde with them. If I proceed orderly, I must enter into the doctrine of Tumors, which will be both pleasing and profitable in my first Lecture. It is a subject, which is most frequently offered, and from whence the meanest of all the brethren, which practiseth, is not exempted.

ted. Wherefore it behoveth every one to be well grounded in this point. Howsoever I shall be willin<sup>g</sup> that the Governours of the worshipfull Company set down the matter, whereof I shall read.



The Treatise of Tumors doth deliver things either



*The generall doctrine of Tumors.*

Seeing according to *Aristotle* in *cap. 1. lib. 1. physic. accroas.* in every methodicall tractation, that which is most general ought first to be set down, then that which is more special; because the general points being set down, they exceedingly further the knowledge of the particulars: I will begin from those things which are common to all speciall Tumors, and those I make in number three. First, I will declare what a Tumor is. Secondly, which are causes of tumors. Thirdly, which are the maine differences of Tumors.

The appellations of a Tumor

Before I come to the essentiall definition of a Tumor, I will set down the denominations of it. A Tumor in Greek is called *ὄγκος*, that is, a prominence or protuberance in the body. And from hence the Latine words *uncus*, a crook or hook, and *aduncus*, bended or crooked, are derived: Because things bended cause a sticking out. The Arabians and barbarous Physitians, who follow them, call all Tumors unnatural *Apostemata*, in Latine *abscessus*: this word is derived from the Greek Verb *ἀπισαδου*, *abscedere*: Because in Apostemes there is a collection of humors in any place, which have left their own proper seat, &c. For humors which cause Apostemes come from the veines, and so leaving their own naturall receptacle, seat themselves in other parts of the body, being dependant and weake. And Chirurgians commonly call Tumors wherein there is collection of matter Apostemes. *Tumor* which is a Latine word, and by frequent use made familiar in English conferences and discourses, is derived from the Latine word *Tumeo*, to be raised or puffed up: And from *Tumor* commeth *Tumulus*, a grave: Because it is raised up higher than the ground adjacent to it. Now bunchings or stickings out of parts of the body, are threefold: for either they are natural, and then they serve for the comeliness of the body, and further the actions, as we may see in the Head, Belly, Joints, the Thighs, Calves of the Legs, and Armes: Or they only pass the ordinary dimensions of some parts, such are the Dugs full of milk, and the bellies of women which are with child: Or they are altogether unnatural, not only marring the comely composition of that part of the body which they possess; but hindering the actions

Differences of Tumors of the body.

I.

II.

III.

also.

also. Such a Tumor, or eminence of the body, is called by *Galen* *ὄγκος* *ἄφ' ὅσων* id est, tumor prater naturam, a Tumor contrary to nature. Having set down the denominations of a Tumor, I must come to the definition of it. Seeing so many as have written of Tumors have set down one definition or another, if I should set down all the severall definitions which are by divers Authors set down, and insist in the refutation of such definitions as offend against the conditions of a good definition, I should rather seem to the judicious, to make an ostentation of reading, and wit, then a care of the profiting of the hearers. Of all the definitions, two are chiefly to be noted: the one of *Fallopium* in his Treatise of Tumors, cap. 3. The other of *Hieron. Fabricius ab aqua pendent.* in *Operibus Chirurgicis, part. 2. lib. 1. de tumoribus cap. 1.* That of *Fallopium* is gathered out of *Galen, cap. 1. lib. 13. de method. medendi*: and it is thus. It is a disease, whereby the parts lose their naturall bigness, exceeding it. So that extenuation is contrary to a Tumor. He will have it to be a disease of the instrumentary parts: for quantity is only an instrument, whereby the organically parts performe their actions, more strongly, or weakly, as we may see in dwarfs, and tall men. *Galen lib. 1. de tumoribus prater nat. c. 1.* affirmeth, that in Tumors contrary to nature, all dimensions, that is, length, height and breadth are increased. But the former definition cannot be ascribed to every particular Tumor, and so it is not large enough: for in an *Erysipelas*, extreme heat rather offendeth, than the bigness enlarged, which very often cannot be deprehended by the senses. The definition set down by *Fabricius ab aqua pendente* is this: A Tumor against nature is a disease for the most part compounded, which is to be named of that thing which hindereth the actions. And seeing to a Crow her own Birds seem fairest, for if any one set under her Hens eggs to be hatched, that they may have Cocks of the game, they must watch for the time of disclosing, lest she kill them: So he to make his definition plausible to his Readers, will have all to mark some remarkable points in his definition. And first of all, in that he calleth a Tumor against nature *morbus*, or a disease, he will not have pushes in the face, and such small eminences of the skin to be Tumors, because they hinder not the actions: He cannot deny that the equality of the skin is altered, and besides this, the action of the skin, which is perspiration, in that place is hindered. Let no man think it harsh, that I ascribe action

The definition  
of *Fabricius*.



Three gifts of  
the body.

unto the skin, being a simple and similar part of the body: It cannot be denied that all similiary parts have an use; which use sometimes is an action, as this of the skin; to send out by the pores of it fuliginous vapors, and superfluous serosity of the bloud by insensible perspiration and sweat. And although such small eminences commonly are denied to be diseases, because they hinder not the actions; yet they be passions, and affections, which require the skill of the Physitian and Chirurgian: yea those pufles of the face are sometimes more hard to be cured than great Tumors, and Artists many times gaine more by those, than these: Besides this, by reason of the matter they are to be referred to one or other of the maine Tumors. Howsoever they are not to be neglected. According to *Aristotle 1. Rhetorick, c. 5. & Galen, ad Thrasibulum*, there be three gifts of the body, to wit, Health, Strength, and Beauty, all which Medicine is to direct: Health is preserved by wholesome nourishment, Strength by convenient exercises: of the which *γυμναστική* intreateth, whereof *Hieron. Mercurialis* hath written a Volume; *κοσμητική* hath care of the beauty: Now seeing by reason of the face a man is called beautiful or ugly, who can deny that they deserve the care of the Physitian, and Chirurgian? He addeth that a Tumor is a disease most commonly compounded; if he had said *ever compounded*, he had spoken a truth: for in every one of these Tumors there is a Tumor conspicuous or latent; or a solution of unity either sensible or imaginary. In an *Erysipelas* it self, wherein there appeareth neither quantity of part increased, nor solution of unity procured, yet in it there are undoubtedly both: for the first, seeing there is so great a heat in the part possessed with this grieife, the Humors must be rarified, and the part dilated, which will require a more spacious place than it had before, which is an evident argument that the quantity is enlarged. As for the second, the parts before arctely united must be somewhat separated by stretching: Reason must teach us that which cannot be deprehended by the senses. The last clause of the definition, That the Tumor is to be named from that which hindereth the action; as *Erysipelas* a disease of distemperature, because heat doth most hinder the action of the part: this is frivolous, because not heat only, but the bedewing of the skin with choler, by the which it is stretched, hindereth the contraction and extention of the skin, and so by a necessary consequence, the hindering of the motion of the part origanically, wherain

wherein it is seated. To conclude, this definition may be applyed to other griefes then a Tumor, as to the head-ache, which is a disease most commonly compounded of distemperature of the humors, and solution of unity, and may have its denomination from the diversity of the humor causing it. Wherefore, seeing neither the definition of *Fallopium* out of *Galen*, nor the definition of *Fabricius ab Aqua pendente*, can abide the triall of the Laws of a good definition, we must assay to give another, which shall be this: A Tumor against nature is most frequently a disease, sometimes a light affection, for the most part incident to the organical parts, increasing their quantity above nature, by reason of receiving of superfluous humors, sent from other parts. Here I will labour to yield a reason for every point of this definition. The *genus* is a griefe, because it hindereth the actions; sometimes it is a passion or light affection, which hindereth not the action of the part, as appeareth in small *Oedematous Tumors*, and *Scirrhotities*: and therefore these modifications frequently, and sometimes are added. The subject of a Tumor is a part organically, sometimes by its own nature organically, as a finger or toe, sometimes organically only by office, as when the use of a similiary part is performed by an action: as it appeareth in the skin, one of the uses whereof is to send forth by its pores insensible perspirations, fuliginous vapors, superfluous serosity of the blood by sweat, and ichors of humors in the beginning of Tumors, and declination by discussive and resolute medicaments. The forme of a Tumor is quantity encreased, whereby it differeth from all other griefes. The cause of encrease of quantity, is receiving of superfluous humors, which is done two manner of waies, to wit, affluxion, and congestion. Affluxion is, when a humor offending either in quantity or quality suddenly with violence seizeth upon any member, either by reason of the weaknes of it, the rarity, looseness, dependency, heat, or paine, or because the whole body is full, or cacochymical, and the parts sending strong. Congestion is, when a humor is collected in any part by little and little, by reason of the weaknesse of the concocting and expelling faculty of the same: So that a Tumor against nature is a disease alwaies compounded, against *Fallopium* in his Treatise of Tumors, c. 3. For there is alwaies a solution of unity, either manifest, or latent and occult, and this he granteth; for he saith, & de hac *convenientissimè*: we shall agree concerning this. Besides this, the

The definition  
of the Author.

The cause of  
quantity en-  
creased.  
Affluxione

Congestion.

quan.



Quantity is increased, and that alwaies to reason and imaginati-  
on, although not to the sense, as hath been said of an *Erysipelas*.  
Moreover, you shall hardly find a Tumor without some distem-  
perature, either simple, or compounded. I have insisted some-  
what too long in clearing the Probleme of the definition of a Tu-  
mor against nature, because there is great contention concerning  
it amongst Authors, both ancient and moderne.

Causes of Tu-  
mors.  
Externall.

Now order of doctrine requireth, that we speak somewhat  
of the causes of Tumors: these are either external, or internal;  
The causes external are in number eight. 1. The aire, if it be con-  
tagious, it causeth Tumors, as Carbuncles, and Botches in the  
Plague time. 2. The touching of things exceeding temperature  
in the active qualities, as we see in the application of Vesicatories,  
and sitting long upon any cold seat. 3. Too hard binding of the  
part, which causeth sometimes Gangrenes. 4. The application  
of an attracting instrument to the body, as Cupping-glasses, and  
Hornes. 5. Whatsoever may cause solution of unity, as wound,  
fracture, luxation, or contusion. 6. Biting of Beasts, whether  
they be venomous or no. 7. Taking inwardly things offensive to  
nature, whether it be by the excessive quantity, as when by too  
liberall drinking wine an *Erysipelas* seazeth upon the head, or by  
a maligne quality, as we may see fall out after the taking of Arse-  
nick or Mercury sublimate. 8. Immoderate motion, whereby  
immoderat heat is procured, whereby the humors become more  
subtill, and the passages to the weaker part more patent.

Causes of the  
weakness of a  
part.

Now the part is weak: First, by nature, and that either by  
reason of its substance, it being spongy, and loose as Glan-  
dules: so we see frequently Parotides behind the eares, and Bu-  
bones in the groines, or by reason of the natural humidity of the  
part; so Tumors more often appeare in the flesh than in the sper-  
matick parts. A part also naturally is weak by reason of the  
situation; for the dependant parts are more apt to receive influ-  
ence of humors, as the more high are to receive Halitus; so it is  
often seen, that it rising from the stomach, or some inferiour part,  
causeth in some the falling sicknesse. A part, secondly, is weak  
by accident, and that by reason of errors committed in the things  
not naturall, as aire, meat and drink, exercise, and such like,  
whereof much is spoken in that part of Physick which is called  
*Physiologia*. So that to the causing of a Tumor in a part, there be  
required, the weakness of the part which receiveth, patent

Things requi-  
red in a Tu-  
mor.

passa-

passages, preparation of the Humor, and the strength of the part sending.

The internal causes of Tumors are either Humors or Flatuosités: The Humors are either natural or unnatural: The natural are either sincere, as choler, flegme and melancholy; or mingled as some of these with blood; for blood is no where sincere, but according to the humor mingled with it, which is predominant, it is called cholerick, phlegmatick, or melancholy blood. The humor natural is water, as in the dropie, for it never can become nourishment. Of Tumors which are caused by reason of strange things, as wormes, lice, bones, nailes, haire, grisly substances, and such like, I will speak when I come to the third part of Chirurgerie, called *αφαρτησις*, or *Ablatrix*, which taketh away superfluities. But time admonisheth to come to the setting downe of the principal differences of Tumors. In this matter I will leave all needlesse and fruitlesse distinctions of Tumors, from time, as that some are new, some old, some short, some long enduring: from the quantity, as that some are small, some great, some of a mean bignesse: from the condition of them, as that some are milde, some maligne, some curable, some uncurable, and such like; which either do not greatly further the knowledge and curation of Tumors, or else are to be set downe to some purpose in the explication of every particular Tumor. Only now in my general discourse of Tumors, which is to shew light unto that which shall hereafter be spoken in the special doctrine of each, I will meddle with the differences taken from the material cause of Tumors, from whence spring the main principal Species of Tumors, unto which all other may be reduced.

Internall.

All Tumors then are either simple, or compounded. The simple are caused either of Humors or Flatuosity: the humors are either natural, or unnatural: the natural Humors are saure, Bloud, Choler, Flegme and Melancholy: If blood, which neither in the veines, nor without, is found sincere and unmixed (as hath been said) cause a Tumor, it is called *Phlegmone*, or *Inflamatio*, according to *Galen lib. 2. ad Glaucon. cap. 1.* Of the divers kinds of it, which have their denominations from their places, and of the diversities which arise from the complication of it with other Humors, I mean to discourse when I come to the particular tractation of it: for I meane not to confound particulars with generals, because this would breed confusion, and so deprive the memory of fruit of that

The maine differences of Tumors.

that which is delivered. Of all other Tumors a *Plegmone* defer-  
 veth the first place, because it is caused of bloud, which is the son  
 of nature, first begotten, and the treasure of life. If choler cause  
 the Tumor, it is called *Erysipelas*; these two are hot Tumors. If  
 flegme cause a soft and white Tumor like it selfe, it is called *Oe-*  
*dema*, unto which divers pituitous Tumors are reduced, of the  
 which I will speak in their proper places. If a Tumor very hard  
 be produced of the melancholy juice, and without paine, it is cal-  
 led *Scirrhus*; these two last are cold Tumors. If a Tumor be  
 caused of water contained in any part, it is called *Tumor aquosus*.  
 If from flatuosity, *Emphysema*; these two last Tumors are the  
 off-springs of crudity, caused by the weaknesse and defect of the  
 naturall heat. And seeing these have the material cause different  
 from that of others, I will speak of these in severall Lectures, as  
 was done in every other particular Tumor. Besides this, they re-  
 quire other medicaments then the rest of the main Tumors do, as  
 shall be shewed when we come to the curation of them, differing  
 them from the rest. I see no reason why they may not be account-  
 ed severall Tumors; one cannot truly say that either *Hernia a-*  
*quosa*, or flatuous Tumors of the joynts, can be reduced to the a-  
 foresaid foure principal Tumors, or that they can be cured by the  
 same indications of curing, and medicaments which are applyed  
 to the other. You see how I have set down six simple Tumors, for  
 fewer I cannot, if you consider either the diversity of the materi-  
 all causes, or the diversity of the topical applications, or the evi-  
 dence of doctrine. The combination of these begets the compound  
 Tumors; in these compound Tumors, what Humor is predomi-  
 nant, that carrieth away the denomination: As for example, if  
 blood abound more then choler, the Tumor is called *φλεγμωνή*  
*έρυσιπυλατώδης*. If choler be predominant, it is called *έρυσιπυλας*  
*φλεγμωνώδης*, and so in all other combinations of Humors in Tu-  
 mors, which shall be presented to your view. When you have no-  
 ted the Pathognomonical signes of each of the simple principal  
 Tumors, it is an easie matter at the first sight to discern the kinde  
 of Tumor, and what compound medicaments are to be applyed  
 to it. Hitherto have I declared unto you the opinion of *Hippo-*  
*crates*, *Galen*, and of the rest of the Grecians; as also of the Ara-  
 bians concerning the material causes of Tumors. Now to fulfill  
 my promise, I will shew you what *Paracelsus* and his followers  
 think of this point: First then they acknowledge but two ele-  
 ments.

Compound  
 Tumors.

ments, water and earth; for if they should not grant so much, they could not be counted in the number of the faithful; for in the very first verses of *Genesis* mention is made of both. Secondly, they account the Humors parts of the body, and so the causes of no griefs, but erroneously; for if they were parts, they would be endued with life, which they are not. Thirdly, they would have some action, whereof they also are deprived: only they have an use; which is to nourish the parts. Besides this, they maliciously dissemble the doctrine of the rational Physicians and Chirurgeons, for they make each Humor, contained in the masse of blood, either natural, or against nature: the natural they make, either alimentary, which nourisheth the parts, or superfluous, which nature reserveth for some other uses: of this abounding, diseases proceeding of fulnesse are ingendred, called *Plethora*: of the Humor against nature, causing impurity, *Cacochymia* is caused; so choler in the veines and arteries is natural, and alimentary. In the *Cystis fellis*, and in the *Porus biliaris*, the superfluous is contained: if it leave the appointed receptacles, and passe to the habit of the body, it causeth the yellow jaundize; if by aduision, it become *Bilis atra*, it procureth Cancers and Wolfes; so that they hold not the natural, but those that are unnatural to be causes of diseases.

The Humors are not parts of the body.

What Humors cause diseases.

The Paracelsians appoint three principles of all things, *Sal*, *Sulphur*, and *Mercurie*, and not only by resemblance, or allegorically, but really: By Sulphur, they understand the farric substance; by Mercurie, the waterish substance: by salt, the earthly substance: Distill Cloaves, there come two humidities, the oyle and spirit: in the bottome the earthly substance stayeth, which hath two parts, *Terra repurgata*, the crySTALLINE salt, and *Terra mortua*, the black earth. The life of the salt is a strong water which if it be by distillation drawn, it leaveth but a *Terra damnata*, only fit for the dunghil. This salt preserveth the body from putrefaction; wherefore Christ called his Disciples the salt of the earth, because by the preaching of the Gospel, and administration of the healthful Sacraments, they procured to the unfaithful the life of grace, who before were but *Terra damnata*; & by a wonderful transmutation of terrestrial creatures, made them spiritual, representing the Angels, yea God himself, by restoring his image. From defects in these three, they will have all diseases to proceed: and concerning Tumors against nature, the hot they will have to proceed from Sulphur and Mercurie; and the hotter it is, the more Sulphur to con-

The principles of all things according to Paracelsus and his followers.

The life of salt

The effect and benefit of salt.

The causes of diseases according to the Chymists.

curre. The cold Tumors they will have to proceed from Mercury and Salt, and according to the loosnesse, or firmnesse of the Tumor, the more Salt or Mercury to be required, as in *Oedema* more Mercurie, in *Scirrhus* more Salt. This is their doctrine concerning the material causes of Tumors; in my judgment it is the safest course to insift in the foot-steps of the ancient, for their way is plaine and easie; no man can deny that there are foure Humors in the masse of blood, as may appeare when it is drawne out of the veines: Cholera swimmeth about the blood, which is known by its bright rednesse; Melancholy is in the bottome, which is comprehended by its grossnesse and blacknesse; now slegm uniteth these two last Humors, and maketh them tough. The Paracelsian doctrine is full of difficulties, which he maketh more obscure by coyning strange words, as his Reader will perceive; so that his discourses are but a kinde of canting Philosophy. Neverthelesse, I thought good in plain termes to acquaint you with it, that when any Emperick shall make a shew of learning, by using these terms, you may finde him out, and esteem of him as he is: that is, like that head which the Wolfe asarre off espied, representing the head of a living man, but coming neer, and seeing it but curiously carved, affirmed it to be *Pulchrum caput, sed sine scientia*, A comely head, but without wit.

## LECT. III.

*Of the generall Indications of curing Tumors.*

OF the general points whereof I intended to speak before the handling of every particular Tumor, having set down the definition, causes, and differences of Tumors, now I am called upon to set downe the general indications of curing Tumors.

Now an indication is that which sheweth what course is to be taken for the recovery of health: The general indications are taken either from the matter, or from the times of every Tumor; In the matter, we are to consider the motion of it, and its nature. As concerning the motion of the matter, it is either in flowing, or it is received already into the part. The causes of fluxion are two, *Plethora*, or fulnesse, and *Cacoehymia*, an ill complexion: *Plethora* or fulnesse is twofold, *Ad vasa*, and *Ad vires*: *Ad vasa*

Indication  
what it is.

is when the veins are only full, and the body notwithstanding quick and nimble; this is twofold, *Pura*, when there is a due proportion of the Humors of the body; and *Impura*, when there is an excess of any of the three Humors besides blood, as Cholera, Flegme, or Melancholy. *Advires* is when there is such a fulness, as causeth sluggishness of the body: this requireth evacuation of Phlebotomie, as *Cacoehymia* by purgation. As for Phlebotomie, three things are to be observed concerning it. 1. The manner: In fulness, *Quoad vasa*, at one time so much blood is to be drawne as is requisite; but in fulness, *Quoad vires*, because strength is somewhat abated, you are to draw blood by repetition, and not all at one time. 2. Is the quantity, how much then is to be drawne, the weakness or strength of the party will inform you; for in a weak body you are to draw lesse, in a strong body more; strength and weakness are to be discerned by the functions: the weakness of the natural faculty is discerned by crudity of Urine, and excrements of the body: the weakness of the vital, by a weak and small pulse, as also breathing weak and thick; the weakness of the animal function is found out by defect in moving and feeling; by the integrity and perfection of these three faculties, the strength of the party is perceived: But we must diligently distinguish between languishing and weakness indeed, and oppression of the faculties by reason of fulness, making them dull and slow; for, as in weakness, great moderation is to be used, so in oppression we may more bountifully and boldly suffer the veine to run. The third thing to be observed in Phlebotomie, is the end of it, wherefore it is instituted; the scopes of blood-letting are two; Derivation and Revulsion: Derivation is the drawing of the Humor to the part adjacent, or of the same side, by opening of that veine, or a branch of it, which is inserted into the part affected: as for example, if in diseases of the head or neck, we open the *Cephalica* in the same side: and even in this there is a kinde of opposition, to wit, high and low; or in Tumors of the groyne, we open *Vena poplitis*: this they do also who open this veine in *Podagra*, if the gout invade the foot. This kinde of interception we use, not only because there is a plentiful fluxion to the part affected, but because a speedy interception is required, lest the natural heat of the part be oppressed, or the rupture of a vessel ensue; so in inflammation of the lungs and side, we open the liver veine of the same side, and draw blood plentifully.

Weakness, and  
Oppression  
differ.

Revulsion

Revulsion is a drawing of the Humor to a part opposite: of this there be foure differences: 1. From the higher to the lower parts, as from the head to the feet. 2. From the right side to the left. 3. From the fore part to the back, which we shall do if we apply Leeches in diseases of the breast or belly. 4. Is when we draw from the center unto the circumference, as in applying Ventoses with Scarification to the neck in diseases of the braine, as in the Apoplexie, and Lethargie. Veficatories performe the same.

Quest.

But one may aske which are to be accounted high, and which low.

Answ.

I answer, That all those parts which are above the navel, including also the liver and stomach, are accounted high: but the parts below the liver, are accounted low, as the kidneys, and genitals in man and woman.

The ends of  
Revulsion.

This kind of interception we use in two cases: First, if the matter flow but slowly, and so a sudden interception is not required. Secondly, if we are to open a veine to prevent a disease, as *Vena cubiti* for to free one of a fit of the gout. But this kinde of drawing hath no place in contagious Tumors, if they appear either in the upper or lower parts; for whether they appear either behind the eares, and arme-pits in the upper parts, or in the groynes in the lower, revulsion must be by the *Vena cava*, which is inserted into the right ventricle of the heart: now whether any contagious vapor or Humor can besent by this passage safely, let every judicious person consider.

Now there is a difference between Revulsion, Derivation, and Evacuation; for in the former two, motion is required, as you have heard, but in vacuation the Humors must be quiet. In the translation of Humors flowing from any part, we must mark according to *Hippocrates*, that it be done κατ' ἰσμίαν, *Secundum rectitudinem*, by observation of a straight course; and that is done two manner of ways.

First, by the rectitude of the parts, as the left with the left, and right with the right, and the hinder with the fore parts. Secondly, by the rectitude of the vessels: as for example, The liver vein of the arme hath a kind of straitnesse with the veines ascending to the head: so if one bleed immoderately at the right nostril, by applying a ventose to the region of the liver, the flux ceaseth: if it flow from the left nostril, it must be applied to the region of the spleen.

Having

Having set down how *Plethora* is to be abated, if it cause fluxion, we are to shew how *Cacochymia* is to be removed, which is not so much by reason of the quantity oppressing, as by reason of an evill quality offending a part. Now this matter offending in quality, it either moveth from place to place, or it resteth where it had its first invasion; if it move from place to place, it is the safest course to abate the Humors wherein this quality is resident by Phlebotomie, lest it seize upon some principal part: if it be quiet, resting contented with the first place, then let us use purging, expelling the Humor, whether it be choler, flegme, or melancholy, with appropriate medicaments, which Physick prescribeth in that branch of the curative part of Physick which restoreth health by the administration of inward medicaments. Having set down the indications which are taken from the motion of the Humor, we must come to those which are taken from the nature of it.

Now the humor it selfe is either not contagious, or contagious: If it be not contagious, the fluxion of it doth proceed from three causes: The first is the strength of the part sending the humor, which it doth, either because it is burthened with the quantity, or pricked on by the quality; we have shewed what is to be done in these cases. The second is the thinnesse of the humor. The third is the attraction of the affected part. If fluxion be caused by reason of the thinnesse of the humor, if we cannot use phlebotomie or purging, as in children, decrepid persons, and in women with childe in the last moneth: then we must use revulsion, and this is done six manner of wayes. 1. By Ventoses without scarification, as when we apply a Ventose to the region of the liver, when one bleedeth too much at the right nostril. 2. Painful constriction, or binding of the parts, as armes and legges: but we must first rub hard the parts which are to be bound; and if we binde the arme, we must use a Ligature in three parts: First, Neer the arme-pit. Secondly, a little above the elbow. Thirdly, about the wrist. In the legges we must use a Ligature neer the groyne, a little above the knee, and neere the ankle. 3. Painful frications when we meane to revel from the center to the circumference. 4. Bathing of the parts with very hot water: for first by reason of the paine it doth revel. Secondly, it doth discusse, because it openeth the pores. And in Fevers by bathing the limbs sleepe is procured, the vapours ascending to the head. 5. Vesicatories which



which are used in the Appoplexie, Lethargie, and such like. 6. Fontanels, and they are in great use to be applyed to divers parts, for the preventing and curing sundry griefs. If the fluxion be procured by the attraction of the part affected, there be two causes of the attraction: First, the distemperature of the part. Secondly, paine. If distemperature of the part be the cause, it must be removed by its contrary: but seeing it is most commonly a hot distemperature, things cooling are to be applyed, as by applying clothes moistned with oyle of Roses or Violets cold: but when the clouts become hot, they are to be removed, and cold to be applyed, or cloaths moistned in the juyces of cold herbs. If we apply unguents, as *infrigidans Galeni, Rosatum Mesuis, de cerussa Rafis, Populeon*, we must not apply the unguent immediately to the skin; but a thin linnen cloth; for it keepeth the unguent from drying, and doth not hinder the breathing out of the vapors, which the immediate application of the unguent would do, and so by stopping of the pores, would increase both the heate and paine.

And in application of pulteses, they are to be spread betweene the foldings of a cloth dipped in some convenient oyle or liniment; for so it doth not hinder perspiration, and the applications are removed more easily from the part. This in your practice is to be noted, and the inveterate error to be shunned. If the ways by the which the humor passeth, be too ample and patent, and a hot distemperature joyned, then things astrigent and cooling are to be applyed, roulers and other cloaths being moistned in them. Wherefore in this case myrtill berries, red rose leaves dried, pomgranate rindes and flowers, sumach, sloes, oaken and owlar barke boyled in red astrigent wine, or vinegar and water, or new and fresh Tanners woose, and strained, are effectual. The parts therefore by the which the humor passeth, are to be rouled somewhat straight with the rouler, cloaths, stipes, or pledgets and bowlsters being moistned in this liquor, and wrung: you may also apply astrigent and defensive emplasters drawne upon leather; such an one is this, *R. rad. torment. bistort. sympyti. ros. rub. gallar. balaust. malicor. sang. drac. boli Armen. santal. rubr. ceruss. an. ʒ j. cere alba ʒ iij. ol. myrtill. ʒ j. misc. fiat ceratum*. So much then shall be sufficient to have been set down, concerning the attraction of the affected part, by reason of the distemperature of it: now we must come to the second cause of the attraction, which is paine or dolor. There are two causes of paine, solution of unitie, and

a venemous quality : if the solution of unity proceed from the affluxion of Humors hot or sharp distending the parts, the paine is to be eased with medicaments convenient : these are of two sorts, *Anodine*, and *Narcoticall* : *Anodynes* gently contemperate the part, by reason of the conformity which they have with the nature of man. They are hot in the first degree, and of subtrill parts; such are milk, old sallet-oyle Butter, the fat of swine, Hens, Ducks, Geese, Eeles, Man, Badger, Beares, the oyle of Camomil, Lillies, Earth-Wormes, Linseed, Dill, sweet Almonds, Egges, the pulp of Cassia tempered with the Oyle of Roses, the pulp of sweet Apples with the powder of Saffron. *Narcoticks*, are which deprive the part of the faculty of feeling, such are *Opium*, Hemlock, Henbane, the deady Night-shade, *mandragora*, and the Apple of Peru, or prickly Apple : these we are to use when the former will not prevaile, and when by reason of watching, a Fever or faintnes is to be feared. Sometimes in extremities they are used solitary, sometimes with their correctives, to wit, things hot, if we feare stupefaction of the part, unto which they are to be applyed : such things are *castoreum*, Saffron, Sinamon, Cloves, Pepper, and such like. If the biting of a venemous beast, as of a mad Dog, or a Viper, or Adder, or the stinging and pricking of any beast, as of a Scorpion, or Insect, as a Hornet, be the cause of a Tumor, we must addressse our selves to meet speedily with the poyson. If therefore a venemous beast bite or sting first, the part is to be scarified, and *Ventoses* to be applyed, then the part is to be fomented with *Theriaca Andromachi*, dissolved in strong Wine-Vinegar, and stupes moistned in the same, applyed to the same; or it is to be fomented with the Oyle of Scorpions, and a Pledget wet in it to be applyed : and above the Plegget, this Emplaster of *Fallopins* is to be spread warm, *Rx pic.naval. ʒ ij. sal.nitri. ʒ. ʒ. semen.synapi ʒ ij. cepar. De tu moribus allior.sub.prun.coctor.an. ʒ ij. assa fetid.sagapen.an. ʒ ij. stencor. coc. 14. Iumbini ʒ j. aristol. rotund dictamni albi an. ʒ j. ol. lil. albor. ʒ ʒ. fiat emplastrum* : Pigeons also, and Hens, and Coks divided in two parts, and applyed hot, are available. Sometimes the actual cauterie is to be applyed, to tame the malignity of the poyson if the poyson hath continued above three dayes : Besides this, two things more are to be done; first, according to *Gallen*, the member is to be bound hard, three or foure inches above the part bitten or stung : secondly, Antidotes inwardly are to be given; but chiefly *Theriaca Andromachi*, for many dayes together in a liquor,

When narcoticall meanes are to be used.

What is to be done in biting of venomous beasts.

De tu moribus coc. 14.

3. de loc. affect.

Indications  
in contagious  
Tumors.

fit for the constitution of the diseased person : now if the matter of a Tumor be contagious, we are by all meanes to draw it out of the body, lest it go in, it deprive the person of life, as in the plague, or infect the liver, as in the pox; wherefore Ventoses are to be applyed, and medicaments attractive to be applyed : such is Fallopius his Emplaster set downe before, for the attraction of poyson. In the plague, we must not faile to minister Antidotes, even to three times in a day, and to procure sweat : such are Theriac, Electuarium de ovo, Electuarium Orvietani, or this of Fallopius:

De Tumor. 9.

R baccar. juniper. caryophyll. nuc. mascat. rac. enul. an. ʒij. rad. aristol. utriusque, gentian. an. ʒvj. semen. portul. acetos. doron. bene rub. an. ʒj spodii, oss. de corde cervi. ligni aloes. corallii albi & rubri, rasur. ebor. baccar. lauri, mastich. croci. an. ʒij. rut. morsus diabol. an. ʒj. pulp. ficuum & dactylor. an. ʒj. cinamomi, liquirit. an. ʒβ. tormentill. card. benedict. dictamni albi an. ʒiij. amygdal. dulc. & pinear. excort. an. ʒj. agaric. trochiscat. ʒvj. rad. puced. ʒ. ij. terra sigillat. & bol. orient. an. ʒj. zedoar. ʒij. capbur. ʒiij. spec. ʒ. santal. spec. diarrhod. abbat. an. ʒij. cort. citri, pulv. smaragdi an. ʒj moschi ʒj. Theriac. Andromach. & Mithridat. an. ʒj. fol. mali Armeniaci ʒβ. cum syrup. de cort. citri. & de acetositate citri an. triplo pondere, ad pulveres, fiat Electuarium. Ut Electuarium fiat magis efficax addi possunt cornu rhinocerotis ʒiij & cornu cervi preparat. ʒβ. dos. a ʒj. ad ʒij. in conveniente liquore.

coquendo omnia.

The stinging of Wasps or Bees is cured with Mallows stamped and mingled with cold water, or chaulk applied with the same.

#### LECT. IV.

Of the foure times of a Tumor, and the Indications taken from them

The times of a Tumor.

I.

HAVING spoken of the Indications curative, taken from the matter of a Tumor, now it followeth that we speak of the Indications taken from the times of a Tumor; the times of a Tumor are foure, the beginning, the increase, the state and declination. The beginning is thought to be, when a part beginneth to swell, although the actions be not hindred : in the beginning repelling medicaments are required : repelling medicaments are cold, and of grosse substance, for they are to thicken the part affected, and to coole the inner parts of it such are the whites of Egges, Plantaine, Night-shade, House-leek;

Prick,

Prick-damad, Purfelain, Rose-buds, dry Roses, Myrtill-berries, Pomgranate flowers, and rindes, Galls, Sumach, Quinces, Sloes, Bole, *sanguis draconis, terra sigillata*, sowre wine, Tanners Woofe; which you may apply either single, or mingled according to your scope. But in six cases we are not to use repelling Topicks; First, if the matter be venemous or maligne: least it being repelled, should assault some principal part. Secondly, if the matter be critically turned to a part, so that it be not a principal part, by the errour of nature: for then it ought to be repelled; as when in a burning feaver, the matter being sent to the meninges causeth ravings. Thirdly, when the body is either plethorick, or of an ill habit. Fourthly, (a) when the humor floweth to the emunctories. Fifthly, if the part have but little natural heat, we are not to use repercussives, lest the natural heat be extinguished, and the part mortified. Sixthly, when the dolor is vehement, and the part exceedingly pained, for then *Anodyns* are only to be used. We are to think the Tumor to increase, when the part is stretched, and symptoms are increased; and seeing in the increase the matter partly floweth, and partly possesseth the part, you are partly to repel, and partly to discusse: but if the matter flow with such force and plenty of humor, that it threateth corruption of the part, (e) or if the humor which floweth be thick, and so hot that the part feeleth a burning, as in a carbuncle, then are you to use sensible evacuation by scarification; but where we cannot conveniently scarifie, the leeches are to be applyed, as in the hemorrhodies, and other griefes of the *anus*. Now discussion is an evacuation of a thin matter gathered in a part, by insensible evaporation, procured by the natural heat increased by proportionate medicaments. In this description, *insensible* is added, to distinguish it from evacuation by incision, scarification, or leeches, which evacuate sensibly to the eye: the principal efficient cause is the natural heat; the adjuvant discussive medicaments; the matter which is to be resolved must be thin; for it is in vaine to go about to discusse a thick substance, because it is not apt to yeeld vapors. In the description, discussive medicaments are said to help natural heat by increasing of it; which being done: First, the humor is made thin: Secondly, it is resolved into a vapor: Thirdly, it is drawne from the center to the circumference; and lastly, expelled by the pores of the skin. Such medicaments then must be familiar to nature, and these performe their office, by consuming superfluous humidity: and so they

When repelling medicaments are not to be used.

a 6. de comp. med. 2. m. loca. 2

b Id. eod. lib.

c. 7. &

13. method.

13. method.

c. 16.

c Id 6. de comp. pos. med.

2. m. loc. c. 2.

d Id. 2. ad Glaucon. c. 9.

Id. 14. method. 20.

Discussion,

The effects of discussive medicaments.

The qualities of these medicaments.

Degrees of them.

*Gal. 6. de comp. medic. 2. m. loca 6. 1.*

I.

II.

III.

What is to be done in the state of a Tumor.  
Its signe.

Of the Declination.

The Termination of Tumors.

The matter:

must be hot and dry. They must then be subtil, that they penetrate to performe these offices. There be three degrees of discussive medicaments, they in the first degree are hot and dry in the second, as dry Figs, Bran, Camomil, *Ammoniacum, galbanum*, Leaven, Lillie roots, Melilot, the roots of the marsh Mallow, Goose grease, and old Hens grease: and because such assuage paine, we ought alwayes to begin with them. In the second degree, are Calamint, I-sope, Penniroyal, Ments, Cummin-seeds, and dill-seeds. Beane-floure, the floure of Vetches, Fenugreek, Hore-hound; the root of *Peucedanum*, the roots of the Birth-woorthes, Lyons fat, old Beares fat, old Badgers, Cats, dogs, & mans fat: these are somewhat drier and hotter then those of the first. In the third degree, are those which are dry and hot in the third degree, as Nitor, unslaked Lime, Sulphur vive, *assa foetida* &c. These are to be applyed according to the constitution of the party, and as the skilful Chirurgian shall see cause. The state of a Tumor is, when it is come to such a degree, as that it can go no farther in bignesse, the signes of it are these: first, all symptoms, as tension, paine, rednesse, and feaver symptomatical are at the height, and remaine uniforme, neither increasing nor decreasing: secondly, the veines of the parts adjacent continue in this same fulnesse and dilation. In the state, we are to use *Anodyns* with discussives by reason of the paine. We are to think that the declination of the Tumor beginneth, when the foresaid Symptoms begin to abate, and then strong discussives only are to be applyed, whereof we have spoken before. In necessity we may use these which are found in the shops, *diachylon cum gummis, diachylon magnum Mesuis, diachylon ireatum*. Tumors end not only by resolution, but often by maturation; and somtimes by induration and corruption: and as discussion is better then apostemation; so induration is better then the corruption of the part: fifthly, Tumors do end changing the place, as when in a Plurisie the matter falleth upon the midrif, and causeth *Empyema*.

#### LECT. V.

*Of curing of a Tumor come to Suppuration.*

**H**AVING in my former Lecture set down, that all Tumors end in one of these five ways, to wit, discussion, apostemation, induration, corruption of the part, and passing from one part to another. Having shewed the method how they are to be discussed: now order

order requireth that the means be set down, how a Tumor is to be handled, if it tend to suppuration, or maturation, which by our usuall terme is called Apostemation. Thus we are inforced so to go to work : First, if the humor be too plentifull; for then the naturall heat cannot well rule it, and so it must be seconded by forraigne and externall heat, which working upon superfluous humidity, causeth putrifaction according to the Philosopher. Secondly, when it is crude; for then we must labour to concoct it with the medicaments, which are *peptica* or *coquentia*. Thirdly, when the matter is hard, and then we must use emollient medicaments. The medicaments which procure quittour, they are temperately hot and moist : and these help naturall heat, that it may the more easily elaborate the matter, and make it fit for expulsion, and this we call concoction. Emollient Topicks are used to soften any matter indurated, and such are dry in the first degree, and hot in the first, and in the beginning of the second. But it is to be noted that there is a difference betweene tension and harnesse, and relaxation and softnesse : a part stretched will yeeld to the finger pressing it, if it be hard it will not; and where there is any tension, relaxing medicaments are to be applied, which attenuate and open the pores, and therefore they must more discusse than dry, and so be drying in the first degree, and hot in the second. A part indurated must have emollient meanes applied to it : whereof we will speak, when we come to discourse of a *Schirrus*. In the curation of Apostemes, we are to do two things : first, we are to prepare the matter, and make it fit for expulsion : secondly, we are to evacuate it when it is prepared. To accomplish the preparation of the matter; first, we are to remove accidents : secondly, to procure the maturation of the matter. The accidents are these, paine, tension of the part, hardnesse, and heat. As for the asswaging of paine; narcoticall or stupefactive medicament have no place here; for first, they extinguish the naturall heat of the part, which is the principall efficient cause of coction : secondly, by thickning of the matter, they make it more rebellious; wherefore we are to use Anodine medicaments, whereof we have spoken already : you shall do well to apply such a cataplasme as this; take of white bread crums iij ℥. of new milk three quarters of a pint, of mallow and violet leaves pounded small, of each an handful : boyle these to the consistence of a cataplasme, then adde to it of saffron a dram, of *unguentum populeum* iij ℥. let the Aposteme be dressed with this, or such a medicament, morning and evening.

When maturation of a Tumor is to be procured.

Indications in curing of Apostemes.

Removing of accidents.

Asswaging of paine.

The inconveniences of narcoticall medicaments.

If

Against ten-  
sion.  
Simples.

If the part be stretched, use relaxing Topicks, such are those which are temperately hot, not drying much, and of subtil parts, as white hore-hound, archangel red and white, mullen, dill, camomil, fenugreek, mercury, melilot, turneps, the leaves of the marsh-mallow, the floure of barlie, beanes and vetches; of these you may frame to your purpose such a cataplasme: Take of camomil-flowers beat to powder ij. pugils, of barlie, bean, and floure, of vetches, of each ij. ounces; of marsh-mallow leaves and flowers pounded a handful: boyle these in beefe or mutton broth strained, and the fat taken away, untill they come to the consistence of a poultice: Then adde to it the oyle of dill, camomil and rape-seed, of each one ounce: dresse the apostem with this or the like, morning and evening.

Against hard-  
nesse.  
Simples.

If hardnesse hinder, use those things which are emollient, as all manner of fats, the dregs of oyle, all sorts of mallows, colts-foot, buglosse and burrage, quince seed, milk, the white lillie, linseed, figs, raisins, the marrow of beasts, the oyle of sweet almonds, marsh violets, *Ammoniacum*, *Bdellium*: of some of these you may frame a caraplasme after this manner: Take of linseed meale or powder  $\text{iiij} \frac{3}{4}$ . of marsh mallow roots, and white lillie roots boyled in water, and well bruised, of each  $\text{ij} \frac{3}{4}$ . of the violet leaves, and flowers, and colts-foot leaves, of each an handful; boyle these in new milk, untill they come to the consistence of a cataplasme: unto the which adde of *Ammoniacum* dissolved in muscadine, of the pulp of figs and raisins, of each j. ounce, and so make up your cataplasme.

Against heat.

If immoderate heat trouble you, apply things cooling: but let them be cold either in the second degree. or beginning of the third, for the reasons yeelded against narcoticks, when I spake of paine; such are *umbilicus veneris*, or navel woort, prick-madam, singreene, barlie meale, endive, the pulp of the pumpeon, sea-tong lettuce, ducks-meat, the water lillie, the water archer, plantine, garden night-shade of these herbs with barlie meale boyled in fair spring water make a poultice; and to every *lib.* of the poultice, adde  $\text{ij} \frac{3}{4}$ . of *populeum unguentum*, and one ounce and an halfe of *unguentum rosarum Mesuis*.

Quest.

You may demand of me, 'how long the application of these Topicks prescribed, for the removing of accidents is to be continued.

Ans.

I answer, untill the accident be almost gone, with the which you  
encoun-

encountred, and then you may proceed to assist nature, by increasing natural heat by ripening medicines, which was the second intention of curing apostemes set down by me. Now those medicaments which help nature, ought first to stop the pores reasonably, only suffering the sharp vapors to breath out, and to detain those which are mild and somewhat thick, which are the secondary cause of coction. In this respect then they ought to be viscous and tough in substance, which are temperate oyles, and mucilages, which by *Galen* are called *Emplastica*: secondly, they ought to be familiar to nature, and so temperately hot and moist. One thing is to be noted, that hotter simples are to be chosen, according to the temperature of the part, if the Tumor seeme somewhat cold: wherefore if the Tumor seeme hot, only Maturatives in the first degree are to be used, and those of the second degree to be shunned: But if the matter be somewhat cold, then you are to use Maturatives of the second, yet alwayes mingling wih them some of the first degree. And the reason is this, because the medicaments of the second degree dry too much; wherefore those of the first degree are to be added, in the which there is much moisture, which is requisite to coction & producing of quittor. These medicaments are called *Concoquentia*, and *Pus moventia*, and *Sappurantia*: such ought to be hot and moist, as the body of a temperate man is, and so they ought neither to dry or moisten, or to heat or coole immoderately, but only to preserve and increase the natural heat; for a Sappurative medicament ought to answer the constitution of him unto whom it is applyed.

Of these sappurative medicaments there be two ranks; In the first, are Mans-grease, which aswageth paine, also Ducks-grease, Goose-grease, Hens-grease, Oyle of sweet Almonds, sweet fallet Oyle, Mallowes, sweet Butter Figs, Fenugreek, Lilly-roots, Linseed, Wheat-flowre; a Cataplasme made of Wheat-flowre, Water and Oyle, an Emplaster made of yellow Wax, and Oyle called *Cerelaum*, Violet leaves & flowres, Saffron. For an example, I will set down the description of a sappurative Cataplasme compounded of some of these of the first rank: Take of Milk a pint, in the which boyle of Wheat-flowre a quarter of a pound, of Violet-leaves, and Mallow-leaves stamped, of each a handful, of Lilly-roots, and figs boyled in Water, until they be soft, of each two ounces; when they are come to consistence of a Pultice, adde of Saffron beat to powder a dram, of the Oyle of Linseed,

Maturation of  
Apostemes.

*Gal. de simplic.  
facult.*

Degrees of  
Sappurative  
medicaments.

Simples of the  
first degree.

Compound.

sweet



sweet Almonds, Lillies, and Mans-grease, of each one ounce; and so make up your medicament. If the Tumor be immoderately hot, mingle always with your suppuratives those things which are cold and moist in the first degree, as Violet-leaves, Lettice, the pulp of Pompions, Grownfill, Sarcorie, Dandelion, and such like. If of a sudden you be called, and be required to dresse a Tumor tending to suppuration; you may have recourse to the Apothecaries shop, and with these things dresse it. First, beat some oyle of Violets and faire Spring water together, taking two spoonfull of oyle, and one of water, with the which embrocat the Tumor, then apply a pledget moistened in this, upon the part which is like to break, or be opened: and above the pledget, *Diachylon simplex* if the Tumor be hot, or *Diachylon cum gummis* if it be but a little exceeding the ordinary temperament.

Suppuratives  
of the second  
degree.  
Simples.

Suppuratives of the second degree are these; *Terebinthina*, *Ammoniacum*, *Galbanum sagapenum*, *Gummi elemni*, *Pix navalis*, Burgundie pitch, Saffron, Leaven, Fenugreek, Onyons and Garlicke roasted under the imbers, old Butter, oyle of Camomill, and Dill, old Hens greafe, Badgers-greafe, and Beares and Dogs-greafe, Wheat-floure, Flowre of Linfeed. In the shops there are *Emplastrum de mucilaginitibus*, *Dialthea cum gummis*, *Diachylon cum gummis*, *Diachylon magnum*.

Compound.

As before I have done, so now I will set down a compound, medicament, framed of these Simples: Take of the roots of the white Lillies, of the roots of the march Mallow, of Onyons boyled and bruized, with the liquor of each  $\text{iiij. } \frac{3}{4}$ . of Leaven  $\text{ij. } \frac{3}{4}$ . of Linfeed-meale  $\text{j. } \frac{3}{4}$ . and a halfe, of Saffron beat to powder a dram, of *Ammoniacum* & *Galbanum* dissolved in Muscadine, and the pulp of Figs, of each  $\text{j. } \frac{3}{4}$ . of oyle of Camomill and Lilies, so much as will make a Cataplasme of a good consistence.

In Strumes, and *Bubos venereall*, use this: take of *Diachylon cum gummis*, and *Emplastrum de mucilaginitibus*, of each  $\text{j. } \frac{3}{4}$ . of Garlicke and Onyons roasted under the imbers of each  $\text{ij. drammes}$ , of *Dialthea cum gummis*, Mans-greafe, and Beares-greafe of each  $\text{j. dramme}$ , make a medicament. One thing I would have you to note, that suppuratives of this degree are fittest for all contagious Tumors, and that to all such, Onyons and Garlicke roasted, and mingled with other medicaments, are to be applied, for being thus prepared, they lose their sharpnesse, attract, and become familiar to the naturall heat.

How

*How Apostemes are to be opened.*

Hitherto you have heard how that Tumors that cannot be discussed are brought to suppuration: Now I am to deliver unto you, how the matter, which is suppurated, is to be discharged. This is done by opening the part: Now some things are to be considered before the action, some in the action, & some after the action. Before we go about to open an Aposteme: 1. we must be certaine whether it be ripe enough; 2. we must resolve how to open it.

The signes of maturation, are; I. The Tumor, by contracting it selfe, seemeth lesse than it was in the state; for while the naturall doth concoct the matter, vapours are raised by the heat, and so the part is distended; but when the matter is concocted, the elevation of vapours ceaseth, and the Tumor falleth somewhat.

II. The Tumor draweth it selfe to a point, or prominence; because when nature overcommeth the matter, it draweth it together, and draweth it to the skin. III. Hardnesse and tension are much abated; for maturation being procured, many vapours are discussed, which before stretched, and made hard the skin. IV. By pressing the matter with the finger, we finde a fluctuation, or comming and going of it: but we must be circumspect when a Tumor in a great joynit is offered unto us, as in the knee; for if we presse lateral parts of it, a certaine undation will appeare. V. The party feeleth much ease in the part; partly, because some of the sharp vapours are resolved; partly, because the matter concocted doth make the parts more loose. VI. The vehement heat ceaseth; for the Humor being come to maturation, the unnaturall heat abateth, and the naturall heat resteth. VII. If the part inflamed hath changed the colour, and of red is become white, and chiefly in the pointed place. VIII. The scarffe skin becommeth shriveled, and ruffled; and this is a good signe, for it sheweth that unnaturall heat hath left it.

The second thing which we said was to be resolved upon, was the instruments with the which the Apostemes are to be opened. They are three; I. The lancet or incision-knife, of the which there be divers formes set down by the ancients: of the which we will speak, when we come to discourse of particular operations for the which they are required. II. Is the causticke or pyroticall medication. III. The actuall cauterie, which we will leave willingly to horse Leeches, unlesse we bedestitute of other meanes, and when we are to make a fontanell, or to stay a great flux of blood, or to dry a cariousbone, or to correct a cancerous part after that it is extirpate

Signes of maturation.

Instrument fit for opening.

As

Steele in instruments.

As for Steele instruments, we are to use them, First, if Apostemes be in the face, to avoid the filchinesse of the scarre, after the curation. Secondly, in small Tumors: for so they will be the sooner whole.

Cauſtickes.

As for the Cauſtickie medicaments, we use two sorts of them: the first is made of the strongest sope lees, boyled to the consistence of a soft stone. The second is made of the like lee, and unslaked lime, boyled to the forme of a firme unguent. The first is best in Tumors which possesse the convex part. The second is most convenient, if they be in parts concave or hollow.

These Pyroticall medicaments are most fit to be used in five cases: I. If we intend to keep the Tumor long open, as is requisite in all contagious Tumors, in the plague, and pox: for where the caustick is applied, there is alwayes losse of substance, and by it we make the orifice round, which of all other figures most slowly is cured. II. In large Apostemes causticks are fittest; for by them, making as large an orifice as we will, we shall spare tenting and enlarging of it; besides, the stretched parts will the sooner be contracted. III. They are to be used in deepe apostemations, such as happen in the belly and back, for so the matter shall have a readier way for evacuation. IV. They are best, when a flux of bloud may be expected. V. We apply them, when we will gratifie timorous persons.

Things to be done in the opening.

When we are come to open the part, then these things are to be observed: I. The nature of the part: this teacheth us, to shun veines and arteries by reason of hemorrhage, and nerves, tendons, and membranes by reason of the paine which ensueth. II. If the skin onely be to be divided, then the apertion is to be made straight; but if a muscule also be to be incised, it must be done according to the fibres of it. III. Apertion must be made in the depending part, because the matter will be more readily so drawn out. IV. It must be done where the part is thinnest, for so lesse pain is caused. V. The apertion must be proportionate; for if it be too little, then the matter, especially if it be thicke or grumous, cannot be well drawn without expression, which maketh way for callosity and fistulation. If it be too large; first, the scar will be the more ugly. Secondly, the parts subjacent will be made more apt to be altered, by receiving the impression of the cold aire. VI. We are to know how much matter is to be evacuated at one time: In great Tumors, and those which are in the joynts,

great.

great moderation is to be used; for with the matter many spirits breath out, and so are spent: from whence extenuation of the body; yea and death sometimes ensueth. The Chirurgion who is to do this, ought to be resolute, chearfull in countenance and speeches, and no wayes scrupulous: otherwise he shall make the Patient dismayed, and fearfull, " which doth much weaken and abate the courage of the Patient.

" Gal. 2. de Sympto caus. 2.

Things to be observed after the opening of an Aposteme, are these: First, the removing of accidents which most commonly fall our. Secondly, the manner of dressing. The accidents are most commonly three, fainting, chiefly if the parties be children, women, but above these, effeminate men. Secondly, pain. Thirdly, a flux of blood.

Things to be done after a-  
persion.

As for fainting, we may labour to prevent it, by ministring unto the Patient a Caudle, Aleberrie, or some stiptick wine with a toast, as Allegant, and Tent; or if it be like to ensue, we may minister unto them some cordiall water with sugar, as Cinamome water, Triacle water, or *Aqua celestis*. If dolour and paine ensue, let the part be embrocated with oyle of Roses, and the third part of wine beaten together: yet the oyle is not to touch the brims, if apertion hath been made by incision, lest it cause spongeous flesh to grow. As for staying of blood, I will set down the fittest, and most effectuall means to performe this, when I shall come to discourse of wounds, for in them it doth most commonly fall out.

Against fainting.

Against paine.

Against bleeding.

As concerning the manner of dressing after opening: If this hath been done by incision, either a tent, if it be small, or dodels with pledgets armed with some restraining powder, as bole, frankincense, and flowre tempered with the whites of egges, if it be large, are to be used: and so it is to remaine for the space of foure and twenty houres. If the caustick be applyed, then *Dialthea simplex*, or sweet butter melted in a sawcer, are fit to be used untill the eschare fall; then the cavity is to be incarnate: If in the mean time ipungeous flesh appeare, it is to be removed with cathereticall medicaments, as ♀ precipitate alone in gentle bodies, or mingled with alome, taking the third part of this in harder bodies: yea, you shall be enforced sometimes to use *Pulvis sine pari*, and other Fistula powders with some medicaments, which coole and asswageth paine, as *Unguentum populeum*, and *Rosatuum Mesuis*: take my word, *Basilicum* and *Aureum* are not so fit.

Dressing after opening.

Last of all it is to be sealed up with epuloticall medicaments, as *Diapalma*, *Emplastrum de minio*, *Unguentum comitisse*, and *Deficcativum rubrum*. If a Tumor end into an Induration, it must be cured as a *Scirrhus*, whereof I will spe ak in its proper place: If it end into the corruption of the part, the way of dressing this shall be set downe in my discourses of *Gangrena* and *Sphacelus*. If a Tumor cease, because the matter removeth from one place to another, as when *Pleuritis* endeth in *Empyema*, neither doth this belong to this place.

## LECT. VI.

## Of a Phlegmon.

Hitherto I have delivered a generall rule or method commor to the curation of all particular Tumors: now it resteth, that the use of the generall documents be shewed in every speciall Tumor. Of all which, a Phlegmon doth first offer it selfe: First, because it is caused by the most excellent humor, to wit, blood; the matter of spirits, and the store-houise of life. Secondly, because it is most frequent. Thirdly, because very often, as a Symptome, it accompanieth other griefs, as wounds, contusions, ulcers, luxations, and fractures, as *Galen* noteth.

Phlegmon.

2. ad Glauco.  
c. 1. §. 13. me-  
sod. c. 1.

A description  
of it.

Differences  
from the mat-  
ter.

Good blood.

More phlegme  
than choler or  
melancholy.

The word *φλέγμα* is derived from *φλέγω* from whence *flagro*, to burne, by reason of the heat of it.

A Phlegmon is a Tumor hot, proceeding from the affluxion of blood to any part. In this description, where it is said to be hot, in this it is distinguished from *Oedema* and *Schirrus*; and in this that it is pronounced to proceed from blood, it is severed from *Erysipelas* caused of choler, the differences are taken either from the material cause of it, or else from some parts which it possesseth. The differences of it taken from the matter are these: It is either *Legitima*, or *Notha*, either truly bred, or else bastardly.

A proper Phlegmon, is caused of good blood, only offending in quantity: Good blood is discerned by colour, taste and consistence: In colour it is red, in taste sweet, in consistence meane, between thicke and thin: of all other humors it is most plentiful in the body, because it affordeth nourishment to all the fleshy parts, as they have their being by it. Next unto blood, there is more of sweet and alimentarie phlegme, than of choler and melancholy; because it is blood halfe concocted, and in extreme hunger nature turneth it unto nourishment. Put it is not so easie to de-

termine

termines of the other two humors, choler and melancholy; *Alex. Aphrodisiasus* thinketh that there is more choler than melancholy; <sup>2. problemat.</sup> for by reason of choler being hot and thin, the blood being made thin, doth passe the more readily, even by the capillar veines, to nourish the most outward parts: but in truth, and by all likelihood, <sup>More melan-</sup> there is more melancholy than choler, if you take melancholy for <sup>choly than</sup> the grossest part of the blood: for first, seeing the bones which by <sup>choler.</sup> ancient computation are 246. but more in number indeed, are nourished by this humor, it being cold and dry, answerable to their temperature, it must be more plentiful than choler. Secondly, because the spleene appointed to be a receptacle of melancholy, is larger than the gall: Thirdly, because choler is not so familiar to nature as melancholy is: for as by a small quantity of choler, a great deale of milk becommeth bitter, even so it is in blood. Now things bitter are unpleasent to nature; wherefore it is probable, that provident nature hath in the masse of blood appointed more melancholy than choler. Lastly, if we diligently note blood drawn out of the veines by Phlebotomy, we shall evidently see more feculent bloug in the bottome of the sawcers, that yellow choler fleeting in the top.

The signes of a true Phlegmon, are six. I. This Tumor beginneth suddenly, and increaseth speedily, because the matter is plentiful, and the wayes by the which it is sent very patent and large. II. It is very hot in respect of *Oedema* and *Schirrhus*, but yet not so burning as *Erysipelas*. III. The colour of the part is of a fresh ruddy colour. IV. In this Tumor there is great paine with pulsation. V. There is a great tension in the part, because the unnatural heat raiseth plenty of vapours which distend the part. VI. The veines which before lay hid become conspicuous, and appeare either ruddy or blackish.

Now as I said, there be many differences of Phlegmons taken from the parts which they invade: for if it sease upon the meninges or membrans of the brain, it is called *cephalitis*; if the conjunctiva of the eye, then it is called *ophthalmitis*; if the mulcues of the throat, it is termed *Angina*; if the *Pleura*, it is named *pleuritis*; if the lungs, *pneumonitis*, if the kidneys, *nephritis*, if the emunctory of the heart and liver, *Bubo*; of the braine, *Parotis*; of the gums, *Parulis*; of the almonds, *Paristhymia*, *Tonsillitis*: Phlegmons in other parts have no proper names, and even these I will referre to the particular practice of Physicke, wherein they are handled, and

and rest contented with the doctrine of externall Tumors.

Prognosticks.

- I.
- II.
- III.

These inflamations, if they possesse the externall parts, and be but moderate are healthfull; as those which either by reason of the plenty, or malignity of the humor, threaten a gangren, and mortification are to be suspected. A phlegmon which hapneth in a young body, in a hot and thin part, the body being not very plethoricke, and in the summer time is more speedily cured; but quite contrarily if the conditions be opposite. The indications curative of a true phlegmon are taken from the times of it: The means by the which we cure are two, a convenient diet, and artificiall application of apt means for curing of the Tumor.

In the beginning therefore, we must prescribe such a diet as is able to hinder the increafe of superfluous blood, and the fluxion of that which is already bred: wherefore the diet must be spare and slender, only sufficient to sustaine nature, and withall cooling: the patient then shall rest contented with chicken, and veale broth with bread, calves-feet and trotters stewed, and seasoned with vineger, thin oat-meale-gruell, panadoes, fallets made of sorrell, spinage, purselain boyled in thin chicken or veale-broth, seasoned with some vineger, verjuice and sugar; let his drinke be small beere or ale, altered in the summer with burrage, buglosse and burnet, barley-water, faire spring-water, wherein the crust of a loafe hath bene boyled, and made pleasant with *oxic saccharum*, or *oximel diureticum*, mingling with a pint of the water, one ounce and an halfe of the sirrups. If the party be weake, Almond-milke made of barley-water, or the thin broth of a chicken may be permitted: If wee intend to make the blood unapt to motion, and to detaine it in its own receptacles, then we must institute a diet, having these three qualities: For first, it must coole: Secondly, it must make a constriction, and purging up of the vessels: Thirdly, it must be diureticall, or move urin; for much serosity being carried away by the passages of urine, the blood must bee made thicker, and therefore not so apt to flow. But wee must take heed that such a diet be only prescribed to such as are in their constant age, and have large veines; otherwise, we shall cause new obstructions, and multiply griefs: now to this purpose, you may ordaine broths, wherein lettuce, sorrell, spinage, purselain, marigold-flowers, and columbine-flowers and leaves have bene boyled, calves, sheeps, and lambs heads boyled, with green-sawce made of sorrell, or alleluia, beware of alliarria, jack of the hedge,

or those simples which are hot, young chickens with gooseberry-fawce, are good, and such like. We must forbid wine, flesh, egges, fat things, and such as breed too much blood; and spices, because they heat the blood; and piercing drinks, as stale beer or ale, because they further the fluxion of blood. To procure urine, an almond-milke may be made of a prisan, having the emulsion of the seeds of the pompion, gourd, musck-melon, cucumber, lettuce, parselaine, and plantaine. Now the humor flowing immoderately, we must labour to stay by abetting of it, and that by two manner of wayes, by phlebotomy, and purgation.

Wardens and peares roasted, stewed, or baked are good.

Evacuation.

As for phlebotomy, if the inflammation be great, the party young and strong, and full of blood, in the spring time we may take a lib. at a time: yea more, and iterate it if occasion be offered: in others, moderation is to be used, according to the strength of the patients. If a phlegmon possesse the parts which are above the liver, then the veines of the armes and upper parts are to be opened: but if it invade the parts which are under the liver, as the kidnies and genitals, then the branches of the *vena cava* descending are to be opened in the hams or ancles. One thing is to be noted in Phlebotomy; that we open not veines too farre distant from the part affected, as *Vena frontis* in diseases of the feet: for we should evacuate too great a quantity of blood, before we should intercept any tending to the part affected. If a Phlegmon hath succeeded the staying of the evacuation of blood from any part, as from the nose, the wombe, the hemorrhodes, meanes must be used to procure these accustomed evacuations: but seeing these may be found in all who have set downe the manner how to cure particular diseases, I will leave them to diligence and industry of your selves, being unwilling to mispend time.

Which veines are to be opened.

As for Purgation, one may doubt whether it can do any good, seeing no blood, the matter of a Phlegmon, can be by this mean spent. I answer, that it helpeth by accident, and two manner of wayes: for first, purgation dryeth the body, and so depriving the blood of moisture, maketh it more unapt to flow. Secondly, by purging sharp humors, the part which sendeth the humor is not pricked forward. But in this case, lenitives are better than eradicatives, because they rather coole than heat, and cause no ebullition in the humors: such are *Diacatholicum*, *Electuarium lenitivum*, *Electuarium de sebesten*, or a bole, or cassia, tamarinds and sugar of violets.

Purgation.

What purgatives most fit.

As



Locall medica-  
ments.*Repellentia.*

Fomentations.

Vesicatories

A caution in  
the use of the  
cantharides.Cupping glas-  
ses.

Frictions.

Ligatures.

As for the Topicall means, which respect the part, and the humor, they are of three sorts: *Revellentia*, *Defensiva* or *interceptiva*, and *Repellentia*: now medicaments appointed for revulsion, must be hot and attractive, and applied to the parts opposite and remote, as I have set down in the generall method of curing of Tumors. Of this kinde are fomentations, made of all sweet smelling and hot garden herbs boyled in strong wine, as calaminth, penniroyall, myntes, lavender, tansie, time, smallage, feverfew, sage, favorie, pellitorie of Spaine; the fomentation must be very hot, the use of them must bee continued untill the part become red. Sometimes, if the affluxion of the humor be fierce, and plentifull, we are to apply Vesicatories, as in inflammations of the eyes to the neck: but seeing there is none who hath beene but initiate in the practice of chirurgery, who is not fitted with a medicament for this purpose, I mean not to leese labour, and mispend time in setting down any descriptions of them. But let me tell you that some sorts of *ranunculus*, or crow-foot greene beaten and applied to the part, are more secure than cantharides; but the bull-foot, which is found in most pooles by the high way, is most excellent, being beaten and applied in a wallnut-shell, or muscles or cockle-shells, chusing the amplenesse of the shells, according to your purpose. If in the winter time you apply cantharides, you must correct them with *Euphorbium*, mustard seed, and seeds of amie, or dill; for if a vesicatorie of them be applied to thin and tender bodies, it will cause difficulty of urine, which will be removed speedily, if the party drinke of an almond milke, made of barley-water, wherewith the emulsion of the great cold seeds hath been drawne, and that warme. Besides these locall medicaments, we are to use Cupping-glasses, sometimes without scarification, if the party be timorous, and not very plethoricke; but if the affluxion of humor be great, and the party strong and courageous, let scarification be used. Frictions also are not to be omitted; but in this exercise we must begin at the extremities, as hands and feet, and end at the trunk of the body, to move the humor, and then to labour again from the trunk to the extremities, to bring it downwards.

As for Ligatures, in applying them you must begin at the trunk, as about the shoulder, and articulation of the thigh, and end in the hands and feet, making three ligatures in each extremity; above the elbow, and about the wrest in the arme, and above the knee and ancle in the leg.

After

After revelling meanes, Defensives succeed: These are applied to stay the humor from flowing to the part, these must be cold, dry, and astringent, fit to purse in and contract the vessels: these are applied to the parts adjacent, and which have lesse flesh, as to the joynts, and parts above the joynts; for there the vessels are most conspicuous, and so are most apt to receive the impression of the medicament: so if the foot or hand be inflamed, let the defensives be applied to the ancle and wrest, and so forth.

Of these defensives there be two sorts, for some are more milde, as plantaine, the white Rose, Night-shade, red Poppie or water of the spawn of Frogs, red wine, vineger and water, vineger and oyle beaten together called *Oxylum*, verjuice, and such like, and these are to be applied to tender bodies, and who have but small veines. Others are stronger, as Bole, Sanguis draconis, Terra sigillata, Pomgranet flowres and rindes, the decoction and pulp of Sloes, Sumach, Myrtill berries. These are to be applied to bodies of a strong constitution, of ripe age, and who have large veines, and in the summer time, and when the inflammation is fierce. Of such simples we may make composition fitting our purpose: as, mingling Masticke, and boyle with the oyle of Myrtills, and whites of Egges: The juyce of Housleeke with Milke is good, or a decoction made of red wine, and Tanners woofe, wherein are boyled red Rose leaves, Myrtill berries, Sumach, and Pomgranate pills and rindes: *Ceratium Santalinum* is good. It is not amisse to have in readinesse, such a defensive as this, Take of white wax ten ounces, of the oyle of Myrtills, and Quinces of each one ounce, of Masticke powdered ʒ. iiii. of Bole, and Sanguis draconis beat to powder of each j. ounce and ji. drams make up an Emplaster: in the winter you may adde more oyle.

Last of all, *Repellentia* offer themselves, which beat back from the part affected, the humor: The differences of such medicaments, taken from their substance are these. Some are cold and moyst, as Housleekes, Lettice, Purselain, Succorie, Ducks meate, the white of an Egge, Navel woort, Night-shade. These are milde, you may use either the juyce of these, or a Cataplasme made of barley meale, and these juyces. There be some simples, which more strongly cool, as the Henbane, Mandrake, Hemlock, the deadly Night-shade, and the apple of Peru: but these are only to be used, when the party is of a flourishing age, in the summer, and the veines large.

Defensives.

The divers  
kinds of de-  
fensives.*Repellentia.*Differences of  
repelling me-  
dicaments.

I.

II.

Againe, some of these repelling medicaments are astringent, cooling and drying: these repell more strongly than the cold and moyst, for besides cooling, whereby the naturall heat flying its contrary, doth carry with it the blood; they draw together the part, and as it were wring out the humor: of these some are weaker, as, Vine-leaves, Plantaine, Horse-taile, Perwinkle, buds of red Roses, oyle of Myrrils: others are stronger, as Bole, Pomgrate pills and rindes, the pulp of Sloes, Oaken and Owlar-barke; red Wine with Alom. Galls, the huskes of greene nuts: these if they be untimely used, wrinkle the skin, increase the paine, indurate the humor in the part, and sometimes returne the matter to some principall part.

Things to be observed in the use of medicaments.

Wherefore if we will use aright the simples, and make good compositions of them, we must diligently consider the temperature of the partie and part, the measure of the inflammation, the quantity of the humor flowing, the sense of the part, the passages, and aire: Wherefore the hot constitution of the party and part require gentler topicks; because the excesse is not great, only heat being added to heat; but if the part be cold, and lesse fleshy, it requireth stronger medicaments, because the cause must be greater: so in children and women we use milder than in aged and strong bodies: so the greater the inflammation is, the stronger ought the topick to be: so if the part be very sensible, gentle meanes will serve, but if it be dull it will suffer stronger: so if the veines be large, stronger medicaments are to be applied; because plenty of blood must needs flow. Last of all according to the constitution of the aire, the locall meanes must be stronger or weaker.

Beginning of a Phlegmon.

Now it is time to determine, what medicaments are to be used in the beginning of a Phlegmon: If therefore the party be offered while the bloud is wholly yet in the small veines: then repelling medicaments are to be applied. 1. Because the humor as yet is but little and thin. 2. Because nature as yet is strong. 3. Because the matter is not as yet settled or impacted; If some of the humor be in the small veines, and some be without them in the distances of the muscels, and parts, or in the porosities of the similar parts, we are to apply medicaments partly repelling, partly disencussing, but more of the repelling.

Nevertheless, in cases repelling, medicaments are not to be applied unto Phlegmons beginning. 1. If the parts be weak, lest their naturall heat be quenched: such are glandulous parts, for they

they are loose, and flaggie. 2. When there is intolerable pain: for then repelling medicaments would cause greater paine, and so perhaps cause fainting and swooning. 3. When the cause is externall, and causeth the malignity, as the biting of a mad dogge, or of an adder: for so the matter should be driven to the principall parts. 4. When the fluxion is vehement, and much matter floweth: for then repelling medicaments should be fruitlesse: the part not being able to resist.

But seeing I have set downe both the simples, and some formes of compounded medicaments of the two kinds of Topicks, I will abstaine from all idle repetition, and passe to the *augmentum*, or increase of a Phlegmon. In it then we are to apply discussing medicaments mingled with repelling, yet the repelling during the whole course of the *augmentum*, ought to have the dominion: because untill the latter end of the increase, the greatest part of the matter is within the vessels, and may be repelled; for when blood is once slipt out of the veines, it cannot be evacuate by repelling, but discussing topicks: These are called also *διὰ πόρον*: They ought to be hot and dry in the third degree, and of piercing substance: For first, they must make the blood thin and fluxible: Secondly, they must convert it into vapours: and thirdly, they must evacuate by the pores of the skin by insensible perspiration. In thin and tender bodies in the summer time, milde medicaments are most convenient, as camomil, dill, fenugreeke, beane-flowre, and such like. But in compact, and thick bodies, strong are required, as, *Sulphur vivum*, *Opopanax*, *Galbanum*, mints, hore-hound, worm-wood, calamint; &c.

When the Phlegmon is come to the state, or height of paine, tension, and heat; medicaments equally repelling, and discussing are to be applied: because a great deale of the humor is yet in the veines, and much without them.

When a Phlegmon is come to the declination wherein paine, tension, and heat begin to abate, a discutient fomentation made of camomil leaves and flowers, melilot, dill, tanse, sage, lavender, mints, scordium, and such like, and the application of *Diachylon cum gummis* will serve, or a cataplasme of beane-flowre, camomil, dill, melilot boyled in strong ale lees, adding to the cataplasme oyle of camomil, dill, and white lilies: but if the inflammation be great, the paine vehement, the heat intolerable, the tension and swelling notwithstanding the following of the former

Increase.

a. 8. *Simpl.* 5.  
b. 9. *Simp.* 1.  
*de paronychi.*  
13. *method.* 16.

The state.

The declination.

Apostemation. mer course, then supperation or apostemation is to bee procured.

If the naturall heat in the body of man be prevalent, it turneth all things to nourishment, if they be familiar unto nature; if any excrementitious part be in them, it turneth that into vapours, and expelleth them by insensible perspiration; but if the naturall heat be enforced to enter in single combat with the unnaturall heat upon equal termes, then the naturall heat discusseth some part, and the unnaturall heat not able to corrupt the part, suffereth a mean to be wrought, that is, generation of quittour. Now unto which of them the victory inclineth, may be gathered by the qualities of the quittour. If the quittour be good, it is white, because it is caused by the coates of the veines, arteries, nerves, and membranes, which are in colour white, and trasmute the water into the same colour. Secondly, thick, because concoction is performed by thickning. Thirdly, uniforme, because the naturall heat hath an absolute dominion over every part of the quittour. Fourthly, not stinking; the naturall heat induring no putrifaction: If contrariwayes the quittour be pale, red, or black, thin, unequal, of divers substances, and stinking; then the unnaturall heat is prevalent. Now how a Plegmon, which must bee supperate is to be dressed; I have set down at large in the former lecture of apostumations of hot Tumors: hitherto I have spoken of a true bred Phlegmon, engendred of sincere blood.

The signes of the dominion of naturall or unnaturall heat.

The signes of laudable and ill quittour.

Of a bastard Phlegmon.

Now I am to give you notice of a bastard Phlegmon, which is caused by the admixtion of some other humor with blood: If choler be mingled, it is called *φλέγμαν ἐρυσσινώδες*: If Phlegme *φλέγμαν οιδηματώδες*: If melancholy *φλέγμαν σικκράδες*. Seeing compounded diseases are to be discerned, esteemed, and cured by the diseases and simples solitary, I shal not need to spend any time in discoursing of these: If choler abound, we are to coole and moysten in a higher measure than in a true Phlegmon: If flegme be joyned we must heat more; if melancholy, we are to use things warming and softning. They who have written of Tumors after a Phlegmon, have set down discourses of a gangreen, carbuncle, and a pestilential bubo, but a methodically: For a Gangren is an accident, which doth not only accompany Tumors, but wounds, ulcers, fractures and dislocations, and that more often, of it therefore I will discourse in its proper place. As for a schpacelus a mortification or a sideration of a part, it belongeth

to the third part of chirurgery called *Αεαιητική* which teacheth to take away superfluities: such as a member is by accident, when it is deprived of life, and threatneth corruption to the whole, unless it be taken away.

A Carbuncle and a pestilent Bubo are symptomes of the Pestilence, as a venereal Bubo of the Pox. Of these I shall be willing to discourse, when occasion shall be offered to read of the griefes, unto the which they are to be referred,

Unto Phlegmon *έρυσιπιαλατόδης* that Tumor which is called Panus, Panis, or Panicula in Latine, from the figure in Greek *φύλαθλον* is to bee referred: It is a Tumor most commonly in the glandulous parts, somewhat flat, in the top whereof there is a representation of a puffle: It hath a greater heat and paine than the bigness of the Tumor sheweth, it is commonly most discussed without apostemation: Because it hath more choler than blond. But contrariwise *φυμα* hath more blond than choller, for it quickly cometh to suppuration: In forme it is like to Panus a weavers roale or touch-wood, and hath this same seat. to wit, the glandules in the emunctories. As for *furunculus* or *δεδίω*, it is engendred of grosse humors mingled with blond in fleshy parts most commonly: If it be mild and come to maturation without any great difficulty, it may be referred to *φλέγμασι διδνικαταδης*. If it be hard and stubborne to medicaments, it is to be referred to *φλεγμον σκιρτωδης*.

1.  
Tumors to bee referred to a Phlegmon.

Celsus li. 5. c. 25

See Galen ii. 5.  
2. m. loca.

LECT. VII.

Of an Erysipelas.

HAVING in my former weekly Lecture delivered what I thought pertinent concerning the first generall Tumor, a Phlegmon, the cause whereof was said to be blond without the vessels offending in quanty or quality. Method now warneth me to discourse of the second generall Tumor called Erysipelas, proceeding for the most part from choler: not so much because it surpasseth either phlegme or melancholy, whereof Oedema and Schirrus are bred, in dignity or quantity, as that it more representeth a Phlegmon in accidents, to wit, heat and color.

But before I enter into a particular discourse of an Erysipelas, give me leave to touch three points briefly, which will make all things



things which I shall deliver more plaine. The first, is the signification of this terme cholor: The second shall be of the divers kinds of cholor: The third shall set down the signes of a cholerick person: For such an one is most subject to this Tumor. *Colera* then in Latine, and *χολερα* in Greek signifieth not the humor, which in English is called cholor or the gall; but a disease, whereby this humot is expelled vehemently by vomit and siege. Nevertheless in our vulgar speech, and with the barbarous late writers, it is taken for the humor it self, and so I shall be inforced to use it. Thus much I thought to insinuate to you, that you should not be ignorant of the proper and learned significations of the termes of Art.

Now *Bilis* or *Fel* in Latine, *χολη* in Greek, cholor or gall in English is either alimentary, or superfluous: The alimentary is the fourth part of the mats of blood dry and hot, which more properly might be called billious blood: the superfluous, which serveth not for the nourishment of the body, is either natural, or unnatural: The natural is that, which in the Liver is separated from the blood, and turned to *vesica fellis*, The unnatural comprehendeth foure sorts under it. I. Is the Vitelline, like unto the yolkes of eggs yellow; but thicker and hotter than that of the Gall. II. Is *Porracea*, which in colour representeth the Leek, it is engendred in the stomach by reason of crudity, and eating of such meats as engender it: as garlick, onions, leeks, and milk in Infants, who often by siege discharge such an humor. III. *Æruginosa*, like verdigrece engendred of more vehement heat, and corrupt aliments in the stomach. IV. Is *Ιουπιδης*, like unto woad, it is more greene than that which resembleth the leeke: It is caused of the *Æruginosa* more burned, and commeth neare to *Atrabila*.

Now, a man is thought to be of a bilious constitution if he be watchful, nimble, hasty, angry, and dreame of fire and thunder, his urine is thin and yellow, his pulse strong, swift, and hard, his veines are large, the habit of his body is leane and dry, his colour yellowish: cold things refresh him.

These things being permitted, now I am to discourse of the Tumor *Erysipelas* it self, of it I will set down five things: the Etymon of the word, the nature of the Tumor, the signes of it, the prognosticks of it, and last of all, the indications of curing of it.

I. As for the Etymon of the name of this Tumor, it is called

ἐρύσιπelas in Greek *quasi* ἐρυθροπelas: for the ancient for ἐρυθρον which signifieth red, used ἐρυσον and πelas signifieth neare: wherefore ἐρύσιπelas is nothing else but a Tumor in colour, coming neere to red, and tainting often the adjacent parts: for thin and hot blood, or blood with the which yellow choler is mingled, dyeth the skin with the colour of a pale rose: the nature of Erysipelas is discovered by setting down the description, and kinds of it.

An Erysipelas then is a hot Tumor proceeding from most of cholor, in this description Tumor is the *genus*: for this is common to Erysipelas with all other Tumors. In that it is said to be hot, it differeth from Oedema and Schirrus: And whereas it is affirmed to proceed of most choler, it is distinguished from all the rest of the Tumors.

But here it may be demanded, whether Erysipelas be caused of alimentary, or of superfluous choler: Unto the which question I answer, that it is to be thought that it is caused of the alimentary choler, if it be exquisite: otherwise how could the yellow jaundise and Erysipelas so much differ, if they both did proceed from excrementitious choler: for first, the yellow jaundise possesseth the skin of the whole body, but Erysipelas on part only. Secondly, an Erysipelas hath alwaies a symptomatical feaver annexed to it; but the yellow jaundise is most commonly free from it. Thirdly, in an Erysipelas there is alwaies paine, but in the jaundise none. Fourthly, in the jaundise the skin is of a yellowish colour, but in an Erysipelas it is of a bright red colour.

There are two kinds of Erysipelas, for it is either exquisite, or not exquisite, or a true, and a bastard one: As for an exquisite Erysipelas it is a Tumor of a bright red tending to yellow, causing little swelling, very hot, with a pricking paine, caused of alimentary choler: this choller abounding in the body, if part of it be turned into any part, it causeth an exquisite Erysipelas. The parts which it most commonly invadeth are the nose and face, for much thin blood floweth to these parts. Secondly, the legs: for nature being moved by the plenty of this cholor sendeth it first to the emunctories of the groynes, and from thence it descendeth to the legs, it happeneth in the summer, because then choler is multiplied; but in the Winter, because the pores of the skin are shut by cold, and so insensible perspiration hindered; and because this humor is thin, it spreadeth to a great part of the skin.



As for the signes of an exquisite Erysipelas, they are either taken from the qualities of the humor which causeth it, or from the differences between it & a Phlegmon. The signes taken from the qualities of the humor are these: The paine is great and urgent, the heat notable, the colour a bright red tending to a yellownesse, the Tumor is small, only possessing the skin, the pulsation is very small, and less than in a Phlegmon. First, because the parts in a Phlegmon are more compressed: and it reacheth deeper. Secondly, because in a phlegmon the humor is thicker, and cannot so easily be breathed out as in an Erysipelas. The differences between a Phlegmon and an Erysipelas are these. I. A Phlegmon possesseth the skin, and the flesh lying under; but an Erysipelas the skin only: the cause in an Erysipelas is the thinnesse of the humor, which rather disperfeth it self through the skin than heaveth it up. II. The heat in an Erysipelas is greater than in a Phlegmon: for sometimes the *cuticula* is blistered. III. The symptomatical feaver is greater in an Erysipelas than in a Phlegmon: because choler is hotter than blond. IV. The pain in an Erysipelas is lesser than in a Phlegmon: because in it there is only a hot distemperature; but in this a solution of unity, besides the parts being stretched. V. In a Phlegmon, the colour is of a darke red by reason of thick blood lying deep; but in an Erysipelas the colour is a brighter red, tending to a yellowness. VI. In an Erysipelas there is a pricking pain but in a Phlegmon a heavy and stretching. VII. The skin in an Erysipelas being pressed yeeldeth, but in a Phlegmon it doth not: The causes are the thinnesse and thicknesse of the humor. VIII. In an Erysipelas the rednesse vanisheth away from the skin, and it becometh white if it be pressed with the finger; but in a Phlegmon it doth not so. IX. In an Erysipelas there is no stretching of the skin, but in a Phlegmon there is. Last of all, a Phlegmon setteth it self in one place, but an Erysipelas maketh the parts adjacent red by spreading. As for the Prognosticks of an Erysipelas: I. That which proceedeth from natural yellow choler is mildest: for no vehement symptomes succeed: and besides, seeing it appeareth in outward parts, it is to be thought that the inner parts are discharged of this humor. II. As it is a good signe, if an Erysipelas be driven to the outward parts, so it is fearefull, if it returne from the outward to the inward parts, *Aphor. 25. sect. 9.* III. An Erysipelas appearing in the head is more dangerous, than in other parts: because if the matter passe to the meninges, it cau

seth

feth *phrenitis* or raving, if to the muscles of the neck, the Squinancy, I V. An Erysipelas appearing in wounds, ulcers, fractures and dislocations, is commonly mortal; if it proceed not from the application of too hot local medicines: V. If an Erysipelas tend to suppuration, it is not good: for then the humor must be thicker than ordinary, and the obstructions stronger, and so the solid parts are in danger to be corrupted. VI if a bone being bare, the adjacent fleshy parts be possessed with an Erysipelas, it is ill: for first, the body must be troubled with sharp humors: secondly, flesh cannot be restored by such blood.

Now it is time to draw out our forces, to incounter with this grieve: we are to meet with it with foure kindes of helps, dyet, chirurgerie, internall medicaments, and locall means. As for the dyet, our nourishment must be cooling and moystning. Let the patient then eat thin chicken broths, altered with the cooling herbs, panadoes, thin oat-meale-gruel, sallets of lettuce, sorrel, purslaine, and spinage boyled. If the choler be very thin, the party may eat fresh fish, which live in cleer sandie, or rocky waters, as trouts, small pickrels, perches, and of sea fishes, the whiting-maps, and smelts, he may eat also of the braine of a pig or its peritoees, or trotters with vineger, and sorrel, let him refrain from all meats which are fat and sweet: let his drinke bee spring-water, boyled with the bottome of a loafe, made pleasant with some *Oxey sacchar*, or the distilled waters of endive, or sorrel, he may use a plain *Lib. 9. method.*  
 prisane: *c. 5.* Galen permiteth the patient to drinke as much cold water as he will, for this cooleth the body, quenchem the thirst, abateth the heat of the choler, and cooleth the liver: but in this case the season must be hot, and the stomach good: with us small beere bottelled is best, all sorts of wine are forbidden. In the Summer, let the aire be coole and moist, in Winter, let it be rather hot: for in this season an Erysipelas is caused of the constriction of the pores of the skin, by reason of cold: let all perturbations of the minde be banished, let sleep be procured; for watching dryeth the body. But if an Erysipelas be in the face, watching is best: for immoderate and long sleep filleth the head full of vapours, whereby the grieve is increased.

As for the chirurgical helps, it may be doubted whither Phlebotomy be necessary or no, for the decision of this doubt, these propositions shall serve: I. If an Erysipelas invade the head, neck, or face, the *Cephalica* alwayes is to be opened: lest a *phrenitis* or  
 H angina

*angina* ensue. II. In an Erysipelas Phlegmonodes wherein bloud increaseth the heat in what part of the body soever it be, a veine is to be opened. III. In an exquisite Erysipelas in other parts of the body we ought not to draw blood: for first, by drawing of blood; the bloud which remaineth, moveth more, and becometh more subtil: Secondly, the stay of choler is taken away: Thirdly, by taking away both good and bad blood together, the party is weakened.

As for the internall medicaments, they ought alwayes to go before the locall, if you except two cases: I. If an Erysipelas be procured by an outward cause, as a blow: II. If the heat be vehement, and the Tumor be far from any principall art. In these cases we may apply a medicant cooling and moistning, before we minister any purging medicament. If an Erysipelas appear in the head or face, we must open a veine, apply the Leeches, minister a purging medicament. prescribe a slender dyet, and use revulsions by frictions, ventoses, blisterings, and vomiting if it appear in the legs.

As for locall medicaments, we must look about us, for if we apply cold medicaments, the matter may be repelled to the braine, from whence Phrenitis may proceed, or to the throat, which may cause Angina: If you be informed by the importunity of the patient, or standers by to apply a local medicament. *Aetius* counselleth to apply a Swallows nest beat to powder, and tempered with hony, that it may represent a liniment with a feather. This is a safe medicament, for it only dryeth and repelleth not: We may also apply the decoction of mallowes with some oyle of violets, or sweet Almonds. Now the purging medicaments which discharge choler, these or such like will suffice, Rhowbarb, Tumarinds, Cassia extracted; *Electuarium lenitivum*, *Diacatholicon*, *Diaprunum solutivum*, *Electuarium de succo rosar.* *Caricostimum*. If it be but a milde inflammation, sharp clysters made of the decoction of cooling herbs, with the aforesaid Electuaries will serve the turne.

Having set down the helps taken from the dyet, phlebotomy, and the ministrations of internall purging medicaments, I must hasten to set down convenient locall medicaments; for in these you are most employed and busied: one thing is to be observed, that wee must not in any case apply astringent medicaments, which are cooling and drying: For seeing the vapours in this Tu-

mor are sharp, if they be kept in, they might erode and corrupt the part. Now as concerning locall medicaments; first, I will set downe which they are: Secondly, how long they are to be applied. These medicaments ought to be cooling, and moistning: but before I name them, let me warne you, that first you refrain from narcotical simples, unlesse exceeding great paine, and in a part far from a principal part cal for them. Secondly, that you apply not unctuous and fat medicaments: for first, they most easily are inflamed: secondly, they stop the pores. Now the medicaments which are to be employed, are either simple or compound: The simples are Navel-weort, Horse-taile, Knot-grasse, both the Plantines, Ducks meat, garden Night-shade, Lettice, Parselain, the Poppies: First, the juyce of them expressed may be applied: Secondly, the distilled waters drawn from them, some powder of myrthe having been infused in them. We may also apply clouts wet in the juyces of the aforesaid herbs, being mingled with verjuyce or vineger. The cumpound medicaments are *Ceratum infrigidans Galeni* made of ℥ij. of oyle of Roses, and ℥iij. of white wax: this is to be washed with water and vineger. You may adde to it the juyce of Night-shade. *Heurnius* hath three good medicaments, the first is Castle-soape dissolved in Spring-water: The second, is Buls dung boyled in a frying pan with vineger, and a few flowres of Camomil, and Elder, untill it come to the consistence of a liniment: The third is made of two parts of *aqua spermatis ranarum*, and one part of Rose vineger, wherein some myrthe must be infused: these may be safely applied to an Erysipelas of the head, neck or face: the juyce of horse dung is not only good, being applied to this Tumor, but in scaldings and burnings also, if a little Camphyr be added to it.

The medicaments which are to be applied to an Erysipelas must be very liquid, actually cold, and often changed; for when they become hot, they will rather offend than profit, if they be not removed. The last thing which I promised to set downe concerning the local medicaments was, how long they were to be applied: this we may finde out by two signes. The first is, if the heat be altogether abated, or almost: the second is, if the skin hath recovered its own colour. When you perceive these two signes, you must desist from applying cooling topicks, lest the skin become livid, or black which threaten a gangren, and sometimes mortification. If this appeare, what then is to be done? First, a fomen-

*Gal. de comp. med. f. genera. lib. 1. c. 4.*

*i Simpl. l. 13. & 14. method 13.*

tation is to be used, made of Calamint, Scordium, Worm-wood, Peniroyal, the lesser Centory: and Betony boyled in a weake lie made of ordinary ashes, after the part is sufficiently fomented, you are to apply *Hippocrates* cataplasme made of Barlie meale, vineger and oyle of Roses warme: or this, take of the floure of Barlie, Beans, and Vetches of each  $\text{iiij. } \zeta.$  of a weake lie,  $\text{iiij. } \text{℥.}$  boyle these to the consistence of an emplaster, then put to it  $\text{iiij. } \zeta.$  of Oximell: if the discolouring of the part passe through the skin, and the part be immoderately cooled, it will not be amisse to scarifie the part which only remaineth. I am but in a few words to discourse of a bastard or a spurious Erysipelas: such an one is to be thought, when with a limentary cholera an other humor doth concur.

Now seeing foure other humors may associate themselves to cholera, so many kindes of a bastard Erysipelas may be accounted. If therefore some blood be mingled with cholera predominant, then *ερυσιπέλας φλεγματώδης* is caused: in this kinde of Tumor the rednes is more dark, and the swelling not so spreading: If a waterish Phlegme be mingled with cholera, then *ερυσιπέλας διδυατώδης* ariseth: If grosse blood of thick Phlegme concur with cholera, then *ερυσιπέλας σκληρώδης* is caused: lastly, if cholera associate it selfe with the corrosive salts of the serosity of blood, it causeth Erysipelas ulcerosum, which breaketh the skin. But seeing the compound Tumors are to be discerned by the doctrine of the simple, and that the medicaments are accordingly to be applyed, not distrusting your observations or judgements, I will end.

Of that Erysipelas which breaketh the skin, there are two kindes, *Herpes miliaris*, and *Herpes exedens*: *Herpes miliaris* is caused of a salt waterish humor mingled with unnaturall sharp cholera: the signes of it are these. First, many pustules rise in the skin like to millet seeds. Secondly, when they break, a matter issueth out representing quittour and sanies. Thirdly, the place hath a mingled colour between red and pale: this is without danger, the medicaments which are to be applyed to this, ought to be cooling and drying, as the Knot-grasse, Horse-taile, Plantaine, Owlar, Willow and Oaken barke. Pomgranate flowers and rindes, Myrtill berries, red Rose leaves boyled in Tanners woole, *Unguentum album rasis, de cernissa, de minio, Diapompholigos.*

*Herpes exedens*, called by *Celsus*, *ignis sacer*, and by some *ignis Sancti Antonij*: it is caused of unnaturall cholera, hot and sharpe,

corroding the skin only, by the which signe it is discerned from *Phagedæna*, or *ἰδούρος*. Wherefore if many small ulcers appear not, passing deeper than the skin, you may pronounce this to be *Herpes exedens*. In the curing of this, minister the decoction of *Sassa*, and after the fomentation of it, with Tanners woofe, wherein cooling and astringent simples above mentioned, have been boyled: apply this locall medicament. R. *cere flavæ* ij. ℥ *resina pini* j. ℥ *β. terebinth* j. ℥ *ol. myrtini* vj. ℥ *succi Nicotiana* ij. ℥ *Coq. in ceratum molle*. But here a question may be moved, why the choler which causeth the yellow jaundise doth not ulcerate the skin? This falleth out: first, because the choler which causeth the yellow jaundise is dispersed; but in Erysipelas united, secondly, because the choler is naturall and only excrementitious in the jaundise, such as is contained in the *Vesicula fellea*, and discharged into the guts. Thirdly, because thin Phlegme is mingled with choler in the jaundise: for this disease endeth with much sweating.

LECT. VIII.

*Of an Oedema.*

**I**N the subsequent discourse, which I am to deliver of an Oedema, the third general Tumor caused of Phlegme, I will use the same method which I did in the doctrine of an Erysipelas. First then, I will set downe what Phlegme is. Secondly, the differences of it: and Thirdly, the signes of a Phlegmatick person: and then I will deliver the doctrine of Oedema, for such an one is most subject to this Tumor.

Phlegme then is the fourth part of the masse of blood, cold and moyst: as concerning the sorts of it, it is either alimentary or excrementitious. The naturall, as it is cold and moist, so it is without any forraine taste: as oyle and butter are accounted sweet, when as they have no ranke taste. This humor by the naturall heat increased (as in famine) may become blood, and serve for the restoring of naturall humidity: it ought rather to be called pituitous blood, than Phlegme.

Unnaturall Phlegme is that which cannot be turned into aliment: of it there are three kinde. The first is *pituita acida*, sowe  
Phlegme,

Phlegme, so called from the taste which it leaveth in the mouth when it is spit out: This is a raw Phlegme, and bred in the stomacke by reason of the defect of natural heat: so that being drawn into veines, it hardly can be altered. The second is *pituita salsa*, salt Phlegme, this is caused by the admission of thin salt moysture: for of bitter things as Aloe, and Coloquint, mingle them with thin humors as you will, a salt taste never can be procured. In sweat, teares, and urine this taste is manifestly apprehended: a very novice in Alchymie is able to make the salt of urine, and one laboured to procure a Patent for making Salt-peter of urine, in the time of the last Parliament: but I never heard that he made any; being, as it is likely, deceived by his imagination. The third kinde of unnaturall or excrementitious Phlegme, is *pituita vitrea*, representing in colour and substance, molten glasse. This is very cold, thick and tough, and causeth great paine, if it be detained in any part. *Galen* affirmeth of himself, that being troubled with a vehement paine of the belly, by injection of the oyle of Rue, was discharged of such an humor, and so the paine ceased: whereas before he thought that a stone had stuck in one of the ureters.

2. de loc. affect.  
c: 5.

Phlegmaticke persons are slow and sluggish, their senses dull, they are sleepey, they dreame of waters, rain or snow, they are not easily moved to anger, their pulse is soft, smal and slow: their appetite is not great, they are seldome dry, they by the mouth and nose void many Phlegmatick excrements: their urine is white or pale, sometimes thick, sometimes thin, the sieges often are raw and slegmaticke: the blood by what meanes soever it flow from the body, is petuitous: their body is whitish, soft and clodish, they are subject to cold and long diseates, as the dropie, letargie and such like, lastly they endure fasting well. These signes shew naturall and sweet Phlegme to abound in the body.

Having set down the description of phlegme, and the differences of it, as also the signes which discover a Phlegmatick person, I am to discourse of Oedema, or a Phlegmatick Tumor, of it I will deliver these five points: first the signification of the terme Oedema: secondly, the differences of it: thirdly, the prognosticks of it: fourthly, the indications of curing of it: and lastly, what Tumors are to be reduced to it. As concerning the terme *oedema* in Greck, in Latine Oedema: with *Hippocrates* and all other ancients, it is the same with which *εϋξος* signifieth eminentia, eminence

eminence or bunching out: and so every particular Tumor may be called Oedema. But with *Galen* and later Authors, it is taken more strictly for that Tumor which is caused of Phlegme. Oedema is either exquisite or not exquisite: an exquisite is either primarie or symptomatical: the primarie is caused of the natural phlegme, which is contained in the masse of blood, and by reason of the too great quantity of it, setteth to work the expelling faculty to discharge it into the weaker and depending parts. Natural phlegm is cold and moist, thin in consistence, in colour white, in taste sweetish or insipid. The signes of an exquisite Oedema are five. I. It is soft and loose, because it is caused of thin phlegme. II. If it be pressed with the finger, it hath either no paine, or very little. III. If it be pressed downe with the finger it yeeldeth and leaveth a pit, which is the most proper signe of an Oedema. IV. It is white, representing phlegme in colour, whereof it is bred. V. It is cold without heat, because the pituitous humor is cold and moist; *Avicen* calleth this Tumor *Undimia*. The materiall cause then of this Tumor is the pituite us humor redounding in the whole body. This humor is caused either of external, or internal causes: the external causes are aire cold and moist, phlegmatick meats, idleness, too much sleep, stinging of waspes, and such like: the internal are a cold and moist constitution of the head, stomacke; but chiefly of the liver. This Tumor invadereth not promiscuously all parts; but such as are cold, weak, and loose, such are the feet and hands, the cods, as in *hernia aquosa*, the eye-lids: and then in them appeareth an outward Tumor loose, without paine, not altering the colour of them, which being pressed with the finger quickly yeeldeth and returneth, the material cause is a waterish humor mingled with flatnositie: so the heart and liver cannot suffer any such Tumor, as neither the kidnies: because these parts are firme and hot. As for the presages, Oedema is a long continuing disease, because it is cold, and therefore the naturall heat of the parts affected, must be weake. II. It is not very dangerous, because the paine is none or very small. As concerning the curation, it is performed either by diet, or internal medicaments, or local meanes: as for the dyet of such as are subject to an Oedema, if it proceed from external causes they must be removed: the aire which is to be chosen must be hot and dry, the food must be drying: wherefore roasted meat is better than boyled, fowles and birds which live in dry grounds, are better than water fowles, rabbits,

*Gal. lib. de atrabile cap. 5.*

*Lib. 2. κατὰ τὴν γ. c. I.*



rabbets, chickens and veale are good, mutton is better than lamb, swines flesh and fishes are to be shunned as also heads, braines, and feet of beasts: sallets of cold herbs are hurtful, use biscuit bread, or good household bread baked with Anise-seeds, Fennil-seeds, and Coriander-seeds. Let the drinke be altered with the rasping of Quajack, *Sarsaparilla*, *Radix china*, *Sassafras*, yellow Sanders Cummin-seeds, Coriander-seeds, Fennil-seeds, Anise-seeds, Galin-gal, Nutmegs, *Culamus aromaticus*, some Ginger, Cinamon, Rose-marie and Sage. The drying dyet made of these, especially in the summer time is good: sweating in this case is very effectually, every other morning after the taking of the diet: fasting is good, as also watching, studying, and labouring: for all these dry the habite of the body.

If an Oedema possesse the hands, then wa'king is good; if the feet, then we are to præscribe sitting and working with the hands. Seeing then an exquisite diet will not serve to surprize this disease alone, we are to entertain purging medicaments for the expugnation of it. We need not to trouble the patient with many preparative medicaments, seeing the pituitous humor which causeth this disease is thin, waterish and in motion; First of all, no medicaments internal are so effectual in this griefe as *Mercurius vitæ*, and safe medicaments of antimonie: for, First they discharge the stomach of crudities by vomiting, and so correct the cold and moyst distemperature of it: Secondly they dispatch the obstructions of the melaeraical veins and liver: Thirdly they mightily evacuate waterish and phlegmatick humors, and so correct the distemperature of the liver, and kidneyes.

As for ordinary internal medicaments, *pilula de hiera cum agarico acuat*, with a graine of *Elatarium* are good: *diaphenicon*, *diacarthamum*, *diaturbith*, *pilula de hermodactylis de aromatibus*, *cochia*. And the pills of Galen made of coloquint aloe, and scammonie with *syrupus Augustanus*. As for the doses of these medicaments and how they are to be exhibited I will refer you to those who have diligently handled these things, chiefly to the practise of *Martinus Rulandus*.

Quest.

But here you may demand of me what is to be thought of phlebotomy?

Answe.

To this demand I anwer, that in an exquisite Oedema opening of a veine is to be shunned. I. Because in a body cold and moyst we open not a veine; such is that which is tainted with an Oedema.

II. Be.

II. Because in this grieve there is alwayes *cacoehymia*, seldome *plethora*: III, Because in an Oedema there is nether a maligne matter, nor a horrible symptome, and so it cannot be called *marbus magnus*, or a fearful disease: and so phlebotomy is not required. As for the locall medicaments, which are to be applyed, they ought by drying and strengthning to alter the part.

In the beginning we are to apply such medicaments as repell, and digest: but more digesting than repelling, because the humor is cold; for in the beginning some part of the humor is in the smal veins, some in the pores of the skin; but more in the cavities, and greater veins: towards the state of the grieve we are to use digesting means. *Galen* useth foure things. I. A rowlar with two ends, such as is used in fractures, first the rowler must bind the Tumor it self more straightly; but the parts on every side adjacent more slackly; for so the humor is wrung out from the part affected, to the parts adjacent above and below. II. Is a Sponge, but in the use of a sponge we must see that it cover all the affected part, otherwise at the next dressing we shall see that the humor hath flowed to the bare part: instead of a sponge we may use pledgets of hemptow; yea, and double cloathes. III. Vineger, for it doth consume plegme, and because it is subtrill it peirceth. IV. Some water to moderate the sharpness of the vineger: If the Oedema be above sinews and tendous in a tender body, lesse vineger is required. But in hard bodies and in other places more vineger is to be applyed: if you mingle some allome with the vineger and water; the medicament will be the more effectuall. *Avicen* counselleth to apply lime water with the juyce of myrtils: but instead of the juyce we may boyle myrtle berries in lime water.

*lib. 2. ad Glau. c. 3. & 14. method. c. 4.*

If you boyle scordiam, myrtle berries, sumach, red rose flowers dried, calamint, wormewood and penyroyall, in equall quantity of red astringent wine, vineger, tanners woofe and lime water, adding to every pint of the decoction strained 3. drams of allome, you shall have an excellent medicament. You may apply also an unguent made of unstaked lime, and old swines greafe.

One thing is to be noted, that the Oedematous part is to be rubbed well with a cloth before the medicaments be applyed, that they may penetrate more easily.

If an Oedema in the belly according to Hippocrates after 60 dayes tend to suppuration: which commeth to passe because the phlegme by long staying in the part, is altered by heat, and turned to quit-

tour: then we are to hasten suppuration by the application of *Diachylon cum gummis*: then to open it, Thirdly to mundifie it. Fourthly to incarnate it, and last of all to procure skinning. And seeing I spake of these things in the curing of a Phlegmon tending to Apostematation: I will remit you to that discourse, because I distrust not your memories.

It falleth out many times that an Oedema, is a symptome of an other disease, as I have said: but chiefly of the cough of the lungs, drop sic, or cachexia or ill habit of the body, and doth possesse the legs and hands: First because they are furthest from the heart; the wel-spring of heat: Secondly, because they are framed of cold parts; seeing this accident cannot be removed, unlesse the disease which is the cause of it be cured, and seeing these diseases are for the most part mortall, I will suffer such as are empyricks, and prodigall of their own credits, to follow their own courses, and to undertake such cures.

An Oedema is thus engendred: when nature is troubled with phlegme, the expelling faculty thrusteth the pituitous humor from the great vessels to the lesser, and being kept in by the density and coldnesse of the skin, is gathered in the musculous part, and so causeth this Tumor. Hitherto then I have discoursed of an exquisite Oedema. Now it remaineth that we briefly dispatch that Oedema which is not exquisite. This is caused when some other humor is joyned with the pituitous: if bloud then be joyned with it, it causeth *οιδημα φλεγμονωδες*: if choler concurre it procureth *οιδημα ερυσσιπελατωδες*: if melancholy or thick and glutinous phlegm, it causeth *οιδημα σκιρρωδες*. In all these kindes of a not exquisite Oedema, the thin pituitous Tumor must be predominant. The other humors concurring are found out by their own proper signes which are set down in the discourses of every principall Tumor, so that I should mispend the time if I should go about to set them down here. Some things I would have you to note. The first is, a primarie Oedema is caused by congection; for it creepeth on by degrees: But that which is Symptomatically, an accident of other diseases, as tabes, asthma, cachexia and drop sic, is procured by fluxion: for it suddenly appeareth. The second is this: If by reason of long keeping bed, either because one hath had a long and lingering disease, or because he hath received a hurt in the leg, the feet swell and become Oedematous, when by motion afterward the naturall heat is increased, this flatulent phlegme is discussed, and  
the

the Tumor ceaseth. One thing may be asked why *Galen* affirmeth that the liver may be possessed with a schyrus, and not Oedema: To this it may be answered; that the liver by its parenchyma or property of substance turneth thin phlegm whereof an exquisite Oedema is caused, into blood; but if it receive any thick phlegm, of that then a schirtus, and not Oedema is caused. But it is time to addressse my self to set down those Tumors which are referred to an Oedema: of those some are enclosed within a cystis or a membrane; and some have no proper membrane: those which have a proper membrane are in number. 3. Atheroma, Steatoma, Meliceris. But it may be doubted from whence this cystis, membrane, or folliculus doth proceed. Undoubtedly it is framed of the tyes of the *cutis* and *membrana carnosae*: for seeing the naturall heat cannot concoct the matter of these abscesses, nature doth providently separate it by its proper cystis from the parts adjacent lest it should corrupt them.

Quest.

Ans.

Dub.

Sol.

The matter which causeth these abscesses and feedeth them, proceedeth from a veine which is not accompanied with an arterie, and so being destitute of vitall heat, it is altogether unnaturall, and cannot be assimilat to the parts unto which it floweth. Atheroma then containeth a substance like unto rice-pottage, or curds: The matter of this Tumor is thick and grosse phlegme.

Steatoma is a Tumor not so high as Atheroma, containing a matter like unto grease, or that which we call the sweet bread pancreas: blood flowing by the veine which hath no arterie, and so is destitute of vital heat, is easily turned into this fatty substance. Meliceris containeth a matter representing honey: so the phlegme which cauleth this Tumor is thinner than that which breedeth an atheroma, and hath some choler mingled with it, the heat wherof maketh the matter fluid, and liquid.

The Tumors reducible to Oedema which have no cystis, are three, *psyracium*, *ficus*, and *talpa*. *Psyracium* is a pointed white pustule containing in it a waterish humidity. *Ficus* is a Tumor so called; First, because it hath a roote like unto a fig; Secondly, because it containeth small graines as a fig hath. It is a Tumor red, round, and somewhat hard and painfull; from whence issueth a matter, like unto the seeds of a fig, if it be broken and wrung. The matter of this Tumor is grosse blood, mingled with phlegme and some waterish moysture. *Talpa* or *testudo* is so called, because as a mole heaveth up the ground, so this Tumor the

skin from pericranium, this Tumor is larger than *ficus*, and is caused of more grosse humors; wherein there is little moisture.

So you have a briefe description of the Tumors which are reducible to Oedema: As for the cure of them, I will reserve it untill I come to that part of chyrurgery called *ἀφαιρέσις*; which sheweth how superfluities of the body are to be taken away. The moderne authors adde to these *Nata*, which is a large Tumor so called; because it representeth the buttocks called *nates*, without paine, consisting of soft and pituitous flesh; caused of congestion of pituitous blood: it is seated most commonly in the neck, shoulders and back: it is only cured by excision.

*Ganglium* and *lupia* are round Tumors of the nervous parts without paine: yet they differ; for *Ganglium* is hard, but *Lupia* soft: 2. *Lupia* may be moved every way, upwards, downward, and side wayes: but *Ganglium* toward the sides only. Thirdly *Ganglium* is like to a knot of the sinew; but *Lupia* possesseth not the sinewy parts only, but other solid and hard parts in hands and feet.

## LECT. IX.

## Of a Schirrus.

NOW are we to enter into the contemplation of a *Schirrus*, the ugly progeny of muddie melancholy, as we have discoursed of a Phlegmon, Erysipelas and Oedema, who deduce their pedigree from blood, choler and phlegme, and ascribe their being to them. But that you may hereafter discern the better the nature of a *Schirrus*, I will first set down the description of melancholy: Secondly, the divers sorts of it: and thirdly the proper signes of a melancholy person: which will both lead you to the knowledge of the griefe, and open the way of curing the person possessed with this griefe. Because the English tongue doth promiscuously use Melancholy, both for *μελανχολικός χυμός*, *melancholicus succus*, and *μελαγχολία χολή* *atra bilis*, I must give you warning, that these two do much differ; for *melancholicus succus* is the feculent part of the blood like unto the lees of thick wines as Allegant, and is drawne from the purest part of the blood by the Spleen. It is neverthelesse one of the 4. nutritive humors naturall to the body, and gentle, having no corrosive or stinking quality. But *Bilis atra* is caused of immoderate heat, and is maligne: for it burneth and corrupteth the flesh, it is sowre and sharp, and being powred upon

the ground it boyleth and raiseth it up, as leaven doth dough and bath an unpleasent smell. There be 3. sorts of this: the first is caused of blood burned, and of all others is the mildest: the second it is ingendred of *succus melancholicus* burned; and it doth differ so much from the naturall black, as lees burned from the unburned: the third is caused of yellow or vitellin choler more burned, which of all others is the worst; because choler whereof it is bred is more hot and sharp than melancholy juyce.

The kindes  
of it.

1.  
2.  
3.

None of these are engendred in a sound and healthfull person, whereas the *succus melancholicus* is found in all persons of what temperature or state soever they be. Wherefore *Melancholicus succus* may be thus described: It is the fourth humor in the masse of blood, black and thick, yet naturall, cold and dry. This humor naturall is either alimentarie or excrementitious. The alimentary nourisheth the melancholicke parts, which are cold and dry; as the bones, cartilages, and ligaments. The excrementitious or superfluous is drawn by the Spleene.

The description  
of succus  
melancholicus.

The differen-  
ces of it.

Now these signes discover melancholy persons; they are silent, pensive, constant in their purposes, slow to anger; but if they entertaine it, they turne it unto hatred: their sleep is troublesome by reason of fearfull dreams, as of black things, dead bodies, death, they are sad and given to fear, without cause; their pulse is small, slow and hard: their colour is darke, their appetite to meat and *Venus* is more than ordinary: they seldome thirst, because they abound with much superfluous phlegme, their blood is thicker and blacker than ordinary, from what part soever of the body it flow, the urine is thin and whitest, if no melancholy be mingled with it; but if Melancholy be mingled then it is thick, black, or of a leady colour, they sweat much in their sleepe; the habit of their body is lean, rough and hard: they are subject to varices and hamorrhoides: if such a one be presented to you possessed with a Schirrus, it is easie to discerne the disease, and of what humor it proceedeth, and how the party is to be dealt withall. So you have the description of melancholy, the divers sorts of it, and the marks of a melancholick person: which things shew no small light to attaine to the knowledge of a Schirrus. In my discourse of a Schirrus, I will set down first the description of a Schirrus: Secondly, the signes of it: Thirdly, the differences between it and other Tumors: Fourthly, the kinds of it: Fifthly, the prognosticks of it, and lastly the manner of curing of it.

Signes of a me-  
lancholicke  
person.

The description  
of a Schir-  
rus.

To begin then with the description of a Schirrus, it is a Tumor hard, and without paine, caused either of naturall melancholy, or thicke, tough, and cold phlegme. If the cause be melancholy, it hath a leady colour; if phlegme, it changeth not the colour of the skin: for phlegme is white; As for the signes of it;  
I. It is hard.

Because those  
parts are very  
thicke. 2. m;  
Gal. 1. simp.

Now there are foure causes of hardnesse: the first is coldnesse, as appeareth in Ice; this is removed by moderate heat, as by the sun. The second cause, is drynesse, as we may plainly see in the hands of Sailers, and Felt-makers. The third cause, too great repletion, which doth appear in the stomacks of gluttons. The fourth cause, may be the combination of these, and indeed all these concur to procure hardnesse in a Schirrus. As for coldnesse, it may be induced either by things externall, as cold aire, and narcoticall medicaments; secondly, from the part affected, for Schirrosities chiefly appear in the beginnings of the muscles, ligaments, and tendons, and other cold parts; thirdly, from the humor; so the melancholick juyce, and thick and viscous phlegme, the materiall causes of a Schirrus are very cold.

The second signe of a Schirrus is that it is without pain; and this commeth to passe, either because the animall spirit cannot passe through an humor so thick and glutinous, as that is which causeth a Schirrus, or because it is benumbed by the coldnesse of the humor. This is the third signe, that it is fixt, and as it were nayled to the part, and doth not move by pushing, as *Scrophula*, or *Ganglion*.

Now I will shew you how it differeth from other Tumors. It differeth from a phlegmon; for in this, there is great paine; from Erysipelas; because this is not hard; from an Oedema, because this yeeldeth to the touch, and leaveth a pit. It is discerned from waterish and flatuous Tumors, because they have a thinner, and more clear matter. The differences between it and a cancer are these. I. A cancer is alwayes painfull, because it is caused of *bilis atra*, or adust choler; but a Schirrus is without pain. II. A Schirrus is cold, but a cancer hot; this is caused by reason of the humors whereof they are bred. III. A Schirrus invadeth the solid and hard parts, as the joynts, tendons and ligaments; but a cancer the loose and flaggie parts, as the breasts, the privy parts, and such like. IV. In a cancer, not in a Schirrus, the veines appear full of a black humor: which for  
the

the likenesse, one may call the legs of the crabbe, as the round Tumor the crabbe it self. It is high time to set down the predictions of the successe of curing, which schirrosities are like to have, that when such Tumors are offered to you to be cured, you may be made circumspect and wary in taking of them in hand. An exquisite Schirrus is incurable; for seeing it is senselesse, it is manifest that the part is deprived of the influence of the animal spirit: and seeing this humor doth distend the sinewes, veins and arteries, the faculty it self is strangled and choaked, so that it neither can direct, nor help the naturall heat to concurre with the meanes, to be applyed for the dispatching of this grieffe. Secondly, this being a cold Tumor, and the naturall heat extremely weake, what hope can there be, that it can at any time triumph over so great an infirmity? A Schirrus not exquisite, although it be not mortall, unlesse it be very great, yet it hardly admitteth any cure, and by much difficulty? A Schirrus which is ex:reame hard is altogether incurable: for gentle means availe nothing, and those which are strong make it more hard: a Schirrus from *succus melancholicus* is waresly to be delt withall: because it hath a great affinitie with a cancer, and so may degenerate into it, if improper medicaments be applied. If a Schirrus be caused of thicke and glutinous phlegme, you may be the more bold: for this cannot easely contract any malignity. The differences and divers forts of a Schirrus are to ensue: a Schirrus then is either primarie, or Epigenematicall. A primary Schirrus is that, which is a grieffe of it self, and not caused by reason of any infirmity preceding. This is twofold, for it is either exquisite, or not exquisite: a primary exquisite Schirrus is that which at the first, is caused by collection of the melancholy juyce in a part. A Schirrus is thought to be not exquisite, when an other humor is joyned with melancholy. If therefore some laudable blood be joyned with it, it causeth Schirrus phlegmonodes; if choler, Schirrus erysipelatodes: if phlegme, Schirrus Oedematodes. Neverthelesse, seeing these are compound Tumors, and are to be dealt withall according to the doctrine delivered of the simple Tumors, whereof they are bred: I will leave these to your own considerations.

A Schirrus Epigenematicall or Symptomaticall, is that which ensueth after another Tumor, not handled according to Art, as a Phlegmon or an Erysipelas: this happeneth two manner of wayes. I. It may fall out by the immoderate use of locall medica-

ments.



ments too cold, and narcoticall or stupefactive: for these condense, and as it were congeale the humor. Secondly this may happen by the too continuall application of resolute topicks: for so only the subtill and thin parts are breathed out, and the thick and glutinous remaine. The last point, which in the beginning I promised to deliver unto you concerning a Schirrus, was the manner of curing of it; receive it then, which I hope you will well like of.

The indications of curing are taken from three things, to wit the dyet, internall medicaments, and externall applications. As for phlebotomy it is here fruitlesse, because the humor is cold, unless the veins be very full, the blood black, and age and strength conspire: for then it is expedient, for so the humors in the masse of blood will be more fluxible; and the quantity being diminished, the naturall heat will the more easily rule the residue. If a Schirrus be caused in a man by reason of the hemorrhoids stopped, then the leeches are to be applied; if in a woman by reason of the menstrues supprest, then Saphena is to be opened.

As for the diet then, the meat must be of easie digestion, moystning, and affording a thin juyce: such are Chickens, young Pigeons and mountaine fowle, Lamb, Veal, young Pullets and Cockrels, fed Rabbets, Poched eggs, asparagus faller, Spinage, Burrage, Purfelaine: bread of good wheat not too much leavened is convenient; let the drinke be small white wine, or reasonable strong beere well boyled, clear, and neither too old, nor too new; good Syder also with Rosemary, Burrage, Buglosse burned, and Sugar is good. Meats which afford a grosse juyce are to be shunned, as old beefe, all meats dried in the smoake, Venison, fish living in muddy waters, all salt meats, course bread: the immoderate use of vineger is hurtfull: apple tarts, and warden and peare pyes baked with Fennill-seeds and Annise-seeds will serve instead of other sweet meats. Let the habitation of the diseased party be in a pure, hot and moist aire; too much sleep, idleness, griefe and pensiveness are to be shunned. As for internall medicaments, they ought to purge melancholy, and thick and glutinous phlegme, but both of these are to be prepared before they be evacuate. Those medicaments which prepare melancholy ought to attenuate or make thin, and moysten, such are the syrups of the juyce of Burrage, Buglosse, the syrups of Fumiterry, Hops, and Apples, with the decoction of Balme, Harts-tongue, Scolopendria, Tamariske, and

and such like. Those medicaments which prepare phlegme, ought to be of an attenuating, and mundifying quality, as the syrup of Ilope, of Betony, of Stechas, Oxymel, and Mel rosatum in the decoction of Calamint, Hore-hound, Penny-royall, and such like. The humors being prepared, then they are to be purged: melancholy is to be purged with *confectio Hameeh*, *Electuarium Indum*, *pils de Lapide lazuli*, the contract of black Ellebor, *Electuarium lenitivum*, and the like, which may be ministred in the infusion of Sena leaves and polypodie. Phlegme is to be purged with *Dia-phenicum*, *Diacarthamum*, *Hiera Pachii*, *Pilula de agarico*, & *hermodactylis*, *diatribith* and the like. The electuaries are to be ministred in a decoction of those simples which prepare phlegme.

One thing is to be noted, that nothing is more effectuell in discussing these schirrosities, than the continuall taking of the decoction of *sarsa parilla*, and *guajack* in stead of other drink, using a convenient dyet, and procuring every other morning sweating: for *lignum vite* warmeth, and *sarsa* dissolveth the hardnesse: if it performe this in nodes, which are far harder than any Schirrus possibly can be; why should it not performe this office in a Schirrus?

Here it is no wonder if few be cured: for sundry are impatient if their expectation be not speedily answered; and besides this, they are unwilling to gaine the losse of their health, by forgoing their sensuality and pleasure, being *ventris mancipia*; more carefull of their taste than health.

But time calleth us to speak of externall applications, which are fit to be used in the cure of a Schirrus. In these you are to consider three things; their faculties, their differences, and the right use of them. As for the faculties then of the locall medicaments, they ought to be discussing and softning, *emollientia* and *discutientia*. Repelling medicaments are not to be used, because the humor is thick, and hard, and so unapt to motion.

Of emollient medicaments there are foure degrees: in the first are those which are gentlest; such are mans grease, capons grease, the marrow of harts, and calves bones, ducks grease, swins grease, sweet butter. *Galen* adviseth to apply to gentle Schirrosities, a *Li. x. γ.* medicament made of sweet butter, black rosin, and new wax. *Dialthea simplex* is of this degree. In the second degree are these, goose grease, badgers grease, dogs grease, old ranck oyle, oyle of

Lin-seed. In the third degree, are, the fat of lions, beares, wolves, foxes, libards, and the marrow of horses, and mans bones. In the fourth degree, are, *Ammoniacum, galbanum, bdellium, caranna, taccamahaca, opopanax*, of these simples you may frame unto your selves such compositions as the quality of the Schirrus, which

7. ad Albanf.

you are to take in hand, shall require. *Rases* in all Schirrosities, commendeth a certaine cataplasme, and it is excellent indeed.

The description may thus be framed, take of *bdellium, ammoniacum*, and *galbanum*, of each 1. ounce, dissolve these in a hot mortar with oyle of lilies, adde of the mucilage or pulpe of roasted figs ij. 3, of the macilage of Lin-seed and Fenugreek, vj. 3, make up a cataplasme, dresse the Schirrus with this cataplasme once a day. *Diachilon cum gummis*, and *emplastrum de mucilagibus* are convenient. *Riolan* the father commendeth this medicament; Take of *unguentum de althaa*, of *diachilon cum gummis* & *emplastrum de mucilagibus* of each 1. ounce, of the oyle of Lilies vj. drams: mingle these well together, you may adde to these medicaments some vineger to help penetration. If a Schirrus be above a nerve or a tendon, in stead of vineger you may use the spirit of wine.

One thing is to be observed, that before you apply any medicament, the part affected is to be fomented with the decoction of Mallows, march mallows, Camomil, Melilot, and Cowslip flowers in vineger, unto which after it is boyled, some spirit of wine is to be added.

As concerning the right use of the locall means, these observations following are worth the noting; the first is: If a Schirrus be caused of the melancholy humor which is cold, thick, and dry, you are to apply a medicament which warmeth, attenuateth, and moysteneth. II. If the Schirrus be engendred of cold, thick, and tough phlegme, then the medicament ought to be warming, attenuating, cutting, and mundifying. III. Tender persons and parts require milder; but parts and persons harder and stronger, require more forcible means. IV. If a Schirrus hath been procured, because an unskilfull person hath applyed medicaments too much repelling or diseussing to an inflammation: then apply this mollifying liniment; Take of yellow wax, and ducks grease tryed, of each j. 3, of oyle of Lilies ij. 3, of the marrow of oxes bones ij. 3, mingle them well together. V. If immoderate use of drying to-

pick<sub>s</sub>

picks hath procured hardnesse, then medicaments moystning are to be used: such is a cataplasme made of mallowes boyled and capons grease, or twines grease.

Unto a Schirrus these Tumors may be referred *strume*, warts, cornes, leprosie. As for *strume* and the leprosie, they will require severall tractats.

Warts, if the root be small and the top broad, may be taken away by ligature; if the root be broad, they must be extirpate with medicaments. There I commend unto you strong *aqua fortis*, or *lapis infernalis* relenred; these must be applied to the wartes with a rush or a straw. The third is an experiment of *Fabricsius*, *Ab aqua pendente*, and that is this; of Purselain bruised, and the powder of Savin make a cataplasme and apply it.

Cornes first must be artificially cut, and then one these medicaments which I shall name, must be applied: *Ammonaicum* dissolved in vinegar, and brought to the consistence of *cerot. emplastrorum de mucilagibus*, and *diachilon cum gummis*.

LECT. X.

*Of aqueous Tumors.*

I Have delivered in my Lectures, penned before the last Easter holy dayes, what I thought most materiall concerning the foure principall Tumors, Phlegmon, Erysipelas, Oedema and Schirrus, which are caused of the foure humors in the masse of bloud; to wit bloud properly so called, choler, phlegme and melancholy; and so might have concluded the doctrine concerning the differences of Tumors, as sundry others have done who have written of this subject.

Nevertheless seeing aqueous or waterie and flatuous Tumors are often presented to you to be cured, I thinke it expedient to discourse of these, that the doctrine of Tumors may be compleat.

First then I will discourse of the Aqueous, and then of the flatuous Tumor. The materiall cause of the Aqueous Tumor by the Physicians is called *serum*, or *serosus humor*. Of this humor there is but a small quantity in a healthfull person; no more than is fit

to make the blood thin, that it may be the more readily carried unto all the parts of the body to afford them nourishment. This being done, it is discharged through the pores of the skin, either by sweat or insensible perspiration.

2. de nat. facult.  
lib. 6. 9.

Wherefore *Galen* not without reason affirmeth all serosity to be an excrement.

The difference  
of urine, sweat,  
and the waterish  
humor.

This serosity is not only of a moist and waterish substance; but of a salt quality in like manner; yea, this serosity, urine and sweat have the same matter: yet they differ; for *Serum* is that aqueous humidity which is contained in the blood: and although blood be drawne, yet it cannot be discerned unlesse the blood grow cold and congeale, and this thin part by the concretion of the blood be separated from the thicker. But urine is nothing else but the superfluity of this serosity of the blood mingled with the waterish

Urine,

humidity of meat and drinke, and near the root of *Vena cava* separated from the masse of blood, and drawne by the attractive faculty of the emulgent veines and kidnies, and by the ureters sent to the bladder, there to be detained untill the convenient time of excretion. So that this kinde of excretion purgeth the blood from waterish humidity, whereby it is made more firme, and so more fit to nourish the parts. As for sweat and insensible perspiration, they are nothing else but the excrements of the solid parts. Nevertheless, they carry with them some obscure signes of the constitution and temperature of the body: hence it is that a dog can finde out his master, and discern the tract of the Hare, from that of a Fox, and of one fowle from another.

Sweat.

The causes of  
the increase of  
the waterish  
humor.

Some preternaturall causes will encrease the serosity of blood: as meats affording plenty of waterish humidity, as most fruits, cold herbs, and immoderate use of water, and other drinks: for although some drinks be hotter than others, yet all of them have more waterish humidity than spirit, and by reason of the distemperature and obstruction of the parts appointed for sanguification, often times this serosity is not separated from the alimentary humors; but is detained and increased, and not expelled by urine and sweat: from whence the dropsie, fevers and pustules of the skin do proceed.

1.

2.

The causes of  
an aqueous  
Tumor.

1.

An aqueous or waterish Tumor then is caused of the superfluity of this serosity detained in the body, after that it hath performed its office, which is, when it hath carried the nourishment through the narrow passages: such are the mesaraicall veines, and those which are dispersed through the substance of the liver. Wherefore

fore

fore when the liver sendeth the blood by the branches of *vena ca-*  
*va* to the parts of the body, it hath not need of such store of hu-  
 midity. If too much of this waterish humidity be sent to the habit  
 of the body, and move the expelling faculty, then part of it is  
 sent to the skin, which causeth waterish Tumors. Those which  
 heave up the Cuticula are called *Sudamina*. Those which arise in  
 the night time are called *Epinyctides*. If waterish humidity be ga-  
 thered in the codde, it causeth  $\upsilon\delta\epsilon\sigma\upsilon\eta\lambda\alpha\upsilon$ , if in the navell,  $\upsilon\delta\epsilon\sigma\mu\epsilon\alpha\lambda$   $\Theta$ ,  
 if in the head,  $\upsilon\delta\epsilon\sigma\kappa\epsilon\tau\alpha\lambda$   $\Theta$ . And although neither *Fallopins* nor  
*Tagautilms* have made any mention of waterish Tumors, thinking  
 perhaps, that they may be reduced to pituitous Tumors, yet these  
 Tumors wherein nothing else but waterish humidity is contained,  
 do plainly evince, that an aqueous Tumor is one distinct from all  
 others. Superfluitie of this serosity is sent to the habite of the  
 body: partly because the weaknesse of the kidnies, doth not suf-  
 fer them sufficiently to draw it; partly, because the liver is too cold,  
 and lastly, by reason of some error committed in the use of the  
 things not naturall, as immoderate taking of water, and other  
 drinks, as Wine, Ale, Beere, Syder.

Sundry diffe-  
 rences of wa-  
 terish tumors.

What causes  
 move the sen-  
 ding of this hu-  
 mor to the cir-  
 cumference of  
 the body.

The signes of a waterish Tumor are these: First, it is some-  
 times more, sometimes lesse swollen: yet it yeldeth when it is  
 pressed hard, whereby it is discerned from Schirrus. It is distin-  
 guished from a Phlegmon, and Erysipelas, because these are pain-  
 full, but it not. It is discerned from an Oedema by this, that it  
 being pressed, it admitteth no pit as Oedema doth. It being bea-  
 ten, it yeeldeth no noyse, as a flatuous Tumor doth, as appeareth  
 in a tympanie. Last of all when it breedeth, there is always an  
 itching in the part, by reason of the saltnesse, which is in the wa-  
 terish humidity. These Tumors appeare in the navell, cods, and  
 the habit or compasse of the body: yet most frequently in the  
 joynts of the armes and legs: because these parts being weak, cold  
 and thick, are aptest to admit such waterish Tumors. As for the  
 Prognosticks, that waterish Tumor which happeneth by reason  
 of any imperfection of the liver is dangerous: not so much in  
 consideration of the Tumor it self, as of the infirmity of the liver.  
 Other waterish Tumors although they be not so dangerous, yet by  
 reason of the weaknesse, coldnesse, and thicknesse of the skin are  
 not so easily cured. As for those Tumors which rise in compasse  
 of the body, like to blisters or small bladders, and are called *suda-*  
*mina*, as they are no wayes dangerous, so they are easily cured.

The signes.

- 1.
- 2.
- 3.
- 4.
- 5.

The places  
 most subject to  
 this Tumor.

The predicti-  
 ons.

- 1.
- 2.
- 3.

The indications of curing this Tumor.

Dyet.

As for the curation of this grieve, reason and experince have found out four means to meet with it, to wit, a convenient dyet, internall medicaments, externall applications, and manuell operation. If then an universall humidity possesse the whole body, the dyet must be drying: wherefore roasted meat is better then boyled. Immoderation in drinke is by all means to be shunned: for

*Iejunet, vigilet, sitiatur qui rheumata curat.*  
Watch he must, and thirst, and fast,  
Who means to cure a rheume in hast.

And as temperance and sobrietie have a promise of prolonging our temporall lives, so are they powerfull helps in curing diseases; but chiefly those which are caused by the superfluity of moist and waterish humors. Flesh then is better than fish, and of flesh meats, those are best which are dryest: Kid then is better than Lamb, Veale than Mutton, Rabbits and Conies are good, land fowle are better than water fowle. *Hippocrates* himself commendeth Porke above Pigs flesh: but neither of both is good: for Pigs flesh is exceeding moist, and in Porke the fat is moist, and dissolveth the stomach, but the lean is hard, and not easily concocted. All supping meats are to be shunned, for they multiply moisture. *Ludovicus Cornarius* his diet recorded by *Lessius* in his *Hygiasticon* or treatise concerning preservation of health, is fit for such persons. For above the space of fourty years, he rested contented every day with xij.oun. of bread and meat, and xiiij.oun. of drinke: when he was eightie yeares of age, so able he was by the observation of this moderate diet, that without any advantage of ground, he usually backt the fairest Italian horses. One thing is to be noted, that seeing superfluous humidity seldome possesseth the body, unlesse there be some fault in the liver and kidnies, you must by all means labour to reduce them to their natural temperature. The means to compasse this, are set downe by every one who hath penned the practice of physick, unto whom I remit you, being unwilling to trouble you with impertinent discourses.

How the liver and kidnies affected are to be cured.

Internall medicaments.

Catharticall medicaments.

The internall medicaments appointed for the expugnation of this grieve, are of three sorts: for either they purge by stoole, or by urine, or by sweat, and insensible perspiration. To touch the Catharticke medicaments, such are one graine of *Elatarium* with a scruple of *pilula cochia*, or *de Euphorbio*, or *Alephangica*: two drams of the seed of the dwarfe Elder, or *Ebulus* beaten to powder

der and ministred in white wine, and a spoonfull of the juyce of *Ebulus*, the flower deluce, or *soldanella* mingled with ij oun. of the syrup of damask Roses, dissolved in ij oun. of white wine. The purging diet is excellent, if you adde to the ordinary purgatives in it, the roots of *Esula major*, the berries of the bucke-thorne, and *Carthamus* seeds. Amongst all the simples Mechoacan and Jalop are most commended, both for their efficacy in working, and safety in ministring. As for diureticall means, I commend unto

Diureticall  
medicaments.

unto you this medicament: take of the ashes of Broome, and Bean-straw burned, of each a good handfull: straine through those ashes, iij pints of Rhenish wine three times: then infuse in this wine of the root of *Sassafras* sliced ij oun. of Nutmegs and Cinnamon, of each two drammes; of Bay berries, and Juniper berries of each six in number, of Cummin-seeds ij ʒ. of Fennil-seeds and Annise-seeds, of each one dram and an halfe, of Sugar four ounces, of the spirit of Salt one dram. Minister every morning four ounces of this wine strained, and so much about foure of the clocke in the after-noon: the decoction also of Penniroyall, Time, Calamint, with seeds of the Melon, Pompion, Cucumber and Purfelaine made pleasant with the syrup of *Althea*, *de quinque radicibus*, and of Hysope ministred as the former, is good.

Diaphoretick  
medicaments.

As for diaphoreticke medicines, the decoction of Guajacke, Sarsaparilla, Sassafras, and the China root with Agrimonic, Betony and Coriander, sweet Fennil-seeds, and Annise-seeds carry away the bell. How effectually these medicaments are, being judiciously used, not in this griefe only; but in moist ulcers also, and other diseases contagious, I need not to labour to perswade, seeing there are few in this company, who have not often made tryall of them: when these decoctions are ministred, a strict dyet must be enjoyned, and plentiful sweat procured, according to the tolerance of the diseased partie.

The locall ap-  
plications,

The topical remedies ought not to be repercussives, although the humor be thin, because seeing nature can make no use of it, it is to be evacuated: wherefore the remedies ought to discusse, and rarifie the skin, that vent may be given to the humor. *Fabricius ab aqua pendente* commendeth this medicament; Take of Mallow leaves an handfull and a half, of the meale of Lupines

De tum p. 2.  
p. 2. lib. 1. c. 20.

ʒ. of the oyle of Dill and Camomill of each ij ʒ. with s. q. of white wine make up a cataplasme. The lee of unslaked Lime, and branches of the vine are good. *Avicen* out of *Galen*, against waterish

terish



terish Tumours describeth thus the emplaster of Mustard, and affirmeth, that if this medicament prevaile not, that there is but small hope that any other will. Take of Mustard-seed, Nettle-seed, Brimstone, *Aristolochia rotunda*, of the some of the sea, or Brine and Edellium, of each j̄. of *Ammoniacum*, old Oyle, and Wax, of each j̄. make a cerot according to art. Let me advertise you of one thing, that the part is to be fomented before either cataplasme or emplaster be applyed. The fomentation is to be made of a lee made of Beane-straw, Broome, and twigs of the vine burned, with some ordinary ashes, wherein you are to boyle common Wormewood, sea Wormewood, the lesser Centory, Calamint, Cummin-seeds, Bay berries, Juniper berries, Scordium, Camomil flowers, Melilot flowers, and tops of Dill: unto the decoction strained, adde the sixth part of Shery Sack. But seeing I have discoursed sufficiently of all degrees of discutient remedies in my lectures of other Tumors: I will cease to trouble your patience with idle repetitions, commending unto you only these few specifical remedies before mentioned. Now to come to the last remedy appointed for rebellious waterish Tumors, to wit, manual operation. If they cannot be discussed, as oftentimes *Hydrocephalos* and *Hernia aquosa*: then the humor is to be let out, sometimes by incision, sometimes by a caustick medicament: then the part is to be mundified; thirdly, it is to be incarnat, and last of all cicatrized. But seeing I have handled these points, when I discoursed of an Aposteme, and that I am to set down what is singular in every Chirurgical operation, whereby superfluities are taken from the body, in that part of Chirurgery which is called ἀφαιρητική, here I desist, referring every thing to its proper place.

## LECT. XI.

## Of a flatulent Tumor.

**H**AVING set downe the doctrine of a waterish Tumor, I am to fulfill promise, to speak of a flatulent Tumor; in Latine it is called *Tumor flatulentus*, in Greek *πνικτὸς τῶσις*, or *ἐμπύσημα*, for the Grecians call flatuosity sometimes *πίση*, sometimes *πνικτὸς*.

The names of it.

Persons most subject to this grieffe.

The person in whose body flatuosities are multiplied, is often troubled with gudlings in his sides, he belcheth often, he is troubled with

with singing of the ears, his excrements come forth with flatuosity, his urine is frothy, he findeth a stretching of his belly, yet without any heaviness.

The causes of flatuosity are crudity and weak heat. The heat may be accounted weak too manner of wayes. I. Of it owne nature, and so it hath some power and dominion over the humor, and doth in some sort dissolve it, but imperfectly; and so it produceth halituous vapours, which are called flatuosities, but is not able to discusse them, and so they remaine in the part, and distend it, and that because the flatuosities are grosse, and the part thicke: this appeareth often in the knees, and troubleth Chirurgeons and Physicians much. II. Heat may be accounted weak by reason of the matter it self; when as the matter is so plentifull, that the heat cannot wholly overcome it, but leaveth some vapours undiscussed.

The causes of this griefe. Differences of weak heat.

The causes of crudity are ebriety, gluttony, a sedentary life, and flatuous meats and drinks; such are beere or ale not well boyled, pease, beans, chefnuts, turneps, radishes, green fruit, swines flesh, water fowle, salt fish, and such like. It is discerned from a waterish Tumor, whereof we have spoken, by the lightnesse of it; for an aqueous Tumor is heavy, but this not. Secondly, by distending the membranes, and stretching of them, it causeth often intolerable paine, whereas in waterish no paine is felt. It is discerned from an Oedema by this, that it admitteth no pitting, although it be pressed: it is distinguished from *Schirrus*, because this is hard, but it not: it is discerned from a Phlegmon and *Erysipelas*, for in it the skin is not discoloured, neither is there any extraordinary heat felt; but in those both appeare.

The differences between a waterish and flatuous Tumor.

1.  
2.

As for the Prognosticks, receive these; If these flatuosities possesse parts very sensible, as great joynts, such are the elbowes, or knees, which are compassed with thick membranes, they are hardly cured, and will busie the most skilfull.

The prognosticks.

1.

As for those which invade other parts, they are not very easily cured. First, because these halituous spirits are grosse. Secondly, because the parts thorow which they are to be discussed are thicke. Thirdly, because the naturall heat is weak. Whosoever goeth about to cure these flatuous Tumors; First, he must prescribe a strict diet to the Patient, such as I have set downe in the cure of a waterish Tumor. Secondly, he must bar him of the use of all flatuous aliments, whereof I have made mention, and pre-

Why those Tumors are hard to be cured.

The indications of curing.

1.  
2.

scribe

scribe unto him meats of easie concoction, and which afford a laudable juyce. After meals let him eat a slice of the marmalad of quinces, with some coriander, and anniseeds comfits, having but one covering of sugar. The stomacke a little before bed time, is to be embrocated with the oyle of masticke, wormwood and rue.

The topical  
remedies.

1.

2.

3.

As for the Topicall remedies, the part first is to be fomented with Sheres sacke, wherein Dil, Rue, Bay-leaves, Camomill, and Melilot-flowers, Cummin-seeds, Annis-seeds, Fennill-seeds and Bay-berries have been infused. Then the part is to be embrocated with the oyle of Camomill, Lillies, Dill, Rue, Bayes mingled with *Aqua vita*. Thirdly, apply to the part the Cummin emplaster, or that of Bay-berries: if the Patient do feele inflation in his stomacke, or in the region of the spleen, minister unto him of the confection of Bay-berries ij. 3. in three ounces either of good Hippocras, or Canarie wine, wherein Cinamon hath been infused two houres before supper. iiij. or iiiij. drops of the oyle of Pepper, or vj. of Fennill-seeds oyle in the wig of a Sack-poffet, are good. Digestion is furthered in such persons, if they take a cup of Sacke having a toast in it, and afterward eat the toast, being first besprinkled with sugar. To such a remedy the meanest may attaine unto: you and they will better like of it, than of any remedy sold in the Apothecaries shop. The Sacke is to be taken two houres before supper.

In this Treatise of Ulcers are set down

The differences of ulcers, and so they are either

Simple,

or compound, & these are either

Milde, Which are either

Plaine,

or Sinous, and that

Without callositie. Or with callositie, which are called Fistulae.

Lesse maligne, and these are three.

Herpes exedens. Phagedana. Nome.

Or maligne, and these are either

Very maligne, of these are 2. kindes.

A cancerous ulcer. A leprous ulcer.

Or the accidents: and these are taken from things either

Familiar to nature; from hence spring foure differences, to wit, an ulcer

1. With superfluous flesh.
2. With cariositie of the bones.
3. Having the naturall colour altered.
4. Varicous.

Estranged from nature, and so an ulcer is called

Verminous. Lowsie.

Secondly the doctrine of ulcers of some parts in particular, as of the ulcers.

1. Of the hairie scalp.
2. Of the eares.
3. Of the eyes.
4. Of the nose.
5. Of the mouth.
6. Of the lungs.
7. Of the back, belly, and joynts.



# A T R E A T I S E O F U L C E R S.

---

## The second Treatise.

---

### L E C T. I,

*wherein the Authors, and Definition of Ulcers,  
are set downe.*

The differ-  
ences of the solu-  
tion of unity.



Before I addressed my selfe to discourse of any particular matter belonging to the course of Chirurgery, I allotted in my first Lecture, four parts to Chirurgery: whereof the first was *Συνδεσις*, which teacheth to unite parts disjoyned. Solution of unity I made twofold: either intelligible, to be apprehended by reason or understanding, or sensible, which may be perceived by the very senses. The intelligible I named a Tumor, in the which very often no solution of unity doth offer it selfe, either to the sight or touch, as in many cholericke Tumors, and others in their beginning. Sensible solution of unity, I affirmed either to be in the soft parts, or in hard. As for the solution of unity in the soft parts, I appointed two differences of it; to wit, *Ulcus* and *Vulnus*, an ulcer and a wound.

*Quest.*

But here, not without a cause, a question may be moved, which of those two, in methodicall proceeding, ought to have precedence,

dencie. It is an undoubted truth, that the first man that lost his life was *Abel*, and that by wounds, so that by all likelihood, men first of all bent their wits to finde out means to cure hurts received by externall violence: for the nearer they lived to the creation, the more pure their bodies were, no hereditary diseases being left by parents, if you accept mortality by reason of old age, which no man could escape by reason of the sentence of death pronounced for the sinne of disobedience against *Adam* and his posterity by Gods own mouth: and so being little troubled with either inward griefes, or outward sores, they troubled not themselves about the invention of medicaments to cure these; so that by the right of time, the treating of wounds ought to precede the handling of ulcers. Neverthelesse, in our times, my opinion is, that the discourse of ulcers, for fundry reasons, ought to go before. For first of all, an ulcer doth proceed from an inward Humor corroding, but a wound from an outward instrument dividing: so that a silly Empirick, yea a doting old woman, may go about the curing of wounds in fleshy parts, and compasse it; but to the curation of ulcers, the knowledge of Humors, and the constitution of the bodies affected are required, which require a man well versed in that part of Physicke called *Physiologia*. Secondly, greater variety of medicaments is required in the curing of ulcers, than there is in the curing of wounds, and so still greater skill is required in the curing of the one than of the other. Thirdly, greater estimation doth acree unto those who take upon them the curing of ulcers, than unto those who deale with wounds, and that by all sorts and degrees of persons, whether they be rich or poore, rude or civil, learned or ideots; so that I need not to retract my opinion in ascribing unto the tractation of ulcers the precedency, before the discourse of wounds.

In my proceeding, I will handle these ten points: I. I will point out the Authors who have written landably of this subject. II. I will set down the definition of an ulcer. III. The causes of an ulcer. IV. The differences of ulcers. V. The generall signs of ulcers. VI. The general prognosticks of ulcers. VII. I will set down such medicaments as are fit for all ulcers in general. VIII. Of the general indications of curing of ulcers. IX. Of their times. X. I will discourse of every particular sort of ulcers.

*Ans<sup>r</sup>.*

I.

2.

3.

The scope.

1.  
Point.

To make the tractation of ulcers perfect and compleat; First, then to come to the Authors, I meane not to name all who are come to our hands, and have written of this subject; but such as are famous for their skill and experience. *Hippocrates* and *Galen*, although they have not left to posterity particular large monuments of this matter, yet when occasion is offered, they omit not to set down both the indications of curing, and medicaments effectual to cure. *Hippocrates* in his 6. Sect of ulcers and fistulaes. *Galen* in those excellent books of his which he penned, *De methodo medendi*, Lib. 3. of a simple ulcer, Lib. 4. or an ulcer with accidents, of the orderly way to cure diseases, for the most part doth illustrate his precepts by examples borrowed from the practice of Chirurgery.

If you demand why he did so?

Quest.  
Answ.

I will tell you the cause in *Fallopins* his words, in his first Chapters of ulcers, *Quonian ut ait Celsus, lib. 7. c. 1. Quum eadem est*, Seeing according to *Celsus*, the meanes which Physicians use in curing, sometimes take effect, sometimes availe not, it may be doubted whether health may be ascribed to the good constitution of the body, or to the meanes applyed; but the effect of Chirurgery is most evident. O pregnant testimony to evince the certainty and excellency of Chirurgery! Let those Physicians who slight the practise of Chirurgery, thinking themselves to be chicks of the white hen only, consider and weigh the weight of this testimony of *Celsus* and *Fallopins* in the impartial ballance of reason. *Avicen* the chiefe of the Arabick Physicians, handleth this matter in the fourth Book of his Canon, and the third Treatise: although he doth write confusedly, yet the reading of him will profit such as understand him, and will not be fruitlesse. *Albucasis* hath some good things, but the number of the trifles are many moe. *Paulus Aegineta* in his sixth Book of the Art of curing, only toucheth some points of this matter, as a dog doth *Nilus* when he drinketh. *Gabriel Fallopins* followeth, who hath written an excellent Treatise of this matter; but whosoever shall peruse him shall finde him in sundry things intricate enough; I will bring him a new companion, but far surpassing all other moderne Writers, *Minadous*, one of the famous professors of that renowned University of *Padua*, in his three Books which he penned of the curing of the deformities of the body of man: Whosoever he be who shall go about to make a parity between these two  
and

and others of the late Writers, I shall judge him worthy of *Midas* his eares, and after that he hath proceeded, and been promoted in *Germany*, to be saluted a Doctor with foure feet. To these two Italians, I joyne the German *Samuel Hafenefferus*, in his four Books of the affections of the skin, in whom there are many varieties, if one with judgement discern them. The rest that can be named are of the lower bench, as *Guido a Cauliaco*, and he who hath onely taught him to speak a little more eloquently, *Joanner Tagaultius*, in the third Book of his Institutions of Chirurgery. *Ioannes de Vico* accounted the father of Emperickes. *Marianus Sanctus* in the third Treatise of his compend of Chirurgery, and *Angelus Bologninus* in his two Books of ulcers, shall bear him company. I must not omit that painfull and judicious Chirurgeon *Ambrose Parrey*, unto whom Chirurgery is much beholding. *Vesalius* also deserveth praise. The two latest who have written are the two *Fabricij*, *Ierome* and *William*: *Hieronymus Fabricius* in the third Book of the second Part of his Chirurgicall workes; *Gulielmus Fabricius* in his learned Chirurgicall observations, who in this course out-strip all their fellowes. These Authors of all other are most to be perused, for in reading of them one shall become both more understanding, and more able to performe the cures which shall be committed to his care and skill. As for the rest, I leave them unto those who rather chuse to feed upon ackornes, than pure manchet. *Riolan* the father, *Iaques Guilmean*, *Peccetius* and *Pigram*, although they deserve their owne praise, yet in my opinion they are to give place to those whom I have named. If any one would mispend good houres, let him read *Paracelsus* his great and little Chirurgery, which are like clouds without raine. If you would be furnished with Forrests of Chirurgicall medicaments, peruse the Treatise of the learned *Hollerius de materia Chirurgica*, of Chirurgicall means, and *Iacobus Dondus* in his enumeration of Chirurgicall remedies, both simple and compound.

As for those medicaments which in my proceedings I shall from time to time set downe, they shall not be a confused heape, but a choice of the best approved, to ease you of the labour of election.

Now are we to descend to the definition of an ulcer, which was <sup>2.</sup> Point. the second point: I will not stand upon the setting downe of sundry descriptions of sundry Authors, and the examination of them because



because this labour would take up too much time, and little edifie you, which was appointed the end and scope of these Lectures. An ulcer in English is derived from the Latine *ulcus*, and this from the Greek *ἕλκος*, and τὸ ἕλκεσθαι, because it disjoyneth the part which it possesseth; and so this terme, in its generall signification, comprehendeth every solution of unity: and so *Hippocrates* in his Treatise concerning wounds of the head doth entitle it.

*De caus. morb.*  
*cap. ult.*

The descrip.  
tion.

But seeing solution of unity may proceed from two causes, to wit, an externall instrument dividing, and a sharp humor eroding, according to *Galen*: there must be two differences of solution of unity likewise according to the same Author, *de constit. art. c. 6.* *Vulnus*, a wound, procured by an externall instrument; and *ulcus*, an ulcer, caused of an inward cause eroding. Thus then an ulcer is to be described: It is a solution of unity proceeding from an inward cause eroding the part. The subject of an ulcer, I make not only the fleshy part, (whereby I underst and, all the parts which cover the bones) but the bone it selfe also. Unto the ulcer of a bone the Author of the Book *de constit. art. c. 6.* giveth a peculiar name, calling it *Teredo*, τρεψιδάιν which properly signifieth the little worme which pierceth wood, and consumeth it. I see no reason why the name of an ulcer may not be ascribed to the solution of unity in a bone, if it proceed from an inward cause eroding, as the terme of a wound is if it be divided by an externall instrument, as a sword or hatchet. An ulcer then is a compound disease: for in it there is both solution of continuity, and losse of substance.

---

## LECT. II.

### *Of the causes of ulcers.*

III.  
Point.

IN the third generall point concerning ulcers, is set down by me the causes of ulcers. These are either antecedent or conjunct: The antecedent causes may be reduced to three; to wit, *Cachymia* or the evil habit of the body; *Contagium*, or the communication or imparting of an infecting quality, vapour or humor, by the which an ulcer is caused in any part; a venomous moisture, as in biting and stinging of serpents; or lastly the distemperature of the part it selfe. As

As for *Cacoehymia*, the speculation of it doth belong unto the practise of Physicke: yet in my discourses of Tumors I set downe the signes of every humor redounding as much as was requisite for any to know, who only medleth with the practise of Chirurgery. While any of the three humors (blood being excepted) in the masse of bloud contained in the veines, is faulty and peccant in quality, it is accounted the cause antecedent of an ulcer. Sometimes these humors are solitary, sometimes they are associate together.

*Contagium*, or infection, it is communicated sometimes by a rotten and corroding vapour; and so very often, if one visite often one having *Pthyfis*, such vapours being mingled with the aire, infect the party who visiteth, especially if he draw too neere to the diseased party. So ulcers of the yard come from dealing with women, whose secret parts are touched with venerall ulcers: yea the itch it selfe, and scabbednesse, is gotten by either lying with one troubled with it, or sleeping in a bed where a scabbed person hath rested.

As for the distemperature of the part, it may be procured either by cold, as appeareth in kibes, or by heat, as we may see in a gangrene; becaule the bloud flowing copiously to the part pained, and not being concocted, it putrifieth and erodeth the part. Last of all, by biting or stinging, as of a mad dog, or a venomous serpent, a corruption of the humors may be caused, the conjunct cause of an ulcer: so that every humor that is changed from it owne naturall temperature, whether it be by putrefaction, adustion, or commixtion of any thing unnaturall, may procure an ulcer in whatsoever part it seateth it selfe.

But the followers of *Hippocrates* and *Galen*, speak otherwise of these humors than the *Chymists* do. The *Galenists*, make the three humors of the masse of blood; to wit, choler, phlegme, and melancholy, to be the causes both antecedent and conjunct of all ulcers, if they become contrary to nature. So they will have rheumaticke ulcers to be caused of salt phlegme, *Herpes exedens* to be caused of eruginous choler; cancerous ulcers of *Bilis atra*, which are the worst and most deplorable of all others.

The *Chymists* on the other part, affirme that the discourse of humors doth not manifest unto us the essence, and proper nature of any disease. So *Quercetan* in his advise of curing the gout, bring-

bringeth in the stone, which he affirmeth not to be ingendred of the *Galenicall* humors. *Petrus Severinus* the Dane in his *Idea medicina philosophica*, or Pourtraiture of the Philosophicall Physick, wondreth at the folly of those who make those fantastick humors blood, choler, phlegme, and melancholy the causes of diseases; wherefore they out of minerals, salt, sulphure, and mercurie, fetch out the causes of all griefs. Although *Galen* call sometimes humors salt, nitrous, and eruginous; yet the *Chymists* have no reason to reject the ordinary names of humors, and to call contumeliously dogmaticall Physicians Humorists, and to deny any disease to proceed from the ordinary humors of the body becoming unnaturall: for seeing that according to *Galen* 1. de *loc. affect. c. 2.* that is to be accounted the cause of a grieffe, which being present, the disease continueth; and which being removed, the grieffe ceaseth; and seeing we perceive diseases to be caused of vitious humors abounding, and these being expelled, the grieffe to vanish, I see no reason why these humors may not be accounted the true causes of griefes; and that it is a meere folly, and an affection of novelty, to baptize these by names of minerals far fetched; as to call that which in fevers is cast up by vomit, rather sulphure than choler. Besides this, the *Chymists* are injurious to dogmaticall Physicians, in labouring to perswade men, that they by the name of a humor, understand nothing else but a waterish substance void of all other faculty; which should be the principles of all bodies, and the causes of all diseases: whereas every rationally Physician, by the terme of a humor, understandeth a liquid body mixed with blood: which seeing it is a severall body of its own kinde, and is more compound than water, so it hath far more excellent qualities than water. The Physicians their own selves have set the *Alchymists* at worke, while talking of humors, & the causes of diseases, they so much talk of the first qualities, heat, cold, moisture, and drynesse. For although sundry diseases are caused of heat, cold, moisture, and drynesse; yet we shall finde other qualities in the Humor, which may as well hurt the body as these: for *Hippocrates* in his Book *de prisca medicina*, or ancient physicke affirmeth, not that which is hot, cold, moist, or soft, to be most powerfull, but that which is bitter, salt, sweet and sowre, unfavoury, and sharp with some sowrenesse; these and a thousand such, *quædam* and being exalted in their faculties, he will have to be the causes of diseases, and not the first qualities only: and

That the ordinary humors of the body are causes of diseases.

What a Humor is,

The first qualities are not the only causes of diseases.

from

from these the differences of symptoms in fevers of this same kinde do depend. These whilest they are exquisitely mixed in the body are harmelesse, yet when one of these is severed from the rest, and is exalted in its quality, it manifesteth it selfe, and annoyeth man; so the corrosive salt doth bewray it self in cancers and corrosive ulcers. Neither is it to be thought absurd; that minerals are in the body of man, for seeing man is fed by plants, and beasts, which feed also upon the plants; seeing also the herbs have their aliment from the ground, which is not alike in all places, but often is mingled with a salt juyce, and other minerall spirits, which the beasts and herbs cannot perfectly convert into their own substance; one can hardly think that a man can live upon these, and have no such thing participate. So we see what variety of wines the diversity of the soiles bring forth; and that in every wine their is *tartar* or *argol*, which appeareth also very often in podagricall persons. In vomiting, sundry times substance like to leeks, green, and eruginous, exceeding hot and sharp, are thrown up, which being received into basins, die them with a bright eruginous colour. See histories in *Shenkius med. obser. lib. 3. ob. 63.* in the third book of his physicall observations, the 62. observation. *Michael Doringius lib. 1. de medico & medicina*, in his first Book of the Physician and Physick reporteth, that a certaine Lawyer made such urine, as did fret the linings, as if it had been the spirit of vitriol; such humors appear plainly in scabbednesse, fretting ulcers, but specially in a cancer. Wherefore *Bertinus* in his third book and eleventh of his Physicke, doth rashly and inconsiderately affirme, that not one whit of mercurie, salt, or sulphure, lieth hid in the body; for in the itch, scabbinesse, some catarrhes, inflammations of the eyes, and fretting ulcers it may be perceived; but in urine, which is also an excrementitious humor, the salt may be separate, and presented to the sight: yea, besides the salt in urine, another substance the cause of diseases may be marked: for if you take a clear urine, and suffer it to settle, a matter like unto the powder of brick, and sometimes a white muddie substance will so cleave to the sides of the chamber-pot or urinall, that it can hardly be sometimes washed away: of such a matter tophes in gouty persons, and stones in the bladder, are ingendred.

Whosoever shall go about to reduce the causes of all diseases to blood, choler, melancholy and flegme, shall wrap himself into a number of difficulties: I will desire him to yeeld me a reason

Minerals are  
in the body of  
man.

The ordinary  
humors are not  
the causes of  
all diseases.

why he calleth salt flegme so, seeing flegme is said to be cold, but this hot? Why is *Atra bilis* comprehended under melancholy, seeing it is very hot, but this cold? Besides this, if any Physician go about to cure diseases procured either by contagion, or poyson, without any great respect to the humors, he presently goeth about to minister either *alexipharmaca*, as in the plague which is gotten by contagion, to abate the force of it, and then he addresseth himself to the preparation and evacuation of the humors. If poyson be ministred to any one in meat or drink, which according to *Cardan*, commenting upon the 62. aphor. of the 4. sect. may be suspected, if he finde griping in his stomach, and if he vomit and go to stoole, if within six houres the skin become greenish or spotted, then Antidotes are ministred, and not such as respect cholera, melancholy or flegme. Let the Humors then which are ingendered in the body, retaine the accustomed names; but if an external cause make them degenerate from their nature, let these be distinguished from the ordinary, and have their denomination from that which altereth them. If salt, niter, alome, vitriol, verdigrease be mingled with any humor, let it be called from the mineral mingled with it, salt, nitrous, aluminous, vitriolate or eruginous. And for this cause some late judicious Physicians writing of malignant and pestilent Fevers, and considering their notable differences, have affirmed some to participate of the nature of arsenick, some of mercurie, some of hellebore, some of opium, some of the leopards bane, some of the hemlock; some to participate of the poyson of a viper, scorpion, mad dog and such like, noting the variety of symptoms in sundry persons.

Of the superfluous melancholy Humor.

One doubt doth remaine concerning the melancholy humor, whether it be only thin and waterish, as *Reusnerus* affirmeth in his book of the Scurvie *exercit.* 4 out of sundry places of *Hippocrates*, who calleth melancholy *υδρωψ*, as in his book *de morbis*, in his book *de morbis mulierum*; or whether it be thick and earthie, according to the vulgar and received opinion. Before this doubt be solved, some propositions are to be premised. I. In the Chylus there are two substances, one liquid and thin, the other thick and terrestrial, which can no more nourish than ashes. II. Nature doth mingle these which are not sent away by stoole, with part of the aqueous and superfluous humidity caused of drink and liquid meats. So in a lie the salt and some adust parts are so mingled, that they are not discerned before separation.

I say then, that this thick and feculent humor tempered with much moisture, is to be accounted the superfluous melancholy humor, and that it is attracted by the spleene. For first, seeing this feculent humor is altogether unapt to nourish, it must be separate from the Chylus, which cannot be performed by any other part besides the spleene. Secondly, the spleene is of a darker red colour than the liver is, which proceedeth from the thick, feculent, and terrestrial humor, which it imbibeth. Thirdly, *Hippocrates de aere, aq. & loc.* affirmeth, that such persons as dwell in fenny places are subject to passions of the spleene. The cause is, because the waters are not pure, but muddie. Fourthly, if the spleen did draw only thin and waterish humors, it could not be so subject to obstructions as it is. The feculent humor mixed with much humidity, is the cause of sundry diseases: the thin part sometimes ascendeth to the upper parts, the grosse to the lower parts of the body, as we see in the scurvie, wherein the gummies are ulcerated, and the legges tumifie. The spleene being spongy draweth much humidity to it, wherefore spleenetick persons ought to drink sparingly; for if they bib too much, the natural heat of the part is easily oppressed, and so they became hydropick. The waterish humor of the spleen is not insipid, but sharp and biting, and copious: so we see those who are troubled with quartanes, about the end of each fit to sweat plentifully; and those who are oppressed with melancholy to spit much. In the thick, feculent, and terrestrial blackish matter, sometimes there is no excess of the spleen: in qualities sometimes there is, and those are two: *Acerbitas*, an astringent sharpness, such as appeareth in green unripe fruits; and *Aciditas*, sowerness: from these qualities intended and exalted, *atrabilis* becometh so corrosive. So much I thought good to set downe of melancholy, to cleare the doubts which are moved of it, and to shew one use of the spleen.

That the spleen draweth superfluous melancholy.

The qualities of the waterish Humor of the spleen.

To returne then to the carbonary cure of unlearned Alchymists, they object thus, The rational Physicians affirme the body to be nourished by the four humors, how can they then be causes of the diseases?

Object:

It is strange that any man should wilfully shut the eye of the mind (understanding I mean) that they may not see truth, seeing man, as *Aristotle* in the very first words of the book of his *Metaphysics* affirmeth, naturally coveteth knowledg, and witnesses are

Answer.

our first parents to their owne and our losse. No dogmaticall Physician ever affirmed any disease to be caused of any humor of the body, as long as it continueth in its own naturall estate; but then to stir up griefes, when it is separate from the rest, when it doth putrifie, when forraigne substances and qualities are added, which make it of a familiar humor, a professed enemy to health, consisting of the naturall constitution of the body, resulting of the laudable commixtion of the foure humors naturall. I have insisted somewhat long in the setting down of the causes of ulcers, because he (whosoever he be) that goeth about to cure ulcers without the knowledge of the causes, is like one, who being blindfolded, is set to thrash a cocke.

## LECT. III.

*Of the generall differences and signes of ulcers.*

OF the ten Points, within the limits of which I resolved to include all my discourses of ulcers, in my former Lecture I dispatched three; in the first I nominated the prime Authors, who have written of this subject: in the second, I set down the description of an ulcer: in the third, I discoursed somewhat largely of the causes of ulcers in generall.

IV.  
Point

Now the fourth point, concerning the differences, and sundry sorts of ulcers, offereth it self to be handled, and in truth the course of nature to requireth: for the forme of every particular ulcer doth spring from the cause conjunct of the same: for example, a cancer ulcerate is discerned from all other ulcers by its proper and pathognomonicall signes, all which as effects, are ascribed to *Atra bilis*, impacted in the part, the cause conjunct of the same.

Differences of  
Ulcers.

I.  
From their nature.

Here of purpose I omit the idle and fruitlesse distinctions of ulcers, set down by sundry Authors, which neither better the understanding, nor further the curation: These only I will set down, which are materiall. The materiall differences then of ulcers, are taken either from the nature or constitution of an ulcer, or from the subject or part affected. From the nature and constitution, an ulcer is either simple or compounded.

In a simple ulcer, nothing is offered which may stay the Chirurgion from going about the consolidation of it, as the cause conjunct

junct, a cruell symptome, adjuncts, or some disease.

A compound ulcer wherein either some of these, or all are found, which must be removed before union be procured, is either of the milder sorts, or maligne.

Differences of a compound ulcer.

The more mild sort of ulcers yeeld to ordinary and usuall medicaments, if they be judiciously applyed.

The maligne yeeld not, and besides have fearefull symptomes: those maligne ulcers proceed either from inward, or outward causes.

From internall causes spring a cancer ulcerate, *Phagedana*, *Nome*, fretting ulcers, and others which are called *Chironia*, or *Telephia*, which denominations insinuate nothing unto us concerning the nature or curation of an ulcer, but bring only unto our memory the names of these who are celebrated by Poets, which belong more to Grammarians than Physicians or Chirurgeons to be knowne.

The externall causes which procure ulcers are two, to wit, *Contagium*, contagion, or a venomous quality, vapour, or humor, comprehended under the name of *Venenum*, or poison.

The differences taken from the subjects or parts affected are two, for either an ulcer possesseth the outward part, and is called *externum*; or outward or it afflicteth the inner parts, and is named *Internum* or inward. Other differences taken from the continuance, figure and quantitie, are here impertinent, and further only predictions, of the which I will speak in the prognosticks of ulcers.

2.  
From the parts

As concerning the signes of ulcers; an internall ulcer is found out and discerned by the excretions or matter expelled. As for example, if the urine be purulent, we conjecture the kidneyes or bladder to be ulcerate. If purulent matter be voided by coughing, it is like that the lungs are ulcerate; if much of such matter be rejected, and signes of an aposteme have gone before, it is an apostematous ulcer; if the purulent matter be but little, and no signes of an inflammation have been noted, then it is but a primary ulcer proceeding of erosion, by reason of a sharp humor separating the unity of the substance of the lungs. These internall ulcers I will leave to the considerations of Physicians, unto whom they are most commonly presented to be cured, who very often purchase fees with no small discredit to the Art and themselves.

V.  
The signes of ulcers.

Signes of the lungs ulcerated.

Only I will set down such things as tend to the curation of ulcers

of



of the externall parts. I need not to busie my selfe about the setting downe of the generall signes of such, seeing they are presented to the view of the Chirurgeon by the parts grieved. Only let me give you warning, that you mistake not a wound for an ulcer: into this errorr you may easily fall, if you admit the most ordinary description of an ulcer, strange even by judicious Physicians and Chirurgeons; which is, that it is a solution of continuity in a fleshy part, yeelding quittor; it skilleth not, they think, whether it be laudable or illaudable. It is set down that there should be set downe no other difference between a wound and an ulcer, than this, that the one is bloody, and the other purulent. Doth not, I pray you, a wound become purulent of it selfe, although no Chirurgeon deal with it, and may not an ulcer become bloody if incision be used, as it may dayly be seen? Frivolous it is also in my judgement, that a solution of unity inflicted by an instrument that woundeth in a bone, as a sword, may be called a wound; and that a solution of unity in a bone, procured by an eroding humor, may not be termed an ulcer.

Riolan. *Chirur.*  
sect. 2.

Seeing the causes conjunct make the true differences of an ulcer and wound: which are an externall instrument dividing, and a sharp humor eroding the parts; Who can imagine that in a venereall ulcer, wherein there is corruption of the bone, there should be two sorts of ulcers specifically differing? ro wit; one in the fleshy part, and another in the bone, the same humor causing both.

The causes  
conjunct of  
wounds and  
ulcers.

But a solution of unity in the bone by a corroding is called *Teredo*, say they.

Object.

What then? Must a maligne ulcer in the face, because it is called *Noli me tangere*, be exempted out of the list of cancerous ulcers?

Sol.

No. Let this then be accounted an undoubted truth, that a solution of unity procured in the body by a humor eroding, whether it be in the flesh or bone, may be, yea ought to be called an ulcer, as a solution by an instrument separating, is called a wound in both.

Lect.

VI.  
son

## LECT. IV.

*Of the generall prognosticks of ulcers.*

**N**OW I am to descend to the sixth point touching Ulcers, proposed by me in the beginning, which is of their generall prognosticks. The consideration of these will make one circumference, when an ulcer is offered to him to be cured, in the election of his cures: for whosoever taketh in hand a grieve uncurable, he discrediteth himself, and causeth the Art to be contemned by those who are simple and ignorant, imputing the error of the practicer to the insufficiency of the art. Let this be the I. prædiction: an ulcer in a body of an evil complexion, which may be conjectured by the colour of the skin, if it be of a tallowy whitenesse, yellow, or swartish, is not easely cured: for it is likely, that corrupt phlegme, vitellin choler, and feculent melancholy do abound, which humors hinder the regeneration of flesh: but by the contrary, an ulcer is easly cured in a person of a good complexion, who digesteth well and doth not increase superfluous moisture. II. Ulcers in bodies which are either very moist or dry, are hardly cured. This is plain in the bodies of hydropicall persons, and those which are aged; for as superfluous humiditie contrary to desiccation, hindereth the healing in those: so in these the defect of radicall moisture. III. Ulcers in children by reason of their excessive humidity, and in women with child, because the most laudable part of the blood is turned to the nourishment of the child, are not easly cured. IV. Ulcers which fall out after criticall apostemes in the spondils of the back, or great joynts of the body, for the most part are mortall: because after sicknesse, and apostemation, nature must be exceedingly weakened, the naturall heat much abated, and the radicall moisture almost spent. Such apostemes do fall out when as sharp fevers end not critically in the decretory dayes by some evacuation, as bleeding at the nose, vomiting, sweating, purging by stooles and urine, but extend themselves to the fortieth day. V. If the place wherein the ulcer is seated be blackish, blewish, or greenish, it hardly can be cured: for the blood must be naughty, and the flesh corrupt. VI. Ulcers with a round figure are cured with difficulty; the reason is this, Consolidation is procured by union of the parts; now

VI.  
Point  
The preface.

1.

2.

3.

4.

5.

6.

the farther the parts are asunder, the more slowly it is procured: but a round figure, of all other within the same bounds, is most ample. VII. Painfull ulcers in children are dangerous, because their bodies being raw, and the spirits subtil, they are easily spent, which is the cause that they are much weakened & so disposed for death it selfe. VIII. If an ulcer become either blewish or pale, the party being ill, death is not far off; for these colours the natural moisture shew the mortification of the part; and drynesse sheweth that is gone. IX. If an ulcer be complicate with a disease which maintaineth it, the ulcer according to the nature of the disease, is either of easie or hard curation. So a venereall ulcer in a succulent and strong body is easily cured, but if the party bein a *Marasmus*, neither the ulcer nor the disease can be cured; because the use of the desiccatives, which only availe in these infirmities, will only hasten death increasing the extenuation of the body: In like manner ulcers in hectick, and hydropick persons are hardly cured; in these because superfluous humidity hindereth desiccation of the ulcer; in those because laudable juyce floweth not to the part ulcerate. X. If tumors in ulcers suddenly vanish without any evident and manifest cause, as bleeding, or application of a discutifive medicament, they portend no good: but convulsions, if they appeare in the hinder parts, because the Spina is very nervous; and madness, plurisie or suppuration if they were red, and in the forepart. XI. Soft tumors in ulcers are laudable, because they will yeeld to medicaments, but hard; not easie to be cured, because the humor is more rebellious, XII. If the haire fall in places of the body about the ulcer, it is an evil signe: for then there must be great acrimony, and corruption of the humors, as in quartane agues, the pox, and leprosie. XIII. If in an ulcer where there is cariosity of the bone, the colour of the flesh be of a livid colour, the party must be in danger; for it is a sign of the extinction of the natural heat. XIV. Ulcers which afford quittor which is white, smooth, and uniforme, and not stinking, promise an easie cure, for these qualities in the quittor shew the dominion of the natural heat, and the soundnesse of the solide parts. XV. A flux of blood comming in an ulcer after strong pulsation is ominous, according to *Hippocrates Sect. 7. aph 21.* for there must be a strong phlegmon, and the arteries must be much pressed, so that a gangrene may be expected: howsoever of such furious blood no flesh can be regenerate. XVI. If an *Erysipelas* appeare

appeare, the bone being bare, it is no good signe, *Hippocrates*  
*Sect. 7. aphor. 19.* for neither can flesh be regenerate by such a  
 sharp humor as this, that causeth so hot a tumor. XVII. From  
 malignant ulcers two sorts of quittor flow; One thin, and it is cal-  
 led *Ichor*, or *Sanies*; such a virulent matter issueth also from the  
 pricking of the nerves, and corruption of the periostion. The  
 other sort of quittor is thick, and is called *Sordes*. XVIII. In  
 ulcers which have continued a twelve-moneth or longer, the  
 bone must be scaled, and the skinning be hollow, *Hipp. lib. 6. aph.*  
 45. But to make good this Aphorisme of *Hippocrates*, some  
 conditions are required: The first is, that much flesh above the  
 bone be not in the part ulcerate. Secondly, the humor which  
 floweth to the part must be very corrosive. Thirdly, it must not  
 have been dealt withall by any Physician or Chirurgion. If one  
 or more of these conditions faile, the Aphorisme must misse of its  
 prediction. What *Galen* and late Writers have set down in the  
 explication of this Aphorisme, clears not the truth of this Apho-  
 risme: onely these conditions set down by me doe. The signes  
 which lead you to the knowledge of a bone corrupted are these,

Signes of a  
corrupt bone.

1. If the ulcer having been skinned, breaketh out again, for  
 it is likely that the bone casteth out an ichorous substance, which  
 is the cause of this recidivation: 2. If the ulcer yeeld more  
 and thinner matter then the bignesse of it requireth. 3. If  
 the brims of the ulcer will not come in. 4. If the brims be-  
 come reddish. 5. If the bone, being presented to the sight,  
 it appeare rugged, and of a blackish colour, not smooth,  
 or a ruddy white colour, XIX. Whatsoever ulcers cast out  
 much *Sanies* or *Ichorous* matter, which is too thin, of a lea-  
 dy, pale, or black colour; or g'utinous, or stinking, and  
 which fretteth the skinne adjacent, are hard to be cured, for  
 this humor keepeth the ulcer moist, and cannot easily be dried,  
 even if you apply powerfull Topicks. XX. Invererate ulcers  
 which cast out a quittor called by the Grecians *ελατωδες*, like  
 unto white oyle, are hardly cured: for this signifieth a colli-  
 quation of the part, and an extenuation of the rest of the  
 body.

17.

18.

19.

20.

## LECT. V.

Of the generall curation of Ulcers, and their times.

Vi.  
Point.

HAVING set downe the generall prognosticks of ulcers in the sixth Point, now the seventh Point concerning the generall method of curing of all ulcers doth offer it selfe.

The univerrall curation of ulcers is comprised in this one proposition: All ulcers ever desire desiccation, so *Hippoc. in princ. lib. de ulcer. & Galen. lib. 3. method. c. 3.* for whether we go about to ingender flesh, or to seale up an ulcer by cicatrization, desiccative medicaments are still required.

Four times of  
ulcers.

There are four times to be observed in ulcers.

1.

I. *Principium*, The beginning; In it the quittour is thin and waterish.

2.

II. *Augmentum*, the proceeding; In it the quittor floweth more sparingly, and thicker.

3.

III. *Status*, the consistence; In it there is no ichorous matter, but *Pus*, yet somewhat thinner it appeareth.

4.

IV. *Declinatio*, when the ulcer is in the mending hand, then laudable *Pus* sheweth it selfe. It is white, being altered by the naturall temperature of the veines, arteries, nerves and membranes, whose substance is white. Secondly, it is uniforme, not grumous or cruddy, naturall heat working equally upon every part of it. Thirdly, it is without all ill smell, seeing the naturall heat hath corrected all the evil qualities of it.

The means of  
curing of ulcers.

The curation of ulcers is performed by two means: The 1. is the removing of the causes antecedent. The second, is the artificiall dressing of them.

Causes antecedent.

The causes antecedent are foure: *Cacochymia*, *Contagium*, *Venennum*, and the distemperature of the part.

1.

The ill habit of the body is to be removed by alteration and evacuation, if the humor abound.

2.

Contagion is to be overcome by *Alexipharmaca*.

3.

Poison is to be contemperate by *Antidota*.

4.

The distemperature of the part is to be removed by things contrary unto it. And that we may the more easily attain to these

these scopes, a convenient order of dyet must ever be prescribed.

The cause conjunct, which is the eroding humor, that is settled in the part, is surpris'd by such medicaments as sute for the foure times of an ulcer before mentioned. The causes conjunct.

In the beginning then Suppuratives or Digestives are to be applied. First, because the matter which hath left the vessels, and hath insinued it self within the porosities, putrifieth: wherefore it ought to be concocted, that it may become laudable quittour. The use of suppurative medicaments.

Secondly, good flesh cannot be procured by sarcoticall medicaments, unlesse the matter be concocted; for so the ulcer is made apt to admit the generation of flesh. These Suppuratives ought in the first qualities to be proportionate to the temperature of the part unto the which they are to be applied; so to parts hot in the first or second degree, Suppuratives hot in the same degrees are to be applied. for if they exceed, they are so far from strengthening the naturall heat, that they rather pervert it, making it aguish and unnaturall: if the part be temperate, let temperate Suppuratives be applied.

But Digestives ought not to be applied, First, to putride ulcers: for seeing Suppuratives are hot and moist, if they should be applied, they would cause the greater putrefaction. In what ulcers Digestives are unfit.

Secondly, they are not fit for rheumatick ulcers; for such medicaments relax the part, and make it more subject to receive the matter that floweth, and so a tumor might be caused. And as Suppuratives are to be applied to the parts ulcerate, because the humor which is hot and sharp, would inflame the part, if it were not suppurated and cleansed: So repelling Topicks are to be applied to the parts about the ulcer, to repell the matter which floweth;

1. That the heat of the Suppurative medicament draw nothing from the parts adjacent.
2. To strengthen the parts that they may resist fluxion.
3. Because by the repelling of the humor, the desiccation of the ulcer is furthered.
4. Because the heat of the part ulcerate is intended and strengthened, it being kept in by the coldnesse of the repelling medicament.

And for as much as I affirmed that ulcers always require desiccation,

The uses of repelling medicaments.

1.

2.

3.

4.

The mixtion of medicaments when profitable.

cation, it is not amisse to mix with the Suppuratives some driers, yet that in the beginning the Suppuratives have the upper hand, but in the end the Desiccatives.

Mundificatives After that the ulcer is well digested, and yeeldeth laudable quittour, Mundificatives are to be applied: for if you apply sarcoticall medicaments, before the ulcer is well digested, spungious and naughty flesh will grow, which will admit no cicatrization. In mundifying we must not use too sharp medicaments, for these may cause an unskilfull Physician or Chirurgeon to believe that it is a corrosive ulcer. The paine which the Patient feelth in the part ulcerate, will bewray this error. These three scopes being compassed to overcome the cause conjunct, nothing remaineth but to seale up the cure by cicatrization.

How fluxion is stayed.  
Revulsion.

Seeing most ordinary ulcers proceed from fluxion, it is to be withstood, First, by Revulsion. Secondly, by Repulsion. In Revulsion, wherein the matter is drawne to parts farre distant, the rectitude of the part and vessels is to be observed. So if the ulcer be in the right leg, Revulsion is to be procured in the right arme, if you respect the rectitude of the part; but if you consider the rectitude of the vessels, Revulsion is to be used in the left leg, if the ulcer be in the right: for so the communion of vessels is kept.

How revulsion is to be procured.

Revulsion is performed by attractives, and these are three; Heat, paine, and the shunning of vacuity. Hot things which procure attraction, are hot inunctions, and baths: straight ligatures cause paine; but both paine and heat are caused by Ventoses, and Vescicatories. Fontanels attract by reason of the shunning of vacuity; for they sending out still some substance, some other must be drawn to fill up the place of that.

Repulsion:

Repulsion, wherein the humor is stayed in its passage, is performed by applying those medicaments which commonly are called

Defensives.

Defensives: these medicaments are astringent and cold, and rather dry than moist in ulcers. Now that you may know whether you proceed according to Art in the curing of ulcers, receive this Aphorisme: When medicaments applied to ulcers do good, or at least hurt not, it is a signe that they are convenient; but if they do harme, by making the ulcer hotter or colder, drier or moister than is fit, then you may gather that such are to be changed, and their contraries applied.

To know good medicaments.

Albucafis.  
Things which make ulcers long in curing.

To conclude this Point, nine things make ulcers hard to be cured.

I. The

- I. The defection of good blood in bodies extenuate.
- II. The impurity of blood in cacochymicall persons.
- III. The filthinesse of the ulcer.
- IV. Soft and cadaverous flesh about the ulcer.
- V. The malignity of the humor.
- VI. The hardnesse of the brims of the ulcer.
- VII. A secret cause in the aire of some places, they being hot and moist.
- VIII. When the bone is corrupted.
- IX. The application of unfit medicaments.

LECT. VI.

*Of the medicaments befitting Ulcers in generall, and first of repelling medicaments.*

**N**OW at the last, I come to the last generall Point, set down by me in the first Lecture concerning ulcers, of the which I intend to discourse, which is, of the medicaments befitting ulcers in generall. I mean to spend this Lecture upon this subject, to the end that you may be so furnished with good and approved medicaments, as that you shall not need either to envy or wonder at such as brag of secrets.

It is not unknown to your selves how many sawcie and malepert Empiricks there are here in *London*, who basely and irreverently speak of those who are skilfull indeed, and deserve well of the Art of Chirurgery, (purchasing unto it credit, and to their owne selves profit and renowne, by their methodicall and successfull practice) and so impudently boast of their secrets, and exalt themselves as if they had no fore-head. But surely it is to be thought, that there is too great a distance betweene it and their tongue, that the fore-head cannot stop the tongue from uttering Thraasonicall speeches of themselves: it is great pity such are so countenanced as they are. The Magistrates let them proceed in their extravagant courses, thinking it not fit for an Eagle to stoope to a gnat. The ruder and ignorant sort, rather consider the promise, than the performance, thinking that there can be no cloud without raine.

That you may be the more able, not only to encounter with these



these confident cowards, but to overthrow them also, I will endeavour, according to that talent of skill which I have, to furnish you with competent, both Theorie and Practice. It is a shame for a Chirurgeon not to be furnished with admirable variety of medicaments, seeing nature hath been so provident for him. Turne your eyes whither you will, and behold the fertility of nature, and you shall see and finde that in her works she hath not been un-mindfull of you. As for plants, you have *Dioscorides* and *Galen*, yea all who have written of them, witnesses; that the greatest part of them have fallen to your share. As for the things which lie hid in the bowels of the earth, as metals, spirits, marcasites, do they not serve your turne? The metals for your instruments, the rest for your medicaments. Let no man think then, that a skilfull and industrious Chirurgeon can by his Art performe no other cures, but such as may be compassed by the compositions in his Salvatory. These he must have in readinesse, other medicaments he is able to fetch out of the treasure of nature, which he hath at his command. This I will make good by the setting downe only those medicaments which are known to belong to the curation of ulcers. Of these there are two orders or ranks: for some serve for ordinary ulcers, some for those who have a malignity annexed. Those that serve for ordinary ulcers, are of five sorts, for some are Repelling, some Digesting, some Mundifying, some Incarnating, and some Cicatrizing, and the Medicaments which performe these offices, are either simple or compound.

*The Simples repelling are these that follow.*

Of these, some are of an Aqueous substance, as Water it self, Lettice, all sorts of Succorie, Knot-grasse, Horse-taile, Perwinckle, Night-shade, Comfrey, Purcelaine, Navell-wort, Houfe-leek, these four yeeld not their juyce easily; wherefore they must be beaten in a mortar, and some verjuyce, vineger, or juyce of Quinces mingled with them. There be some simples not so waterish as these are, as the Plantane, Mille-sole, Vine-leaves, astringent red Wine, Verjuyce, Vineger, the fruit of the Barbery, the fruit of the Quick-beame, Sloes, Mirtle-berries, Pomegranate-rindes, and Flowers infused in red Wine which is astringent, Tanners Woofe, which will bee more effectually, if these simples together with red Rose-leaves dried, be boyled a little in it; but the Woofe must

muſt be taken when it is newly made, and before any leather be put in it. The Leaves and Apples of the Mandrake, the Henbane, the Leaves of *Stramonca*, the black Poppie, and the deadly Nightshade are more cooling than the former, but they muſt be left before the part become livid, or of a leady colour. If you uſe the juyces or decoctions of the aforeſaid Simples, which you ſhall be enforced to do, if the curation of ulcers and wounds be preſented unto you, being in the countrey, where no Apothecarie is by whom you can be furniſhed with medicaments which are fit to repell, then you muſt apply to the parts adjacent to the ulcer, pledgets of wooll or tow moiſtened in them; then above theſe ſtups of linnen or wollen cloathes, according to the temperature of the party, and ſeaſon of the year, moiſtened in the ſame and wrung, are to be applied.

Laſt of all, the part ulcerate is handſomely to be rowled, the rowler having been moiſtened in theſe juyces or decoctions. One thing is to be noted, that it is the beſt courſe ſtill to mingle ſome aſtringents with thoſe which have a wateriſh juyce: for as theſe coole beſt, and repreſſe the fluxion and inflammation, ſo theſe by wrinkling of the ſkin repell more effectually. As you rowle up fractures, ſo muſt you rowle parts ulcerate. Of this kinde of rowling I will ſpeak in its proper place.

*The compound medicaments that repell are theſe.*

1. Oyles, as the Oyle of Roſes made of green Oyle, the juyce of unripe Grapes, and the juyce of red Roſes, boyled together over a ſimpering fire untill the juyces be conſumed. Laſt of all, infuſe ſome Roſes picked in the Oyle: the Oyle of Mirtles, the Oyle of Quinces, the Oyle of Maſtick, the Oyle of Henbane, Poppie, and Mandrake. The Sallet Oyle whereof theſe compound Oyles are made, muſt not be old, or rank. If an inflammation hath poſſeſſed the parts adjacent, uſe not Oyles; for they are eaſily ſet on fire.

2. Cataplaſmes, made of the aforeſaid Juyces, and Barley-floure, with ſome of the forenamed Oyles, or Bole, *Terra ſigillata*, or Amber tempered with ſome of the aforenamed Oyles, and whites of Egges beaten, Vineger, or Verjuyce.

3. Unguents, as *Triapharmacum*, *Unguentum album*, *Camphoratum* either of it ſelf, or mingled with *Unguentum Populeum*.

4. Emplaſters, as *Emplaſtrum de minio*, the Sope Plaſter, *Diapalma* made with the juyces of Plantane, Horſe-taile, Knot-graſſe, Yarrow, Comfrey, and Perwinckle. When you make your *Diachalcithes*, reſerve one part for the juyces, which muſt be added by little and little, as you bring your Emplaſter to the conſiſtence. This medicament is ſecond to none.

*Of Suppuratives or Digestives.*

Being furniſhed with medicaments repelling, which are to be applied to the parts adjacent to the ulcer, to hinder fluxion, you are to looke for medicaments which are to be applied to the ulcer it ſelf: Amongſt them Suppuratives offer themſelves firſt; Thoſe as the former, are either ſimple, or compound,

*The Simples are theſe, which are to be temperately warme and moiſt.*

The flowre of Wheat and Barley, Swines-greaſe, ſweet Butter, Capons-greaſe, Calves-tallow, ripe Oyle, black Roſin, the juyce of the flowers of white Lilies, the pulp of Figs, and Raiſins, the mucilage of the Marſh-mallow, Fenugreek, and Linſeed: theſe are convenient, if any hardneſſe or calloſity be in the ulcer, Saffron, Bird-lime, Pitch, Storax, *Galbanum*, *Gummi & Lemni*, the Burre-Dock, Miliot, the Flowre de luce, new Wax.

*Of Compounds.*

*Tetrapharmacum* of the Ancients, which is made of Pitch, Roſin, Wax, and any of the forenamed fats: *Dialthaa ſimplex*, *Bafilicum majus & minus*, *Unguentum aureum*: if a little Mercurie precipitate waſhed in Plantane, and Roſe-water, be mingled with theſe unguents, as a ſcruple with an ounce, they will be the more effectually: for the precipitate doth excellently thicken and digeſt any ichorous matter. Above theſe, applied unto the ulcers, either upon Lint or Tow, lay *Emplaſtrum diachylon ſimplex* in the ſummer, and *cum gummiſ* in the winter, if the brims of the ulcers be hard: otherwiſe uſe your *Diapalma cum ſuccis*; for there is no Emplaſter comparable to this.

Of the forenamed Simples, as your Flowers, or Meales, Pulps,  
Mucilages,

Mucilages, and Juyces, you may frame unto your selves sundry Suppuratives, according to the temperature of the party, the condition of the ulcer, and season of the year. Let this be an example; Take of the pulp of Figs and Raisins, of each one ounce, of the Mucilage of the Marsh-mallow, Linseed, and Fenugreek, of each two drams; of the joyce of the flowres of the white Lily, two drams and a halfe; of Barley-meale, three drams; of Saffron beat to powder, halfe a scruple; make up a medicament. This is powerfull in callous ulcers.

*Of Mundificatives.*

When the ulcer is well digested, which you shall conjecture if the quittour be somewhat laudable, if the brims of the ulcer be soft and well coloured; and lastly, if you finde no ill damp to rise from the ulcer; then you are to addressse your selves to the application of Mundificatives; for if you use sarcotick or incarnative medicaments before mundification, only loose flesh will arise, which will admit no cicatrization.

*The simples that mundifie are these.*

*Aristolochia* or Birthwort, whereof there be two sorts, the long, and the round; Horehound, Smallage, Vitrioll calcined to rednesse; Verdigrease, Orpiment, Arsenick naturall and sublimed, *Mercury* sublimate and precipitate, the yellow Turbit, if you use it before it be washed, it is as powerfull as Arsenick, or Mercurie sublimate, but much more safe; for it dispatcheth its operation sooner, causeth not so great inflammation, and is more familiar to the body of man. Honey also mundifieth, Savin, Cockle-shells burned, A-lome burned or calcined, the flowre of Vetches. All Vegetables calcined mundifie, by reason of the salt in the ashes, but some more powerfully than others, as the ashes of Tobacco, the Vine-stalkes, and the stalkes of Beanes: joyne to these, the joyce ofcelandine, the root of the Cuckow-pit, Wormewood, Cantorie the lesser, *Carduus benedictus*, the Beete, Colewort, Gentian, bitter Almonds, *Scordium*, the white and black Hellebore.

*Compound mundifying medicament.*

℞ 15. of *Fabricia* ab aqua pendente: ℞ *Terebinthij*. 3. *syrup.*  
ros.

*ros. vel mel. ros. ꝑ. succi apii ꝑ. i ꝑ. farin. hord. & lupin. aq. q. s. ut inspissentur.* That which is called *Paracelsus mundificative*, is second to none: It receiveth these things; Take of Honey iij ꝑ. of Turpentine ij ꝑ. boyle these with a very soft fire, untill they come to the consistence of a soft unguent; then take them from the fire, and mingle with it the yolke of an Egge; incorporate all well together. If a fowle ulcer be offered unto you, mingle with an ounce of this unguent, a dram of Mercurie precipitate, washed with Plantane and Rose-water, and you shall finde it to excell all other Mundificatives. In the shops you have *Unguentum Aegyptiacum*, and *Apostolorum: Aegyptiacum* is good to be injected into sinewous ulcers, being mingled with White-wine, and *Mel rosatum: Unguentum Apostolorum* is best for plaine and superficial ulcers. If you mingle withall *Basilicum* and *Aureum* precipitate, mingled with Alome calcined, you shall have a medicament which will both digest and mundifie. Take of your precipitate two parts, and one of Alome, and grinde them upon a Painters stone untill they come to an impalpable powder. Of the enumeration of these medicaments, you may gather of what qualities Mundificatives ought to be; They are drying without astringtion, without any notable cold quality, or great heat; but of a subtil substance: by reason of the drynesse, they consume the humidity of the ulcer; and by reason of their siccity and tenuity, they take away the glutinousnesse of the quittour. These must not passe the second degree of drynesse; otherwise they would consume the flesh it self. Exterfion then is the removing of filth cleaving to the ulcer, by drying of it, and abating the viscosity by the which it cleaveth to the part.

*Of Incarnatives.*

When the ulcer is sufficiently mundified, which you shall learne of *Celsus lib. 5. c. 20.* If the ulcer appear red, sensible and cleane, and neither too dry nor too moist, then it is sufficiently mundified: but by the contrary, if it appeare pale or whitish, or of a livid or black colour, and want sense, and be either too moist or too dry, then it is not cleansed sufficiently. These signes may be seen in a plaine and open ulcer.

*Quest.*

But you may aske, how shall we know when a sinewous ulcer is sufficiently mundified?

*Galen*

*Galen* will tell you, *l. 4. x<sup>o</sup> y<sup>o</sup> cap. 2.* That you shall conjecture a hollow ulcer to be clean, when the part beginneth to be more sensible of the Mundificatives than it was before. *Ans<sup>o</sup>.*

When these signes of sufficient mundification appeare, then you must go about the incarnating of the ulcer. And although incarnation be the effect of nature principally, that is, of the temperature of the part, from whence the faculty of the part, the cause of all the ordinate actions of the part doth flow: yet it is requisite that the Physician and Chirurgeon should help nature now, being weakened by the griefe, by removing the impediments and lets which hinder the naturall constitution of the part. Nature when she is in her vigour, cannot totally convert the aliments into the substance of the solid parts, but after she hath had a care of the preservation of them, hath a task to expell both a waterish or thin, and a thick excrement by the pores of the skin to the outward superficies of it, (as is manifest in the morphew,) when she is disabled by a solution of unity; much lesse can she effect her purpose, where of the thin excrement a humid ulcer is procured, but of the thick a sordid. Wherefore if you will go about to cure an ulcer, you must labour to dry the humid ulcers by desiccatives, and the sordid by mundificatives: and because in all solution of unity, nature is ever vigilant and busie, and in ulcers to regenerate flesh, in perfecting of which work these two excrements must be separated; it is manifest that there cannot be one moment designed in the curing of ulcers where drying and mundifying medicaments are not required. Now medicaments indued with these two qualities of desiccation and mundification in a temperate degree, are called Sarcoticall or incarnative Medicaments.

*The Simples are these.*

*S. Johns-wort*, the *Clownes-panax*, *Milefoile*, *Knot-grasse*, *Horse-taile*, the garden and mountaine *Avens*, our *Ladies-mantle*, *Sanicle*, *Salomons-seale*, fresh *Galls*, *Barley-flowre*, *Mastick*, *Myrrhe*, *Aristolochia rotunda*, *Harts horne calcined*, *Bones calcined*, *Sarcocol*, *Rosin*, *Pitch*, *Gummi Elemmi*, *Butter*, *Turpentine*, *Swines-grease*, *Sheeps*, *Goats*, and *Deers-suet*, *sweet Tallow*, *Olibanum*, *Frankincense*, the powder of *Snakes* and *adders*: these most effectually. The green *Tobacco*,

The Compound are the se.

And amongst the first of these, suffer me to commend unto you this of mine: Take of Swines-grease eight ounces, and Rosin iij ʒ. of Wax, and *Gummi Elemni*, of each one ounce, of the juyce of the aforesaid Vulneraries one pound, of the leaves of Tobacco stamped two handfuls: boyle all these over a soft fire untill the juyces be consumed then straine the Unguent. Make triall of this, and leave it when you have found out a better. You have in the shops *Unguentum Basilicum majus et minus*, and *Aureum* set out with glorious titles: and why not, seeing the Farthing-tokens beare the Armes and Crown? I will shew you anon, how these cannot fit all bodies. *Unguentum de tartia* is in much use. You may use these compositions if you will, or you may frame unto your selves, of sarcotical simples, such compositions as you shall think most fit for your purpose.

Conditions to  
be observed in  
applying of  
Desiccatives.

- 1.
- 2.
- 3.

But let me warne you, that your Incarnatives must not exceed the first degree in drying; yet seeing there is a latitude in this degree, for some are milde, some more harsh; you are to apply them according to the constitution of the party, temperature of the part, and the quality and quantity of the ulcer it selfe. So if the party be of a tender and soft constitution, milder driers are required to ingender soft flesh: but if a party be offered to you to be cured who hath a firme and dry flesh, more strong desiccatives are to be applied. If the ulcer be in a place not so fleshy, as in the joynts, the beginning or taile of the muscles, then your desiccatives must be forcible. Last of all, if the ulcer be large and moist, more strong desiccatives are to be used in it than in small and not very moist ulcers.

When you go about your compositions of Incarnatives for ulcers, observe these rules: The first is, that they be neither too soft, nor too hard; for if they be too hard, the weak part cannot easily take benefit of them; if they be too liquid, the heat of the part will cause them to spread, and fall from the ulcer: besides, these are apt to ingender spungeous flesh.

The second is, that they be smooth, and equal: otherwise they will cause paine in the part.

*Of skinning medicaments.*

The ulcer being filled with good and laudable flesh, now are you

you to skin the part ulcerate. Nature in the womb doth frame first the skin, but it being afterward lost by any accident, shee cannot repaire it any more lacking feminall matter: wherefore here, there is need of the help of Art to supply this defect. This is done by hardening and thickening the upper part of the flesh regenerate, untill it be able to supply the office of the skin.

The Epuloticall medicaments which bring this to passe, must be

1. Cooling, for so the thin parts are wrung out, and the thick parts are brought together, as we may see in the ice.

2. They must be drying, for these consume the thin parts; so the hands of Saylers, and Felt-makers, become dry and hard. Then a Cicatrix is nothing else, but flesh thickned, dryed and made callous.

These medicaments ought to be drying in the third degree: for incarnatives are dry in the first degree, because they only are to dry the excrements, which are superfluous in the generation of flesh. Glutinative medicaments are dry in the second degree: for they are not only to dry the excrements, but whatsoever else floweth to the part, although it be alimentary. But Cicatrizing medicaments are dry in the third degree: for these are to dry not only excrements, and what floweth from other parts, but the naturall humidity of the part it self also. But Cathereticall or corrosive medicaments are drying in the fourth degree: for these consume not only the excrements, and that which floweth to the part, and the naturall humidity of the superficies of the part, but the flesh subjacent also. These Epuloticall medicaments are in the like manner simple or compound.

What a Cicatrix is.  
The qualities of Epuloticall medicaments.

The differences of Epuloticall medicament.

*The Simple are these.*

*Æsustum*, Lead made to powder, the *Amalgama* of Lead and Quick-silver beat to powder. When you would make this, melt two ounces of Lead in a Crucible, then take it from the fire, and put to it an ounce and a half of *Mercury*; these will incorporate together: when the masse is cold, you may beat it to a powder. The Pumick-stone, and Cuttell-bones calcined, Stags-horn calcined white, all Bones well calcined, the lead of Vitrioll after the spirit is drawn, well washed and dryed; it is called by the Chymists *Henricus Rubens*, and indeed it is a potent desiccative. Chalke powdered is good; to drive it into powder, you must rub it up-



on a broad file somewhat fine, and then searce it; otherwise you shall hardly do it. *Terra sigillata*, Eole-Armeniack, Umber, are good; and unflaked Lime, well washed and dried, Alabaſter beat to powder, *Minium*, Litharge, Ceruſies, *Calaminaris*, *Tutia*, the *Regulus* of Antimonic, *Crocus Martis*, Galls, Pomegranate-flowers and rindes, the Comfrey roots, *Sandarab* of the Grecians, Egge-shells calcined, the roots of *Tormentill* and *Biſtort*, Swines-grease, Deares and Sheeps-fuet.

*Skinning Compound medicaments.*

Sundry very effectuall medicaments may be made of the aforeſaid Simples; wherewith I mean not to burden you at this preſent; only I will commend unto you one of *Fallopins*, and another of my own. That of *Fallopins* is thus deſcribed, *Rx ol. roſ. et ol. omphiacin. an. ſix ounces, ol. myrtin. & unguent. popul. an. 3. ounces. fol. plantag. & ſolan. hortens. incif. an. man. 2. Bulliant iſta ad conſumpt. ſuccorum ac colentur: colatura adde cera 4. ounces, Spatha lignea miſceantur: Quum incipiunt frigere, adde litharg. auri vel argenti ſix ounces, ceruſſa two ounces, tutia preparat. ij. 3. plumbi calcinati 3 iß. Ducantur iſta in mortario plumbeo per hor. 2.* The ingredients do ſhow what is to be thought of this medicament. That which I uſe is this, *Rx ſevi ovilli lib. ß. axung. porc. three ounces, cere, vernicis, colophon. an. two ounces. liqueſcant iſta ſimul. Amois ab igne ac coeuntibus, adde litharg. auri, eris uſſi, tutia preparat. Henrici rub. an. 3ß, calaminaris one ounce. fiat ceratum ex l. a.* You have in the ſhops *Diapalma*, *Emplaſtrum de minio*, *Unguentum comitiſſæ*, *Deſiccativum rubrum*, & *Emplaſtrum contrarupturam Fernelii*. Now ſeeing amongſt theſe, ſome do more weakly, ſome more ſtrongly dry, the gentleſt are to be applied to tender and moiſt bodies, but the ſtrongest to ſolid and hard bodies: wherefore neither are milde ſkinners to be applied to the bodies of clownes, and artificers; nor ſtrong to the bodies of children, and dainty women: to theſe uſe *Emplaſtrum album coctum*. Before I conclude this Point, two things are to be ſet downe: the firſt is, when theſe Epuloticall means are to be applied: Secondly, how they are to be applied.

As for the firſt, they are to be applied before the fleſh be even with the ſkin, according to *Galen 13. method. c. 5.* otherwiſe the cicatrix will be higher than the natural ſkin, which wil cauſe deformity: wherefore they are to be applied while there is ſome cavity.

As for the second, seeing alwayes in skinning there is left a greater cavity in the middle, than about the brims of the ulcer, stronger desiccatives are to be applyed to the brims, but milder to the middle, that the flesh be not too soone dryed. Wherefore powders and cerots are to be applyed to the brims, but only cerots or unguents to the middle. When you have cicatrized an ulcer by methodicall proceeding, there be some persons who will not rest so contented, as Ladies, who make much of their skins, and whores, who gaine much by theirs, but will desire to have the Cicatrix made by any meanes somewhat beautifull to the eye. I will furnish you with two medicaments, that you may be the more enabled to fulfill their desires.

The first is this, *R unguent. rosat. Mesuis* one ounce. *ol. de Been.* ij ʒ. *talci pulv.* iij ʒ. *fiat linimentum.*

The second make thus, *R Axung. porc. aqua florum fabar. lota* one ounce, *spermatis ceti,* ij ʒ. *ol. amygdall. dulc.* ʒ i ʒ. *talci preparati* ʒ ij ʒ. *fiat linimentum.*

Every night a little before bed-time anoint the Cicatrix with some of either of these linements, and apply a soft linen rag moystened with the same.

LECT. VII.

*Of the curing of a plaine and hollow Ulcer, being simple.*

**H**AVING passed thorow the ten Points whereof I intended to speak, before I was to meddle with the curing of any particular ulcer, now it is time to descend to the setting down the method of curing of ulcers in particular. I would have you to call to remembrance the materiall differences of ulcers delivered by me in the third Chapter, which were taken either from the nature and constitution of an ulcer, or from the parts affected: from the nature of the ulcer I deduced two sorts of them: some I called simple, some compounded. Now the simple ulcer is to be accounted such an one, as hath neither a disease, cause, or symptome annexed to it, or complicate, besides the solution of unity caused by erosion. Of these simple ulcers there are two kindes: for some are plaine, and equall to the naturall skin, wherein only the *Cuticula* and *Cutis* are lost. Some are hollow, *cava*, where-

*Galen. lib. 3.  
meth. c. 3.*

in besides the *Cuticula* and the *Cutis*, a part of the flesh is lost it is not needfull severally to set down the curation of *ulcus planum*, or *aquale*, a plaine, or even ulcer; because in prosecuting the indications of curing of *ulcus cavum*, a hollow ulcer, I must set down the means of curing a plane one: for this is contained as a part in the other.

Indications of curing an hollow ulcer.  
*Secundum Gal. comm. ult. lib. Prognost. 10.*

Excrements in ulcers.

1.

2.

3.

Seeing then there are two affections in a hollow ulcer, to wit, solution of unity, and cavity, three scopes of curing offer themselves, union, incarnation, and cicatrization. Wherefore if the humour be white, smooth, small in quantity, reasonable thicke, and not evill smelling: If besides the ulcer it self be red, and sensible, then we may go about to generate flesh, by applying sarcoticall medicaments. But by the contrary, if the *Pus* be black, uneven, grumous, rough and stinking, and if the ulcer it self be not red and sensible, the ulcer cannot be incarnate, before it be prepared by suppuratives and mundificatives. Besides *Pus* which is reasonable thicke, three sorts of excrements appear in ulcers.

The first is thin, waterish, like to water wherein flesh hath been washed: this hath received no alteration, but hath flowed pure, as it is in the veines and flesh; this is called *Ichor*. The second is thin too, but it hath received some alteration by the temperature of the part; this is called *Sanies*, or *Virus*. The third is very thick and glutinous, and is called *Sordes*.

After Mundification, Incarnation.

Two causes of the flesh ingendred.

Now the excrements which are thin, moisten the part ulcerate, that it cannot sufficiently discharge it self by breathing out the humidity. Wherefore Desiccatives are to be used, to consume this superfluous moysture: but the excrements which are thick, cleave to the part, and hinder the addition of flesh. These are met with all by abstersives or mundificatives. The ulcer being prepared by suppuratives and mundificatives, you are to ingenerate flesh by incarnating medicaments. There are two causes of this flesh, which is to be procured: 1. Is the efficient cause: This is nature it self not only of the whole body, but of the part it self also, which is called *Temperies*, the naturall temperature or constitution of it: whereby it attracteth, concocteth, applieth and assimilateth the nourishment to it self. 2. Is the materiall cause: this is sincere and pure blood. If the part ulcerate enjoy such, then nothing remaineth but to maintain it: If the blood be not pure, then it is to be altered; if it be too hot, it is to be cooled; if too cold, it is

to be warmed; if it be too thin, it is to be thickened; if it be too thick, it is to be attenuate; if there be too great plenty of it, it is to be diminished; if it be too little, then it is to be increased by convenient order of dyet.

To come neerer to the curation of a simple ulcer: First, we must discreetly order those things which are called not naturall: seeing a convenient dyet preserveth and maintaineth the good constitution of the whole body, and temperature of the part: Wherefore all those meats and drinks which make the blood too hot, too sharp, too thin, or too thick, are to be shunned, and those only to be permitted which afford good juyce, and are of easie concoction, especially if the diseased party be tender and weak. Besides this, they must be taken moderately, and at convenient times. The part it self must be kept quiet: for motion heateth the part. Care also is to be had of sleeping and watching: for as watching dryeth the body, and consumeth superfluous humidity, so sleeping moisteneth the parts; but those chiefly which are nervous or sinewie, as membranes, tendons, ligaments. If then the ulcer be humid, enjoyne watching; if it be drie, command sleeping. As concerning vacuation of the excrements, let it be appointed that they may answer in quantity the food which the diseased part taketh. If he prove costive, either minister unto him a glyster, or give him an ounce of *Electuarium lenitivum* in chicken broth. As perturbations of the minde change the state of the whole body, so the tranquillity of it maintaineth the same. A speciall care is to be had of the Aire; for it wonderfully preserveth the temperature of the part. Southerly and Northerly winds are not fit for ulcers: for as the first moysteneth and heateth, so the second doth much coole and dry: but cold is an enemy to ulcers. So it is observed that the Aire in Angieu is hurtfull to ulcers in the legs, but in Paris good. So in Pise and Ferrara it is hurtfull; but in Florence wholesome. As for the prognosticks of simple ulcers: If I should set down any, you might justly think I did abuse the time; for there is none so simple, who may not gather out of the very denomination of them, that they are most easie to be cured, and that great skill is not required to compass the same: only let me give you warning that the cure may be either more easie, or hard, according to the nature of the part ulcerate, and the diet of the Patient. So simple ulcers are more easily cured in a fleshy part, than in the joynt or a nervous part; for in

The Indications of curing a simple ulcer.

Diet.

Quietness.

Prognosticks.

these stronger desiccatives are required; and in them the naturall heat is not so powerfull to make use of the medicaments applyed, In like manner a simple ulcer is more easily cured in the body of a temperate person, than it is in the body of one given to deboshry, Having set down the right use of the things not naturall, as diet, sleeping and watching, evacuation of the excrements, the perturbations of the minde and aire: I am to deliver unto you some local medicaments for the accomplishing of the curation of these ulcers, according to the generall indications of curing, set down in the fifth Chapter.

Digesting,  
Mundifying,  
Incarnating.

As for the digesting, mundifying, and incarnating of a simple ulcer if it be hollow, these intentions and scopes shall be performed by the application of my *Basilicum*: The description of it is this: *Rx Cera & resin. an. six ounces, picis navalis four ounces, gummi Elemni two ounces, Ol. Olivar. five ounces, & semiss. vernicis clarae four oun. Sevi ovill. ij ℥. Terebinth. ℥ ij β. Olib. myrrh. pulva. an. one ounce. fiat unguentum ex l. a.* If you make tryall of this, you shall finde it not a little better than the ordinary, two bearing this name, to wit, *Basilicum magnum* and *parvum*. If an hollow simple ulcer prove fordid, mingle with an ounce of this my *Basilicum*, two scruples of the cathetericall powder, made of Precipitate and Allom calcined: or if you apply *Paracelsus* mundificative tempered with the same, you shall haply mundifie it; but if a plaine or equall ulcer be uncleane, the yellow Turbith or Precipitate washed, besprinkled, and covered with a pledget of lint will serve. Above these medicaments apply *Diapalma cum succis*, and above this a double cloth moystened in red astringent wine, having some Allome dissolved in it. If you be in the country, apply to the parts adjacent to the ulcer, clouts moystened in the juyces of cooling and astringent herbs, as Plantane, Garden Night-shade, Knot-grasse, Purselaine: If you anoint the parts with *Triapharmacum*, and *Vnguentum populeum* mingled together, you shall prevent fluxion and inflammation.

Cicatrization.

When you have filled an hollow simple ulcer with flesh, nothing remaineth but to cover it. Now the cover of the flesh is the skin it self: and as the flesh lost is to be repaired, so that which covereth it. But seeing the skin is framed in the womb of a feminall matter, it being lost it cannot be restored by reason of the defects of matter: Wherefore we must finde out another cover. This cover is called by Artists *Cicatrix*. This is nothing else but the upper-

uppermost *Superficies* of the flesh so dried, that it doth represent the skin. And as in ingendring of good flesh in the ulcer, laudable blood was the materiall cause of it, so good flesh is the materiall cause of the *Cicatrix*.

This *Cicatrix* is procured by three meanes; by nature it self, the aire, and epuloticall medicaments. That nature hath an hand in this bu<sup>1</sup>nesse it doth appear many wayes: for we may see daily ulcers skinned with these same medicaments by Empiricks, which they used in incarnating: so that nature must be the chiefe efficient cause. Secondly, many times a scab covereth such ulcers being incarnate, which being removed, or falling away of it self, the place appeareth skinned; only nature is the cause of this, for no medicament was applyed. Thirdly, if nature had not a hand in this bu<sup>2</sup>nesse, such an order would not be observed, that the brims of the ulcer should first be skinned, and then the middle. Fourthly, nature worketh in her actions to the period appointed: so in an ulcer she not being hindred filleth the ulcer with flesh even unto the uppermost *Superficies*, which being done she ceaseth from affording any more matter of flesh, whereby it commeth to passe that the upper *Superficies* being deprived of further nourishment must become dry.

What power the aire hath, doth manifestly appear in the bodies of infants newly borne; their whole skin is soft and red: the cold aire afterward doth repell the blood, dryeth the skin, and maketh it more hard.

But seeing nature very often in such an action proveth slow, so that if you should wholly rely upon her, and expect her leasure, you should seem of purpose to protract time, and be in danger to lose your patient, it is the safest and best course to aid nature by bringing to aid convenient and good epuloticall or skinning medicaments. In the monuments both of ancient and moderne writers one shall finde great variety, whereof notwithstanding a discreet and judicious choise must bee had, if he mean to make good use of them; for I dare be bold to affirme, that there are almost infinite descriptions of medicaments, whereof the first describers never made any triall, but set them downe, being induced only by imagination. And amongst these medicaments, you shall finde not a small number, which are either ridiculous, or superstitious, or both. Seeing then the case so standeth, I will only commend unto you three medicaments fit for skinning of simple ulcers:

How the Cicatrix is procured.

1.

2.

3.

The

The first is, *Diapalma cum succis*. The second my *Epuloticum*, which I described in my former Lecture. The third shall be *Heurnius Sparadrop*. The description of it is this, taken out of his Method to Practice, *Lib. 1. pag. 81.* of the Leyden edition. *R. ol. omphacin. & axung. porcin. an. 3. oun. lythargyr. auri vel argent.* four oun. *cerussa* one oun. *Coq. ista lento igne ad empl'astri consistentiam: tum adde cera. picis an. ʒ i β. colophon. two oun. plumbi pulverizati ʒ i β. fiat emplast. sec. art.* Sparadrops made of this help not only simple ulcers, but parts of the body excoriat by reason of long lying in bed, caused of weaknesse brought by chronicall diseases.

## LECT. VIII.

*Of the Compound, but milder Ulcers, in generall.*

IN my former Lecture, I set down what did belong to the curation of simple ulcers, as well plaine, as cave or hollow, wherein no other offence besides the l. fle. of the skin and flesh is found. Hereafter I am in like manner to discourse of ulcers compounded, wherein besides solution of unity, caused by erosion, there is somewhat else that hindereth the consolidation of the ulcerated part.

What a compound ulcer is.

The differences of compound ulcers.

Diseases complicate with ulcers.

These compounded ulcers are either of the milder sort, or else malignant. Those of the milder sort, have annexed either a disease, or a cause, or symptomes, which hinder the Chirurgion from going about the union of the part ulcerate. Sundry diseases in the body of man may keep ulcers from healing: some corrupting the humors, as the leprosie and pox: I mean the French; some hindering of laudable blood in sufficient quantity to be sent, as *Pthisis*, and a Hectick fever: some by sending too much waterish humidity with blood, hinder the union of the part ulcerated. If ulcers in such persons be presented to you to be cured, you are seriously to ponder in your minde how hard a taske is put upon you, if any of the former diseases be complicate with the ulcers, if you only except the French-pox in a reasonable strong body: but if the body of one troubled with the French-pox be extenuate much, then permit the cure of him also amongst the rest, to the charge of such as are only *κοσμοπολιται*, or citizens of

of the world, having no permanent habitation; and resting contented at the first with half of the bargain made for the cure, willingly, although not honestly, commit the second payment to the arbitration of fortune. They during their life time, continuing scandals to Art and Artists, it is strange, if at the houre of their death, their consciences for the present seared, grow not tender, and fearfully accuse them. Seeing the practice of Physick and Chirurgery are severd within the Liberties of the City of *London*, I hold it to be the safest courle for you to leave the cure of the diseases to learned Physicians, and to assume only to your selves, the methodicall dressing of the ulcers: for so the whole discredit, (if any redound) will fall to the Physicians share, who cured not the grief, the only stay of the curing of the ulcer. This is my advice, if an ulcer complicat with a dangerous disease, come at any time to your handling: (It is not your desire (I know) that I should set down the manner of curing of any inward disease: for then I should be busie with my sicke in the harvest fields of other men) that then in this case, you have recourse unto some Author who hath written most learnedly of the manner of curing that disease which is annexed to the ulcer, and follow his indications in dealing with the disease, if you have not the opportunity of a Physician whose advice you may follow.

In the cure of the French-pox, if you intend to use the unction, Authors to be followed in curing the French-pox. be directed by *Ambrose Parrey*, or *Matther Clowes*, who, while he lived, was a famous member of this Company. If you resolve to insist the kingly and cleanly way of curing this disease by dyet, then follow renowned *Fallopins* or *Capivaccins*. There is a Volume in *folio*, wherein are contained the monuments of such as have written of this disease, according to the talent of skill granted unto them: I rather would have you acquainted with these, than to range much, and imitate the swallow, which flyeth much, but preyeth only upon flies.

As concerning the Dropsie, the Cough of the Lungs, the He-  
 tick fever, or *Marasmus*, the extenuation of the body: if these being complicat with an ulcer, hinder the curation of it, have recourse to the learned Works of the famous moderne Writer, *Daniel Sennertus*, the late Professour of Physick in *Wittenberg*, who hath couched in his learned books, what almost can be spoken, either by *Galenists*, or *Chymilts*, concerning these and other diseases. The Plagiary *Barow* in his method of Physick, and *Bruel*,  
 are



are but like unto rotten reeds, appointed for the ruine of impotent, and lame persons, if they rely upon them.

2.  
Of the causes  
annexed.

From a disease joyned to an ulcer, I will descend to the causes hindering the cure of an ulcer. These are two; the humors that flow, and the distemperature of the part.

How causes in  
flowing are to  
be met withall.

As for the humor, if it be in flowing, then you are to meet with it with the ordering the things called not naturall; as aire, meat and drink, sleeping and watching, evacuation and such like, and by purging of the humor offending: whereof I spake sufficiently in the doctrine concerning Tumors. If it hath flowed to the part, and be impacted in it, then it is to be removed by three meanes: to wit, by drying, expressing, and removing of the causes of the fluxion.

How humors  
flowing are re-  
moved.

Gal. 4. me-  
thod. 2.

1.

You shall dry the humor, if you use sarcoticall medicaments drying at the least in the third degree, as Bones calcined, Hartshornes calcined, and made up in Trochisces with Plantane, and Rose-water, *Æsustum*, the Pumick stone calcined, *Calaminaris*, Borax, the powders of Tormentill, Bistorts, Comfrey, and such like; whereof I have spoken sufficiently before; yet *Nunquam satis dicitur quod nunquam satis discitur*, a thing remarkable can never be too much pointed at; so fluxible and gliding are the objects of our memory.

2.

You shall expresse the humors: First, by using such repelling medicaments as I have often spoken of, which are to be applied to the parts adjacent to the ulcers.

Secondly, by rowling the ulcer, as *Hippocrates* prescribeth in his Treatise of Fractures, that it begin about the ulcer, using so many revolutions, or windings of the rowler, as aie fit, and ending in the sound part.

3.  
Galen 2. de dif-  
fer. feb. 11 &  
12. method. 3.  
4. 5.

As for the causes of fluxion, they are three; transmission, attraction, and the furious motion of the humor it self. A part sendeth either moved by the superfluity of the humor, or urged by the offending quality, or both. If the humor offend in quantity abounding, then it is to be abated by phlebotomy, purging, slender dyet, and such means as have been delivered by me in the Treatise of Tumors, to lessen plenitude, or *Plethora*, the signes whereof I delivered there also, so that I need not to repeat them here. If the humor offend in quality, urging and pricking the part to the expulsion of it, as the liver, which being tainted with the French pox, sendeth the humor to the groynes, yard, matrix,

the

matrix, the fundament and throat. When we have observed and noted the quality and nature of the humor, then wee are to goe about the expulſion, or alteration of it, or both.

If the humor offend both in quantity and quality, then are we to uſe both purging and altering. Now to finde out the humors in quality offending, ſeeing I have ſet downe their pathognomonicall, and proper ſignes, when I diſcourſed of every ſpeciall Tumor, I will remit you, at this time, to the places where they were ſet down. If humors do flow by reaſon of the attraction of the part, it is procured either by the heat, or the paine of the part. If a humor flow to the ulcer, neither being ſent from a part, nor received by a part; but becauſe the humor it ſelf is eliquat, either by the vehement perturbations of the minde, or an aguiſh conſtitution, or the exhibition of an eradicative or ſtrong medicament: then the tranquillity of the minde is to be procured, the aguiſh heat to be abated, and the exhibition of ſuch medicaments to be ſtayed. Having ſpoken of the fluxion of humors ſo much as is fit for our preſent purpoſe, now I am to touch briefly the other cauſe of milde, yet compound ulcers: to wit, the diſtemperature of the part.

*Gal. 4. meth. r.  
Or 13. meth. 13.*

The ſingle diſtemperatures are in number four, to wit, too dry, too moiſt, too hot, too cold. A dry diſtemperature is found out by theſe ſignes: the colour of the ulcerate part is ill-favoured, not lively, little or no matter floweth from it, in touching it ſeemeth hard and dry. The diſtemperature of the part.

This diſtemperature is removed by two means; Firſt, by drawing out the naturall humidity to the part affected, by opening the paſſages, which before by reaſon of immoderate dryneſſe were drawne together. In this caſe friction is excellent.

Secondly, dryneſſe is removed by the application of humecting medicaments. Two ſuch are commended by the Ancients, pure Spring-water, and water and Oyle mingled together.

As for the uſe of Spring or River-water, it muſt be applied luke warme, not very hot; for if it be very hot, it diſcuſſeth; becauſe the humors having been attenuate by it, they are turned into vapours, and ſo reſolved: but if it be temperately hot, and the part ſomented by it, it moiſteneth.

The ſecond medicament compoſed of Water and Oyle, by the Ancients is called *ὕδραλοιον*. The ulcerate part immoderately dry,

is to be fomented with this medicament warme: Take either two parts of Water, and one of Oyle or equall; warme them in a single Viall-glasse, then shake them well together, that they may be mingled, and apply the medicament. This is a convenient Topick in the winter; for although warme water warmeth the part during the time of fomentation, yet after fomentation it leaveth the part cold, because it drew out the heat to the Superficies of the body: wherefore Oyle is excellent, for it stoppeth the pores and keepeth in the heat. These two medicaments are to be applyed to the ulcerate part by stupes, sponges, or pledgets.

An observati-  
on.

One thing you are to look unto, and to provide before fomentation, that the body of the party unto which they are to be applyed be neither plethorick, for then too much moisture may be attracted; nor cacochymicall, for then corrupt humors may be drawn, both which will hinder the curation of the ulcer: use therefore first of all phlebotomy, or purgation, according as you shall see cause.

Quest.

But you may not without cause aske, when fomentation is to be left.

Ans.

I answer, that two things shall declare unto you the period of fomenting: the first is the substance of the part, the second is the colour: wherefore when you see the part a little tumified, soft and moist, and of a ruddy colour, desist from fomentation, otherways the humor attracted will be discusled.

The curation  
of a moist di-  
stempere.

If a moist distemperature hath possessed the part, then the flesh of the part will be moist, spongy flesh will be apt to grow, and plenty of excrements will flow from the ulcer: In this case strong Desiccatives, or Sarcoticks mingled with *Basilicum aureum*, or *Arceas liniment* are to be used: with an ounce of any of these unguents, you may use one dram and an halfe of these Desiccatives: such are the *Regulus* of Antimony, Lead calcined, *Calaminaris*, Bones and Hornes calcined, the powder of the root of Iris, Mastick, *Olibanum*, and such like. *Es ustum*, the Pumick stone calcined, and *Henricus rubens* are excellent. If the part be distempred with heat, then the part ulcerate will be somewhat tumified, hard and red, and besides the relation of the diseased party, you own feeling will assure you. In this case use *Aqua calcis viva*, so called; but more properly *Lixivium calcis viva*, wherein some litharge of silver hath been boyled: you may use  
also

The curation  
of an hot di-  
stempere.

also snow water, wherein some of your *Vitriolum album* or white Copperas hath been dissolved: In a quart of Apsame water, dissolve two drams of Roman Virriol, you shall have a water of the colour of a light Emerald colour fit for your purpose. In a pint of Plantane water, dissolve two drams of ordinary Vitriol or Alome, and this also is a fit medicament. Let me acquaint you with one thing, that in Redriffe a Copperas is made of Mars or Iron, which is most fit in the cure, not only of ordinary ulcers, but of those also which are in the eyes, bladder, throat, and the *Intestinum rectum*. Make tryall as I have done, and you shall finde that true which I say. You see how plain I am with you concealing nothing, which may purchase unto you credit and gaine.

If cold distemper the part, which you shall discern by its colour, hardnesse, sense of the patient, and your own feeling, then apply to the ulcerate part *Basilicum magnum*, my *Basilicum*, *Arcaas* his liniment upon pledgets, and above these *Diachylon cum gummis*, *Emplastrum de mucilagibus*, or *Paracelsus* his *Styptick* Emplaster. But before the application of these, foment the part with a fomentation made of Sacke and March. Beere, wherein Calamint, Centorie, Wormewood, Spike, Camomill, Tansey, Scordium, Rue, and Bay-leaves have been infused and boyled.

The curation  
of a cold di-  
stempere.

The third thing which we affirmed to make up a compound ulcer, was a symptome annexed to an ulcer. Now of all other, Paine is the chiefest: for first, paine by attraction bringeth much moisture to the part, and so hindreth the curation: Secondly, it inflameth the parts: Thirdly, it causeth watching, fainting, and oftentimes convulsions. Paine is removed two manner of wayes: First, by taking away the cause of paine, which is affluxion of humors: How this is to be done we have spoken already: Secondly, by application of Anodine medicaments. These ought to be temperately hot, and subtile. Simples of this kind are the waters of warme baths, Camomil, Dill, Millet, Linseed, Fenugreek, the Marsh Mallow, the pulp of Casia, Raisins, sweet Apples, and Turneps, with a little Saffron they are effectuell, Milk, Butter, *Oesypum*, or the greasinesse of wooll, Sapa, new Wine boyled to the third part, Swines, Hens, and Mans grease, the fat of Eeles and Calves, oyle of Egges, Earth-wormes, Foxes, Swallowes, Rue and Elder: the oyle of Wax, and Sallet oyle, wherein *Sulphur vivum*

3.  
Of an ulcer  
with a symp-  
tome.  
Of Paine.

How it is cea-  
sed.

Narcoticall  
medicaments.

joyns, oyle of Camomil, Dill, and Roses: Of these you may frame unto your selves compositions, as occasion shall require. Take this for an example;  $\mathcal{R}$  *Farin. bord. Milii, Furfur. an.* two ounces. *Lact. recent. lb. ss. coq. ad consistentiam cataplasmaticis, tum adde Pulp. Cass. & Passul. major. an. vj. 3. Pulp. Pomor. redol. j. oun. Ol. Ros. Lumbric. aneth. Camomil. & Ovorum an.* one ounce, *Oesygi. 3i ss. Croci. j 3.* Make a Cataplasme. Sometimes the paine will be so great that you shall be enforced to use narcoticall medicaments: The simples are *Opium*, Henbane, Hemlock, the Apple of Peru, Mandrake: of these adding white bread crums, Milk and Saffron, you may make Pultices: I will set one down as an example after which you may frame others:  $\mathcal{R}$  *Lact. recent. lb. ss. Mic. pax. albiss. four ounces. Hyoscyami, Solani, Cicut. Con- tus. an. man. i. Bulliant ista ad cataplasmaticis consistentiam: tum adde unguent. popul. two ounces.* Dresse the ulcer with Plantaine water, wherein some Allome is dissolved, or Roman Vitriol. Then apply *Diapalma cum succis*, and above it this Cataplasme. Dresse this ulcer at the least morning and evening untill the paine be gone.

---

LECT. IX.

*Of the Differences of the milder sort of compound ulcers,  
and first of a sinewous ulcer without any  
callosity.*

**H**AVING discoursed in my former Lecture of those things which make the milder sort of ulcers to be accompted compound; to wit, a sicknesse, cause, or symptome complicate with an ulcer; In this Lecture I will set down the differences of milder ulcers, and the curation of them. These differences are taken either from the figure or adjuncts. From the figure these. Of the milder compound ulcers some are plaine, some sinewous. I call that a plain ulcer, wherein the skin is eroded, and the subjacent flesh, and the whole ulcer is presented to the sight, being bare and uncovered. No compound ulcer is to be accompted of an easie curation: because both skill and experience are required in performing this.

And although these plain ulcers be subject wholly to the sight,  
yet

Yet let no man imagine that all of them are of equal facility to be cured; for according to the nature of grief, the quality of the cause, and the invasion of the symptoms, the ulcers with the which these things are complicate, are either of more easie or difficult curation. A plaine compound ulcer hath three scopes in curation of it; for first, that must be removed which maketh it compound, whether it be a disease, cause, or symptome: secondly, that which is by erosion lost must be repaired; and thirdly, the part must be cicatrized: How all these three indications are performed, I have set down at large in the former Chapter, so that I need not to repeat any thing.

Indications of curing a plain compound ulcers.

*Ulcus sinuosum*, or a sinewous ulcer, I call that which is like to a Cony-burrow; for *sinus*, or sinuosity, is a cavity or hollownesse of parts under the skin, separate by a flux of an eroding humor, which according to nature were united. There be two causes of these sinuous ulcers, to wit, Apostemes lying deep a long time, or not timely opened, although they be not so deep: and wounds not well cured: for quittour lurking a long time, either in a tumor suppurate, or in a deep wound not well cleansed, must needs corrupt and get a sharp quality, which maketh to it self these cavities, which are not so easily filled with flesh and united: for unto the part affected, now weakened, excrementitious humors flow, not only from the parts adjacent, but from the whole body also, which make the ulcer hard to be cured. These burrowes are found out by probes of silver, or lead, and wax-candles: If there be more orifices than one, by injections. They sometimes are superficiall, sometimes deep, sometimes straight, sometimes oblique, sometimes there is but one caverne, sometimes there be more.

A sinewous ulcer. *Sinus.*

The causes of it.

Their figures.

Of these sinuous or coniculous ulcers, some have neither hardnesse nor callosity, such I will terme *Ulcera cavernosa*, hollow ulcers; some have both hardnesse and callosity, these are termed *Fistulae*. First, then I will shew you how cavernous ulcers are to be cured, and then how *Fistulae*'s. There are two wayes of curing of a cavernous ulcer: the first is by injection of medicaments: the second is by opening and dressing, according to Art. If you goe about to cure such an ulcer by medicaments, without opening, then two scopes offer themselves; to wit, the filling of the cavity with flesh, and the agglutination of the parts disjoyned. The Incarnatives must be drying without erosion, and the Glutinatives must

The differences of sinuous ulcers.

The manner of curing cavernous ulcers without opening.

Locall medi-  
caments.

1.

must have astringion, besides desiccation. Both these intention you may performe with the injection of this medicament following, R̄ *Aq. decoct. hord.* ℥j. *Mellis rosat.* 3. ounces, *Sarcocoll.* ʒijʒ. *Myrrh. Thur. an.* ijʒ. *Rad. Tormentill. Bistort. Symphyt. an.* ʒijʒ. *Balaust.* jʒ. *Baccar. myrt.* ʒijʒ. *Sumach.* ʒijʒ. *Vini odorifer.* six ounces. *Bulliant ad consumptionem tertia partis, ac coletur decoctum, cui adde Spirit. vini* jʒ.

2.

If you perceive that the ulcer is not sufficiently mundified, which you may conjecture if the quittour be either stinking, reddish, pale, blackish, or thin and waterish; then apply this medicament: R̄ *Vini in quo infusa sunt marhubium album, Centaurium minus, Absynthium, Flores Hyperici, & Cardus Benedictus* ℥.ʒ. *Unguenti Aegyptiaci* ijʒ. *Mel ros.* ʒʒ. *misc.* inject this. You can hardly devise more effectually medicaments than these are for agglutination of a cavernous ulcer: Yet whosoever shall apply them, not dressing and binding the ulcer artificially, shall hardly cure any such ulcer: wherefore I think expedient that I shew you the way of dressing: First, lay upon the whole proesse of the cavity, *Diapalma cum succis*, or *Emplastrum album coctum*, or *Emplastrum contra rupturam*:

The manner of  
dressing.

Then inject you medicament warme. Thirdly, in the orifice put in a leaden tent, or pipe: but short, hollow, wider in the upper than lower part, and having the brims of the upper part turned, that it may be kept from slipping in, shut the orifice and the upper part of the tent or pipe with an emplaster; let it be one of those named before: the emplaster must be snipt, that it may give way to the quittour which floweth out of the cavity: above the emplaster apply a piece of a sponge, which must be soft, moystened with the medicament with the which you dresse the ulcer, and wrung out: for the sponge sucketh into it self the quittour, keepeth the brims of the orifice dry, and preserveth them from excoriations: above the sponge lay a pledget of tow: the lower cavity, or from the bottome of the ulcer to the orifice it must be bouldered. Above all lay a double soft linnen cloth. Begin your rowling at the bottome, where it must be somewhat strait, to bring the sides of the ulcer together, both to expresse the quittour, and to procure agglutination, but let it cause no paine; for it would diltemper the part: towards the orifice the rowling must be somewhat slack, that the quittour may have way to issue out. Every third day (if much water doth not flow) dresse it, loose first the rowler, the turnings whereof are about the orifice

orifice, take away the ſponge and emplaſter; firſt, that you may come to cleanſe the ulcer; ſecondly, that you may make triall whether nature doth go about to agglutinate the parts: which you ſhall diſcerne, if the excrementitious matter abate, be laudable in colour and conſiſtence, and have no ill ſmell, and if the cavity be without paine, and without any remarkable tumor: By the contrary, if the quittour be plentifull, ill-coloured and ſtinking, if the cavity be painfull, and a conſpicuous tumor appear, you may perſwade your ſelves that no union is procured. Dreſſe the ulcer according to this manner, untill perfect agglutination be cauſed, which you ſhall know by the ſignes aforeſaid going before, if no quittour or very little appear in the orifice, if the cavity be equall without tumor, and no paine be felt: when you perceive theſe ſignes, then addreſſe your ſelves for the cicatrizing of the ulcer. If after a dreſſing or two, thin gleetting matter appear, yet deſpaire not; for oftentimes ſuch matter is wrung out of the parts by reaſon of the medicament drying: the nature of the part, as being nervous, membranous, or glandulous; or laſtly, by compreſſing of the ulcer by bolſtering and rowling. As for the emplaſter applied to the cavity it ſelf, it is to be renewed when it is deſiled with quittour, or leaveth cleaving. Dreſſe the ulcer as ſeldome as you can, contrarie to the practice of Empricks; for often dreſſing doth give way to cold aire, which is hurtfull to ulcers, and hindreth union. Thus you may proceed in curing of cavernous ulcers, if the excrementitious matter have way to flow from them freely, which will be if the orifice be in a depending part, or laterall, the cavity or *ſinus* being laterall alſo; for then, ſuch a poſture may be appointed, as will further the evacuation of the matter: But if by reaſon of other figures of the cavity, the cavity cannot diſcharge it ſelfe of the filth of the ulcer, then untill this impediment be removed, no expurgation, incarnation, or agglutination can be expected: wherefore way is to be made by incision or cauſtick.

Signes of agglutination.

Why ſuch an ulcer is not to be dreſſed often.

The manner of curing of theſe ulcers by opening.

This you muſt do: firſt, if the cavity be lower than the orifice, either directly, or obliquely; but not very deep: Secondly, if it go very deep alſo, as in fiſtula's, and ſuch ulcers penetrating in the breaſt, where the cavity moſt commonly is lower than the orifice. Thirdly, if the hollowneſſe be very broad. In theſe caſes way muſt be made by theſe meanes for the matter, that it may be expurged; otherwayes if it be kept in, it will erode the parts adjacent,

In what caſes you are to uſe theſe meanes,



jacent, and no incarnation or consolidation can be looked for. We may make way for the quittour two manner of wayes: first, by opening the lower end of the *sinus* only; secondly, by opening the whole cavity.

When the ulcer is to be opened onely in the depending part.

The first course we are to take, if the *sinus* be of an enorme businesse, or if it be in a great joynt, for great wounds in such joynts are mortall, according to *Hippocrates*: or if there be great vessels, nerves or tendons of muscles in the way, which are like to bring fearfull fluxes of blood, or lameness: which things skill in the Anatomie will teach you. If none of these cases hinder you, then it is the surest way to lay open the whole cavity, which is the second way. These two scopes we may attain unto by two means; to wit, by caustick and incision.

When the caustick is to be used.

The causticke we are to use: First, if the party be timorous, and will not admit section: Secondly, if the cavity be in a part, wherein a great scarre may cause deformity: Thirdly, if there be fear of a great flux of blood: Fourthly, if the diseased party be sicke and weake.

The manner of applying causticks.

If the caustick be to be applied, if the situation of the part wherein the *sinus* is, be in the upper side, then apply your *Lapis infernalis*: for it corrodeth soonest, deepest, with lesse paine, and will not be so apt by running and spreading to burne the parts adjacent, or to cause a greater solution of unity than we intended. But if the *sinus* be in the lower side, as in the sole of the foot, or in a part very depending; then I advise you to use the causticke made of strong sope lees, and unslaked lime, which will not run. It is an ordinary practice of some to rub the part with the Caustick stone, and when the part is mortified then to open it: First, this is not to be done, but when the skin is very thin; besides this, this rubbing causeth far greater paine than the application of it to the part being defended: Be ever of this minde in your practice, to use the mildest means; the fruits which you reap by so doing will be respect, love, credit and gaine. When you have perceived that the force of your corrosive medicament hath mortified all to the very cavity, then procure the fall of the eschar, with the application either of *Dialthea simplex*, or Butter without salt: there is no substance comparable to this in this purpose. When the eschar is gone, then proceed in curing of the ulcer, as hath been said, by mundificative, incarnative, and cicatrizing medicaments.

If the party be couragious and strong, use incision: this is sooner performed; hath lesse paine, and sooner will be cured. When you have made incision, arme dosils and pledgets with a medicament which strongly dryeth and mundifieth; such is this: Take of Aloe Hepatica two drams, of black Rosin and Amber, of each a dram and an halfe, of Mill-dust two drams, of unslaked lime two drams and an halfe; with this powder, and the white of an Egge, and the yolke beaten together, make a medicament in consistence representing an unguent: then apply the medicament to the *sinus* incised, filling it well that the brims may be kept asunder. Open not the fore till the end of the second day, at the least; for this medicament will both dry the superfluous humiditie of the ulcer, and will excellently digest it. Afterward dresse the ulcer as the methodicall indications of curing shall move.

If you finde these ulcers thus handled not to heale to your minde, then hold your patient to the decoctions of Sarsaparilla, Guajacke, and the China root, with the which mingle some of your most effectuall Valueraries, as Agrimonie, S. Johns-woorr, Sanicle, Avens, our Ladies mantle, *Virga aurea*, *Salomons seal*, the roots of Comfrey, Tormentill, Bistort, Horehound, Borrage and Buglosse. I will not conceale from you the description of a decoction, whereof I have made often prooffe in ulcers of the brest, joynts and belly: *Rx Sals. parill.* six ounces. *Rad. Sassafras.* ʒiʒ. *Scob. Guajac.* 3. ounces *Eupator. Scabios. Tusilagin. Sanicul. Hyper. an. man.* 1. *Rad. Symphyt. Tormentill. Bistort. an.* ʒʒ. *Rad. Borrag. Bugloss. an.* one oun. *Passul. major. enucleatar.* 3. oun. *Liquirit.* two ounces, *Infundantur infundenda per noct. in aq. font. fervent.* lb. xxiv *sequente die coquantur lento igne cum reliquis ad consumpt.* lb. viij. *Bibat eger singul. dieb.* lb. iij. *hujus decocti Hauariat.* lb. β. *mane, ac tantundem hor. quarta pomeridiana: In prandio bibat* lb. j. *ac tantundem in coena: Quum sitis superest.* lb. j. *haurienda.* The simples of this composition may plead for the efficacie of it. Let him continue the taking of this decoction for the space of 21. dayes: during which time he is to use a spare dyet, and to eat flesh affording a good juyce, and of an easie concoction. As for the locall medicaments which are to be applied to the ulcer, I have spoken of them already: too much repetition will breed loathing.

Internal medicaments.



## LECT. X.

*Of the palliative cure of a sinuous Ulcer with callosity  
in generall.*

**I**N my last Lecture which I delivered from this place, the vacation from these exercises being at hand, I spake of a sinuous or hollow ulcer, without a callosity or hardnesse of the inner Superficies of the parts disjoyned. Now the order of doctrine requireth that I discourse of a sinuous ulcer, which hath a callosity in these same parts. In times past it hath been accompted a masterpiece in the practice of Chirurgery to cure such: In so much that Master *Boovie* the Counsellors father, a brother of this Company while he lived, dwelling in Tower-street, set up above his doore a new signe with this inscription: *Here dwelleth one who can cure a Fistula*: young *Hall* having acquainted him with his fathers practice. And in truth not a small skill, or ordinary proceeding is required to effect this matter: for the greatest part of such an ulcer lyeth hid, and little is offered to the eye. Besides this, ordinary means are for the most part here ineffectuall, and so magist<sup>r</sup>all means are required. Wherefore I have diligently laboured to couch in this my discourse whatsoever can be required in the curing of such an ulcer, as you shall perceive in my proceeding.

First then, I will deliver the generall doctrine of this kinde of ulcer: then I will set down the manner of curing of such in some particular parts of the body. A sinuous or hollow ulcer with a callositie or hardnesse in the inner superficies of the parts disjoyned and separated, is called in Greek *Σύριξ*, from the similitude which it hath with the long and hollow windy instruments of Musicians: in Latine it is called *Fistula*, and so in the English tongue, for this same cause.

The definition

The cause natural.

A *Fistula* then is a sinuous ulcer, narrow and long with callositie. Here you are to observe, that a *Fistula* besides sinuosity, must have callosity and narrownesse. It happeneth most commonly, when apostemes having been opened, the inner superficies of the parts kept asunder by a sharp humor, become in progresse

of

of time callous. The humor which causeth this callositie must be more astringent than sharp; for it rather tanneth the part by reason of its acerbitie, than erodeth by reason of its acrimonie: besides this, Fistula's are for the most part indolent, unlesse they end in parts very sensible, as nerves, tendons, membranes and joynts. Wherefore the Chymists will have this humor to be the Saltpeter of the little world, or man, separate from the naturall salt of the Balsame, or radical moysture of the body. That this salt is cooling and anodine, the Practicers of Physick do beare witness: for in burning fevers it is added to Juleps, which are appointed for cooling, and asswaging of pain under the name of *Sal prunella*: It doth also, by reason of its stipticitic unite the spirits, and stay the immoderate exhalation of them.

The signes are taken either from the essence of a Fistula, or from the accidents. Callosity then with a Fistula, or whistle-like figure, is the pathognomonicall signe of a Fistula. The signes taken from the accidents are two fold: for they are taken either from the quittour, or the manner of paine. In a Fistula the quittour is ever virulent, ugly and stinking; as for the manner of paine, it is but small, unlesse it bee by reason of the sensibleness of the parts named by me before.

As for the differences, or divers kinds of Fistula's, I will onely set down those which further either curation, or prediction. Let this then be the first difference: Fistula's either go shallowly alongst under the skin, or they passe deeper to the subjacent parts. Secondly, Fistula's end either in the fleshy parts, or they passe to the bones, or to the cavities themselves. Thirdly, some are straight, some crooked. Fourthly, some are single, some manifold, yet proceeding from one orifice. These are the materiall, or profitable differences of Fistula's.

Now followeth that I speak of the signes of these differences.

1. Whether there be more callous sinuosities than one, you may conjecture by the quantitie of the quittour; for if more copious quittour flow from a Fistula than can be expected from one Sinus, it not passing to any remarkable cavitie, it is likely that there are more than one. The changing also of the position of the body, and compression of the part will shew this; for the flowing of the matter having ceased, if after the changing of the position of the whole body, or one member, it run out again, it is probable

that there are more sinuosities. Moreover, if varietie of quittour flow, it is an argument that sundry parts are affected, and more sinuosities like to be. But to what parts the Fistula passeth, receive these signes: If it passe to the fleshy parts, the quittour appeareth white, smooth and plentiful; besides this, the part whereon the end of the probe stayeth, seemeth soft. If it passe to a nerve, a fattie and oleous matter doth issue out, the motion which is caused by that sinew is impaired, and the Fistula is more painful than others are; besides, the probe touching the sinew, causeth a pricking paine, with a certaine numnesse. If the Fistula passe to the veines and arteries, yet so that the coats of them be not eroded, then the matter which it yeeldeth is like unto the lees of Claret wine; for blood sweating thorow the coats of porosities of the vessels mingled with the quittour, causeth such a substance.

If the coat of a veine be corroded, blood issueth thick, of a dark colour, and without quavering and leaping; but if the tunicles of an arterie be pierced, then the blood is redder, of a more bright colour, and commeth forth with ejaculation. If a Fistula reach to the bone, that which the end of the probe toucheth appeareth hard, and yeeldeth not to the probe, neither is any paine felt. If the probe being pressed slip, no cariosity hath seized upon the bone; for a sound bone is smooth and slippery: If the probe stay upon it appearing smooth, it is disposed to cariosity, but if the bone appear unequal and rough, then it is undoubtedly carious. Besides this, the quittour which floweth from a corrupt bone is thin, yellow, and ill smelling. So much then concerning the signes, which shew us the divers kindes of Fistula's.

Now let me deliver unto you some remarkable presages or predictions. touching the curing of them, that you may become circumspect in undertaking the curation of such as shall be presented to you. Let this then be the first.

1. No Fistula is of easie curation. First, by reason of the unaptnes of the part to admit the convenient application of medicaments: for unlesse they reach to the very extremity of the Fistula, which is not so easie a matter, as you shall finde by practice, no good can be done. Secondly, by reason of the qualitie of the medicaments, which are able to remove the callosity; for these must be sharp and biring, and so cause paine: from whence come  
sympto-

symptomatically fevers, and fainting very often, especially in tender and young bodies. And thirdly, by reason of the humor, which causeth a Fistula, which yeeldeth not to ordinary and vulgar medicaments. Let this be the second.

Fistula's which are shallow, passing no deeper than the *Membrana carnosa*, or at the furthest than the membrane of the muscles, or muscule subjacent, are more easily cured than those which pierce deeper; for those by incision may easily be cured, but these not so.

The third shall be this: Fistula's wreathed, or with multiplicity of sinuosities, require incision, that medicaments may be conveyed to all the parts.

The fourth, if a Fistula not passing further than the fleshy parts, be not of a long continuance, and that in a young and a strong body, it affordeth good hope of curing: Imagine the contrary event, if contrary circumstances be accompanied.

Receive this as the fourth: If the extremity of a Fistula end in the tunicles of veins or arteries, or both, (the signes whereof I have delivered, when I spake of the differences of Fistula's) then you are to meet with the symptome of hemorrhage, the coats being eroded; for if you labour either to enlarge the orifice, or to take away the callosity by sharp medicaments, the flux will be increased. This accident happeneth most commonly in Babo's of the groyne, not speedily cured, and Parotides under the eare, and Phlegmons in the arme-pits: These parts being emunctorious, and neere to the divarication of the great vessels, to wit, the *Vena cava*, and the *Aorta* descending and ascending.

Fistula's ending in very sensible parts, as nerves, tendons, the bladder, the *Intestinum rectum*, and the like, are carefully and mildly to be handled, by reason of the symptomes which often ensue; as accidentall fevers, Lipothimies, losse of appetite and sleep: all which are apt to bring an extenuation unto the whole body, and so to defraud the part of more than requisite nourishment, without the which consolidation cannot be effected.

Fistula's in remarkable cavities, as the throat, brest, belly, are hard to be cured, because the end is more dependant than the orifice, which hindreth exceedingly consolidation.

If in Fistula's of the back the *Spina* be carious, shun the cure; for these at the length bring an extenuation of the body, the ani-

small spirits not being with requisite plentie communicate to the extremities of the body.

Fistula's in the joynts are dangerous; for if great wounds of the joynts, even in bodies of a good habit, be pronounced by *Hippocrates* to be mortall: what shall we deeme of Fistula's in these parts, where besides the enorme dilatation that must be procured in curation, there is of a necessity an ill complexion of the body. Secondly, seeing the joynts are framed of parts very sensible, as tendons, nerves, membranes and ligaments, exceeding great paine must be caused by the application of corrosive medicaments, without the which a Fistula cannot be cured, and so the party exceedingly be troubled and perplexed. Thirdly, seeing the joynts are seated in depending parts, and are not fleshy: and so as they are apt to receive humors attracted by paine, they are lesse able to discusse the humors received, partly by reason of the thicknesse of the membranes, partly by reason of the weaknesse of the natural heat: who may not easily perceive the difficulty of curing of Fistula's in these parts?

8. Fistula's having sundry sinuosities are more hardly cured than those which have but one, both because the labour is the greater, and the medicaments cannot so conveniently be applied.

9. Fistula's which have continued a long time, seated in a depending part, remote from any principall, by the which nature hath been accustomed to discharge superfluities of the whole body, and not painfull, but rather slovenly or sluttish, are rather to be kept open than cured; for they preserve the health of the body, and hinder the assaunt of other diseases.

An Historic.

I knew a Gentleman who had a Fistula *in ano* about 20. yeares, yet unknown to his wife, who lived notwithstanding very healthfull to the last period of his life: having sent for me a few dayes before his death, he acquainted me with it: having taken a view of it, and perceived that it was dry, and of a livid colour, I pronounced his end to be at hand, which accordingly fell out.

Indications of curing.

Now it is time to hasten to the setting downe of the curation of Fistula's in generall. In the sixth Section of the Treatise ascribed to *Hippocrates*, there is one of Fistula's: In it he doth speak somewhat particularly of a Fistula *in ano*, and of the curing of it by ligation. Whatsoever is delivered in that Treatise, seemeth to be an excription of notes out of his *Adversaria* or Note-booke, rather

ther than a deliberate or methodicall discourse of the subject. Howsoever, it is to be embraced rather as a pledge and signe of his willing minde to pleasure his posteritie, than a patrimony to enrich the knowledge, and further the practice of any one who shall goe about to cure any mean Fistula. Peruse the Treatise, and you shall finde me to speak a truth, if you shew your selves impartiall censurers. Seeing I have delivered unto you in the prefaces of Fistula's, that sometimes it is most expedient to leave some Fistula's uncured, I must make mention of a two-fold manner of curing of them: The one shall be called palliative or cloaked; the other, true and reall. The first affordeth some consolation and ease to the Patient; but the second procureth perfectest health. A palliative cure, I would have you to understand, to be when sinuosity is inwardly dried for a time, and the orifice seemeth to be shut up by a thin skin, untill fresh and new humidity bedew the inward sinuosity, and open the orifice againe. This kinde of curation is most fit to be used towards those in whose bodies a Fistula supplyeth the place of a fontanell, to discharge superfluous humors, which nature turneth out from the principall parts, for the preservation of the health of the body.

Two kinde of curation.

You shall know this manner of curing to be used, if the party immediately before the opening of the orifice finde some distemperature, and afterward the orifice being opened, ease. To compass this manner of cure, three intentions are required.

First, a convenient dyet must be observed: This is performed by feeding upon such meats as are of easie concoction, and afford good juyce, and in such measure as *Leonardus Lessius* in his *Praxis* prescribeth: and *Ludovicus Cornarius* observed from his constant to his decrepit age. They advise moderation both in meat and drinke. Patients now a dayes would think themselves hardly dealt with, if they should be stinted every day to eat no more bread and meat than a pound, and to drinke no more drink than fourteen ounces. It is an easier matter to satisfie nature, than the appetite.

Secondly, the body is to be purged, not by an eradivative medicament, wherein Scammonic, Ellebore, or Colocynth entreth; but a purging dyet, or a purging Ale; I will deliver unto you a patterne of both. Let your purging dyet be thus dispensed: *Rx Sars.* 3. ounces. *Rad. Tormentilla, Bisforta, & Symphyti, an.* 1. Oun. *Polypod. querc.* 3. ounces. *Hermodactyl. fol. Sen. & Semin.*

*Car.*



*Carthami*, an. 2. ounces. *Rhab.* 1. oun. *Semin. Anisi, Coriandri & fenicul. dulc.* an. 4. drams. *Glycyrrhiz.* ʒiʒ. *Infundantur in, fundenda in aq. font. fervent. ℥. x. per noctem: deinde additis reliquis lento igne coq. ad med. atque aromatizetur decoctum cinam. 1. oun. ac coletur: Stumat ager mane. ℥. β. calid. hyeme. ac tantundem hor. quarta pomeridiana.* As for the purging Ale receive this description. *℞ Scob. Guajaci & Sars. parill. an. 4. ounces. Rad. Tormentill. Bisfort. & Symphyti, an. ʒiʒ Polypod. 3. ounces. Eupat. Sanicul. Alchymill. an. man. j. Fol. Sen. Hermodactyl. an. 5. ounces. Rhab. 1. oun. Semin. Anisi. Coriand. & Fenicul. dulc. an. 6. drams. Glychyrriz. 2. ounces. fiat ex omnibus pulvis crassiusculus indendus sacco laneo rare texture, qui suspendatur in gallon. duobus Zythi non lupulati recentis & fortis.* Let the patient begin to drink of this Ale the fourth day. He is to take halfe a pint in the morning, and to sleep upon it; and so much about foure a clock in the after-noon. When either of these purgatives are ministred, let the Patient about ten a clock in the fore-noon take some broth without bread, made of a Chicken, Mutton, or Veale, wherein Mallow, Parsley, Fennill, and Succorie roots, with some Raisins, Prunes and Dates have been boyled. Let him dine on the boyled meat; but sup with rost meat. The purging Ale is more convenient for aged persons, than the decoction, and for such as have a weak stomach.

Thirdly, convenient locall medicaments are to be applyed, to further the drying of the sinuosity, and skinning of the orifice. I will only set down two injections for the first. The one is this: Take of *Aqua calcis*, wherein some Licharge either of gold or silver hath been boyled iij oʒ. and of the Syrop of red Rose leaves dried, or of the Myrtill berries, one ounce: mingle these together. The other is this; Take of Plantane water iij oʒ. of Roman Vitriol beat to powder, a dram and an half: let the Vitrioll dissolve in the water: inject these medicaments warme; apply to the orifice a pledget of lint wet in either of these medicaments, and above the lint *Diapalmacum succis*. Dresse the Fistula every other day only, unlesse the quittour which floweth from the Fistula be plentifull. So you have the palliative cure of a Fistula. In the next Lecture I will deliver the true and reall curation of Fistula's in generall, wherein you shall hear sundry things worth the noting.

## LECT. XI.

*Of the true curation of Fistula's in generall.*

NOW I am to accomplish and performe my former promise in setting down the method of curing truly and really Fistula's in generall, and the practice of the same in curing of some Fistula's of some speciall places of the body, which require some extraordinary considerations. Such are Fistula's in the great corners of the eyes, Fistula's in the brest, *Fistula's in ano*, and *Fistula's* in the joynts.

The means to attaine to this manner of curation are three-fold; Dieteticall, Pharmaceuticall, and Chirurgicall.

The means to  
cure *Fistula's*.  
Dieteticall  
means.

As for the Dieteticall, I have set it down amongst other points which are required in the curation of an ulcer in generall. It shall be sufficient to insinuate now only, that the dyet of those who are troubled with *Fistula's* must be very sparing, and of meats and drinks which afford a laudable juvce, and are of easie concoction, that crudities and sharp humors flowing to the affected part, hinder not the curation. And undoubtedly too liberall a dyet, unto the which the Inhabitants of these parts are too much accustomed, is the cause of the recidivation of these, and other griefes.

As for the Pharmaceuticall means, they are of two sorts, to wit, Purgative and Consolidative.

Pharmaceuti-  
call means.

If the body of the diseased party be cacochymicall, with some Plethora, minister the purging decoction, or Ale for the space of a weeke, described by me in my former Lecture. And while these are in preparing, you may make for the better operation of these, minister this or such like a portion: *Rx caricostin. & Electuarii de succo ros. an. iij ʒ. Syrup. Ros. solut. cum Agarico ʒ ʒ. Aq. cichor. ʒ unc. ut fiat potio, sumenda cum corporis custodia.* These two Electuaries purge the body of thin, hot, and sharp humors; the syrup and water correct the malignity of the humors.

1.  
Purgatives.

The Consolidatives are either simple or compound. The principal simples set down by most authentick Authors, and tried by practice are these; Gentian and the roots of the round Birthwort, a dram of either of these mingled with ʒ. ounces of white

2.  
1. Consolida-  
tives,

wine, and ministred every other day in the morning, and fasting three hours after the taking of the medicament. The lesser Centorie, *Osmunda regalis* the root of it, Agrimonie, *Virga aurea*, the white Hore-hound, the roots of Borrage, Tormentill, Bistort, and Comfrey, Sarsaparilla, the rasping of Guajack, Plantane, Vinca Pervinca, and Equisetum. Of the juyces of these herbs mingled with Ale, you may make possetts: the wig whereof strained and sweetned with some *Saccharum rosatum*, or the Conserve of red Roses, you may minister morning and evening to young persons, and those who are either weak, or abhorre all Physicall means, whereof there is no small number now adayes, who hasten by their own misdemeanour to bring on griefs; but when they are to use means, esteeme them harsh: not knowing that God of his infinite goodnesse and providence towards mankinde, hath appointed the means of recovering of health to be unpleasent to nature, that man should refraine from sinne, the primitive cause of griefes.

2. Compound  
consolidatives.

Of these simples aforementioned, you may frame unto you selves sundry compositions: for a patterne, I will set downe one decoction: *Rx Sars. paril.* 4. unc. *Scobis Guajaci*, 6. unc. *Rad. Tormentill. Osmund. regal. Bistort. Symphyt. an.* 1. unc. *Eupar. Virga aur. & si nil restat præter consolidatianem & cicatrizatouem, Summitat. Hyperic. & Sigill. Salomon. an. man. j.* *Passular. major. exacinat.* 3. unc. *Liquirit.* 2. unc. *Semin. Coriand & Fenicul. dulcis, an.* ʒ. *Infundantur infundenda in aq. font. fervent. lb. xx. deinde coq. lento igne additis reliquis ad consumptionem lb. viij. acoletur decoctum.* If the party be strong, let him drinke three pints aday: One half pint in the morning, and another about four a clock in the after-noone, for dinner and supper there remaineth a quart. If the party be young, or cannot take such a quantity, by reason of the weaknesse of the stomach, make halfe of this quantity, which being vi. lb. adde to the decoction of Sugar and Honey, of each j. lb. and by gentle vaporeing away some humidity, bring the decoction to the consistence and taste of a pleasent Julep, which minister according to the toleration of the partie. This Pharmaceuticall course you shall (I dare assure you) finde effectuall to your own credit, and comfort of the patient.

Chirurgicall  
means to cure  
a Fistula,  
1.

The Chirurgicall means afford unto us five intentions.  
First of all then the Fistula is to be dilated: for seldome doth it  
fall

fall out otherwayes, that this indication is not requisite, unlesse it be in a Fistula in the cheek, which was caused and maintained by a corrupt tooth, which being drawne, the Fistula will heal of it self, a consolidative emplaster being applyed to keep out the aire.

The Fistula may be dilated three manner of wayes, by Incision, by putting in tents framed of such things as swell, after they have imbibed the humidity of the Fistula; and last of all by the Fistula tent.

How to dilate  
a Fistula.  
I.

As for Incision, it is to be used in strong bodies, if the Fistula be not deep, and only runneth alongst under the skin, no deeper than the membrane of a muscule, if it be in a fleshy part. Secondly, if the Fistula have many sinuosities: before the Incision is made, the Fistula is to be dilated by some of three other means, which I will deliver presently: secondly, the medicaments which remove callosity (whereof anon) must be applyed; both these intentions must be performed before Incision, otherwayes you shall hardly know how far your Incision is to be extended, and shall leave some part of the Callus still, which will make way for recidivation and relapse.

Incision when  
it is to be used.

The second way to dilate a Fistula, is to use in stead of tents such things as swell, whereof there be sundry, as the Gentian root, the pith of the Elder, or Dane-woort; but the sponge twisted with threed, after that it is wrung hard and wreathed, far exceedeth all these: for it both imbibeth more moisture, and dilateth much more. I will acquaint you with a preparation of the sponge, which is excellent: and this is it: Melt a rowle of your simple Melilot emplaster; when it is yet very hot, let a thick sponge imbibe it. This sponge having so drawn unto it self the emplaster, put between two trenchers, which trenchers with the sponge put into a strong presse, and presse them hard. After an houre or two, when you think the sponge to be cold, unscruce the presse, and take out the trenchers with the sponge; you shall finde the sponge become a firme substance, resembling green cheese. Of this substance you may cut out tents of what fashon you will: This will not onely exceedingly dilate the Fistula by sucking unto it the humiditie; but will also digest the callosity.

II.

The use of the  
sponge.

The third way of dilating a Fistula, I set down to be by the Fistula tent. It is this way to be made; Make good store of fine

III.

lint, from the which draw away all the threeds, that nothing remain but the fluet, or the soft down of it; of this down with the white of an egge beaten, make your tents of what thicknesse or length the sinuosity of the Fistula requireth, by adding still some of the downe: do this upon a peece of a Deal-board smooth and even: If you still enlarge the quantitie of the tents, you may delate the Fistula as much as you will; for these tents being dried, will pierce unto any cavity as a probe without bending (if they be well made) by reason of their stiffness. Of this manner of tent there is great use, in taking away the callosities of some Fistula's, and in healing of them, besides this use, as you shall hear anon.

The second  
Chirurgicall  
intentions.  
The materiall  
cause of a Cal-  
lus.

The second Chirurgicall intention is to remove the Callus: this is bred by reason of the influxion of an humor, not of an uniforme substance: for besides the thin parts, which are discussed or dried, by both naturall and extraneous heat, it must have a thick substance to cause this Callus, it being indurated: this must be either phlegme, if the callus be white, or melancholy, if it be livid, according to the dogmaticall Physicians; the Chymists appoint it to be Salt-peter, as I have said.

To know when  
the passage  
hath also a  
Callus.

In the beginning this callosity is bred rather in the externall orifice, than in the inner sinuosity: for first, the skin which is thick of ir self, sooner groweth hard than the flesh which is soft: secondly, because nature still laboureth to thrust out excrements to the skin. In progresse of time Fistula's having become inveterate, the whole passage contracteth callosity.

Why the ori-  
fice first con-  
tracteth a Cal-  
lus.

You shall know by this, whether the passage be fistulated or no: If by the intrusion of the probe great pain is felt, and blood issaeth out, the Callus is not confirmed; but if no blood follow, and little paine is felt, be sure then that it is confirmed.

How the callo-  
sity is to be re-  
moved by me-  
dicaments.

The callosity is removed either by medicaments, or the actual Cauterie. The medicaments are of three degrees: for some are more milde, and these are of an emolliating and digesting quality, fit if the callosity be but small in a fleshy part and a young body: such are *Dialthea cum gummis*, and *Unguentum de pæzo*. Every ounce of either of them having a dramme of the Turbith minerrall, or Precipitate mingled with Allome with it, is effectuall.

Secondly, some are more harsh: for they must mundifie strongly, if the Callus be somewhat hard, and the party somewhat aged:  
such

such are *Unguentum Apostolorum*, *Avicen.* having Preciptate and Allom, or the Turbith with Allome mingled with it. *Egyptiacum* is stronger than this, but I should rather use the *Unguentum Apostolorum* than it, adding more of the aforenamed catharetticall powder to it; for it causeth grearer paine, and procureth not so good quittour as the *Apostolorum*.

Last of all, the medicaments which are to remove an inveterate Callus are Caustick and even of these some are more gentle, some exceedingly fierce. The more gentle are these. I. R. *Auripigmentum. Sulphur. vivi, et Calcis vive, an. i. unc. fiat pulvis subtilis.* II. is *Pulvis sine pari, cujus hac est descriptio. R. Auripigmenti, et virid. Aris, an. ʒʒ. Vitriol. calcinat. 1. unc. Alumin. usi. 2. unc. fiat pulvis subtilis.* III. R. *Turbith. mineralis non loti, Vitrioli vomitivi, et Boli orient. optimi, an. partes equales.*

Of the strongest of all I will deliver unto you two magistrall descriptions only, far surpassing all others. I. is M. Hale his powder, who was famous in his time for curing of Fistula's: this is the composition of it: R. *Aquil. mineral. Vitrioli vomitivi, et Terra rubr. oriental. an. part. equales.* II. is this which I use in Fistula's and Struma's: R. *Realgar. albi, Auripigment. et Calcis vive, an. part. equales.*

You may enquire how these are to be used; If you have dilated the Fustula by incision, besprinkle the Callus with some of the powders; but if you have done it by the second way set down by me, then use the powders mingled with *Unguentum Populeon*, wherewith arme your Fistula tent, or apply a Trochisk made of these powders and Populeum, and afterwards dried.

After the application either of the Fistula tent armed with the unguent, or of the Trochisk, two things you are to observe: I. That you apply an anodine cataplasme; the fellow to this which I shall now deliver unto you, shall not be found. It is also matchlesse in raging paines of the Gout: R. *Lact. Vaccin. ℥. j. Mic. Pan. albi, 6. unc. coq. ad cataplasmat. consist. tum adde Unguent. popul. 2. unc. Gummi Hyosc. ʒʒ. Croci pulv. ʒʒ fiat cataplasma; quod applicetur parti affecta mane et vesperi.* II. You must not force out either the tent armed, or the Trochisk, before they pop out of their own accord: for so they bring the Callus out with them and the tent with the Callus will present a finger within a glove. If there be many sinuosities, yet do not pierce to any remarkable

able cavities, as of the breast and belly, then you are to dissolve these powders in some liquor, as in *Aqua calcis*, Plantaine water, Metheglin, a gentle Lee, Allome water, or Vitriol water. Alchymists exceedingly commend in this case the spirit of Niter.

The second way to remove a Callus by an actual Cauterie is an invention of *ab Aqua pendente*: He will have an instrument like to a setting Iron to be made, the case [to answer the wideness and length of the Fistula, and to be thrust into the bottome of the Fistula, then must the other round Iron fill the cavity of this, toward the point only, and be round an inch long, and be put in red hot. It is not to stay long where paine is caused, because there is no Callus; but to be rubbed up and down where the place is indolent, untill paine be caused by reason of the removing of the Callus by the fire. And although he highly commend actual fire, and discommend the potential: yet I am not of his mind in sundry cases: As for this invention, whosoever shall go about to practise it, I shall hold him much like to him who is to throw at a Cock blind-folded.

## 3. Intention.

The third Chirurgical Intention is, to mundifie the part: this medicament will performe this:  $\mathcal{R}$  *Vini albi*.  $\text{℥}\beta$ . *Unguent. Egyptiaci*  $\mathcal{Z}\beta$ . *Spirit. vini*,  $\mathcal{Z}\text{vj}$ . *misc.* Inject this warme, but once a day. You shall conjecture that the Fistula is sufficiently mundified, if the quittor have no ill smell, if it be uniforme, thick, and white.

## 4. Intention.

The description of the consolidative Syrup.

Then you are to addressse your selves to the fourth Intention Chirurgical, which is to unite and consolidate the parts disjoyned. To accomplish this: first draw by an Alembick the spirit of these herbs following, putting so much spring-water as will be three inches above the simples to them: the roots of *Aristolochia rotunda*, Tormentil, Bistort, Comfrey, the lesser Centorie, *Virga aurea*, Burnet, Plantane, Knot-grasse, Yarrow, and *Salomons seale*. Reserve the spirit by it self: take the decoction remaining in the pot from the herbs by straining; for every quart of this decoction take half a  $\text{℥}$  of Honey, and so much Sugar: This mixture being clarified with the whites of Egges, and strained again, let it be boyled by a soft fire to the consistence of a Syrup. Take two ounces of the spirit, and one ounce of the Syrup, which mingle and inject into the sinuositie, and deale with it as I prescribed, when I delivered the manner of dressing a sinuous ulcer. If any man deliver a more probable way then this, to consolidate

The use of it.

solidate a Fistula after the extirpation of the Callus, I shall willingly lend him mine ears.

The last intention Chirurgicall, is to skin the orifice, which requireth no new directions. You shall know a Fistula to be neere whole, when the humour which floweth is little, thick, concocted, and the place void of paine and tumour: If it be altogether dry, you may pronounce the orifice to be skinned, and the Fistula perfectly cured.

From the premises you may gather that foure things hinder the curation of a Fistula. I. Is the afflux of a vitious humour, II. Is the narrowesse of it, which hardly admitteth the application of convenient medicaments. III. Is the deepnesse which hindreth the conveighing of the medicaments to the bottome. IV. The callositie which contemneth ordinary medicaments. Seeing I have shewed you the way to remove these lets and impediments; I hope you will give me leave to conclude this point, of the curation of Fistula's in generall. In the next Lecture I shall discourse of the curation of Fistula's in particular places, which when I have done, I will put an end to this Treatise of Fistula's.

## LECT. XII.

*Of Fistula Lachrymalis.*

IN my two last Lectures I discoursed amply enough of the nature of a Fistula, by setting down its description and pathogonomical or proper signes, and the general method of curing all Fistula's indifferently. This only resteth to be done before I put an end to this point, to set down the curation of some particular Fistula's, differing only in subjects, which are the parts wherein they are seated, wherein some special directions are required. I will only speak of three, to wit, of Ægilops in the great corner of the eye, of a Fistula in the Breast, and last of all of a Fistula *in ano*.

First then I will deal with *Fistula Lachrymalis*, the Fistula in the great corner of the eye. In *Paulus Ægineta, De arte medendi, lib. 3. c. 22.* there are words in sound much like *Αγρίωψ* and *Αίχιωψ*; but in signification different: He will have *Αγρίωψ* to be a tumour or Aposteme before it is opened: but *Αίχιωψ* he affir-



affirmeth to be when the tumour is opened, whether it be fistulated or no: his words are these: *Ægilops abscessus est, qui inter majorem oculi angulum & nares fit: qui ruptus si negligatur, usque ad os Fistulam aperit. Idem priusquam ruptum exulceretur apostema anchilops appellatur.* So according to the version of *Albanus Torinus*, Thus it may be Englished: *Ægilops* is an Aposteme between the great corner of the eye and the nose; which if it be neglected, it maketh way to a Fistula, even to the bone: this aposteme is called *Anchilops* before it is broken. All modern Authors, who left any monument of Chirurgerie, follow him. This kind of Fistula is called by the neoterick Chirurgions *Fistula Lachrymalis*. By *Avicen lib. 3. can. fen. 5. tract. 2. c. 14.* the Aposteme is called *Kakilus*, or *Akilas*, and the Fistula it self *Garab*, or *Alstarab*. *Fabricius ab aqua pendente, de operat. chirurg. part. 1. c. 21.* purposely handleth this matter, and *Ambrose Parrey lib. 6. c. 15.* and *Taliacotius in chirurg. curtor. lib. 1. c. 15.* The place then wherein this kind of Fistula is seated, is the inner corner of the eye: although it beginneth first at the boles of the upper and lower eye-lid, from whence the tears flow.

Because it doth happen in the place from whence tears flow.

The signes,

The signes are manifest to the senses: for first, the orifice doth offer it self to the view: secondly, by compression the quittour issueth out: thirdly, a smal probe may be thrust within the cavity to the very end of the Sinus.

The Prognosticks.

As for the Prognosticks: First then, all these Fistula's are of hard curation, for the moystneffe of the place much hindereth desiccation, which is required in the curation of ulcers. Secondly, the part (while one is awake) is in continual motion. Thirdly, by reason of the nicenesse of the part, choice of medicaments must be had. I I. If the quittour hath made way for it self to the inner passage of the nose, by that hole which passeth thow the bone of the nose from the corner, then we are only to procure the shutting up of the upper orifice, and not to goe about the scaling of the bone by a fruitless labour, which will notwithstanding cost the patient great paine and griefe. I I I. If a Fistula in this place become cancerous, which you shall conjecture by the hard and livid brims, a stinging paine, and stinking virulent matter, you are only to use a palliative cure, applying those medicaments which are fit for a cancerous ulcer, whereof in the curation of a cancer I will speake at large. I V. If this continue long,

long, it causeth a consumption of the eye, called *αφροζία τῆ ὀφθαλμοῦ*, sometimes blindness of that eye, and corruption of the aire, which we draw by the nostrils, if the quittour passe from the glandule, thorow the bone of the nose to the nostrill.

Now to come to the differences of these *Fistula's*; Some are malignant, the signes whereof I have delivered in the Prognosticks; Some are not malignant. Of these wherein there is no malignity, some are without cariosity of the bone, and some with cariosity of the bone: you shall know that there is no cariosity of bone, 1. If the Apostem was not long continuing before it brake; for if the tumor was first an Oedema Scirrholes, and continued a long time before it brake, then it is likly that the humor corrupted the bone before it brake. 2. If the probe rest not upon a part hard and rugged. 3. If after dilatation of the *Fistula*, the cariosity be not presented to the sight. If circumstances contrary to these be offered, you may conjecture that there is a cariosity in the bone.

To hasten to the curation of these *Fistula's*: If a *Fistula lachrymalis*, without corruption of the bone, be offered to you to be cured, proceed after this manner. First of all, you are to dilate it: Secondly, you are to remove the callosity: Thirdly, you are to mundifie it: Fourthly, you are to consolidate it: and lastly, to cicatrize it.

You shall dilate it by the *Fistula* tent framed (as I taught in my former Lecture) according to the proportion of the sinuosity in the beginning: then you shall enlarge it more by sponges prepared with the Melilot Emplaster, which I likeways set downe, when I taught here last. This manner of dressing will discover all corners of the sinuosity. The *Fistula* having been thus dilated, you are to go about the removing of the Callus. Now in performing this, there is not so great liberty granted, as is in *Fistula's* of other parts. For first, fluid and running meanes having a remarkable acrimonie are not safe: for passing unto the *Conjunctiva*, and from thence to *Cornea*, they are able to erode it, from whence an ulcer may eniue, and so the griefe be doubled. Secondly, even meanes solid carefully must be applyed, that they go no further than the sinuosity of the *Fistula*. It is not unknown unto you, what horrible symptomes oftentimes afflict the eye, by reason of a familiar humor only exalted in degrees of acrimonie: What mischief then is to be expected, if heterogeneous bodies, endued with extraordinary sharpnesse, as these must be which remove a Callus,

do seife upon the membranes of the eye, adjacent unto the part aff. & ed.

Some there are who cure these lachrymall Fistula's with liquid medicaments, as with the water of Elder, or Wall-woort flowers, in every pint of these dissolving two drams of Mercurie sublimate, or more, according to the hardnesse of the callosity. The proportion of mixture you must conjecture by the continuance of the Fistula, by the age of the partie, and constitution of the body. If therefore a Fistula be offered to be cured in a body young, of a short continuance, and of a tender constitution, then the water is to be mild; if contrary conditions do offer themselves, then you are to make it more strong, according to discretion. If you take two parts of Plantane water, and one part of the spirit of Niter, you shall have an excellent Topicke according to the principles of the Chymists.

Observation. One thing is to be observed, that these liquid medicaments be sparingly applyed to the sinuosity, that no part of them touch the membranes, to avoid the accidents whereof I spake before.

Why solid medicaments are better than liquid. As for mine own part, I more commend the solid medicaments than these fluid: for first, their faculty is more durable: secondly, they are more secure, because they are not so apt to spread: If the body be young and tender, this medicament will serve: Take *Mercur. Precipitati, aut Turbith loti* ij ℥. *Aluminis calcin.* j ℥. *Exquisite misceantur; postea R. Unguent. popul.* j ℥. *Pulveris præditi* ij ℥. *Misceantur ut resultet unguentum.* When you apply this medicament, arming a tent with it, pull it not out forcibly; but suffer it to pop out of it self. Continue the application of this medicament untill the Callus be removed, which you may ghesse if the proceffe of the sinuosity appear soft, and the quitour which cleaveth to the tent appear laudable.

Mundification. The Callus being thus removed, you must mundifie it: To this purpose you shall use this locall medicament: *R. Aq. Chelidonia aut Ruta.* ij ℥. *Syrupi de succo ruta. aut Mellis rosati* j ℥. *Misc. applicetur calefactum.* Dresse the Fistula but once a day.

Consolidation. The part being mundified, which you shall know by the rednesse and tendernesse of it: Then goe about the consolidation. This you shall procure by this medicament: *R. Aq. Plantag.* ij ℥. *Syrupi Mirtilorum, aut Ros. rub. siccat.* j ℥. *Misceantur.* Apply this, and renew it but every other day, if no remarkable store of quitour flow.

As for the skinning: *Diapalma cum succis de minio*, or *Emplastrum rubrum astringens* will serve.

If in an *Ægilops* or lachrymall *Fistula*, the bone of the nose be corrupted by the humor staying in the embosment, then two wayes of curing are offered unto you: The first is by actuall cauterie, the second is by Incision. Peruse all who have written of the curing of this kinde of *Fistula*, and you shall finde that all with one accord subscribe to the actuall cauterie.

The actuall cauterie must represent in figure the stone of an *Olive*: The parts adjacent must be defended from the fire, either by an hollow plate according to *Parrey*, or a cane according to *Ab aqua pendente*; you may make choyse of which you will: you must effectually impresse it, to dry the humidity, and the sooner to procure the scaling of the bone. And although Authors, after the application of the actuall cauterie, prescribe fattie things to hasten the separation of the eschar, yet I advise you not to use them; for the part is moyst of it self, and so the application of such medicaments would procure a sordid ulcer: Apply therefore onely pledgets, or tents dipped in red wine, and above all *Diapalma* or *Emplastrum de minio*, or *de Smegmate*. When the bone hath cast a scale, then consolidate and skinne it, as I have set down before.

It is not unknown unto you, with what difficulty patients admit the application of an actuall cauterie, to a part much distant from any of the principall, and wherein there is but small sensibility. What will a patient troubled with this griefe do, if you make mention of cauterization to be made in this place, so neere the eye and the braine it self? If at any time you make mention of such a kinde of curation to a patient, to try how he doth stand affected to this operation; let me intreat you not to urge it too much, as if the cure of the *Fistula* could not otherwayes be compassed, if you finde the patient averse, lest you drive him away, and so you lose both credit and gaine. When in the Country I practised Chirurgery, sundry times this kinde of grief having beene presented unto me, I ever found the patients stricken into a terrour and amasement, as soone as mention was made of cauterization; wherefore I set my imagination at work, to finde out a way to cure a *Fistula lachrymalis*, lesse terrible, but more sure and effectual, which I will not conceale from you, because this griefe doth often come to your hands, and both great credit

Cicatrization.  
How an *Ægilops*, with ceterolity of the bone is to be cured.

The manner of  
curing Ægi-  
lops.

and gaine is purchased by performing the curation.  
My manner of curation is this: First of all, having with a small probe bended, found out the cavity both upwards and downwards, I draw a line with inke between the Glandule of the eye; and the Trochlea or the Pulley, through which the small tendon of the first oblique muscle called *superior*, or *major*, the uppermost and greatest passeth, and endeth obliquely in the uppermost part of *Cornea*: then I make incision to the bone; the part incised, I divide with the nailes of the fore-fingers, untill the incised be so much dilated, that it will without difficulty admit a pretty pledget: this being done, I thrust in a small Trochiske made of the Turbith minerall before it be washed, the vomitive Vitriol, and the best *Terra sigillata* wrought with *Populeum*, to the forme of a stiffe paste, and afterward dried. About the Trochisk I apply a pledget armed with *Populeum*, which I keep to the Fistula by an Emplaster of *Diapalma cum succis*, malaxed with the oyle of Henbane. Afterward filling the orbit of the eye with little bolsters made of soft linnen-cloth folded, and moystened in *Aqua spermatis ranarum capburata*, I rowle up the eye. These same dressings I use morning and evening, untill the Trochisk with the Callus fall out of it own accord: which when I perceive, I diligently view the bone, to see how much is carious; unto it I apply the powder of *Euphorbium*, if the diseased party be aged, and of a firme constitution of body; but if the party be young, and of a tender constitution, I besprinkle the bone with *Pulvis Cephalicus*. The cavity of the part incised I fill up with a piece of the sponge dressed with the Melilot Emplaster, as I delivered in my former Lecture: about it I apply a pledget armed with *Populeum*, all which I couch downe close, with the emplaster and bolsters kept to the eye with a rowler.

This manner of dressing I continue untill the scale of the carious bone cast, which most commonly falleth out about the twentieth day. When the scale is removed, I mundifie the part with *Melrosatum*, or *Melrutaceum*; then I procure consolidation by the Syrup of Mirtles, or of the red Roses dried. And last of all I cicatrize the part affected with some epulotical Emplaster, whereof I have set downe sufficient store heretofore, and shall hereafter when I shall discourse of an ulcer which hardly admitteth skinning. I have made sufficient experiment of this manner of curing an Ægilops in sundry persons. And I truly affirme,

that

that I never missed of the cure of any one with whom I thus dealt: neither shall you (I hope) if punctually you observe these observations in your proceedings.

It may fall out that the whole substance of the bone of the nose subjacent to the Fistula may be carious, being of it owne nature thin, and the head of the partie besides very rheumatick, so that being often cured in the opinion both of the Chirurgion and diseased partie, yet it doth break out again. In such a case you may demand of me, how you shall fall off from such a cure with you own credit. To this I answer, that there is yet a Subterfuge; and a way left to give contentment to the afflicted patient: To compass this, first dilate again the sinuositie, until the corrupt bone appear, as hath been shewed heretofore: Secondly, pierce the bone of the nose with a gimlet, that the quirtour may have recourse to the nostrils, which are appointed as shoares to discharge the stegmatick excrements of the braine, and to draw in fresh aire for the refrigeration of the lungs: and then cure the superjacent fleshie and skinnie parts, as I taught you, when I set down the palliative manner to cure a Fistula. This manner of curation being the last refuge, it will undoubtedly give contentment to the patient: for the eyes of the beholders shall observe no deformitie external in him, and he himself shall not be able to discern the turning of the quirtour from the glandule outwardly, to the nostrill inwardly: besides this, he himself shall perceive no smell that shall offend him; the smell of Garlick is not offensive to those who have eaten of it.

When the bone of the nose is to be pierced.

Now to conclude this my discourse of a *Fistula lachrymalis*, if you perceive any such Fistula maligne, or to tend to a cancrosity, which you shall discern by the signes set down, when I delivered unto you the Prognosticks: then use this medicament of *Hernius* the father, set down in *methodo ad praxin. lib. 1. pa. 106.* which he purchased both with money and entreaty, of one who got much money by it.

This is the description of it: *R. calamin. ter usi, atque in vini aceto exincti ℥j. myrrha, plumbi usi ac loti an. ℥ss. croci gr. v. opii gr. ij. eris usi ℥iiij. decocti fenugraeci ℥j. Misceantur exquisite omnia super lapidem pictorum.* If you meane to make an ointment to continue long, instead of the mucilage of Fenugreeke, use new Swines-grease washed in Rose-water; this is admirable eyesalve in all ulcers of the eyes: (whereof I have made often trial) whether they be maligne or no.

## LECT. XIII.

## Of Fistula's of the Breast.

**H**AVING spoken in my former Lecture of *Fistula Lachrymalis*, I am now to set down the method of curing other particular *Fistula's*, according to my promise. Of these, *Fistula Thoracis*, a *Fistula* of the breast doth first offer it self. Of the which *Cornelius Celsus* l. 7. *Ambrosius Paræus* l. 9. ca. 31. and *Fabricius ab aquapendente de operat. Chirurgic. part. 1. c. 47.* have written.

How it happeneth. This kinde of *Fistula* happeneth by two manner of wayes: First, by reason of a penetrating wound of the breast.

Secondly, by a *Phlegmon* possessing the intercostal Muscles, and the *Pleura*.

It is a superfluous matter to set down any signes, seeing they appear to the eye, and are easily found out by applying the signes set downe in the generall method of curing of *Fistula's*, to every *Fistula* in particular.

The differences. As for the differences; a *Fistula* ensuing a wound penetrating to the cavity of the breast, hath but one orifice, the passage and sinuosity whereof is according to the penetration of the wound; but a *Fistula* following after an *Aposteme*, hath frequently more orifices than one; whereof some passe to the cavity of the breast directly, some windingly.

The Prognosticks. To come to the *Presages*. All *Fistula's* of the breast are hard to be cured, and that for seven reasons: For first, the breast is in continuall motion by reason of its dilatation and contraction caused by the intercostal Muscles: now that motion hindereth the curation of any sore, it is so manifest, and confirmed by experience, that it needeth no probation.

1. Secondly, because in penetrating *Fistula's* of the breast, the *Pleura* is alwayes ulcerate; which being thin, without blood, and membranous, as the bladder, hardly admitteth any consolidation.

2. Thirdly, seeing the *Virus* of the *Fistula* doth often corrupt the rib; and seeing the internall substance of the rib is cavernous, and so apt to lodge corrupt matter, the difficulty of curing is increased.

Fourth.

Fourthly, in Fistula's of the brest, the end of the Fistula is often lower than the orifice, which hindereth the expurgation of the superfluous matter.

Fifthly, the sinuosity within, in penetrating Fistula's doth frequently extend it self between the Pleura and the upper rib, to the distance between it and the lower rib. Now how hard a matter it is to cleanse this cavity, I referre it to your owne consideration.

Sixthly, that liberty of applying of medicaments, which is permitted in sundry other parts of the body, is here denied, the lungs and heart being lodged in this cavity, whereof special regard is to be had, seeing from the safety of these parts the life of the *Individuum* dependeth.

Seventhly, because the Fistula's bring an extenuation of the body, and a Hectick fever.

Let this be the second Prognostick: If the party afflicted with a Fistula in the brest, be fallen into a Hectick fever, and his body begin to be extenuate, pronounce the grieve to be incurable; for if you use desiccative meanes, which are required in curing of ulcers, you shall increase these symptomaticall griefes, and hasten death.

The third Prediction. *Celsus* delivereth unto us in these words, *Solent quoque, &c.* Fistula's use sometimes, when they have passed by the ribs, to corrupt the midriffe; which may be gathered by the place affected, and the greatnesse of paine; in this case there is no hope of cure.

As for the curation of a Fistula of the brest; to it three means are required, a convenient dyet, pectorall decoctions, and locall applications. In a Fistula, which hath caused neither a Hectick fever, nor extenuation of the body, a greater variety of meats is permitted, than when these symptomes are annexed. Howsoever meats of easie concoction, and which afford laudable nourishment, are to be appointed for the Patient, and a moderate use of them is to be prescribed: of these two meanes I have spoken amply enough, when I set down the generall curation of ulcers.

As for pectorall decoctions, upon the use of which, the greatest part of the cure of such Fistula's dependeth, you shall finde divers descriptions of them in divers Authors. The simples whereof these Decoctions are made, are these; The flowers and leaves of

Colts,



Colts-foot, Maiden-haire, the white Horehound, Comfrey, Tormentill, and Bistort-roots, Violet-flowers, Borrage-roots & flowers, Ellacanpane-roots, Hyssope, Germander, the flowers and roots of Mallowes, the roots of Parsley and Fenell, Liquorice, Scabious, Valerian, Burner, Sarsaparilla, Guajak, the China root, Raisins of the Sun, and blew figs: of these simples you shall finde sundry decoctions set downe by Authors who have written of wounds, and Fistula's of the breast.

Amongst all others, the Pectorall Decoction of *Franciscus Arcius* you may most safely and securely trust unto: He while he lived, was so fortunate in the Practicē of Chirurgery, that hee drew that eminent Linguist and Divine, *Arrius Montanus*, very often to be a spectator of his operations. The Decoction I need not to set down, because you may fetch it out of the Author himself, who is translated into the English tongue.

My owne. I will not stick to commend unto you one of my own, whereof I have sundry times made experiment. This is the Composition of it: *R. Sars. paril. 6. unc. scob. guajac. 5. unc. rad. Chin. 3. unc. rad. enulh. campan. 1. unc. capill. vener. scabios. fol. tusilag. scolopend. sumitat. hyper. an. man. 1. flor. borrag. buglos. viol. beton. an. pug. 1. polypod. 3. unc. liquirit. 2. unc. passul. major. ex acinat. & ficuum pinguium incisar. an. ʒijʒ. Infundantur ista per noct. in aq. font. ferventis lib. 24. deinde lento igne coq. ad consump. lib. 8. ac coletur decoctum. Bibat ager singulis diebus lib. 4.* Let the Patient every morning about five a clock, drinke halfe a pint of this Decoction warme, and so much about foure a clock in the after-noon: at dinner let him take a pint, and at his supper another: the third pint he may drinke between meales. Marvell not at this quantity, for a lesse will little availe; for strong desiccation is required in this cure.

The reason of the quantity of the decoction to be taken.

I.

Things which hinder the cure

II.

III.

The manner of incision.

Three things vehemently hinder the curation of these Fistula's:

The first, is the inconvenient situation of the orifice, when it is higher than the ending of the Fistula.

The second is the extenuation of the body.

And the third is a Hectick fever: of these in order.

If then the ending of the Fistula be lower than the externall orifice, a lower orifice is to be made by incision. In this operation two things are to bee diligently noted: The first is the place. The second, the cautions to bee observed in the section.

As for the regions of the breast: The left side is more safe than the right: for in this side the liver by its gibbosity beareth up the *Diaphragma*, and doth insinuate it self to the cavity of the breast: The region of the breast fittest for incision. If then either one of these, or both should be wounded imprudently, it is an easie matter to prognosticate the tragical event of this operation.

As for the determinate part of the breast, which is to be opened, let it be about the beginning of the next rib, and not at the lower end of that rib above the which the orifice of the *Fistula* sheweth it self; for under it are couched a veine, a nerve, and an artery. The place.

In your Section proceed thus: First, divide the skin towards the upper part of the lower rib, then make way thorowout the intercostall muscles: These things being done, dry all things with a sponge, and put into the new orifice a swelling sponge, both to dilate it, and to draw to it self the quittour. If you go thus to work, you need not feare any danger, if you passe no further than the division of the *Pleura*: so that neither the *Diaphragma*, nor the lungs, or the *Pericardium* be touched. The manner of section.

If with a *Fistula* of the breast, a *Marasmus* or *Hectick* fever be complicat, the difficulty of curing is exceedingly increased; two diseases joyntly conspiring to the ruine of the diseased party, which notwithstanding for their curation require adverse indications, the *Fistula* requiring desiccation, and *Marasmus* and the *Hectick* fever craving humectation. If then a *Fistula* of the breast be offered to any one of you, first of all be sparing in your promises, lest ye be accounted clouds without raine: who but an ignorant will give free raines to liberall promises to cure a *Fistula* of the breast complicate with other *Deuteropatheticall* griefs of their own nature hard to be cured, when as it is a difficult matter to cure a solitary *Fistula* of the part? What is to be done if a Marasmus or Hectick fever be complicate with a Fistula of the breast.

*Marasms*, in Latine Authors *Marcor*, is an immoderate drynesse and consumption of the whole body, by reason of the defect of the substantiall humidity, according to *Galen li. de marc.* there are two degrees of it: The one is when this extenuation of the body is in *Fieri*, in consuming; The other is when it is in *Facto esse*, or consummate. What a Marasmus is. Lib. 12. cap. 4. The degrees of Marasmus.

If it be in *Fieri* only, the muscles begin to fall, the skin becommeth flaggie and loose, strength and agility decay, and the Signes of it in fieri. party

party findeth a manifest defect, and impotency in all the actions of the body, whether they be animall, vitall, or naturall. Against this degree, you may contend by instituting a dyet moyntening.

The curation  
of this degree.  
The signes of a  
Marasmus co-  
summate.

If a Marasmus be in *Facto esse*, or consummate; then the eyes grow hollow, and seem to be hid in pits; the lively colour of the skin fadeth, the skin of the fore-head seemeth dry, and stretched like the head of a drum; the eye-lids seem heavie, and scarce able to lift themselves up, as it happeneth to those who are wearied by reason of watching; the temples are hollow: in the cavities of the brest and belly, one would think that there were neither *Viscera* members contained, or guts: for the muscules are so consumed, and the cavities so drawn in, that nothing seemeth to remaine besides the *fibra* and the skin. To conclude, one having a consummate Marasmus, seemeth to be nothing else but a walking *skeleton*. Whosoever shall undertake the curation of such a one, and performe it, I will give him leave to give himself out for another Saviour, and to publish a fifth Gospel, which the itching ears of our age would willingly perhaps entertaine.

2. Differences  
of a Marasmus

1.

A Marasmus is two-fold: For one is accompanied with heat, and may be called a dry Marasmus, and this is nothing else but a Hectick fever, which hath consumed the radical moisture of the solid parts, and it is called *μαεγομοδός πυρετός*, or an extenuating fever.

2.

The differen-  
ces of a Maras-  
mus caused of  
cold.

The other is accompanied with cold. This is two-fold: The one is naturall, and it is decrepit old age: for old age is defined by drynesse, and coldnesse.

The other is unnaturall, and it is called *Senium ex morbo*, a decay by reason of sicknesse: old age commeth by the course of time.

This last is of a violent cause, for it followeth after a burning or a Hectick fever; and that by reason of the sicknesse it self, or by reason of the medicaments used in the curing of the aforementioned griefs: for a Hectick fever doth not only waste the natural humidity, but the natural heat also seated in the humidity: wherefore the heart it self, the well-spring of this heat, must become colder than it ought to be. In this case the pulse is small and weak, and slow: in like manner the breathing is weak, slow, and cold. By reason of the use of refrigerating medicaments appointed by the Physician in curing of a Hectick, or a *Febris Marasmodes*,

many.

many times *Senium ex morbo* succeedeth: and this is more tolerable, because the heart being somewhat immoderately cooled, the lesse of the radicall moisture is spent, than would be if the Hectick had its full course.

A Hectick fever, is an unnaturall heat which hath seized upon the solid parts, and wasteth the moisture of them. But seeing there is a three-fold moisture in the body: to wit, bloud in the small veines and arteries of every part, a dewy substance in every part by the which it is nourished, and gluten which keepeth together the terrestriall substance of each part, moisteneth it, and keepeth it from falling to dust.

There are also three degrees of a Hectick. In the beginning, when the two first humidities begin to faile, the Hectick fever is not easily discerned, although it may be without great difficulty cured: But if the radicall moisture be consumed, as it is easily discerned, so it is hardly cured. As long as this moisture is somewhat plentiful, sufficient to entertain the naturall heat, the body seemeth well coloured, of a comely figure, and of a decent quantity.

If therefore you perceive the body of any one having a Fistula in the brest, by reason of the defect of this gluten, or radicall moisture, become discoloured, the figure to be altered, some parts bunched out, some growing hollow, and the thicknesse of the members to become slender, the flesh colliquating; leave such a one to himself, that he may march peaceably to the period of his life.

Having delivered unto you of a Marasmus or extenuation of the body, and a Hectick fever, so much as is expedient for you to know in your Chirurgicall practices; without the knowlege of which, you cannot possibly proceed, warily and circumspectively, in curing Fistula's. of the brest, I am to shew you what uses you may make of what hath been delivered.

If therefore one having a Fistula in the brest, be brought unto you, whose body seemeth to be nothing else but skinned and bone, (as the vulgare proverbe is) acquaint him with the danger wherein he is, lest death seize upon him unprepared. Nevertheless, if he implore your aid of Christian charity, withdraw not what comfort you are able to procure unto him: appoint then a dyet moistening and nourishing, if no Physicall be at hand, which I will set down anon; and dresse him with those medicaments which are anodyne and healing. Inject into the Fistula Plantane-water,

What a Hectick fever is

The degrees & a Hectick.

What is to be done in a consummat consumption.

The uses of the discourse of a marasmus, and a Hectick fever.

having some of the red Rose-leaves dried, mingled with it; cover your tent and pledget with *Diachylon simplex*. If you perceive that there is so much of the radicall moisture remaining as is able to cherish the naturall heat, which you shall discern, if the colour of the body be fresh, if the figure be decent, if the proportion of the parts be according to nature, and the diseased party can in some good measure performe all actions, you may conceive some hope of his recovery.

Remedies against a Marasmus,

Wherefore if a Marasmus hath extenuated his body, appoint for him a diet which is likely to repair the naturall moisture impaired. Let him then take broths made of Mutton, Veal, or Chickens, wherein Damaske Prunse, Raisins of the Sun stoned Currans washed and bruised, Mallow-flowers and roots, Marigold-flowers, Cinquefoile, Cowslip-flowers, and Colts-foot leaves and flowers have been boyled: Gellies are good, made of young Cockrels, and a knuckle of Veal; use no other spice to it than a little Mace, and Nutmeg. Let him between meals take Almond-milks made of the broth of a Chicken boyled with French-Barley. It is good for him also every morning and evening, to take a draught of Asses or Goats-milke: or in want of these, of Cows-milk, milked thorow the Conserves of Borrage, and Buglosse-flowers; Calvs and Sheeps-foot stewed with Currans are good: sometimes let him eat Pigs-flesh. If he have a minde to fish, grant unto him Whiting-mops, Smelts, Perches, young Pickerels, Trowts, yea sometimes Eeles: the Sole, Flownder and Plaice, may also be permitted; poched Eggs, and sweet Butter without any salt, or Almond-Butter, are good for break-fast.

Remedies against a He-Sick feyer.

If an extenuation of the body do proceed from a He-Sick feyer, then you must not only moisten the body, but coole it also. In the broths then boyle Borrage, and Succorie roots, common Sorrell, wood Sorrell, Primrose, Violet, Borrage, and Buglosse-flowers: let his Sallets be Lettice, Spinage, and Purselaine, boyled in Chicken-broth. An Almond-milk made of the decoction of French-Barley, wherewith the emulsion of the seeds of the Pompion, Musk-melon, Cucumber, Purselaine, and white Poppie hath been drawn, is excellent taken morning and evening. Permit no Milk but Butter-milke, and that when it beginneth to be a little sowrish, with a little of Sugar, or Borrage, or Buglosse. If the diseased party complaine of immoderate heat, and watching, minister unto him twice a week *Philonium Persicum*, with the syrrepe of white Poppie, red Poppie,

Poppie, Gillie-flowers, Maiden-haire, Colts-foot, or of the juyce of Limons, or Citrons in *Aqua Spermatis Ranarum*, or red Poppie. If you perceive that by the following of these courses the party hath recovered his strength, and a good habit of body, then you may conceive a good hope of his recovery, and put him in good comfort, and so boldly proceed in the cure, still endeavouring by following the indications (as *Theseus* did the threed of *Ariadne* to come out of the Labyrinth) to restore perfect health to the Patient. In the beginning of the Lecture, I appointed three indications for the curing of *Fistula's* in the breast; to wit, a convenient dyet, pectorall decoctions, and locall applications: I have sufficiently discoursed of the first two; the third then remaineth of locall applications.

In setting down of these I will be briefe, because they little differ from the generall, if you except a few observations. You may safely dilate a *Fistula* of the breast, with the *Fistula* tent and sponge; but in removing of the *Callus* you must be wary; for if you apply the *Trochiske*, it must not reach to the cavity of the breast; for the point of it will relent, break, and fall upon the *Septum transversum*, which undoubtedly will erode it, cause an inflammation, procure a sharp fever, a *Paraphrenitis*, and at last death it self. Apply then a tent armed with *Populeon*, wherewith the *Fistula* powder must be mingled, as hath been taught: The *Callus* being removed, mundifie the ulcer with *Aqua calcis*, & *Mel rosarum* mingled together: Take heed that you inject no bitter medicament, for such medicaments are easily sucked in by the lungs, from whence by the *Trachea Arteria* they easily passe to the throat and mouth, from whence there is felt a horrible bitternesse, a desire to vomite, and an overthrow of the appetite. *Parvus lib. 9. c. 13.* affirmeth this to have happened unto him twice: be you ware by the example of others. The ulcer having been mundified, proceed to consolidation; for sores in this part are not to be long kept open. This you shall procure by injecting two or three dayes the syrrupe of red Rose-leaves dried, mingled with *Plantane-water*; and then only moistening a pledget wet in this syrrup, or the syrrupe of *Mirtles*. Above the pledget apply *Paracelsus* his *Styptick Emplastrum*; for in this case it exceedeth all others; for it doth not only draw the brims together, but it skinneth also.

## LECT. XIV.

*Of Fistula's of the belly and joynts.*

HAVING insisted so long in discoursing of the nature and curation of *Fistula's*, you may thinke, not without cause, that I ought to hasten to an end. In this Lecture I will set down the indications of curing *Fistula's* of the belly and joynts, and so I will conclude this point.

The differences of *Fistula's* of the belly.  
I.

The *Fistula's* of the belly are two-fold: for they are either in the *Inguinal* parts, or else in *Ano*.

Of these in the groynes I will discourse; because they most frequently fall out, being accidents, for the most part, which ensue after *Venerieall Bubo's*, either neglected, or ill cured: yea, they fall out in plethorick and cacochemical bodies very often, wherein there is no *Neapolitane* seed: and that somewhat above the emunctorie itself; the matter not coming to the emunctories themselves, which receive the excrements of the liver; but being hindered, either by reason of the weaknesse of the expulsive faculty, or by the crossing and thwarting of the muscles, oblique and transverse in those places, as you who are skilful in the *Anatomic* well know. It is no wonder that both *Abscesses*, and *Fistula's* often fall out in these places, seeing the belly is as a draught or a sinke in a house, or a keel in a ship, whither all impurities flow. Yea, such plenty of sharp humors sometimes floweth to these parts, that perforation of the guts is caused, and that the excrements come out at the orifice of the *Fistula*; a lamentable case, noisome to the diseased party, and intolerable to the company: It falleth out sometimes that some of the *Vertebra* of the *Spina* are corrupted.

As for the *Presages*: The *Fistula's* in these places, which passe not to the cavity of the *Abdomen*, are hardly cured;

I. First, because the liver is still apt to afford new matter.

Secondly, because great circumspection is to be used if you shall use either incision, or corrosive medicaments, by reason of the *fibra* of the muscles, and the branches of the *Vena cava*, and *Aorta* descending.

A historic.

I visited once in *Smithfield*, a Preacher who had a *Fistula* by reason

reason of a *Venereall bubo* ill cured, who entertained for his Chirurgions Master *William Clowes* of famous memory, Master *Anthony Spademan*, and *William Bray*, Brothers of this worshipfull Company while they lived. Although no convenient means were omitted, yet the Cure came but slowly on. The diseased party impatient of delay, and not being comforted by any certaine hope of recovery, addressed himself to one in the countrey, who was accounted famous for curing of *Fistula's*: for Master *Hall* at that time had acquainted sundry with his practice of curing of *Fistula's*. After the Chirurgion had applyed his corrosive to remove the *Callus*, it corroding the tunicles of the great vessels descending, the eschare parting from the sound parts, in the night a strong flux of blood ensued, which deprived him of life before the curer could come. Wherefore let me advise you, diligently to observe whether the bottome of the *Fistula* doth reach as deep as the great vessels, that you may avoid the like fatal event.

The second Prefage is this: If the *Vertebra* of the *Spina* be corrupted, pronounce the *Fistula* to be incurable: you shall conjecture the *Vertebra* to be foule, if extraordinary store of stinking sanies issue out of the *Fistula*, and the party daily grow weaker, and more extenuate, notwithstanding that you use all convenient both internal and external means.

The third Prefage shall be this: If the guts be eroded, and the excrements come out at the orifice of the *Fistula*, the life of the diseased party is in great hazard, because the guts are thin, membranous, and destitute of store of blood.

Secondly, because the *Fistula* is apt to creep thorow the distances between the muscules, which in those places are many; to wit, the oblique and transverse, one placed above another.

Thirdly, because in curing such *Fistula's*, we finde little help of hand and eye.

Fourthly, because topicall means can hardly be kept to the guts to help consolidation.

As for the curation of these *Fistula's*: If they be not deep, but run alongst superficially, the best course is to make incision, and then to apply one of the *Fistula* powders described by me, care had of the age and constitution of the party.

As for the mundification, consolidation, and cicatrization of such, seeing no special observation is required, you are to have recourse

The cure.

The removing of the *Callus*.

The mundification.

course



recourse to that, what I have copiously delivered heretofore. If the *Vetebra* of the *Spina* be foule, you are to promise no cure.

Neverthelesse, if persons of worth will (upon good consideration) entertaine you to dresse them, they finding a comfort by your pains, make an injection of *Plantane*, or *Carduus Benedictus* water, adding some fragrant water of *Medow-sweet*, the syrupe of red *Rose-leaves* dried, and the spirit of *Wine*, having the tincture of *Aloe*, *Myrrhe*, *Mastick*, and some *Saffron*. Let your emplaster be *Diachylon cum gummis*, or *Paracelsus* his *Styptic*. If the guts fall out to be perforated, having acquainted the friends of the party with the danger, yet despaire not, but go on, and use methodicall means. Let the party eat *Calves* and *Sheeps feet* stewed, *Sheeps* and *Calves heads*, for they afford a glutinous juyce; *Rice* boyled in milke, wherein steel hath been often quenched, is also good. Every morning and evening let the party take a draught of *Allagant*, warmed with a wheat tost, when he hath drunke off the wine, let him eat the toast. Make injection of red wine, having a little *Alome* dissolved in it, and some of the syrupe of *Mirtle-berries*: keep the orifice open with a sponge, untill the gut be consolidate: then proceed to the extirpation of the *Callus*, mundification, consolidation, and cicatrization, as hath been often heretofore taught. Event oftentimes falleth out above expectation.

A historic.

Not long agoe a countrey youth, who had an *Enterocoele*, was bound to a barber in *Aldeisgate-street*; one applying to the *Rupture* a *Trusse* somewhat strait, caused a *luderation* or mortification of the part, so that the excrements came out plentifully, with much stinking matter, out of the cavity of the belly. Notwithstanding, by diligence, and application of convenient means, the gut was consolidate, and the youth kept alive. So much I thought good to deliver concerning the curation of *Fistula's* which happen in the *inguinall region*.

Of the *Fistula*  
Ani.

Now it followeth, that I speak of *Fistula's* in *Ano*, which was said to be the second kinde of *Fistula's* invading and possessing of the *Abdomen*, or the lower belly.

This kinde of *Fistula* very often followeth after a *Phlegmon* in the *Anus*, broken and ill cured.

There be two sorts of these *Fistula's*, for some pierce not the *Intestinum rectum*, and some do: and both these are either shallow or deep. You

You shall conjecture the Fistula to passe thorow the *Intestinum rectum*: First, if after breaking of wind, part of it make way thorow the *sinus* of the Fistula. signes of a Fistula piercing the gut,

Secondly, if the excrements appear mingled with the quittour, or if the quittour smel as the excrements use.

Thirdly, if injection being made at the outer orifice of the Fistula, part of it passe within the *Anus*.

Fourthly, the forefinger being put into the *Anus*, if you feele the probe bare, it being thrust thorow the *sinus* of the Fistula, this is an infallible and certaine signe.

As for the Prefages of these Fistula's: First, No *Fistula ani* is Prefages. of an easie curation: for this part being the jaxe of the body, it affordeth great plenty of impurities, and much superfluous moisture; which hinder the curation.

Secondly, if a Fistula in this place be not very painfull, and noisome, by reason of much and stinking quittour, but shutteth and openeth it self sundy times, it is expedient for the health of the Patient, if such a one be left uncured: for by this means the body is discharged of superfluous humors, and the body kept in health. I have known this accident to have happened to sundry, and to have continued to the end of their lives. Some I know yet living thus affected, neither do I doubt, but that sundry of this worshipfull Company have observed the like.

Now to come to the curation of these Fistula's: The means to attaine to this are five: to wit, Diet, Internal medicaments, Incision, Diligation, and Topical means. The curation,

As for the Diet and Internal medicaments, I have discoursed sufficiently heretofore, so that I need not, distrusting your memories, to repeat any thing.

As for Incision and Diligation, they have place when the Fistula is shallow; but if the Fistula be deep, neither of these means are to be attempted.

If therefore the Fistula be shallow, and passe not to the *Intestinum rectum*, after you have dilated it, and removed the Callus, upon a tent incise all the hollownesse: then fill it with dosels, armed with a medicament made of a restrictive powder, and the white of an egge, to keep the brims of the incised parts alunder; for if you go about to unite the parts too soone, it may be feared that a cavity will still remain, and make way for recidivation: The curing of Fistula's not passing to the

wherefore it behooveth you, to see that sound and laudable flesh be ingendred in the bottome. Let not your incarnative medicaments be fatty, for such will cause loose and spongy flesh: use therefore the Sanative syrrop made of the vulnerary plants, having some *Pulvis cephalicus* mingled with it. If the Fistula go deep inwardly, so that you cannot use conveniently incision, dilate the Fistula with the Fistula tent, and the sponge: then remove the Callus with a Fistula trochisk; the trochisk being come out, and the Callus quite spent, mundifie it with *Mel rosatum*, mingled with *Aqua calcis*: when you perceive laudable quittour, endeavour to consolidate the part, by applying the sanative syrrop, and *Pulvis cephalicus* upon the tents, which you must day by day shorten, until at the last the whole *sinus* of the Fistula is shut up; which you shall conjecture by the little and laudable quittour which the Fistula yeeldeth. Then nothing else remaineth, but to cicatrize the part with your *Diapalma*, or *Unguentum de minio*. If the Fistula penetrate to the *Intestinum rectum*, then cutting asunder of the whole *sinus* of the Fistula by deligation is most fit. But first of all, you must dilate the *sinus*, and remove the Callus, (as hath been said) for so the part which is to be bound will be more thin and so more easily cut asunder. As for the threed wherewith you are to bind the *sinus*, two I commend unto you: first, sealing threed, which is made of the best hemp, unboyled, and unwhitened: for it is exceeding strong, and will not rot before it hath wrought its effect. The second, is a strong threed of silk, twisted; there is no great matter in the colour, whatsoever scrupulous Authors affirme: you may use either of these as opportunity shall be offered.

The cure of a  
Fistula pier-  
cing the gut.

The manner of  
binding.

When you goe about to binde the *sinus*, put in one end of the threed in the eye of a small and flexible probe, then thrust the eye with the threed thorow the *sinus* into *Intestinum rectum*: this being done, put into the *Anus* your finger, and with it pull the threed out of the eye of the probe, and draw it out at the *Anus*, or having bent the eye of the probe, bring it without the *Anus*; and then putting the threed into the eye, draw that end thorow the outer orifice of the Fistula. If the *sinus* be not very thick and long, you may by one strong deligation binde off all the *sinus*; but if the *sinus* be thick and long, you must use sundry constrictions, tying still the ends of the threed with a running knot, that

it may be the more readily losed. Some offer one deligation only, more and more draw in the ends of the thread, with a round piece of a stick turned about. When all the *sinus* after division, by deligation, lieth open, go forward in the cure, as hath been set down when the *sinus* was incised. Now nothing remaineth to conclude these discourses of Fistula's, but to speak somewhat of the curing of the Fistula's in the joynts. These griefs, what paines they procure to the Patients, and troubles to the Chirurgeons who dresse them, it is so well known to those who have been employed in such businesses, that I need not to use many words to perswade any to beleieve this: experience bearing witness.

The differences of these Fistula's are these. Some are without corruption of the bones and cartilages, and some have these annexed.

Againe, some of these are without any tumor of the adjacent parts, and in some there is a remarkable swelling of the parts adjacent; so that the skin it self is either brawny and hard, or loose and *oedematous*; and some of the tendons of the muscles are foule, and corrupted very often: such tumors often fall out, when Fistula's happen in the wrists and ankles.

Thirdly, in some of these Fistula's the joynt abideth firme, but in some it becommeth loose and weake, by reason of the relaxation of the membrane which covereth it, and the ligament by the which it is strenghtened.

Before I come to prognosticate of the events, let me acquaint you with one thing, and that is this; that if you be called to children or young persons troubled with a Fistula, or Fistula's in the joynt or joynts, that you make tryal of the *sinus* with a Mallow stalke answerable to it: for this kinde of probation is of all others lesse painful, and will encourage the diseased persons to commit themselves to your care, when they perceive that you searched the sores so easily, hoping that your proceedings will be according to your beginning. The small stalke of the Mallow next to the leafe is alwayes slimie and flexible, and so is apt to slip into the *sinus*, causing either no pain, or very little.

As for the presages: 1. No Fistula of the joynt, although it be without corruption of the cartilages or bones, is of an easie curation: for first by reason of the pain which is caused by reason of sensibleness of the part, and the increase of it by reason of

the sharp medicaments which must be applied to remove the Cal-  
lus, symptomatical fevers, losse of appetite, watching, and at last  
extenuation of the body, and at last a Heſtick fever may be pro-  
cured.

2. If a Fiſtula of the elbow or knee, have corruption, either of  
the cartilages or bones annexed, it will require a long time to have  
it cured: for the joynts themſelves being very ſenſible, it muſt be  
gently dreſſed.

3. If in Fiſtula's of the wreſt, the bones of it, or of the back  
of the hand, be carious, you ſhall finde the cure to be difficult:  
for theſe bones are very ſpongy, apt to receive ſuperfluous hu-  
midity, and ſo are hard to be ſcaled.

4. For theſe ſame reaſons, the bones of the joynt of the foot,  
and the inſtep are hard to be cured.

5. If Fiſtula's in the wrift or inſtep be accompanied with large and  
hard tumors of the hands and feet, pronounce the cure to be uncu-  
rable: for then the membranes, tendons of the muſcles, and  
bones moſt commonly are corrupt.

6. If an extenuation of the bodie, or a Heſtick fever do ac-  
company Fiſtula's in the great joynts, ſhun the cure: for the indi-  
cations of curing, which preſcribe drying and cooling, in drying  
increaſe theſe griefs. Beſides this, complicate diſeaſes are more  
hardly cured than thoſe which are ſolitary.

*Object.*

If you ſhall demand of me, what courſe is to be taken with  
thoſe who are poſſeſſed with ſuch uncurable Fiſtula's, if you be in-  
treated of the diſeaſed party, or the parties friends to do your  
beſt?

*Anſw.*

I anſwer, that if after ſome triall, you perceive the party to  
be uncurable, you ought to move the party to ſuffer extirpation,  
and diſmembring of the limbe, whether it be foot or arme, be-  
fore he grow weak, and become unable to endure any ſuch opera-  
tion. In young perſons you may attempt this operation, for I  
have adventured it with good ſucceſſe; but in aged and crazie per-  
ſons be not too bold, for the loſſe of the radical moiſture is more  
eaſily, by diet and medicaments, reſtored in thoſe, than theſe: the  
other may, but theſe muſt die.

*The topicall  
means.*

Now to come to the Topicall means, which are convenient for  
the curing of Fiſtula's in the joynts, (for as concerning the dyet,  
and internal medicaments, I have ſpoken of them ſufficiently al-  
ready)

ready) you must note that you must have good anodyne Cataplasmes to assuage paine, and good, easie, and effectuall means to remove the Callus. If you apply Mercurie sublimate, or Arsenick to remove the callositie of Fistula's in the great joynts, you shall alwayes cause a symptomaticall fever, and sometimes a mortification of the part, if the party be of a cacochymical constitution.

As for the means which mitigate paine, I commend unto you *Fallopins* his Cataplasme which he describeth in his Treatise of Ulcers, cap. 17. And it is this: *R. ol. lumbric. chamemel. & aneth. an. ʒ ij. furfur. flor. chamem. far n. hor. asypi. an. ʒ ij β. vini allagant. ʒ x. fiat cataplasma.* Renew it every twelfth houre.

Anodyne means.

As for the removing of the callosity, no medicament is comparable in parity with the powder of Turbith mineral, before it be washed, being mingled with *Terra Lemnia sigillata*, Oriental bole, and the vomitive Vitriol; this composition may be applied, being made up in forme of a Trochisk, or mingled with populeon, and applyed upon a tent. This medicament neither procureth extraordinary inflammation, or any horrible symptome.

How the Callus is removed.

As for the mundification, consolidation, and cicatrization of any Fistula in the joynts, after the removing of the Callus, seeing these intentions may be compassed by the means which I delivered in my former Lecture, I will cease to trouble you with the repetition of them, and so will conclude this Treatise concerning Fistula's.

If in Fistula's of the joynts there be cariosity of the bones, I will deliver the means to meet with this accident, when I shall discourse of the accidents of ulcers, before I make an end of this subject.

---

LECT. XV.

*Of Herpes exedens.*

HAVING delivered unto you, what I thought pertinent of compound ulcers without malignity; method doth require, that I speak fully, in like manner of maligne ulcers.

What a maligne ulcer is,

Maligne is that, which differing from ordinary ulcers, is not easily cured. By *Gal. de crisib. l. 1. c. 3.* not ulcers only, but all diseases which have a malignity annexed to them, all called *κακοήθειαι*, and *κακοήθειαι*. As a mild grieft hath a mild cause, and no horrible or extraordinary symptomes, and yeeldeth to ordinary medicaments: so that which is maligne hath a fierce cause, extraordinary symptomes, and yeeldeth not to ordinary medicaments. These maligne ulcers do happen, when such a *κακοήθεια* hath possessed the ulcerate part, that it doth corrupt the good nourishment which is sent to the part affected. The aliment sent to the part is corrupted, either by putrefaction, or a venomous quality communicated.

How the aliment of the part is corrupted.

1. Then the signes of a maligne ulcer are three: First, it corrupteth the part which it invadeth, either by putrefaction, or a maligne fretting quality.
2. Secondly, It causeth extraordinary symptomes, as paine and plenty of virulent and stinking matter.
3. Thirdly, It yeeldeth not to ordinary medicaments.

Differences of maligne ulcers

The differences of maligne ulcers are these: First, these ulcers are either ancient or moderne. I call those ancient, whereof mention is made by the ancient Authors: those I call moderne, which were only known to late Writers: such are those ulcers which appear in scorbuticall, and pockie persons. whereof I mean not to speak in this doctrine of ulcers, because they are symptomes of the scurvie and pocks, which cannot be cured unlessse the griefs themselves be cured. Now the setting down of the curation of these diseases, will require large and particular Treatises.

The name of the tumor.

Of maligne ulcers known to the ancients, some are lesse maligne, some more maligne. Of the lesse maligne there are three sorts: *Herpes exedens*, *Phagedæna* and *Noma*. *Herpes exedens*, *ἕρπης ἐξέδουσα* in Greek, being caused of thick and sharp choler, it corrodeth the skin even to the subjacent musculous flesh. It differeth from *Phagedæna*, because it erodeth the skin only; but *Phagedæna*, both the skin and subjacent flesh *Celsus lib. 5. c. 28.* thus describeth it: *Herpes fit cum cutis exulceratione, & est sine altitudine, latus, sublividus inequalis tamen, mediumque sanescit extremis affectis, &c.* That is, a *Herpes* is caused when the skinne is ulcerate. It is not deep, but broad, of a livid colour, uneven; notwithstanding, the middle doth heal, the brims remaining sore.

Where-

Wherefore if you perceive an ulcer to spread and cause sundry other small ulcers, which reach no deeper than the skin, you may pronounce it to be *Herpes exedens*, or *Formica ambulativa*, or *Corrosiva*.

One thing is to be noted in the words of *Celsus*, that a *Herpes* Note.  
*exedens* may be of a livid colour; and so with thick and corrupt choler, that melancholy must be joyned which is bred of *Bilis atra*, and so it must somewhat participate with a cancerous ulcer. And in truth, such ulcers often shew themselves in old persons about the beginning of the tails of the muscles of the legges; and from these a moist noysome and stinking virulent matter will flow, and the ulcer it self will be very painfull, and rebellious.

The signes.

The signes then of a *Formica corrosiva* are these: It only corodeth the skin, and so is not deep, but broad; uneven it is, and sometimes of a livid or leady colour, if melancholy caused of *Bilis atra* be joyned with thick and putrid choler: otherwise the brims of this ulcer, and the parts adjacent are of a yellowish colour, bewraying the humor, which is the materall cause of this kinde of ulcers. The Prognosticks.

As for the Prognosticks: First, that *Herpes exedens* which is caused only of thick and putrid choler, is not easily cured. For first, the body which is troubled with such an ulcer, is not so soon altered; for the liver, the gall it self, and the *Porus biliaris* must be much out of frame, when they cannot make shift to dispatch this humor by the passages appointed for the evacuations of it; to wit, by the guts, and passages of the urine; but suffer it to passe to the habit of the body by the vessels which carrie nourishment; to wit, veins and arteries.

1.

Secondly, because this humor being altogether contrary to nature, it causeth a *νεκροσία*, or ill constitution of the part; by the which the profitable nourishment which is sent to the part, for preservation of it, is corrupted: and so not only the part affected is defrauded of aliment, but the parts adjacent also are drawne to the same society of corruption.

2.

Let this be the third Prognostick: If a sincere *Herpes exedens*, proceeding only of thick putride choler, be hardly cured, as hath been proved; then if *Bilis atra* be annexed, surely the curation must be much more hard; for this is a humor which causeth more

3.



fearfull symptoms; as extreme paine, greater corrosion, and rebellion to ordinary medicaments: and if the body hath gotten a habit of breeding of it, it is hard, without regeneration, to reduce it to its naturall constitution, and to hinder the prevent and increase of it. Alchymists promise much, but for the most part they prove clouds without raine.

The causes of  
ulcers according to the  
Spagyrics.

The Alchymists will have the efficient and materiall causes of all ulcers, to be the superfluity of the salt of the natural balsome of the body, consisting of a due proportion of salt, sulphur, and Mercury. This superfluous salt being separate from the naturall balsome by the expelling faculty, it is turned sometimes to one, and sometimes to another part of the body, according as it is apt to be moved, according to its thinnesse or thicknesse, volatility or fixation. It settling in the part, it is more coagulate and calcined (the expelling faculty not being able to expell it by the pores of the skin) and so it acquireth a certain corrosion, and is the cause of those ulcers, which have no maligne quality accompanying the salt. They will have a volatil and subtil salt, such as is in the nettle, and crowfoot, to be the cause of an Erysipelas, and *Herpes miliaris*; but a thicker and more fixed salt, such as that is of the Vitriol, to be the causes of these ulcers which corrode the parts adjacent: such a salt then as it, not very thick, and thoroughly fixed, they will have to be the cause of *Herpes exedens*: but such a salt as is dense and thick, and thoroughly fixed, having some malignity, to be the efficient cause of a Phagedæna and Nome. This is their Philosophy of the efficient, and materiall causes of these ulcers: And in truth it doeth fitly represent to the eye of the understanding the nature of the humor, which dogmatical Physicians will have to be the causes of ulcers. It is no heresie to maintaine either opinion; but he deserves both credit and gaine, who shall performe the curation of those ulcers which he taketh in hand. Most Patients require rather speedy and easie curation of their griefs, than learned discourses of them. Howsoever, these discourses are requisite for you, who meeting sometimes with scrupulous Physicians and Patients, shall be drawn to shew your Theoricall as well as your Practicall parts.

The curation  
of *Herpes  
exedens*.

As for the curation: Three intentions are required to cure a *Herpes exedens*: The first is, that the humor which floweth to the part

part be stayed. The second is, that the humor which is impacted in the part, be evacuate. The third is, the curation of the ulcer it self by convenient means.

The first intention, which is the staying of the humor from flowing to the part affected, is performed by purging of the body from thick choler, and *Bilis atra*, if the *Formica corrosiva* be of a livid colour. To this purpose prescribe such a Potion: *R electuar. lenit. ʒvj. pulver. sancti. ʒj. aq. endivie ʒiij. Misc. ut fiat potio.* Or if the Patient be of a dainty taste, and loath electuaries and powders, then such a potion as this which I will set down will be convenient: *R rhab. ʒj. fol. sen. ʒiij. zinzib. ʒβ. spica. ʒβ. Infundantur ista per hor. 2. in aq. font. ferventis ʒvj. deinde lento igne exhalent ʒiij. ac coletur decoctum, in quo dissolve manna & syrripi de cichor. cum rhab. aut syrripi. Augustan. an. ʒj. Misc. ut fiat potio.* If the body of the party troubled with the ulcer, be plethorick and cacochymicall, it is convenient that he take a purgative decoction for sundry dayes together. I will set down such a one as a patterne, according to which you may frame unto your selves others like unto it in efficacie. *R rad. cichor. malvar. borag. an. ʒjβ. polypod. querc. 2. unc. stor. borag. bugloss. viol. an. pug. 1. fol. sen. & hermodactyl. an. 2. unc. semin. anisi & fenicul. dulc. an. ʒvj. rhab. ʒvj. liquirit. ʒjβ. Infundantur infundenda per noctem: in aq. font. fervent. lib. 8. sequente die adjectis reliquis, coq. ad medias ac coletur decoctum, quod aromatizetur cinan. ʒvj. sumat ager mane lib. β. ac tantundem hor. quarta pomeridiana.* Between ten and eleven a clock in the morning, let the patient take some broth without bread, or a caudle, or aleberrie: These medicaments must be ministred cold in the summer time, and warme in the winter.

The second intention in curing of *Herpes exedens*, was said to be the vacuation of the humor impacted in the part. This is effected by cathæreticall medicaments, or such as correct spongy flesh: they are sharper than the strongest mundificatives.

In the monuments of the Ancients, we finde the Trochisk of *Andron*, *Polyides*, and *Musa*, exceedingly commended in such fretting and creeping ulcers: which I will set down both to ease you of the enquiring of them, and the better to apprehend and understand them. The *Trochisci Andronis* are thus described: *R malicorii ʒx. alumin. ʒiv. vitriol. ʒxij. myrrh. ʒiv. thur.*

[y]

aristol.

1. Intention  
purgin<sup>h</sup> of the  
body.The descrip-  
tion of a de-  
coction purga-  
tive.

2. Intention.

The locall me-  
dicaments of  
the ancients.

*aristol. rot. gallar. an. ʒ viij. sal. armoniac. ʒ iv. fiat ex omnibus pulvis. Trochisci Poliyde* are thus set down: R. *malicor. ʒ vj. myrrh. ʒ viij. alumin. ʒ v. thur. 4. dr. vitriol. ʒ. dr.* The *Trochisci Musa* receive these things: R. *alum. aloes, myrrh. vitriol. an. 6. dr. croci. ʒ. dr. malicor. 4 dr.* I should advise to calcine both the Alom and Vitriol, which enter into these Trochisks, because they more strongly dry than those which are uncalcined. No substance is so fit as *Unguentum populeum* to make up the Trochisks. When you are to use these Trochisks, you are to beat some of them to a subtil powder, and to mingle some of the powder with some convenient unguent, taking a dram of the powder for every oun. of the unguent: but what unguents are most fit you shall hear anon. These are the magistrall means, which the Ancients used in curing spreading ulcers.

The Topical  
means of the  
moderne Chi-  
rurgeons.

The moderne and neoterick Chirurgeons, not contented with these, have found out other means not inferiour to these: The one is *Mercurie precipitate*, first nobilitate by *John de Vico*, and sithence his time much used by all famous Chirurgeons. This powder being washed with Plantane and Rose-water, and mingled with sarcotickall unguents, doth admirably heal theumatick ulcers in tender persons. If it being unwashed be mingled with alome calcined, taking two drams of it, and one dram of Alome, it is a catherticall medicament, and fit to be applyed to foule and spreading ulcers, such as *Herpes exedens*, *Phagedæna*, and *Nome* are. The other medicament invented by the late Chymists, is the Turbith minerall precipitate by the oyle of sulphur, or vitriol; it is now much used both in the practice of Physick and Chirurgery; it is ministred with good successe to persons infected with the Neapolitane lues; if they have either *Cephalæa Gallica*, extreme pains in their heads, or venerall ulcers. As for the use of it in the practice of Chirurgery, I dare ascribe to my self the invention of it (in these parts) without suspicion of any arrogancie. After that is precipitate and calcined, it is very white, and is an excellent eschariotickall medicament, far surpassing either *Mercurie sublimate* or *Arsenick*: for it is more safe, and is not so painfull; besides this, it doth not caule such inflammation as these do, neither doth it procure so promptly symptomaticall fevers. Being washed, it is used to work these effects which *Mercurie precipitate* doth, but much more effectually. To cause

these

these medicaments to evacuate the peccant humors out of the parts affected, you are to mingle these with *Paracelsus* his mundificative; taking for every ounce of the unguent, a dram either of the *Mercurie precipitate*, or of the *Turbith minerall washed*, if the parties grieved be of a tender constitution: or a dram of either, washed and mingled with *Alumen ustum*, in that quantity as hath been said, if the bodies of the persons who are troubled with the ulcers be firme and hard, such as labouring men have. You are to continue the use of these topicall means, untill the ulcer spread no more, and be red, and very clean. Having the two first indications required in curing of *Herpes exedens*, the third indication followeth: which is the curation of the ulcer it self.

To effect this, two scopes are required: The first, is to fill up the cavity caused by the losse of the skin. The second, is to cicatrize the ulcers.

As for the first scope, those medicaments are to be used which dry strongly, yet have no corrosive faculty. *Paulus Aeginet. de art. medend. lib. 4. cap. 20.* hath sundry medicaments for this grief: if you peruse the Author, and consider the descriptions, you will esteem them but sorry ones. *Tagaultius in institut. Chirurgicis lib. 1. de tumoribus pract. naturam.* hath transcribed them, whom you may see: he hath done this, for no other cause (as I suppose) than this, that he had no better of his own. *Ambros. Paræus lib. 6. c. 14.* hath some medicaments for this grief, which are not to be contemned. The first is this: R. *ceruss. & rut. prepar. an. 1. unc. ol. ros. & adipis caprae an. 2. unc. cort. pini ꝑß. cer. q. s. fiat unguentum.* If you adde to these things some lead calcined, Pomegranate-rindes and flowers beat to powder, the unguent will be more effectuell. The second is, *Unguentum emulatum cum Mercurio*, which he commendeth as an infallible medicament: if to every ounce of it you adde 1. dram of the flower of brimstone, you shall not misse of your purpose. Hee doth give one good note, that if you perceive the brims of the ulcer more and more to be eroded, you touch them with *Aqua fortis*, *Oleum vitrioli*, or *Sulphuris*, for by these means, sores which seem incurable are often healed. *Hieron. Fabric. ab aq. pendent. part. 2. lib. 1. cap. 28.* adviseth to minister inwardly either *Goatsmilke*, or the decoction of *Sarsa parilla*; and without all doubt

How the cavity  
in such ulcers  
is filled up.

Cap. 8.

both

both are good; but there is no parity between the Goats-milke, and the decoction of *Sarsa*: there is none of this company, who is ignorant of the faculty of *Sarsa* in curing all maligne, and creeping ulcers: Goats-milk may have some place, if the party be extenuate, and a Hectick fever feared.

As for the locall medicaments, he commendeth this cerat. R. *succi de pato*, ʒ. unci. *cerea citrina* 2. unci. *rosin. pini* ℥ʒʒ. *ol. myrtini* ℥ʒʒ. *terebinthin.* i. unci. *Bulliant ista donec consumptus sit succus tabacæ, ac fiat ceratum molle.* I will not stick to communicate with you the description of an unguent of Tabacco which I use mine own self, neither am I ashamed to preferre it before all others of this kinde; the description whereof I have seen. Thus then it is to be made; R. *axung. porcin.* 8. unci. *colophon.* 4. unci. *cer.* 3. unci. *succi de pato lib.* i. *patis contus. man.* 2. *coq. hæc. ad succi consumptum adde gummi Elemni, vernicis alb. terebinthin. an.* i. unci. *ac coletur unguentum.* It is an excellent incarnative in wounds as well as ulcers: besides this no better mundificative can be devised in tender bodies, if one dram of Mercurie precipitate washed, or of the yellow Turbith be mingled with an ounce of it. When you perceive the ulcers to be filled up; then skin them with this Desiccative of mine: R. *Sevi damar.* ℥ʒ. *ss.* *Axung. porcin.* ʒ. unci. *Cer. vernic. colophon. an.* 2. unci. *hisce ab igne amotis insperge calaminar. in vino albo ter extinct.* i. unci. *Lythargyr. Plumbi calcin. Aris usti, Henrici rub. an.* ℥ʒʒ. *fiat ceratum.* The two prime medicaments which are set down in Antidotaries to effect this, are *Desiccativum rubrum*, and *Unguentum de minio*, otherwayes called *Unguentum rubrum caphuratum*. Your Emplaster *de Minio* doth not come neer to these in efficacy. Let this which I have delivered, serve for the discerning and curing of *Herpes miliaris*, or *Formica ambulativa*, or *corrosiva*.

How these ulcers are skinned.

## LECT. XVI.

*Of Phagedena and Nome.*

**H**AVING discoursed in the former Lecture of the first kind of the lesse malignant ulcers, which were said to be, *Herpes exedens*, or *Formica ambulativa*, or *corrosiva*, I am to proceed to the other two, to wit, *Phagedena* and *Nome*; and because they have not a small resemblance, by reason of the similitude of Symptomes, I will joyntly speak of both: and because what latter barbarous writers have delivered of them is confused, I will labour diligently to distinguish them, and you shall not need to feare to talke of them before the most learned, if occasion shall be offered. These late writers, in the number of whom are *Gordomius*, *Bayrus*, *Valesius de Tarantia*, *Iohannes de Vigo*, *Petrus de Argelata*, *Guido de Cauliaco*, and sundry others, who lived in our fore-fathers times, when barbarousnesse had exiled eloquence, and ignorance learning: and when all liberall Arts and Sciences had suffered a strange and fearfull eclipse, although they set down sometimes medicaments not to be rejected, yet I would not have you to trust much to their discourses, or to labour to imitate their phrases. And as the Arabian Physicians doe farre exceed these, so the Grecians are to be preferred unto the Arabians in their discourses, although they come not neer unto the Arabians in setting down remedies for the griefes.

If you consider either the variety or pleasantnesse of them: for many ages together here in the West, *Hippocrates*, *Galen*, *Paulus Aegineta*, *O. ibasius*, *Alexander Trallianus* and the rest of the Greek Authors lay unrespected, and the Arabians were onely in request, although most rudely and barbarously translated; which no judicious and impartiall Reader of their monuments will or can deny. Wherefore concerning these griefes, I will deliver unto you what the Grecians, the parents of Physick, and all other liberall Arts and Sciences, have delivered methodically: As for the medicaments which are to be applyed, I will pick out the best, which either the ancient or the moderne Writers have revealed to us: neither will I conceale from you what I found effectuell in mine own practice.

The Etymon  
of the name:

*φρῆδαινα* then is a Greeke denomination, derived from *φρῆναι*, which is *edo*, to eat: so that *φρῆδαινα* may be called in Latine *Ulcus exedens*: in English an eating ulcer.

The significations  
of it.

It signifieth two things: First, it is taken for all manner of corroding ulcers, which seize not upon the skin onely, but upon the subjacent flesh also: In this signification it is taken by the ancient Physicians, who flourished before *Galens* time. Secondly, it is taken for a speciall kinde of ulcer by the latter Physicians, as *Galens* comment. in *aphor. 45. lib. 6. aphor. Hippoc.* witnesseth. And it is fit that in discourses and writings all things be set down distinctly; for this much helpeth the memory.

The description  
of it.

It being taken thus for a particular kind of ulcer, it may be described an ulcer tumified without putrefaction, deep and corroding the parts adjacent; In that it is said to be an ulcer tumified, it is distinguished from *νομή*, the third kind of eating ulcers, which corrodeth the sound parts neer unto it, without any remarkable tumor, as more at large you shall heare anon. It is said said to be deep, because it fretteth not onely the skinne but the fleshy part also under the skin. And by this circumstance is distinguished from *Herpes exedens*, which is an exulceration of the skin onely. So this kind of ulcer is not without cause called *φρῆδαινα*, or *ulcus exedens*, because it eateth and fretteth the sound parts neere unto it, making them of this same condition with the diseased.

The materiall  
cause of it.

It is caused of the bilious humour adust inclining to that melancholy humour, which is superfluous and not naturall; yet it is not to be thought that it is very thick, as is that which procurereth a cancer: or so thin as that which causeth Erysipelas and Herpes. This humor, by reason of the plentifulnesse of it, doth fill the brims of the ulcer, and causeth a swelling to appeare; but by reason of its malignity and acrimony, it fretteth the parts adjacent which are sound. Neverthelesse this humour is without putrefaction, which is alwaies in the ulcer called *νομή*, or *ulcus depascens*, an ulcer which feedeth upon the parts adjacent that are sound; for in Phagedæna there is erosion proceeding of a maligne quality without putrefaction, or corruption of the whole substance, which is alwaies joyned with malignity in a *νομή*.

The signes.  
The Etymon.

Then the pathognomonicall signes of a Phagedæna are these: First, it corrodeth not the skin onely, as *Herpes exedens* doth, but  
the

the subjacent flesh also: The second is this, that in Phagedænicall ulcers the brims are tumified: The third is, that although there is erosion of the sound parts adjacent, yet there is no putrefaction: And by these two last signes it is distinguished from *νομή*, *ulcus depascens*, a consuming ulcer.

*Νομή* in Greeke, in Latine *ulcus depascens*, in English a feeding *Νομή* or consuming ulcer. It is derived from *νομω*, *Depascor*, I feed upon: for it passing from the diseased parts, it seizeth upon the sound and whole parts, and feedeth upon them by communicating unto them both malignity and putrefaction. It may be thus described.

*Νομή*, it is a corrosive ulcer, without any tumour in the brims, indued not onely with malignity, but putrefaction, or corruption of the part, also feeding upon the adjacent sound parts, and that deeply. In that it is termed a corrosive ulcer or maligne, it agreeth in this with *Herpes miliaris* and Phagedæna. But whereas it is said to be without any tumor in the brims, I mean remarkable, and to have putrefaction annexed; by these two signes it is distinguished from Phagedæna, or *ulcus exedens*, an eating ulcer: for so I think fit to name it; that in denomination also it may be known from *νομή*, *ulcus depascens*, a consuming or feeding ulcer. Last of all, where it is affirmed that it doth corrode not superficially onely the skin, but the subjacent fleshy parts also: as it hath this common with Phagedæna, so by this it is known from *Herpes exedens*; for this causeth exulceration onely in the skinne.

The description.

But seeing there is often mention made in the monuments of the ancient Physicians, of *χειρώσεια*, and *πλήγη ελλην*, of Chironian and Telephian ulcers, as of *Galen*, *Paulus Aegineta*, and others who follow them, it will not be amisse to discourse a little of such ulcers: that you may know what is meant by these denominations, and be able to answer any if you be demanded what is meant by these terms.

Chironian and Telephian ulcers.

Of these ulcers thus speaketh *Galen. de tumorib præter nat. c. 13.* *δσα εἰς αὐτοῖς*, &c. whose discourse may be thus Englished: Those ulcers which consume, and meddle with the sound parts adjacent, or about, corroding them; all these are called Phagedænicæ. So that Phagedæna is framed of the ulcer and the tumor. *Herpes* in like manner doth erode the parts about it, but it resteth in the skin onely: but Phagedæna doth extend it selfe as well to the

subjacent



subjacent parts as to the skin. But it is to no purpose to call ulcers Chironian, or Telephian. It is sufficient to call such ulcers *κακόντων*, *Maligna*: that is, of an evill condition or quality. By this passage of *Galen* translated by me, you may gather three conclusions.

The first is, that in a Phagedæna there is an erosion not onely of the skin but of the fleshy parts subjacent also, by the which it is distinguished from *Herpes exedens*, or *Formica ambulativa*, whereof I discoursed in my former lecture.

The second is, that in a Phagedæna there is a tumor in the brims of the ulcer, whereas there is none in the *ιομή*, or a consuming ulcer, called by Latine Authours *Ulcus deposcens*, to distinguish it from *Ulcus exedens*, an eating ulcer.

The third is, that the denominations of Chironian and Telephian ulcers, do only signifie maligne ulcers in generall; but no speciall kind of ulcer in particular. In *Paulus Aegineta de art. medend. lib. 4. c. 46.* bearing this inscription of ulcers of an evill condition, which are called Chironian and Telephian by Physicians: these words are read as I translated them. Old and inveterate ulcers, which hardly admit skinning, which are named *κακόντων*, or maligne, some call Chironian, as if they did require the hand of the Centaure *Chiron*, the most excellent in the Art of curing; others call them Telephian, such as *Telephus* was troubled with, which required the helpfull hand of *Achilles*, who cured him. So he jumpeth with *Galen*, that these titles were ascribed to all maligne ulcers; but did point at no particular kind of ulcer.

Now it cannot be amisse briefly to shew unto you what men *Chiron* and *Telephus* were, seeing they are so famously recorded by the Poets: They who are Scholers amongst you, cannot but be delighted when the studies of the youth are brought to remembrance. *Chiron* then was one of the Centaures, which were a people who inhabited the places neere to Pelion, the hill of Thessaly. These first began to break great horses, to fight on horseback: wherefore the neighbouring people, when it first saw them, believed them to be strange creatures, composed and framed partly of humane, partly of horses members: O strange simplicity! This *Chiron* was the sonne of *Saturne* and *Philyra*. It seemeth that he was called *Chiron* because he had a singular dexterity in the manuell operations of Chirurgery: for *ἡ χεὶρ, χιρῶν*, in Greek

*Chiron,*

is an hand. He taught *Æsculapius* the Art of curing: *Peleus*, *Achilles*, his father, was his sonne in law, of whose daughter *Thetis* he begate *Achilles*, so much commended for valour and strength by the Heathen Poets. He taught *Achilles* being his grandchild Chirurgery, playing upon the Citherne, and horsemanship. The two kindes of Centory, the greater and the lesser, *Centaurium majus & minus* are named of him, whereof there is great use in practice both of Physick and Chirurgery. It is like that he was fortunate in the curing of maligne ulcers, by reason of the great skill which he had in the knowledge of the faculty of plants. He lived but 2690. yeares after the creation of the world, that is, 77. yeares before the destruction of Troy, which fell out *Anno mundi* 2767. Then 2685. yeares are expired sithence famous *Chiron* lived. This may serve to prove the antiquity of Chirurgery. Posterity for his worth named the ninth signe of the Zodiack *Sagittarius*, who ruleth the thighs from him. From whence *Virgil* of the twelve Signes:

*Armatusque arcu Chiron, & corniger hircus.*  
*Chiron* armed with bow, and the horny goat.

By this we may gather how vertue and learning were regarded in the rude and simple ages, which are verie little esteemed in these civill times, wherein most men are given to enjoy their pleasure, which will cost them too deere, when the generall account shall be made.

*Telephus* was one of *Hercules* his sons, who being adopted by the King of Mylia who then reigned, after his death, succeeded him in government. When he would have hindred the Grecians marching towards Troy, from passing thorow his countrey, in combat he was wounded by *Achilles*; but after ward being reconciled to *Achilles*, he was cured by him; he mingled with either an unguent or a cataplasme, (for *Malagma* signifieth both) the rust of his speare, and it is not unlikely; for there is none here (as I suppose) who knoweth not the facultie of *Crocus Martis* in cicatrizing of rheumatike ulcers, it drying strongly without any sharpnesse; unto which the rust of old iron washed and prepared commeth verie neere. So *Achilles* made sufficient proove of his skill in the Art of Chirurgerie, which he learned of his grand-father *Chiron*. Goe to then, let effeminate Hind-calves despise the Art of Chirurgerie,

which so eminent a person as *Achilles* was, was not ashamed to practise. From *Achilles* Millefole is called *Sideritis Achillea*, *Achilles* his Star-woort: and it may be that it was one of the chiefest ingredients of the cataplasme: surely it is an excellent healing plant. To conclude then this point: malignant ulcers who are not easily cured, are called *Chironia*, because *Chiron* was able to cure them; and *Telephia*, because *Telephus* was troubled with such an one.

Now time calleth to goe forward in the handling of these corrosive ulcers: but before I set downe the manner of curing, the predictions of the events which are like to fall out in the course of curation are first to be set downe. I Neither of these corrosive ulcers are of easie curation, upon what body soever they light upon; and for three causes: for first, there is a *κακότης*, an ill constitution and temperature of the part, by the which the aliment which is sent to the part, although it be good, is corrupted. Secondly, a fresh supply of noxious humors is sent most commonly to maintaine the griefe. Thirdly, because the ordinary medicaments which are applied with good successe most commonly to other ulcers, in these ulcers are ineffectuall. II. if these ulcers light upon a cacochymicall body, the case is yet worse: for the constitution of the body, must be altered before these griefes can be cured, which is a matter of no small difficultie. III. If these seize upon decrepit persons, the case is in a manner desperate: for in such the naturall heat is weake, and the radicall moysture almost spent: so that great store of corrupt and saltish humors are bred in the bodies of such, which being sent to the weak parts ulcerate, increase these griefes.

The curation is performed by three meanes: to wit, a convenient diet, internall medicaments, and locall applications: As for the diet, those meats and drinks must be used which afford a laudable juyce; whereof I have spoken before: and in that measure that the naturall heat may be able to concoct them, that no superfluities be bred. Besides this, meats which are easily corrupted in the stomach are to be shunned, as milke meats, summer fruits, and salt meats: slimie fishes, and Swines flesh are to be shunned, because they afford no good nourishment.

Of internall medicaments I durane not to speake much, because this would require a longer time then now can be permitted. If a person troubled with an ordinarie Phagedæna or Nome, be of strong

Præfages.

The intentions  
of curing.  
Diet.

Internall medicaments.

strong constitution and plethorick, you may minister unto such *Hiara Diacolocynthydos magistralis*, or *Pilule aggregativa majores*. Apud Rinoderum de hieris cap. 4. If the party be weak, you may minister *Pilule stomachica*: Those which I use are these; *R Aloes ʒij. Rhab. Agr. Trochiscat. an. ʒj. Myrrhe, ʒij. Mastich. ʒj. Syrup. Augustani, q. s. ut fiat massula. d. s. Pilul. 2. pond. ʒʒ. à primo somno; vel sumat unam paulo ante cenam, alteram paulo antequam ineatur somnus.* Whether the parties be strong or weak, who are troubled with these corrosive ulcers, they are to use decoctions made of Sarsaparilla, Guajack, *Radix China*, Tormentil, Bistort and Comfrey roots, with the which you are to joyn some Vulneraries, as Agrimony, the tops of *S. Iobis* woort, *Sanicula*, our Ladyes mantle, mountaine and garden Avens, *Salomons* seale.

*N*one of the privy parts were known to the ancient writers, as we may perceive by *Paulus Aegineta de Art. med. lib. 4. c. 44. (sub finem)*. In our times they seldom are seene to proceed from any other cause, than impure copulation. Such are often seene, in the which the whole *Preputium* doth sometimes rot away. These corroding venereall ulcers require the generall cure of the Neopolitan disease, besides effectuall Topicks.

Now followeth the last indication of curing these corrosive ulcers, which is the application of locall medicaments. In a Phagedæna wherein there is a tumor of the brims, you are to apply *Unguentum populeum*, and *Unguentum album capburatum*, mixed together in equall quantity to them. The second thing which I would have you to observe is this, that *Nome*, or *ulcus depascens* doth require stronger Topicks then Phagedæna, or *ulcus exedens*. Marke then these medicaments which I have picked out of *Aegina*: I. *R Calcis vive, Vitriol. Romii. an. ʒij. Auripigmenti ʒj. fiat pulvis subtilis ex his.* For a Phagedæna apply the unguent of Tobacco, having some of this powder mingled with it, as ʒij. for an ounce of the unguent. If you have to doe with a *Nome*, make Liniment of this powder and Oxymel, and apply it to the ulcer. II. *R Virioli albi ʒʒʒ. Croci Martis, ʒvj. Gabar. ʒviii. Crocus Martis well prepared farre exceedeth their Squama ferri, the scales of iron. Receive this medicament of my description: R Calc. viv. Virioli albi, Auripigmenti, an. ʒj. Melicor Bilanstor. cornu Cervi ust. Gallar. Punicis calcinati, Alum. ussi, rad. Aristol. rot. an. ʒʒ. Croci Martis, Plumbi calcinati, aris ussi, an. ʒvj. cum melle dispumato. fiat Electuarium.* Let me

commence

commend unto you an *Aegyptiacum* which is not the vulgar: *Primo infundantur absinthium, Carduus benedictus, Centaurium minus, Scordium, Chamædrys, Malicorium, Balaustia, Galle, & rad. Aristol. rot. in aceto fortissimæ*: R̄ hujus Aceti col uti ℥viij. Ꝟ ug. ℥v. Mell. ℥xliij. coq. lento igne ad arguenti consistentiam. This medicament is effectuall in venereall ulcers of the throat, and privie parts, and in all fordid ulcers.

How long you  
are to use these  
medicaments.

You are to continue the application of these medicaments, untill you see the corrosion stayed, and the ulcers red and well mundified. When you have perceived this, incarnate the ulcers with some of the consolidatives before set downe by me. Lait of all, cicatrize the sores with such epuloticall meanes as I set downe in my former Lecture.

An admoni-  
tion.

But to shut up the delivery of these ulcers, which are of the mildest sort of the maligne, so much as concerneth the knowing and curing of them: let me advise you that you promise no sudden cure of any ulcer, if it hath continued but one moneth: for the bodies of the inhabitants of this Iland, are for the most part plethorick; they will observe no good diet, and will not be estranged from the sacrifice of *Venus*. It is a strange thing to see what corrupt and ugly stuffe is covered by the curtaines of a beautiful skin, in a number of them. I make no doubt but many amongst you, who are least employed in practice have had sundrie patients, who have come to you pretending that they were onely troubled with a pimple on the forehead, a red eye, a difficulty of swallowing, shedding of the haire, watching in the night time, and paines betweene and in the joynts: whereas indeed these griefes were venereall pustules, the Neapolitan Ophthalmia, virulent ulcers of the throat, *Alopecia Gallica*, the vigils of *Venus*, and last of all the pockie joynt ague. It is no hard matter to those who are judicious to finde out the symptomes of that grieffe, which *Vigo* the father of Empyricks doth affirme to be able to bring the accidents of all diseases in particular, according to the diversitie of the constitution of the bodies upon the which it seizeth. If there you see any ulcers, in what part soever, more painfull then the solution of such an unitic requireth, that it yeeldeth not to ordinarie medicaments appoynted for ulcers, than suspect that there is a latent malignitie. Value not therefore your credit for a trifle, be not too bountifull in promises, lest they be required at your hands: suspect and pronounce in doubtfull cases alwayes the worst: for the best will

will save it selfe. Thus doing, you shall bring in no new practice. Many practicers there be, it is uncertaine whether of ignorance or policie, who aggravate the griefe of those who wholly commit themselves to them, that the greater credit and gaine may redound unto themselves, if the persons diseased escape, and the lesse blame may be laid to their charge if they die. In these proceedings there are two excellent teachers, Skill and Conscience: The first is to enable, the second is to direct practice. So much I thought good to deliver unto you of the three mildest kinds of maligne ulcers, to wit, *Herpes exedens*, *Phagedæna*, and *Nome*.

## LECT. XVII.

*Of a cancer and a cancerous ulcer.*

WHEN I ceased from reading last, I put an end to the doctrine of ulcers lesse maligne. Now am I to discourse of these ulcers which are accompted most maligne, and are so indeed. Of these there are two sorts; a cancerous ulcer, and a leprous ulcer: of purpose I referred the handling of a Cancer and a cancerous ulcer to this place, because it fitteth them best, as you may perceive anon. First then, I will discourse of a cancerous tumor, and then of a cancerous ulcer. A cancerous tumor is called by *Galen*, *de tumor præ. nat. c. 12.*  $\kappa\alpha\pi\alpha\iota\tau\omega\delta\eta\varsigma\ \alpha\gamma\kappa\epsilon\upsilon\sigma$ , in Latine *Cancerosus tumor*; It may be thus defined:

It is a tumor proceeding of *Bilis atra*, round, hard, unequall, of a leady colour, hot, very painfull to the patient, and having full veins implanted in the adjacent parts. For as a crab, in Latine *Cancer*, hath a body and feet of a livid colour, and whatsoever it claspeth with the claws, it holdeth it firmly, so this griefe is of a livid colour, and so girdeth the part which it possesseth, that it seemeth to be nailed to the part, and about it the full veins exquisitely imitate the feet of a crab: and from these similitudes the tumor hath its name.

In the description the tumor is said to proceed from *Atra bilis*, or melancholy, or choler adust; for it signified both: for there are two sorts of *Atra bilis*: the one is caused of naturall melancholy adust: the other is caused of yellow choler burned, and it is much more maligne than the former. See *Galen lib. 3. de atra bile*.

The description of a cancerous tumor. The cause of the name.

The differences of *atra bilis*.

The efficient  
causes.

There are sundry efficient causes which ingender these humors in our bodies: First, a strong hot distemperature of the liver, which burneth the naturall melancholy and yellow choler, and so hatcheth this *Bilis atra*. Secondly, according to *Galen c. 10 lib. 2. ad Glaucon*, the spleene by reason of its weaknesse and distemperature, doth not draw unto it selfe the superfluous naturall melancholy, and so staying long without it owne proper place it is inflamed and burned. Thirdly, sometimes this humor is caused of the menstruall courses, and Hemorrhodes stopped. Fourthly, very often an ill diet breedeth this humor, as when one useth meats of an ill ioyce, and of a thick substance and hot quality, as garlick, onions, leekes, snails, venison, pease and beanes, and such like. But there is nothing more pernicious that the immoderate use of potent and strong wines, such are all kindes of Sacks, and Greeke wines, which exceedingly burne the humors in the masse of the blood. An hot aire and perturbations of the minde set forward also this humor. But seeing there are degrees of malignitie in *Atra bilis*; the cancerous tumor, or Cancer not ulcerate, is caused of the milder sort of it; but a Cancer ulcerate is procured of that kinde which is most maligne.

The cause of a  
Cancer not  
ulcerate and  
ulcerate.  
Why a Cancer  
is not bred of  
naturall me-  
lancholy.

Take heed that you imagine not any sort of Cancer to be engendred of naturall melancholy, which *Galen, de art. curat. ad Glaucon. c. 10. lib. 2.* affirmeth to be that part of the blood which representeth the wine lees, when it is made by the liver, which is drawne by the spleen, wherewith it is nourished: for superfluous naturall melancholy causeth only Scyrrhus. Of the materiall cause of a Cancer thus speaketh *Galen De tumor. prat. nat. c. 12.* When *Bilis atra* seateth it selfe in the flesh, if it be sharp it corroded the adjacent flesh, and doth cause an ulcer; but if it be milder, it procureth a Cancer without ulceration. *Æginet. lib. 6. c. 45.* hath these words: A Cancer is a tumor unequall, with tumified brims, ugly to behold, of a leady colour, indolent, sometimes not ulcerate, which *Hippocrates* called *κρυπτός*, or hidden; sometimes ulcerate: And seeing it hath its beginning from *Atra bilis*, for the most part it becommeth ulcerate: So he.

The materiall  
cause of a Can-  
cer.

That a Cancer  
can hardly be  
without paine.  
I.

Where you are to note, that he affirmeth a Cancer to be indolent, or without paine, which is contrary both to experience and reason. *Celsus* also, *lib. 5. c. 28.* seemeth to grant some Cancers to be without paine. For first, there is a solution of unity, by reason of plentifull matter stretching the parts, and pressing the sensible

fible parts. Secondly, there is a very hot distemperature, by reason of the humor which cannot be discussed, which of necessity must cause paine. The explication of the rest of the particulars set downe in the description, shall be set downe in the delivery of the signes, to avoyd tedious repetition of the same things.

The signes then of a cancerous tumor are these: 1. according to *Galen, lib. 14. method. c. 9.* a Cancer in the beginning is hardly discerned: for the symptoms are but mild, and sometimes it is no bigger than a pease, or a beane, of a filbert-nut. 2. It is hard, by reason of the thicknesse of the humor, which withstandeth the touch. 3. It is of a leady colour, representing the colour of the humor whereof it is bred, yea the more maligne it is, the more livid and black it appeareth. 4. The tumor is very painfull: First, because *Atra bilis* the materiall cause of it is hot: Secondly, because no heat can breath out, the substance of the Cancer being so compact. 5. It is round, because the matter being thick, is not so apt to fleet abroad. 6. It is unequall, by reason of the ebullition of the humor, which notwithstanding is not equally active in all parts of the tumor. Last of all, a Cancer hath blacke or livid veines extended to the adjacent parts; for this atrabilious humor cannot sweat out of the veines, which is the cause that they appeare very full.

The signes of a Cancer.

As for the parts which a Cancer invadeth, although it may breed in all parts of the body, yet it is most often seen in the breasts and matrices of women, and in the lips and nose of the face. I have seen it also *in ano*, and in the top of the yard.

What parts a Cancer may possesse.

The breasts most promptly receive this atrabilious humor, because they are of glandulous and loose substance. Besides, the *Mammaria* veines meet with the *Uterina* under the straight muscles of the belly; so that the matrix may discharge it selfe of a dust and feculent melancholy blood by regurgitation, which may cause a Cancer if it passe to the dugs.

Why it doth possesse the breast.

A Cancer in like manner doth appear very often in the matrix, by reason of the detention of the menstruous blood, which staying above the ordinary time is burned. The lips also are spongy and soft, and so apt to receive *atra bilis*, the materiall cause of a Cancer. *Galen de art. curat. ad Glauconem, lib. 2. c. 10.* hath these words: Cancerous tumors maybe in all parts of the body, but chiefly in the paps of women which have not their purgation according to nature. *Æginet. lib. 6. c. 45.* saith, A Cancer doth

Why the matrix.



happen to sundry places of the body, but chiefly to the matrix and paps of women.

Prognosticks.

As for the predictions before curing, receive these: 1. Although Cancers may appear in all the quarters of the yeere, yet most commonly they shew themselves about the ending of the Summer, and during the whole time of the Harvest: because in these seasons the melancholy exceedingly increaseth, and humors become adust. 2. No Cancer is easily cured; for if all ulcerate Cancers be incurable, according to *Galen, c. 5. lib. de'atrabile*; no cancerous tumor can easily be cured, it having the same efficient cause. 3. A Cancer not ulcerate, if it hath possessed any deepe cavity of the body, as the matrix or *anus*, it is not to be dealt withall according to *Hippoc. lib. 6. apbor. 38.*

The explication of Hippocrates.

You must understand that he meaneth the curing by excision, causticall meanes, or ustion: for the ulcer will not admit cicatrization, and so the diseased parties live in continuall paine and filthinesse, and at the last die miserably. But he forbiddeth not the application of locall meanes, which assuage pain and gently mundifie. 4. Cancerous tumors in the outward parts, and only superficial in the beginning, may be cured according to *Galen. lib. 2. c. 10. ad Glaucom.* 5. When cancerous tumors are come to a remarkable bignesse, they onely can be cured by extirpation. 6. If a Cancer not ulcerate hath possessed the matrix, the party feelth great pain in the groynes, and hath often a difficulty in making of water: If the Cancer be ulcerate, it sendeth out a loathsome and cadaverous smell, the vapor whereof ascending to the heart and brain; causeth sometimes fainting. 7. If the afflicted party be weak, & the cancerous tumor be inveterate, or of a long continuance, it is not to be dealt withall with excision, adustion, or potentiall cautery: onely lenitives are to be used to procure a palliative cure: for sundry have continued even to their decrepit old age, with a Cancer not ulcerate.

The curation of a cancerous tumor.

Now it is time to adresse my selfe to the setting down of the curation of a cancerous tumor: The means appointed for it are three, Dieteticall, Pharmaceuticall, and Chirurgicall.

I.

As for the Dieteticall means, all thick and strong Wines are to be shunned, course Bread, Cabbage, and Colwoorts, Cheefe, old and salt flesh, old Hares, and Venison: Watching, immoderate labour and grieffe are to be shunned; as also all other things which thicken the blood, and inflame the humors. Let the diet be cooling

ling and moistning. Barley-cream is good, and Pifan, Mallow-flowers and roots, Borrage, Buglosse, Violet flowers, Endive, Spinach, Purselaine, and all sorts of Sorrell in broths are good: young Mutton, Veale, Kid, Capons, Pullets, Chickings, young Leverets, Partridges: Fishes which live in cleare and gravelly Rivers, and poched Egges are permitted: let the drink be Beere or Ale of a reasonable strength, not too new, or too old: small white Wine with Sugar, Borrage, and Burnet, is best of all others.

As for the Pharmaceuticall meanes, they are two, Phlebotomy and Purgation. It hath been observed, that the most convenient time for bleeding is the full Moone; for it miraculously stayeth the ebullition of the blood, asswageth the paine, and hindreth the increase of the tumor. But you may demand of me what veins are to be opened? I answer: If the tumor be in the lip, open the Cephalica; if it be in the breasts, open the Basilica of the right arme, if it be in the right brest; and of the left arme, if it be in the left brest: If the tumor be in the matrix or anus, open *Vena poplitea*, or the Saphena.

II.  
Phlebotomy.

What veins are to be opened.

As for purgation, minister *Hiera diac Iscynbidos*, or *Electuarium lenitivum* in whey; the infusion of Sena in Endive water, and ministred with the Syrup of Succorie with Rhubarb is very effectually: yea ʒi β. of *Pulvis sanctus*, with an ounce of the Syrup of damask Roses in whey is excellent. It is not sufficient to give these medicaments once; but at the first they are to be ministred twice a weeke, and afterward either a day before or after every quarter of the Moone and full: for so not onely some part of the humor will be drawne from the tumor; but new matter also will be hindred from flowing.

Purging.

Now having set downe the cause of the name of a Cancer, the description of it, the signes, the prognosticks, and the Dietericall, and Pharmaceuticall meanes of curing of a Cancer not ulcerate, onely the Chirurgicall or Topicall meanes rest to be set downe.

But seeing the constitution of bodies is not uniforme, and the griefe it selfe is of a most maligne quality, variety of locall medicaments is required: I will labour therefore to answer your expectation in this: But first of all, seeing in a Cancer there is a double poyson, as learned *Hernius* upon the 38. Aphorisme of the sixth Booke noteth: for the one is putrefactive, the other corrosive: If you apply hot and moist medicaments, which usu-

The chirurgicall means.

ally

The faculties  
of medica-  
ments fit for a  
Cancer.

What things  
are best to give  
consistence to  
medicaments.

ally bring maturation in Apostemes, you shall procure putrefaction: if you apply corrosive medicaments, you shall assist the other poyson, and increase the griefe. Wherefore those which repell and digest are aptest, as *Galen* hath noted fourteen method: wherefore no emplastick medicaments can be good; for it hindereth perspiration.

Of all things which give a consistence to juyces, Ryemeale and the flowre of Lupines are the best: for by a secret faculty they tame the fiercenesse of a Cancer. To proceed then in the sitting downe of locall meanes, you may apply a cataplasme made of the juyce of Nightshade, Rye-flowre, and some *Vnguentum populom*, or the juyce of Comfrey with the flowre of Lupines: you may use in like manner the juyce of the Horse-taile, Knot-grasse, Plantane, Perwinckle, Shave-grasse, Millefoyle, *Tapsus barbatus*, Clownes all-heale, and *Dracontium*.

A cataplasme of Snailes and ground Ivie is excellent: If the tumor be very painfull, apply a cataplasme of the pulp of the roots of Henbane and Hemlock, with Rye-flowre and some oyle of Myrtills: or a cataplasme of the flowre of Lupines; the water of the sperme of Frogs, and the leaves of herb Robert, which is a kinde of Cranes bill, exceedingly commended by sundry. If you take ij. ʒ. of the oyle of Quinces, and one ounce of the Vinegar of Roses or Elders, and worke them in a leaden mortar, untill they become of a leady colour, you shall have an effectuell medicament; you may also dissolve *Diapalma cum succis* with oyle of Roses, that it may be brought to the consistence of a liniment. Goats dung with honey brought to the form of an unguent is commended: as also Rettish-feed beaten and mingled with Vinegar. Many commend a cataplasme of Raisins stoned, Rue and the leaves of Nightshade. This *Fabricius*, *ab aqua pendent*. commendeth: *Rx Solan. hort. virg. aureæ, fouchi, an. man. ij. collis in aqua & contrisr. adde far. filigin. lb. i. Ol. ros. ʒv. fiat cataplasma.* The Chirurgeons in Italy had in *Fabricius* his time, a medicament of greene Frogs effectuell against a Cancer, and in the Gout: thus it is made; Take a good number of greene Frogs, whose mouths fill with sweet butter, afterward put these Frogs in an earthen pot well glazed, having a cover, and the bottome full of holes: place this pot in the mouth of another earthen pot placed in the ground; lute these well together, and the cover of the upper pot: then for the space of three houres, let a gentle fire of Charcole  
be

be set about the upper pot, to drive downe all moyſture and fat to the lower: when the pots are cold, take out the Frogs out of the upper pot, and beat them untill you feele no roughneſſe between your fingers: Laſt of all, mingle the fat and moyſture in the lower pot, with this ſubſtance, and keep this mixture in a clean galley-pot. Receive alſo this medicament from Parrey, *Lib. 6. de tumor. pr. et. nat. c. xxx.* R *Theriac. veter. Succ. lactuce & ol. Roſ, an. ʒ j. Succ. cancerorum ʒ ʒ. Vitellus ovorum induratos numero 2. Ducuntur in mortario plumbeo ad unguenti conſiſtentiam.* He alſo in this ſame chapter commendeth a thin plate of reed anointed with quick-ſilver. The Cancer is to be dreſſed morning and evening. So much then of a cancerous tumor, or of a Cancer not ulcerate; now am I to deliver unto you the curation of a Cancer ulcerate.

How often the cancer is to be dreſſed.

A cancerous ulcer is an ugly ulcer, having a moſt ſtinking ſmell, thick lips, and turned outward, greeniſh and fretted, which yeeldeth a Sanies black, or of a dark yellow colour, and is exceeding painfull. *Riolan* the father in his Chirurgery, in the ſecond Section of ulcers, c. 13. affirmeth this ſanious matter to be a ſtrong poyſon. No death could be deviſed too cruell for ſuch a one as ſhould give it to a man.

Of a cancerous ulcer.

The particulars of the definition contain the ſigns of a Cancer ulcerate, ſo that I need not to inſiſt longer in the explication of this point.

The ſignes.

Of a cancerous ulcer there are two mean differences, *Lupus* and *Noli me tangere*: that is in the thigh or leg, this in the face. A Cancer in other parts of the body hath no particular denomination; but doth detain the generall appellation, with addition of the part affected, as a Cancer of the breſt.

The differences.

One thing is to be noted, that in other Countries, if a *Lupus* be troubleſome, they apply the fleſh of an Hen, Chicken, Pigeon, Whelp, or Kitling, cut aſunder, according to the length; for ſo the fury of the diſeaſe ceaſeth, the malignity of the ſanies is eaſed, and the corroſion is ſtayd: See *Riolan* and *Ambroſe Parrey* in the places before cited.

A Note.

As for the prognostiicks: Firſt, if a Cancer not ulcerate be of hard curation, an ulcerate muſt be of an harder. Secondly, if the party be weak and feaveriſh, the matter is deſperate.

The Prognostiicks.

As for the curation, the diet, phlebotomy and purging, which I have ſet down for the curing of a cancerous tumor will ſerve here

I.  
II.  
The curation.

here also; wherefore this onely remaineth to set down the locall medicaments.

Locall means.

I.

This then shall be the first: *R Plumbi usti & loti, Tutie & Thuris, an. ʒ v. Absynthii ʒ i. ol. Ros. lb ʒ. Cerae, ʒ i ʒ. Succ Solani, q. s. Ducantur in mortario plumbeo ad unguenti consistentiam.* Apply this upon pledgets of lint, or fine tow: above this, to asswage paine. apply a cataplasme of the leaves of Succory, Marish-mallow, and the white Poppy beaten, and tempered with oyle of Roses.

II.

The second shall be the application of the juyce of Night-shade out of *Tagautius, tractat de ulcer. c. 19.* Moysten a double cloth in the juyce of the Night-shade, and apply it to the ulcer; then apply above this cloth a pledget of tow or wooll moystened in this same liquor. You may keep the juyces of herbs all the yeere long, by putting them in a glasse, having a foffet in the bottome, and powring oyle upon the juyce, that it may be three inches thick above the juyce.

How the juyce of herbs is to be kept.

III.

You may also use the juyce of our English Tobacco, and those which I named in curing of a Cancer not ulcerate.

IV.

The distilled water of the herbs with Camphir, applied after this manner is effectuell.

V.

If you dissolve the Camphir first in the spirit of Wine, it will mingle the better with the waters: *R Mellis verbascini, ʒ ij. pu. v. Malicor. ʒ iij. ol. Nuc. ʒ j. Misc.*

VI.

This medicament of *Fallopins* is excellent: *R ol. Ros. & Omphacini, an. ʒ vi. ol. Myrsini & unguent. popul. an. ʒ iij. fol. Solan. & Plantag. an. man. ij. Bulliant lentissimo igne ad Succorum consumptionem, tum colentur: colaturæ adde ceræ ʒ iij. hac eliquata omnia amoveantur ab igne: Quam adhuc tepent, adde lithargyr. ʒ vj. Cerusse, ʒ ij. Tutie, ʒ ij. Plumbi usti ʒ ij. ʒ. Ducantur in mortario plumbeo per duas has.* All these medicaments which I have set down, onely are to fray the increase of a Cancer, and to abate the raging pain in those Cancers which are large and deep.

The use of corrosives.

If a Cancer be but superficiall, it may be eaten out with Arsenick sublimed: The manner of the sublimation of it and use, I did shew when I discoursed of Fistula's.

The curation of a *Noli me tangere.*

A *Noli me tangere* in the lip, if it hath not eroded a great quantity, it may be cured as an hare-lip, with little deformity.

For a Cancer in the matrix or anus.

As for a Cancer in the matrix or anus, use this medicament: *R Stercor. bubul. lb. iij. herb. Robert. Plantag. Sempervivi, Hypocyami, Portulac. LaCturend. an. man. i. Canc. siveiat. numero 12. Contundan-*

*tur omnia, ac distillentur in Alembico plumbeo, imbuatur capbura, ac frequenter injiciatur, aut sola, aut cum aqua spermat. ranar.* As for the method of the extirpation of a Cancer, I will reserve it to that part of Chirurgery which teacheth the way to remove things in convenient to nature, called ἀφαιρέσις.

The medicaments in the Apothecaries shops fit for Cancers are, *Unguentum de tutia, de lithargyr. de minio, Desiccativum rubrum. Fabricius ab aq. pendent. de tumor. c. 3.* setteth down a method, whereby an Empyrick cured sundry *Noli me tangere's*, and Cancers in other places: and it is this: *Rx Vitrol. lb. i β. Auripigment. Sulphur. vivi, an. ℥iiii. Sal. gemm. ℥iii. cum aceto fiat pasta. In olla terrea probe lutata siccat in furno.* With this Powder he consumed the Cancer, but by divers applications.

Medicaments in the shops. Empyricall means.

You shall know that the Cancer is quite extirpate, if laudable flesh appeare, like to the seeds of the Pomegranate, if it yeeld good quitor, and no fanious and stinking matter: then he healed it with this unguent: *Rx Mell. despumat. ℥iiii Sevi bircin. limatur. c. ipri, an. ℥ i β. Litharg. auri, ℥ i. Misc.* Another in Essex, about thirty yeers agoe, in curing of Cancers, used only the green Treat, and white Vitriol, for every ounce of the Treat taking ℥ i. of the Vitriol: and by all likelihood the medicament of Payne the Smith, with the which he went about to cure *Noli me tangere's*, was but a medicament composed of Arsenick, Orpiment, unslaked Lime, Bole and sweet Butter. You see how I conceale nothing from you.

How we shall know a Cancer to be extirpate.

The Chymists will have arsenicall, realgarian, and orpimentall substances separated from the naturall balsome, or composition of the body, to be the causes of these cancerous tumours and ulcers, when they settle in the parts, and cannot be dissolved: however, they represent fitly the nature of a Cancer: for as it is, so are they of a putrefactive quality. Let no man marvell, that sundry minerals may be in the body, seeing we see stones in the gall, kidneys, and bladder.

The cause of Cancers according to Chymists.

For the curing of Cancers, they commend Antimony so prepared, as it doth not vomit, or trouble the body; but either procurereth sweat, or purgeth downward: and indeed it is an excellent medicament: for it changeth the constitution of the body, and mundifieth the masse of blood.

The manner how to cure Cancers according to Alchymists.

As for the Topicks, use the oyle of Arsenick, or whereof *Mercurius vita* is made, mixed with oyle of Roses in due proportion, and these two have no fellows; for I protest I have often made experiment

Their Topicks

peiment of both. If any be desirous to know, and make use of any thing which I have delivered, I will not be nice to impart it.

## LECT. XVIII.

*Of the Leprosie and leprous ulcer.*

**N**OW followeth the second kind of ulcers most maligne; to wit, a leprous ulcer. But first of all I will discourse of the Leprosie it selfe, and then of the nature of a leprous ulcer.

The names of it.

The Leprosie in the Greek and Latine tongue is called *λεπρος*, from *λεπρος*, *scaber*, rough: for it maketh the skin rough and uneven: or from *λεπρος idos*, *squama*, or *cortex*, a scale or bark, because it sendeth out scales, and maketh the skin rough like to the bark of a tree. There be two sorts of leprosie: to wit, the Grecian and Arabian Leprosie.

The divers kinds of leprosy.

The Grecian Leprosie may be thus described: It is a tumor with a confirmed hot and dry distemperature of the skin, both in the outer and inner part of it, wherein scales, like those of fishes, are sent out: so that *Pruritus*, *Scabies*, and *Lepra Græcorum*, the itch, scabbiness, and the Grecian leprosy differ onely in degrees of tumefaction, and distemperature.

The difference between itching, scabbiness, and the Greek leprosy.

In itching there is no remarkable tumor, neither doth any thing fall away from the *Cuticula*, unlesse it be fetched away by hard scratching. In scabbiness there is a remarkable tumor, and whether we scratch or no, both sanious matter, and scales like to the cast skin of a snake. In the Græcian Leprosie, there are greater tumors then in scabbiness, and bodies like unto the scales of fishes, fall from such as are possessed with this griefe: so that *Avenzoar* fitly calleth scabbiness *Prurimum v. sicalem*, a blistery or powcky itching, but the Græcian leprosy *Prurimum squamosum*, a scaly itching.

The signes.

The signes of this Leprosie are these: the skin is drie, rough, and full of small knobs, which itch exceedingly, and send out bodies like to the scales of fishes.

The causes.

The causes of it are either the externall efficient causes, or the internall materiall.

The efficient.

The externall efficient, are I. unwholsome meats and drinks.  
II. Slovenlinesse, sluttishnesse, and filthinesse. *Salernus* the poeticall

tical Physician hath comprised these two causes learnedly in two Hexamiter verses, thus :

*Illovis sudor & inopia nobilis esce  
Sape gravi scabie correptos asperat artus.*

Sweat not washed away, and want of good food, often doe make rough the lims, being taken with noysome scabbinesse.

III. The mensruall courses, or hemorrhodes which were wont to flow, being suppressed, may cause this disease.

IV. Fontanells which have long been kept open, being shut up may procure the same.

V. *Varices*, the veines tumified by reason of melancholy blood, being cured, sometimes are the causes of this griefe.

The materiall causes are discerned by the colour of the griefe: The materiall cause. for if the knobs be of a livid or leady colour, superfluous impure melancholy is the cause; if they be white, or of a grayish colour, then salt flegme is predominant, which is mingled with melancholy: and because aged persons multiply salt flegme, they are often troubled with this griefe.

As for the presages, let this be the first: this grief, if it be habitall, and of a long continuance, it is not easily cured. The presages.

Secondly, if it be neglected it may turn to the Leprosie of the Arabians.

Thirdly, the scabbinesse is more contagious than this griefe; for it is more superficiall, and so the contagion is more readily communicate, if any lying with a person infected lay his skin to the others.

This grief is cured by a convenient diet, purgation of the body, and locall meanes. The dyet must be cooling, and moystning, and afford a laudable juyce, whereof I have spoken sufficiently before in sundry of my Lectures. The curation.

As for the purgation, minister *Electuarium lenitivum*, or *diacatholicum*. or *Manna* with *pulvis sanctus*, or *disenna*: for an example receive this prescription, R *Electuarii lenitivi, diacathol. aut manna* ℥ i. *pulveris sancti* ℥ i. *aq. cichor. aut endiv.* ℥ iii. *Misc. ut fiat potio.*

As for the locall means: One Topick cannot be convenient Local medicine for all bodies: for some have a tender habit of body, and some caements. an hard and firm: for those which have a tender, these two of



De extern. af-  
fect. lib. 2. c. 14.

*Minadons* will serve: R lithargyr. acerrimo aceto ros. diluti, ac sic-  
cati, semin. artue, rad. lil. arbor. contus. an. ʒ ii. ol. rosbutyr. op. an. ʒ i.  
succu limon. ʒ ii. capbur. gr. iiii. pulviriz ind. pulverizatis, fiat  
ung. s. a.

11. R Elleb. utriusque, salis petr. an. ʒ β. unguent. ros. ʒ i. succu limon.  
ʒ iiii. farin. lupin. ʒ β. fiat unguent. s. a. if you adde ʒ i. of sulphur  
vivum beat to powder, to either of these unguents, they will be  
the more effectuall.

This of *Rinodius antidotar. l. 5. sect. 1. cap. 9.* is good: R axungie  
suille in succo scabios. sepius lota lib. β. rad oxylapathi in aceto ad  
putrilaginem coctar. & per setaceum trajete, sulphur. vivi in succo  
limon. ablut. an. ʒ i β. unguent. popul. ʒ β. succu rad. enul. ʒ ii β.  
ex omnibus probe in mortario subaltis fiat linimentum. If it be stub-  
born scabbiness, or Greek Leper, use *Unguentum enulatum cum  
Mercurio duplicato.* So much I thought good to deliver of *Pruri-  
tus, Scabies,* and *Lepra Græcorum,* of itching, scabbiness, and the  
Greek Leprosie. And although it was not my principall inten-  
tion to speak, yet because there is sometimes a passage from the  
one to the other, these could not well have been omitted: how-  
soever, the time hath been spent in setting down the causes, signes,  
and curation of these griefs, cannot be thought evill spent.

The Arabian  
Lepra.  
The names of  
it.

Now I will proceed to the Arabian Lepra; with the which  
whosoever is troubled, he is called a Lazarous person.

This griefe is called by the Grecians *Elephantiasis*, and that for  
three causes.

First, because the skin is deformed with rough wrinkles; yea the  
chinks being sometimes deepe, appeare like furrowes in a hide,  
representing the skin of an Elephant.

Secondly, because if it possesse the legs, it maketh the leprous  
person goe stiffe, as an Elephant doth.

Lib. 13. cap. 120

Thirdly, because as an Elephant of all beasts is the mightiest,  
so this griefe is most rebellious: so that it was called *Leontiasis*,  
according to *Ætius*, because it is invincible as a Lion; and because  
the forehead is wrinkled like to a Lions.

It is also called *Satyriasis*, and that for two causes: First, because  
leprous persons faces represent in figure the faces of the Satyrs, as  
they are described by the Poets: for their lips are thick, their nose  
swelleth, wherefore in the ridge it seemeth low, their cheeks  
seeme red, and the tumors in the forehead looke like hornes: all  
which expresse the face of a Satyr, fained by the Poets.

Secondly

Secondly, because in the beginning of the diseases the persons affected are very lecherous, as the Poets faine the Satyrs to be : See *Galen. lib. de caus. morb. cap. 7.* In the Introductory booke ascribed to *Galen* it is said, that it was called *Dracunciasis*, because as the Dragon is said to be the worst of all serpents; so this disease is the worst of all other griefes. Amongst us Christians it is called the griefe of *Lazarus*.

As for the causes of the Leprosie, I will divide them into the externall efficient, and the internall materiall cause.

To the externall efficient, I refer the continuall use of aliments apt to breed *atra bilis*; and for this cause the Germans have many lazarous persons, and habitations appointed for them : for thoroughout the whole yeere they eat cabbage salted, much cheefe, old butter, and flesh dried in the smoke, but most of all bacon. In like manner it is familiar to *Ægypt* : because there they eat much asses-flesh, and drink standing and corrupt waters, if you except those who inhabit places neere to Nilus. *Lucretius* learnedly expresth this, *lib. 6. de natur. rerum.*

*Est Elephas morbus qui propter flumina Nilii  
Gignitur, Ægypti in medio, neque praterea usquam.*

The Leprosie is a disease which is bred by the River of Nilus, in the middle of *Ægypt*, and no where else.

Hence it is that *Mosis* threatneth the disobedient Jewes thus, *Deut. 28. vers. 27.* *The Lord will smite thee with the botch of Ægypt, and with the emerods, and with the scab, and with the itch, whereof thou canst not be healed.* In the Hebrew Text, it is with the ulcer of *Ægypt*, whereby is meant the Leprosie; by the scab, he meaneth the Greeke Leprosie, whereof I have spoken. In Spaine and Africk it is more common than any where else. In the Province of France, Delphinat, Languedock, and in Aquitane it is more frequent than in other parts of the countrey, *Paracelsus l. 19. ca. 6.* Before the time of *Pompey* it was not seene in Italy, as witnesseth *Plin. nat. hist. l. 26. c. 1.*

Secondly, the Leprosie may be taken by having carnall copulation with an infected person, see *Gordani. l. med. particul. 1. ca. 22.* and *Philippus Schopsius* in his Treatise of the Leprosie.

Thirdly, the Arabians, *Avicenna*, *Albucasis*, and *Averroes*, think that if a woman conceive while her courtes flow, the childe will prove leproous, but it is not likely : for that blood in sound women

men is good, and after conception it is retained to nourish the childe: so that if that blood were venomous (as some think) no man or woman could be found. Fourthly, this disease being often hereditary, it is propagated from the parents to their children.

Fifthly, continuall conversation with leprous persons cannot be but very dangerous; for if one may become *typhisick* by often receiving the breath of one who is troubled with that griefe, according to *Classick* Authors, much more may one be infected by receiving the aire infected with the breath of a leprous person, which is most corrupt and stinking: wherefore *lazarous* persons, in every well ordered place, dwell by themselves, that they infect not others; and so God himselfe commanded, *Levit.* 13. 4. and *Numb.* 12. 14.

The materiall  
cause and dif-  
ferences of the  
Leprosie.

The internall materiall cause, by all is concluded to be *Bilis atra*. Now seeing this humor is caused of three severall humors altered from their naturall qualities, three kindes of Leprosie doe spring.

First, it is caused of the superfluous melancholy juyce burned; this Leprosie causeth the skin to be of a ruddy black colour; this kind of leprosy cometh on but slowly, and hath milder symptoms.

The second is of yellow vitelline choler adust: This speedily corrupteth the inner parts, chiefly the liver and spleen, and from thence passing furiously to the habit of the body, produceth horrible symptoms: in this kind of Leprosie the skin is of a yellowish colour tending to green.

The third is caused of salt or nitrous flegme burned: In this the colour is a palish white colour; the Leprosie which is caused of this humor, is not so fierce as the former. There be two other differences taken from the progression of the disease: for a Leprosie is either in the beginning, or consummate.

The signes of  
the Leprosie  
beginning.

The signes of a Leprosie beginning, are these: The face seemeth to be of a livid reddish colour, the breathing is with some difficulty, the voyce seemeth to be somewhat hoarse, livid spots appear in sundry parts of the body, the skin beginneth to loose its exquisite feeling, the urine is muddy and thick. *Plinie* affirmeth, that it was not seene in *Rome* before the time of *Pompey*, and began first in the nostrill, not exceeding the bignesse of a lentill, and from thence passed to the whole body, producing spots

*Nat. hist.* l. 26.  
cap. 1.

spots of divers colours, making the skin unequal, and raising scurfs, and hard scabs.

The signes of a confirmed Leprosie are these: I. The skin loseth altogether its feeling, so that you may thrust a needle thorow it, without any offence to the diseased party; this happeneth because the humor, by reason of its thicknesse, stoppeth the sinews, and so hindereth the animall spirit to passe. Neverthelesse, the muscles move, although sluggishly; because they have veines and arteries, by whose bloud and spirit they are fed.

The signes of  
the Leprosie  
confirmed.

I.

II. Knobs appear in sundry parts of the body, but chiefly in the face, about the forehead; the eares become thin, the nose flat upward, the lips thick.

II.

III. The face is of a leady reddishnesse.

III.

IV. The voyce becommeth very hoarse, the lungs and wind-pipe being affected.

IV.

V. The eyes become round, the thicknesse of the humor bearing in the corners.

V.

VI. When the griefe is consummate, warts very often do appear thorowout the whole body, like to hailestones, as we see in meally hogs.

VI.

VII. *Levinus Lemnius* affirmeth, that the powder of lead calcined will swim in the urine of leprous persons, but sink in the urines of all others.

VII.

*De occult. nat.  
mirac. l. 2. c. 52.*

VIII. They are troubled with much belching.

VIII.

IX. Their sweat and breath is most stinking; their breathing is with difficulty and stinking, by reason of the constriction of the brest.

IX.

X. The haire of the head beginneth to fall, that of the beard to grow thinner, and those of the eye-browes and eye-lids to fall also: this fallrth out, because corrupt nourishment is sent to the haire; for if you pull out a few of their haire, you shall also pull out with the roots a fleshie substance.

X.

XI. The nostrills without are tumified, but within they are narrow, and ulcerate.

XI.

XII. The veines under the tongue seeme varicous, small knobs also like to hailestones appear there.

XII.

XIII. The skin is unctuous, and will not admit water.

XIII.

XIV. The skin is wrinkled, and full of wrinkles and chops, as an Elephants skin is.

XIV.

XV. The Muscles of the thumbe waste.

XV.

XVI If

XVI. XVI. If the body, the fingers, and toes have sinking ulcers, and chops, you need not much to doubt.

XVII. XVII. If you open a veine, it will be thick, burned, feculent, and have as it were fat upon the top, and it being strained thorough a cloth, leaveth a greety substance behinde it.

I. Now it is time to adresse my selfe to the Prognosticks, whereof this shall be the first: A leprosie in the very beginning is hardly cured; for the materiall cause of it is *Atra bilis*: now all diseases of *Bilis atra* are of hard curation.

Secondly, a Leprosie consummate is altogether incurable by Art.

The meanes of curing.  
The Diet.

Now the meanes of curing a Leprosie beginning, are three: Dieteticall, Pharmaceuticall, and Chirurgicall.

Consult. 66.

As for the diet: That which I delivered for a cancerous tumor and ulcer, in the former Lecture, in this grieve is also effectual, so that I need not idly to spend the time. It is fit that leprous persons eat of the biggest Snailes dressed, as Wilks, or Perwinkles, and Frogs, and that for a moneth together; for this food doth exceedingly contemperate the heat of the blood; the water also distilled of them is good to be drunk. *Rodericus Fonsæca* commendeth this drink: *R. rad. chin. ℥j. succi limon. ℥ij. aq. cichor. lib. vj. Infund. per diem natural. deinde coq. in B. M. per bor. iiij. v. se bene clauso, decoctum postquam refrigit, coletur*: This same China will serve the second time, but to the third decoction you must have new China. The flesh of Vipers or Adders eaten, is good: let them be boiled in water, with some salt and oyle; eat both the flesh and broth, but the heads, tayles, and intrals must be taken away: the trochisks of the Vipers or Adders are good, being ministred in Succory water: Poultry also fed with paste made with the flesh of these, and Barley flower is good, if it be used a long time; Corall and Pearl prepared, ministred in broths, are excellent; young Hares in March are good. *Galen* commendeth the Viper wine, and setteth down the Histories of sundry who were cured by the use of it. And *Aretæus lib. 4. cap. 12. de signis ac causis acutorum*: but that preparations of Vipers ministred in a confirmed Leprosie, *Erast. part. 4. disput. cont. Paracel.* and *Palmarinus lib. de morbis contag.* witnesseth to be ineffectual, for they made trial of them.

Isagog. Cap. 12.

The Pharmaceuticall meanes are of two sorts: for either they are Catharticall, or Specificall. Amongst the Catharticall means.

℞. of the extract of black Ellebore is excellent : the next is the purgative, or Diaphoretick Antimony : the third is the flowers of the *Regulus*, ministring gr. viij. in conserve of Roses : the fourth is the infusion of the glasse it selfe, mingling with it a spoonfull of the Syrup of Violets; Mercurie precipitate with gold is admirable, gr. iij. are enough for a dose.

As for the Specificall meanes, these are commended; the decoctions of the Elme, Larix tree, the roots of Tamarisk, Caterach, Fumitory, and Juniper berries, boyled as Guajack is, and drunken for a long time; three ounces of Strawberry water, or of the Cuscuta, Dodder taken morning and evening. *Crollius* commendeth ℞. or ℞ij. *Spiritus tartari in aqua conveniente*, or gr. 7. of the spirit of salt ministr'd after the same manner, gr. vj. *Bezoar similiter laudatur*, for it withstandeth malignity.

Chirurgicall  
meanes.

As for Chirurgicall meanes, they are two; Phlebotomie, and locall applications: If Phlebotomy be required, open the *Saphena* about the change, or the *Hemorrhoides*, but take not much blood at a time, for leprous persons are weak.

As for the locall meanes, they are either baths or liniments; this bath is commended. Take of Crow-foot ten handfulls, of Colts-foot five handfulls, of Tobacco two handfulls and a halfe; boyle these in a sufficient quantity of spring water : use this morning and evening, untill the body yeeldeth no filch.

Baths.

Of all other liniments, *Roderic. Fonsc. consult.* 1. commendeth this: ℞ *viperas duas quas nulla parte rejecta inde phiala vitrea continent lb. ij. Ol. ol. veter. exprimat phiala estivois solibus: tandem sub finem estat. evadet ol. rubrum & foetens. hoc olea inungantur axilla, inguina, carpi. Intus autem exhibeatur ℞j. Trochis. ex viperis, vel colubr. in ℞ij. aq. card. benedict. & ℞j. Syrup. acetosif. citri, per dies 14.*

Liniments.

To these ulcers apply a linement made of this oyle, and Goats-fuet, taking equall quantity of both. We may make an effectfull Oyle of our Adders to this same purpose. *Gurdanus* used to annoint the *Spina*, Joynts, and Pulses of hands and feet with the fat of Vipers, for the space of seven dayes in a hot-house, and affirmeth, that he not only did mitigate the Leprosie, but did cure also consumptions of the body, and the *Pthisis* it selfe. If you have not these medicaments at hand, you may apply such as I set down for the curing of a cancer, in my former Lecture: which require no repetition.

Oyle of Ad-  
ders.

## LECT. XIX.

## Of the abating of superfluous flesh.

Having set down the maine differences of ulcers, and the method and meanes how to cure them, I must discourse in like manner of the accidents of ulcers, which may hinder the prime intentions of curing of them, and so prove a let and impediment to you in your proceedings.

The well-springs of accidents, Differences of ulcers taken from things familiar to nature.

These accidents are taken either from things familiar to nature, or things contrary to nature.

Things familiar to nature hinder the curation of ulcers, when they decline from that which is according to nature; from these, foure differences of ulcers spring: for an ulcer is either with ex-crescence of superfluous flesh, or with cariosity of the bone, or with the colour of the part altered, or varicous. Thus you see, that although flesh, bones, veines, and colour be required to the naturall constitution of the body; yet they may become domestic enemies, being altered by the unnaturall temperature of the part ill affected.

The differences of proud flesh. How to abate soft proud flesh in the beginning.

First then I will handle an ulcer wherein superfluous flesh groweth. The flesh it selfe is either soft and loose, or hard. The soft flesh is either but beginning to increase, or else it is much arisen. If it do onely offer to increase, then strong desiccatives will serve, such are Galls, *Terra sigillata*, *Terra Lemnia*, Bole orientall, Umber, *Olibanum*, *Aloe hepatica*, the roots of Tormentill, Bistort, Comfrey, the Flowre de Luce dryed. Metalllicall things, or minerals, afford greatest variety, and are most effectually, chiefly if they be prepared and washed; such are *Crocus Martis*, *Calaminaris*, *Tutia*, *Æs ustum*, Lead calcined with Brimstone, the dead head of Vitrioll calcined, being well washed, *Ninium*, Cerusse, Litharge, chiefly of Gold.

The use of the Vegetables.

As for the use of the Vegetables, although these which I have named may be used in forme of powders, yet they are not so effectually as the decoctions: and then you may adde to these the Plantane, the Knot-grasse, the Shepherds purse, Yarrow, the Horsetaile, the Bark of the Oake, Owlar, and Willow. If you adde to the decoctions strained, a convenient quantity, either of Alome

or Roman Vitrioll, you shall not onely suppress the soft and fungous flesh budding, but shall incarnate the ulcer also, and bring it to cicatrization.

Receive this decoction which I will deliver unto you as a patterne, according to which you may frame other, having a regard of the age, and constitution of the party. *Rx rad. symphyt. tormentill. galbar. an. ʒj. fol. plantagin. polygoni, Bursæ pastoris, millefol. equiseti an. man 2. rut. sulu. si malignitas aliqua subsit. an. man. ʒ. Bulliant ista in lib. xij. aq. font. ad med. ac coletur decoctum: Decocto colato si addideritis aluminis ʒvj. habebitis decoctum colore vinum malvaticum referens: si vero addideritis tantundem vitrioli Romani, decoctum nigrescet.* And although the black decoction be not pleasing to the eye, and staineth the clouts and rowlers; yet it is more effectuell than the other, but chiefly in maligne ulcers. You may adde to such decoctions as these are, *Sumachi*, Myrtleberries, red Rose leaves dried, Pomegranate-pils and flowers: you see what choice of Simples I afford unto you.

A patterne of a decoction.

These decoctions if you meane to use, moisten either pledgets of tow or lint in the decoctions, warmed and wrung, and dresse the ulcer morning and evening. In your practice you shall finde such decoctions much more effectuell than either unguents or emplasters.

The use of the decoctions.

As for the use of the minerals, if they be applyed in forme of a powder, although they are more effectuell than the vegetables, yet they procure more paines to the Chirurgeon to make cleane the fore, and are not so pleasing to the Patients, as when they are applied, being reduced either to the forme of an unguent or emplaster.

The use of the minerals.

If an unguent be fittest, as in a hollow ulcer, receive this as a good one: *Rx Nini, litharg. auri, ceruss. an. ʒiʒ. calaminar. eris ussi. an. ʒj. tuiæ ʒiij. caphur ʒiʒ. ol. ros & myrtin. an. lib. i. & ʒiij. ceræ alb. ʒiij. si at unguentum s. a.*

An unguent.

If you will have for a plain ulcer an emplaster, let this be a pattern unto you: *Rx sevi ovill. lib. ʒ. axung. porci ʒiij. ol. myrtin. ʒij. ceræ alb. ʒiij. calamin. ʒj. litharg. auri, Eris ussi, tuiæ, Henrici rub. an. ʒʒ. si at emplastrum ex p. a.*

An emplaster.

If the proud flesh be grown to that height that it will not stoop to desiccatives, then you are to have recourse to those medicaments which are called *Cathartica*, *Auferentia*, which take away the superfluous fungous flesh. These are not so hot as either es-

How soft fungous flesh much increased is to be abated.

The nature of catharticall medicaments.



carotical, or septick medicaments, and those which blister: yet hot they are, and burne, although gently: being then hot and dry in the fourth degree, they are of a thick and astringent substance; wherefore such medicaments pierce not deepe, partly by reason of their thick substance, partly by reason of their rebated heat; wherefore these onely superficially dry and corrode the flesh. Neither do they cause any great paine, because their heat is not very intense, unlesse they be graduate by the admixtion of some other things. So we see Mercury precipitate, or burned Alome, if either of them be applied to any sore, to cause no great paine; but if they be used being mixed, both to cause paine, and a small eschar. Such are Alome calcined, Shels burned, the powder of Hermodactils, Asphodill, Vergidrasse, but Mercury precipitate excelleth, and exceedeth all these: for it doth work with small paine, and doth by concoction make thick, thin and ichorous quitor: yea it being washed, and mingled in small quantity with incarnative unguents, furthereth their operation. The yellow Turbith minerall exceedeth it in faculty, the oyle of Vitrioll or Sulphur, whereof the Turbith minerall is precipitate, is more familiar to nature, and astringent, than the *Aqua fortis*, or *Aqua regis*, whereof the precipitate is made.

Two Cathereticall unguents are much used, *Unguentum Apostolorum*, and *Unguentum Aegyptiacum*.

*Unguentum  
Aegyptiacum*

Of these two, the *Aegyptiacum* is the strongest: In plaine ulcers I would not advise you to use it, for it spreadeth, and by touching the sound part causeth great paine. It is effectuall in fretting sores of the mouth, and sinewous ulcers, being dissolved, either in decoctions, or distilled waters convenient for the kind of sore.

*Unguentum  
Apostolorum*

As for *Unguentum Apostolorum*, if it be made according to Art, it is a cathereticall medicament in tender bodies; but onely a mundificative in those who have a firme and solid constitution of body.

How hard and  
stubborne  
proud flesh is  
to be abated.

It falleth out many times, that the superfluous flesh is so hard and compact, that it contemneth all cathereticall medicaments, and cannot be abated by them. In this course we are to have recourse to those medicaments which are called *πύρρα*, or *Putrescentia*, or rotting the part; and to those which are named *κρούστα*, or *Crustam inducentia*, which leave an eschar or crust after they are applied.

As

As for the Eſcharoticall medicaments, which are called *Excoꝛdantia*, or eacing medicines, ſeeing they corrupt the naturall heat, they muſt be hot above the third degree, and have a thick, viſcous, and terreſtriall ſubſtance; wherefore by reaſon of their heat in the fourth degree, they burn the part; and by reaſon of their thick and terreſtriall ſubſtance, the heat is kept durable and permanent. And we ſee that Pepper, Onyons, and ſuch like, although they be hot above the third degree, yet they are not cauſtick; and the reaſon is, becauſe although they inflame, yet becauſe their heat is placed in a thin and ſubtill ſubſtance, it is more eaſily diſſolved, and at laſt overcome by the naturall heat of our bodies.

So when a Cauſtick is applied, notable pain is cauſed: Firſt, by reaſon of their extraordinary and exceeding great heat. Why cauſtick medicaments are painfull.

Secondly, becauſe by reaſon of their terreſtriall ſubſtance, they are long in piercing thorow the part.

Of theſe medicaments two are moſt uſed: the *Lapis infernalis*, *Lapis infernalis*, and the white Cauſtick. I mean not to trouble you with the ſetting down of their preparations, becauſe they are ſufficiently known unto all who have profited any thing in the ſtudy and praſtice of Chirurgery.

Of theſe two the *Lapis infernalis* is moſt effectually, and worketh moſt ſpeedily; wherefore it is moſt fit for making of fontanels, where it may be conveniently applyed to the upper part of the member, and be hindered from ſpreading: but if a cauſtick medicament be to be applyed to a depending part, and when there is feare of running, then the white Cauſtick is moſt convenient. Beſides theſe two, two other eſcharoticall medicaments I will commend unto you. The white Cauſtick.

The firſt is Mercury ſublimated, mingled with Roman Vitriol calcined, untill it become red, and the true *Terra ſigillata*. Mercury ſublimated.

The ſecond, the Turbiſh minerall mingled with theſe ſame; but whilſt it is white and not waſhed. Theſe do work more gently, if they be mingled with any narcoticall or anodine unguent, then when they are applyed to any ſore without mixture. But the Turbiſh minerall far exceedeth the Mercury ſublimated, becauſe it is more familiar to nature, and doth not cauſe ſuch pain, beſides, it is not ſo volatil and piercing as the ſublimated is, which in tender bodies aſſaulting the heart it ſelfe, doth cauſe ſharp diarics, although they be but ſymptomaticall. Turbiſh minerall unwaſhed.

Of the nature  
of Septicall  
medicaments.

For the suppressing of rebellious excreſcing flesh in ulcers, the second meanes I appointed those to be which are called *Sublimia*, or *putrifacientia*, corrupting medicaments. These are not so hot as those medicaments which procure an eschar, or crust, they have a more thin substance, and subtile, and have not so much terrestreity, or astringtion. These do more easily pierce, and so cause not so great paine: the paine which these medicaments cause is pungitive, as if needles did prick being made red hot, and it quickly ceaseth. And as caustick medicaments leave the part corrupted in manner of a crust, so these leave that which they corrupt soft, moyst, and of a blackish colour. If you will require medicaments moyst, endued with such a faculty, have recourse to the oyle of Virriol, the oyle of Sulphur, *Aqua fortis*, and *Aqua regis*. But if you will have solid and hard medicaments, then call to aid all forts of Arsenick, as the white, yellow, and red, passing under the names of Ratsbane, Orpiment, and Roses-ager.

Septicall medi-  
caments.

Septick Vege-  
tables.

As for the Septick Vegetables, because they rather mortifie the inward parts, if they be ignorantly or maliciously ministred, then abate proud flesh in ulcers, as Dryopteris, the Ferne of the Oake, and Aconitum, or Leopardsbane, and such like, I will leave them to the consideration of the Italian and Spanish physicians.

Whether su-  
perfluous flesh  
may not be ta-  
ken away by  
instruments.

But being appointed to read a Chirurgicall Lecture, and having onely made mention of abating of superfluous flesh in ulcers, by the application of topicall medicaments, you may demand of me whether this may not be effected by Chirurgicall instruments, as actuall cauteries, and incision-knives and razors. Truly hitherto I have deferred the mention of this kinde of curing, because God of his bounty in these later times hath in all faculties revealed many things which were kept from our forefathers. If a patient resolute offer himselfe to a skilfull Chirurgeon to be cured, let the Chirurgeon, in Gods name, in extremities use iron and Steele: yet let me advise him not to be too forward in three cases.

When instru-  
ments are not  
to be used.

1. If the party be of a tender constitution, and unwilling: for if a Chirurgeon do altogether urge these extremities, he may lese his patient, who is prompt to hearken to the Syrenian speeches of deluding Knaves and Queanes. 2. If you cannot handsomely come to the part as if the ulcer be sinuous. 3. If the superfluous flesh require not onely abating, but drying also, it being marvelous moist, then the medicament is better than the instrument, because it dryeth more powerfully.

Now

Now to end this Lecture, I will deliver unto you a medicament of famous *Fallopium*, which is effectually both in correcting of stubborn superfluous flesh, and in curing of Cancers: the description of it is this: *R Arsen. cristallin. & Citrin. an. ʒʒ. Aristol. De ulcerib. c. 18 rot. Eugin. an. ʒj. Opii, ʒij. Axung. porcini. ʒʒ. Misc. ut fiat unguentum.* One thing I had almost let passe, to wit, the description of cathereticall lint; use this of *Fallopium* his description: *R Aq. Plantag. Ros. Solani an. ʒiiij. Opii, ʒj. Melle panis, ʒij. Mer. Vid. cur. sublimat. ʒiiij. super porphyriidem triti. Omnia hæc commixta bulliant ad consumptionem medietatis: deinde colentur per pannum crassiusculum. Fila excerpta bulliant aliquandiu in hoc liquore, postea excimantur, exprimantur, siccentur ac serventur ad usum.* So much then concerning abating of superfluous flesh ulcers.

## LECT. XX.

*Of the scaling of corrupt bones.*

**H**AVING in my last Lecture set down the fountaines from whence all the accidents of ulcers doe spring, and having discoursed of the manner of curing of an ulcer, wherein there is excrescence of superfluous flesh, which was set down to be the prime accident flowing from things according to nature, I must be carried to the second accident, proceeding from things according to nature, which is the cariosity of the bone.

Now seeing the bones are the staves and props of the body, appointed not only for locall motion; but for the parts also which further this action, as muscules, veines, nerves, arteries, I am with the greater care to set downe the curation of an ulcer with the cariosity of a bone, seeing so many things of importance doe depend upon the curation of such an ulcer. In running over the whole course of Chirurgery, I have resolved upon this first triall, to set downe onely the generall practices, which they who are judicious may apply to all persons and parts in speciall. In handling of this accident, I will set downe these foure points. 1. The causes which procure the cariosity of the bones. 2. The signes of a corrupt bone. 3. The prognosticks of an ulcer, wherein there is a cariosity of the bone: And 4. Of the meanes which are to be used for removing of this accident.

Now

The causes of  
the corruption  
of the bones.

1. Externall.

2. The internall.

I.

II.

III.

Now the causes which procure the corruption of the bones, are either externall, or internall.

The externall causes are two: to wit, too great cold, and too great heat: for as too great cold doth quench the naturall heat of the bone: so immoderate heat, by discussing the naturall humidity, drieth and corrupteth the bones.

The internall causes which most frequently produce this accident, are in number three. The first is a glutinous and superfluous humidity, first softning, and then corrupting of the bone, which oftentimes doth cause a distortion of the member, and a protuberance of the bone, which I have sundry times seene, and have noted not to have proceeded from any venereall cause. Such an humor seized upon one, whose name was *James Wilkinson*, who dwelt neere to me when I practised in the city of Chester, and caused a bending outward of both the shin-bones, or *Ossa tibiae*: this happened to him when he was above sixty yeares old: neither did this accident either cause nocturnall or diurnall paine, or hinder his going. Before this did befall him, he had a great evacuation of blood (by reason of the rupture of a vessell in his left kidney) together with his urine, of the which I cured him by the decoction of some of the Myrobalans.

The second inward cause of the cariosity of bones, is a sharp and maligne matter, which by touching doth corrupt the bone: this happeneth most commonly in old and inveterate ulcers: the Periostium being once eroded by the acrimony of the Sanies, it presently corrupteth the bone. It is no marvell that a sharp humor is able to corrupt bones in other parts of the body, when we see the teeth to be hollowed by a sharp rheume, which a file of tempered Steele doth with some difficulty rase.

The third inward cause is an hidden and strange quality of the humor, adverse to the bones, seizing not onely upon some particular bones, but upon some parts also of these bones: for if it did with any manifest quality corrupt the bones, it would first have eroded the flesh: this being most subject to the impression of any fretting humor. But the bones very often are found to be carious, when the parts covering the bones, as the *Cuticula cutis*, and *Membrana carnosa* are found whole. So when Nodes invade the Citizens of Naples, they appeare most commonly in the *Ossa frontis*, or in the *Ulna*, or *Tibia*, and that betweene the joynts: Who is able to give a demonstrative reason of this invasion? Hee undoub-

doubtedly who is able to shew why the Loadstone draweth Iron, and the Amber and Jet Chaffe.

The signes discovering the cariosity of a bone, are either sensuall, or intellectuall.

The signes of the corruption of the bones.

The sensuall are in number five.

I. Is if the bone appeare black and fretted: Blacknesse is caused by the corruption of the naturall temperature, by the which it is kept alwayes white with a ruddy glimps, or of an horse-flesh colour almost. Cariosity is caused by the acrimony of humor fretting the substance of the bone.

1. Sensuall.

II. Is, when the bone being felt with a probe, doth not appeare smooth, but rugged.

III. Is, if the probe slip not being guided into the bone, for then the Periostium must be gone, and so the bone either more or lesse corrupted, partly by reason of the aire, partly by reason of the quittor settling upon the bone.

IV. Is, if the flesh ulcerate above the bone appeare soft and spongeous, or of a livid colour, it is to be doubted that the bone is corrupted: for when the bone is carious, the flesh is made soft and corrupt, so that any one may thrust a probe thorow it, without any great annoyance to the party.

V. Is this: if a tent or pledget reaching to the bone stink the next day when it is taken out, there is just occasion offered to suspect that the bone is carious.

The intellectuall signes are in number foure.

2. Intellectuall.

I. Is, if more quittor doth flow from the ulcer, than the bignesse of it seemeth to afford.

I.

II. Is, if thin and stinking sanies doth flow from the sore, it is probable that the bone is foule.

II.

III. If an ulcer admit skinning, and often breake up againe, it may not without cause be doubted that the bone is foule: for an humor still flowing from the corrupt bone doth cause a new inflammation, whereby the skin of a new is broken.

III.

IV. Is this. If an ulcer hath continued a long time, and is rebellious to proper medicaments, it may be thought that the bone is carious being much moystened, and so made soft by the quittor: and therefore must be scaled.

IV.

As for the Prognosticks: Of such ulcers as are accompanied with cariosity of the bone, receive these.

Aphor. 45.  
sect. 6

I. No ulcer accompanied with the cariosity of the bone is of

Prognoses.

C c

ease

I.

ease curation : for it hath a malignity annexed to the solution of unity.

II. If there happen a cariosity passing the first table in either of the bones above the eye-browes, it will be an hard matter to cicatrize it : If this be a true Aphorisme in wounds dividing these parts, how much more true in ulcers ; those onely causing a solution of unity by an externall cause ; but these eroding the parts by an internall humour : which for the most part is still supplied by some notable distemperature of some noble part.

III. Shall be this : If any of the Vertebra's of the Spina prove foule, shun the cure : for first the substance of the Vertebrae being hollow, they will hardly scale : Secondly, it is an hard matter to come to apply a medicament unto them, by reason of the muscles placed above them. Thirdly, because it is an hard matter to shun the paires of sinewes, which spring from the transverse processes of them.

IV. Let this be the fourth : If in ulcers of the brest, the Sternum or ribs be foule, be not too forward to meddle with them ; for the acrimony of the quitor may easily corrode and pierce thorow the entercofall muscles, and the Pleura, and so lay open to the aire the vitall parts, which ere it be long, must cause an extinction of the naturall heat, and so death it selfe.

The fifth shall be this. Ulcers in the great joynts, as the el-bowes, knees, or ankles, wherein there is a cariosity of the bones, with losse of the cartilages, are for the most part incurable, because the paine in the joynts is great, depriving the diseased persons of their naturall rest and sleepe, and so of good digestion and concoction of their food : besides this, they seldome fall out alone, but bring with them a Marasmus, or extenuation of the body.

How the cariosity of a bone in an ulcer is to be cured.

Having set downe the causes, signes, and presages of the cariosity of a bone, I am to shew the way how the cariosity is to be removed. To performe this taske, two things are to be done : First of all, the bone is to be laid bare, and no lesse of it than is to be scaled : Secondly, the scaling of it is to be procured by convenient meanes.

How the bone is to be laid bare.

The discovering of the bone is to be procured three manner of wayes ; to wit, by Incision, Exesion, Dilatation.

1. By incision.

As for Incision : we are not to use it where the bones lye deep, and have muscles, tendons, veines and arteries above them, as in the

the thighs & armes, chiefly in the inner parts. Secondly, although the bones lye not deepe, if they have many tendons above them, we cannot use Incision safely: such are the bones of the Metacarpium, or the upper distance betweene the wrist and fingers, and the bones of the Metapedium or Metatarsus, which are articulate with the toes.

Exesion is performed by potentiall cauteries; as *Lapis infernalis*, the white Causlick, the powders set downe by me, when I discoursed of Fistula's and cancerous ulcers.

These are not to be used where many tendons or nerves are, lest they deprive some parts of their motion, and cause convulsions, by reason of the great paine which they procure, as also symptomaticall fevers. Potentiall cauteries are most convenient, when there is cariosity in the Cranium, the Ulna, or Tibia.

Dilatation, or enlarging of a narrow fore, by stretching out the circumference of it, is performed by such things as swell, when they have imbibed any moysture, as the roots of Gentian, the pith of the Eldar, and sponges brought close together, either by threed, or the Melilot Emplaster.

These are fit to be used in ulcers which possesse the back of the hand, or the instep of the foot. The bone being by some of these meanes laid bare, I am to shew you how the bone is to be scaled.

This is to be performed three manner of wayes, to wit, by medicaments, instruments, or actuall cautery.

The medicaments which procure the scaling of a bone ought to be very drying, and of a subtil and thin substance: for the sound bone, being assisted and strengthened by such drying medicaments, sendeth forth of it selfe flesh, which being increased, separateth the corrupt bone from the sound.

These Desquamatory medicaments are of three degrees.

For some are mild, as the root of *Peucedanum*, or Sow-fennill, *Aristolochia rotunda*, the root of Iris, and Myrrh: these will serve if the cariosity of the bone be but superficiall, and the constitution of the party soft and tractable.

Some againe are yet more drying and strong, as that medicament of *Avicenna*, which is composed of equall parts of *Aristolochia rotunda*, Iris, Myrrh, Aloe, the rind of the plant *Opopanax*, whereout the gumme is saeth, the Pumick stone calcined, the refuse of brasse melted, and the barke of the Pine-tree. All these

2. By exesion.

Where potentiall cauteries are not to be used.

3. Dilatation. When this is convenient.

How the bone is to be scaled, r. Desquamatory medicaments.

Degrees of desquamatory medicaments.

I.

II.



De ulcerib. c. 22

these being beat to powder may be applyed alone, or mingled with honey. Of this nature also are *Aqua vite*, and the root of Dracontium or Dragons. *Fallopianus* hath two medicaments to this purpose: the first is this, R Rad. *Pencedani*, *Iridis*, an. ʒj *Euphorb* ʒj. fiat ex omnibus pulvis: qui excipiat<sup>r</sup> pasta panis molli, atque ossi corrupto applicetur. The second is this: R Rad. *Pencedani*, *Aristol. rotund.* *Opopanac.* *Euphorb. an.* ʒʒ. *Terebinthine* ʒj. *Cera* ʒʒ. *Acesi* ʒj. fiat cerat. ex p. a. These and such medicaments are to be used, when the cariosity is somewhat deepe, and the party of reasonable firme constitution of body.

## III.

Lastly, some are strongest of all, as Euphorbium beat to powder, *Aqua vite* having the tincture of Euphorbium, the oyle of Cloves, or Petroleum wherein some Camphair is dissolved, *Aqua fortis*, *Aqua regis*, the oyle of Sulphur, and the oyle of Vitriol, and Roman Vitriol calcined. These are to be used when the cariosity is deep, and the constitution of the diseased party stubborn and strong. When these medicaments are applyed, the fleshy parts adjacent must be very well defended, otherways paine and inflammation will be caused. If the sores be well dressed, and these medicaments judiciously applyed, the bones will scale within the space of forty dayes.

## II.

The scaling of the bones by instruments.

The signe of the cariosity removed.

Lib. 8. c. 2.

What Mallet best.

How ulcers of the head, wherein both the tables are carious, ought to be handled.

## III.

How bones corrupt are to be scaled by the actuall cautery.

Sometimes the cariosity of the bone is very deep, so that a long time would be required for the scaling of it: wherefore in this case we must have recourse to instruments: the chiefest of these instruments are the Mallet, and Cheefels, and Raspatories: First then, the corrupt part of the bone is to be knocked off with the Mallet and Cheefell untill you come to the sound bone; which you shall know if the bone bleed, and appear white and firme, according to *Celsus*. Secondly, the bone is to be made even with the Raspatories and smoothed. In this case a leaden Mallet is best: for it is weighty, and causeth a lesser noyse: this being done, some of the aforementioned medicaments must be applyed according to the constitution of the party; for by it you must be led.

In ulcers of the head it often falleth out, that both the tables of the scull are foule, so that you shall be enforced to remove a great peece of the Cranium: here you must use the Trepan and head-saw, the use whereof shall be delivered, when I shall see down the curation of the wounds of the head.

The third way to scale bones, I named to be the actuall cautery:

tery: Of it I will set down three documents: The first shall be, when it is to be applyed: The second shall direct where it shall be applyed: The third shall teach, how the sore is to be dressed after the application.

As for the first: It is to be applyed when superfluous humidity floweth to the bone, this you may conjecture; First, by the moist and cold constitution of the body of the person affected: the signes of such a constitution I delivered unto you, when I discoursed of a waterish tumor: whither I remit you.

When it is to be applyed.  
I.

Secondly, if after the application of your desquamatory medicaments, the bone still appeareth moyst and soft, not changing its colour.

II.

The second document shall be, where it is to be applyed: you may apply it safely to the Ulna and Tibia laid bare.

Where it is to be applyed.

Secondly, you may use the actuall cautery in those places, where dilatation onely is permitted, and not incision, or potential cautery, as in the back of the hand, and instep of the foot: but this operation you must do thorow a pipe of white iron, to save the circumjacent parts from burning.

I.  
II.

Thirdly, you may apply the actuall cautery to the joynts, if the cartilages be foule, and way be made. This practice *Ambrose Parrey* used when he had dismembred one in the joynt of the elbow: the dismembred party found great ease and comfort by the application of it: See the History, *Lib. xj. cap. xxv.* What forms of cauteries you are to use, the figure of the ulcer will shew you. When the actuall cautery is applyed, you are to be acquainted with the manner of dressing of the bone, which was the third document.

III.

How this is to be done, *Guido & Cauliaco* shall teach you in his own words: I (quoth he) after the application of the cautery, apply for the space of three dayes oyle of Roses tempered with the white of an egge, and for three other, it mingled with the yolk of an egge; and afterward Butter with *Mel rosatum*, and ever above these applications some mundificative untill the bone scale. Afterwards, I incarnate and consolidate the part with *Avicens* medicament, which I delivered unto you amongst the medicaments exfoliative of the second degree. *Fallopins* counselleth after cauterization to use pledgets moistned in Rosewater and the white of an egge, to hinder inflammation for some few dressings: then to apply to the bone the medicaments exfoliative.

3. How the bone is to be dressed after cauterization.

Beware

Where the actual cautery is not to be used

Beware of the use of the actual cautery, if the Scull, or any of the Vertebrae of the back be soule, by reason of the braine contained in the first, and the *Spinalis medulla* contained in the second; which being inflamed by the heat of the actual cautery, will bring alienation of mind, and convulsions.

## LECT. XXI.

*Of a discoloured and varicous Ulcer.*

The two last differences of ulcers taken from things according to nature, were said to be an ulcer wherein the naturall colour is altered, and an ulcer varicous. First then I will discourse of the ulcer wherein the colour is altered, and then of an ulcer varicous.

1. An ulcer having the colour of the part altered.

As for an ulcer having the skin adjacent, and the substance of the part altered; The unnaturall colours which possesse the part altered are most commonly four; the red, yellow, livid and black colours.

1. The red colour.  
The efficient causes of it.

The red colour proceedeth alwayes from heat, causing an inflammation.

The externall efficient causes of it are superfluous hot garments, too thick bouldsters, rowlers made of wooll, or of hard and stubborne linnen cloth, the hot season of the year, too strait ligature, the use of hot meats and drinks, surfetting, venery, troubling the masse of blood, extraordinary motion of the part, perspiration hindred by reason of the suffocation of the part, or incuneation of the humor, and solemne evacuations suppressed, as of the flowing of blood from the hemorrhoidicall veines in men, or the menstruous blood from the veines of the matrix in women, by the error of the Chirurgeon, applying things actually and potentially cold.

The materiall cause.  
How blood may offend.  
The curation.

The materiall cause of this colour is blood offending: Now the blood may offend two manner of wayes, to wit, in quality, if it be too hot or fervid; or in quantity, if the body be plethorick. In removing then this red colour, one of the symptomes of inflammation, our first care must be to remove the externall efficient causes.

The diet.

The diet must be moistning and cooling, untill this accident be

be removed: wherefore broths made of Chickens or Veale, wherein Sorrell, the sowre three-leaved Grasse, or Alle lujah, Endive, Succory, Purselaine, Lettuce, and such like have been boiled, are very convenient. If the diseased party delight in roasted meat, let him use for his sauce, sippets with the juyces of the common and wood Sorrell, with a little Vinegar and Sugar.

If the season of the year be extreme hot, let the roome wherein he remaineth be hung with sheets, which must be still moistned with spring water: In this case it is good to garnish the windows with the Medow-sweet, called in Latine *Regina prati*, and Gaule called *Myrtus Brabantica*.

Let his cloaths be neither heavy, nor heating: Let the rowlers be of soft linnen cloth, and moistned in Rose, or Eldar Vinegar, and faire Spring-water, taking two parts of the water, and one of the Vinegar: Let the rowling be somewhat slack, onely to keep the locall medicaments to the ulcer; for strait ligure doth cause paine, paine attraction of humors, and the attraction of hot humors inflammation. The party must abstaine from sacrificing to the Cyprian Dame: yea, he must abandon every violent motion. If this symptome be caused by reason of the suppression of any solemne evacuations, as the staying of the menstruall courses in women, or the suppressing of the Hemorrhodes in men, the accustomed flowings of these are to be procured again.

The menstruall courses are to be brought down; first, by opening of the Saphena in what foot it is most conspicuous; and secondly, by exhibiting the powder of Steele, either in forme of Lozenges, or of an Electuary, or infusion in white wine.

The Hemorrhodes must be opened by application of the Leeches, and ministration of Aloeticall medicaments. That medicament, which by *Paracelsus* is called *Elixar proprietatis*, and by others *Pilule pestilentiales Arabum*, composed of Aloe, Myrrh, and Saffron, are excellent. These may be taken sundry mornings together. But seeing these things are at large set down by those who have written of the practice of Physick, I have onely pointed at the best indications which serve for the curing of these griefes, and the rather because the speculation of them doth belong to another Faculty and Art, to wit, Physick.

If the materiall cause of this symptome, which is bloud, offend in quality, being too hot, then it is to be cooled by a refrigerating dyet, which I at large set down, when I discoursed of a phlegmon, all.

phlegmon, to the which place I remit you. If in quantity it offend, first Phlebotomy, or opening of a veine is to be used, and blood drawne, as the age, constitution of the party, and nature of the grief shall require. Secondly, the part it selfe is to be scarified, and other Ventoses or Leeches to be applyed, that the blood may issue out plentifully to discharge the part.

Of the livid  
colour.  
Its causes.

A livid, or leady colour in an ulcer followeth. Two causes produce a livid colour in ulcers: the first is black blood impacted in the part: The second is externall cold, or defect of the naturall heat.

How lividity  
from blacke  
blood is to be  
cured.

This livid colour doth happen most frequently by reason of black and corrupt blood settled in the part; for as a bright red colour under white, causeth a lively blue, or azure colour, as we may see in the veines of sound and healthfull persons; so black under white causeth a livid, or a leady colour. This accident is to be removed by scarification, and application of the Cupping-glasses, Hornes, or Leeches. Afterward the scarifications are to be fomented with Oxymel dissolved in *Carduus Benedictus* water.

How lividity  
from cold is to  
be cured.

If the lividity proceed from cold, you shall perceive it by the cold constitution and temperature of the part. In this case you are to apply such locall medicaments as are able to reduce the naturall heat and complexion. *Fallopis* in his *Treatise de tumoribus*, c. 26. *de Gangrens*, affordeth a notable one, and parible, which is this: Take an ordinary Turnep, and a Rettish-root of reasonable bignesse, grate or scrape these two, and adde to them of the powder of Mustard-seed one ounce, of the powder of Cloves three drams, of the oyle of Lin-seed, and Wall-nuts very old, so much as is sufficient, and make a pultice, which apply warme: he calleth this cataplasme, *Medicamentum optimum & divinum*. A most excellent and divine medicament; with the which he affirmeth himselfe to have cured many: so that you need not to doubt of the efficacy and certainty of it: and the ingredients seeme to promise no lesse.

Of a black colour.

The last unnaturall colour is a black colour: this may proceed either from heat or cold. If it hath proceeded from heat, then an inflammation went before; if from cold, then lividity did precede. The first betokeneth adustion; but imperfect: so we see wood, before it be perfectly burned, and incinerate, or turned to ashes, to become black. And in a Carbuncle the lower part is of a dark red, the middlemost black, and in the top there is a white pustule, the heat

heat beginning the aduſion in the lowermoſt, increaſing it in the middlemoſt, and perfecting the aduſion in the top: for it is the property of fire or heat to mount up. and to be moſt effectually aloft. If before blackneſſe lividity did appeare, it is to be feared, that the part beginneth to be mortified at the leaſt, if any feeling or heat remaine: If theſe cannot be perceived, then you may boldly ſay, that a Sphacelus or Mortification hath poſſeſſed the part.

In both theſe eaſes, firſt, the parts are profoundly to be ſcarifi- ed: Secondly, they are to be fomented with the decoction of Worme-wood, the leſſer Centory, Scordium, Carduus Bene- dictus, the flowers of Camomil, Melilot, and tops of Dill boyled in a gentle Lixivium. Thirdly, fill the incisions of the ſcarifications with ſome of the medicament following uſing a feather: R̄ Oxymell. ſimpl. ℥ ii. Unguent. Ægypt. ℥ iii. Spirit. vini ℥ ii. Miſceantur. Fourthly, this cataplaſme is to be applied warm. R̄ Farin. fab. hord. & orobi. an. ℥ iiiii. Lixivii mitioris, lb. iiiii. coq̄ hæc ad cataplaſmat. conſiſtentiam; tunc adde Oxymel. ſimpl. ℥ ii. Unguent. Ægyptiaci, ℥ i. Omnia probe miſceantur. Continue the uſe of this medicament, untill the parts be brought to their naturall temperature and colour: then proceed as hath been ſet down, when I ſpake of the curing of the compound ulcer.

How this acci- dent is to be removed.

Having ſet down the methodicall curations of the three firſt accidents taken from things according to nature; to wit, of aba- ting ſuperfluous fleſh, removing of the carioſity of the bone, and reducing the naturall colour to the parts, I am to ſhew how the fourth accident *Varices*, or the tumefaction of the veins by rea- ſon of ſuperfluous groſſe blood are to be cured.

Of Varices.

This accident is called in Latine *Varix*, from the ſimilitude and likeneſſe which it hath with the protuberances which are ſeen in trees above the barke, called *Varices*: according to *Avenzoar*, lib. 2. tract 7. c. 25. *Albucasis Chirurg.* part. 2. c. 93. calleth this affection *Viris*, or the Vine, becauſe theſe paſſe alongſt the parts by windings, as the Vine doth: In Greeke it is called *νεφρός*, or as it is found in *Pollux νεφρός*. It is called by *Hippocrates* *ἕξις*, and by *Ariſtot.* 3. *de hiſtor. animal.* 11. and in ſundry other places.

Its names.

This affection may thus be deſcribed: A *varix* is a dilatation of a vein cauſing a tumefaction of it, with windings and courtou- ſity ariſing in one or more parts of the body. It is called the di-  
latation

The descrip- tion.

latation of a veine, because the dilatation of the artery is called *ἀδύσμομα*. This particule (causing a tumefaction) is added, to exclude veines which are naturally big. *Galen de Method. medend. lib. 14. c. 13.* numbred this affection amongst the diseases which proceed from the quantity encreased. It may be accounted a disease, because the actions of the parts which it possesseth are hindered; for if it possess the legs, they become extenuate, and by reason of the heaviness of the humor, they become slow in motion. If this affection invade the stones, the party becometh barren.

Its causes.

The materiall.

Aristotles opinion.

The causes of it are either internall or externall. According to *Aristotle*, the materiall cause is blood, being impregnate with spirit; he doth affirme it to proceed from blood, *Lib. 3. de histor. animal. c. 19.* where he noteth that women are not troubled with varices; because they turne out their superfluous blood by their naturall fluxes, and that they are lesse troubled with the hemorrhods in like manner. And although this doth prove true in most women, yet there may be sundry women found, who both have varices, and are subject to the hemorrhods. He thinketh that the blood in the varices is full of spirits; and therefore pronounceth, *Sect. 6. problem. 3. & Sect. 4. problem. 21.* that they who have their testicles varicous are barren, because the spirits of generation passe to the varices, and so leave the seed unfruitfull, being deprived of spirits. But *Hippocrat. 3. de articul. text. 4. & 6. aphor. 21. & Galen. 4. de compos. medicament.* thinke, the materiall cause of varices, to be grosse and flatuous melancholy blood: yea, both *Galen* and *Avicen* are of the opinion, that the varices may sometimes be caused of laudable blood, onely offending in quantity, and dilating the coats of the veines.

Galen and Hippocrates his opinion.

The antecedent causes.

The antecedent causes are in number foure.

I. Is a melancholy and pituitous temperature: so they who have a bad spleene, are most subject to this disease.

II. An hairy and an hard habit of the body.

III. The masculine sex: for women are not so frequently troubled with this affection, because monethly they discharge all superfluous blood, if they be healthfull: as hath beene said out of *Aristot. 3. de histor. animal. c. 11. & sect. 10. probl. 29.*

IV. Either ripe or old age: for according to *Hippoc. in Coac. prenot.* they happen not before the fourteenth yeare of the age, in the legs; although even children may have varices in the testicles.

Why

Why Eunuchs are not troubled with the varices, *Arist. sect. 10. probl. 29.* yeeldeth a reason ; because they are deprived of seed and spirits. *Avicen* doth adde to these, sharp diseases going before : for in these the thinnest part of the humors being spent by sweat, insensible perspiration, and discussion procured by Art, the thicker part being turned to some particular places, may procure the varices.

The primitive causes are these.

I. A thick and impure aire ; because it doth weaken the legs, and maketh them the more apt to receive superfluous humors. And for this cause *Hippocrates* affirmeth, that men who dwell in the Westerne parts, are frequently troubled with this affection, and ulcers in the legs.

The primitive causes.

II. Immoderate exercise ; so we may see Foot-men and Porters often to have varices.

III. Long standing : according to *Averr. 6. collect. 2.* From hence *Iuvenal* saith ; *Fiet varicosus aruspex* : He shall become a varicous Sooth-sayer : for they who tooke upon them to find out future contingents by the flying of birds, were enforced often to stand a long time.

IV. Thick wine and grosse food : such are old flesh salted, or smoaked, pease and beans.

As for the presages, let this be the first :

The presages.

I. If varices appeare in those who are mad by reason of the melancholy humor, the griefe ceaseth.

II. The varices mitigate gibbosities, or buncings in any part of the body : for the humor which causeth them, is by these means averted from maintaining of them.

III. The varices appearing either in the right or left testicle, help a squeeking voyce, the humor being turned from the breast to the testicles, according to *Hippocrates*, in the 5. Sect. of his Epidemicks. This may happen for two causes. 1. By reason of the consent which is betweene the spirituall and genitall members. 2. Because baldnesse, stutting, lisping, and a squeeking voyce, according to *Hippocrates* in the same booke, are melancholy affections.

IV. They who never become bald, have not large varices. And againe, if in those persons who are bald, large varices appeare, haire will grow againe, *Hippoc. 6. aphor. 34.* & *Arist. 3. de hist. anim. 11.* But you must understand this of the varices of the



testicles called *Hernia varicosa*. The cause of this is the consent of the braine, and of the genitall members, which is so great according to *Auenzoar, lib. 2. tract. 3. c. 1.* that castration doth impair both wit and courage. Then humours melancholike being gathered in the testicles, vapors ascend to the head, which afford sufficient matter for producing of the haire. And in women their courses being stopped, vapors ascend to the chin, from whence a beard doth bud out. As *Hippoc. 6. Epidem. sect. 8.* doth report of *Phaenusa* the wife of *Pytheus*, who got a beard by reason of her husbands absence from her.

V. Varices caused by reason of some griefe of the spleen, are not to be cured, lest the diseased parry fall into some melancholy disease, according to *Avicenn. 2. 2. 3. tract. 2. c. 18.* for seeing the matter is lodged in the spleene, and the varices of the legs are stopped by curation, the humor must be turned to some other parts.

VI. The varices are hardly cured by medicaments, according to *Auenzoar, lib. 2. tract. 2. c. 22.* Although they may be cured by Chirurgery without danger of life, according to *Celsus, lib. 7. c. 22.* This is true, if the varices be caused of too copious laudable blood; otherwaies not, for the reason before assigned.

The curation.

The curation, which is the last point, is performed by two indications, to wit, by discharging the body of the thick and melancholy humors, and taking away the tumified veines.

The first is performed by appointing a convenient order of diet, and the administration of fit medicaments.

The diet.

The second is performed by Chirurgery.

As for the diet, grosse, tough, and flatuous meats are to be shunned, as Beefe, Goats flesh, Venison, Oysters, Fishes fed in muddy waters, old Cheefe, Beans and Pease, Lettice, Coll-wort, Cabbage, and all those things which *Galen* doth forbid in melancholy diseases, *lib. 3. de loc. affect. c. 7.*

Phlebotomy

As for Phlebotomy, the liver or median is to be opened in the arme directly opposite to that leg wherein the hæmorrhods are; or Leeches are to be applied to the hæmorrhodicall veines, chiefly if blood was wont to issue from them.

Purgation.

As for purging, Lenitives mixed with those which purge grosse humors are to be ministred: Take this for a pattern, *Rx electuar. lenitiv. ʒ vi. pulv. sancti ʒ i. syrup. de cicbor. cum rhab. ʒ i. misc. ut fiat potio.*

The

The Chirurgicall curation of the varices is performed by two The Chirurgicall curation meanes, uſtion, and exciſion; uſtion is to be uſed when the varix is ſtraght, and not much tumified.

The manner of uſtion is this: Inciſe the ſkin untill you come Uſtion. to the veine, and ſeparate it from the parts adjacent; then ſhunning the brims of the wound, cauterize the coat of the vein: foure inches from this uſtion doe the like, and ſo ſtill untill you come to the end of the varix. This being done, dreſſe theſe uſtions as you uſe to dreſſe parts burned.

Exciſion is to be uſed when the varix is crooked, and hath Exciſion. windings, according to *Ceſus*: but in my judgement a ſtraight varix is better cured by exciſion then that which hath windings and creeks, becauſe it is more eaſily ſeparate, and will admit a more beautifull cicatrix: whereas in cutting the other there muſt be horrible pain, and an ugly cicatrix muſt be left.

The manner of exciſion is this: you are to begin at what end Exciſion. of the varix you will, and to ſeparate the veine from the adjacent parts, untill you come to the other end; then bind the veine hard at each end, and cut off what remaineth between the two ligatures: this being done, the brims of the wound are to be brought together, and to be healed with glutinative medicaments. *Plutarch* in the liſe of *Marius* writeth, that he having this griefe in both his legs, ſubmitted himſelfe to this manner of cure; and when he had put forth one, did conſtantly endure the exciſion of the varix in it, that no man ſhould have doubted of his valour: but when the Chirurghion would have done the like in the other leg, *Marius* answered flatly, that he meant not to buy beauty with ſuch pain; it is not to be thought that any in this our tender age will admit either of theſe two operations.

If a varicous ulcer be offered unto you, which contemneth The Authors way of curing. ordinary meanes, my counſell is, that you take up the varix above and below, as you do the veins of the Temples in inflaming the eyes, and open it between the deligations, that the blood may be diſcharged out of it. This operation any one will admit, if he be not too tender.

## LECT. XXII.

## Of a verminous and lousie ulcer.

IN my last Lecture having delivered unto you the two last differences taken from things according unto nature, yet changed from the naturall constitution, to wit, of a discoloured and varicous ulcer; now I am to set down the differences of ulcers taken from things aliene to nature, and strangers. These are two; wormes and lice; from the first an ulcer is called verminous; from the second, lousie. The wormes which breed in ulcers may more fitly be called Maggots, in Latine *Termetes* and *Galba*, as those of the guts are called *ελμινθες* in Greek, or *Lumbrici* in Latine; as we finde set down in a learned Epistle of *Alexander Trallianus* entituled *περὶ ἑλμινθων, de lumbricis*, of wormes in the belly, translated by that famous and learned Physician *Hieronymus Mercurialis*, which he annexed to his Treatise written of the diseases of children.

How the worms are called.

Their generation.

They are ingendred of putrid humors, in unclean and sordid ulcers negligently dressed, but most frequently in hollow deep, and sinewous ulcers: for in such the quittor is longest lodged, and the putridinall heat is greater. And for this cause they are seen in ulcers of the eares, for the quittor is there long detained by reason of the windings and labyrinths of the eare.

The materiall cause.

The materiall cause of these Maggots for the most part is a pituitous excrement, as *Paul. Aeginet.* witnesseth, *lib. 4 cap 17.*

The efficient.

The efficient cause is heat, and that of two sorts: The one is extraneous, and putrifactive, causing corruption of the humors.

The other is naturall: seeing, according to the Philosopher, *lib. 3. de generat. animal. cap. 2.* nothing can be produced of putrefaction onely, unlesse concoction put to its helping hand. Then in a verminous ulcer which is preternaturall, there is putrefaction, heat, and the ulcer it selfe, besides the wormes the effects of the first two.

The signes.  
I.

As for the signes, they are three: The first is the sense of sight, for oftentimes they are seen if either the cavity of the ulcer be ample, or that they are voyded with the quittor.

The

The second is the motion of them felt by the Patient : their motion is called *Motus undosus*, like unto the waves of the sea, contracting and extending it selfe.

II.

The third is a pinching paine now and then : for living they must be fed, and their feeding must of necessity cause more or lesse paine.

III.

The fourth signe is horrible stink, by reason of the great putrefaction.

IV.

When you go about to cure such an ulcer, attempt not the taking out of the maggots with any instrument, for your labour will be fruitlesse, and the paine of the Patient great; and grant that you take many away with your instrument, yet you must leave the putredinall heat, and the corrupt humor, for the breeding of more.

Against the use of instruments.

I wonder that even great Authors make mention of the application of the actuall cautery in this case: they might be born withall, if these ulcers were plaine, and shallow; for so the superfluous humidity might be dried, and putrefaction removed: but they with an unanimous consent confesse, that these maggots are most commonly bred in sinewous and hollow ulcers, (as hath been said) and most frequently in the Summer time, and Southerly winds blowing; and so a great heat would be induced, and the Patient put to great paine, if they could reach to the cavity of the ulcer, which cannot be.

Against the use of the actuall cautery.

These wormes then must first be killed, and then they will issue out of the ulcer without any difficulty.

The curation-

Those things which kill these wormes, doe it either of a manifest, or hidden quality.

The medicaments.

They which kill them by their manifest quality must be bitter, such as Worme-wood, South-rue-wood, Calamint, Aloe, the Ferne, Bals-gall, the Meale of Lupines, the Leaves of the Peach tree, Capers, the Roots or distilled Water of the Roots of the Couch-grasse, called *Gramen canarium*, Horehound, Scordium, Mugwort, Centory the lesser, Mints. Of these you may make decoctions, whereof you may find sundry descriptions in the monuments of those who have written of this subject. *Ambros. Parrey, lib. 12. cap. 8.* setteth down this medicament: *R. absinth. centaurei minor. & m. rhub. an. m. i. decoq. in lib. i. aq. font. ad lib. β. decoct. coletur: In quid solve aloe ℥β. unguent. Egyptiac. ℥ij.* he putteth in the decoction ℥ij. of Aloe, and ℥j. of *Egyptiacum*: but who

From a manifest quality.

who may not perceive the quantity of these to be too great? This of *Riolan* the father, in his *Chirurgery, de ulcerib. cap. 8.* is excellent:  $\text{R}$  *Ellebor. alb. rad. cappar. gentian. dictamni, alb. an. ʒij. centaur. minor. scord. absynth. marrub. calaminth. an. man. ʒ. decoq. in sufficiente quantitate aquae font. ac colesur decoctum.* In lib. 1. *colaturæ dissolue m. llis ʒij. Aegyptiaci ʒj.* Above the ulcer he adviseth to lay *Unguentum Apostolorum.* If a tent may reach to the bottome, use this commended by *Fallopium* in his *Treatise de ulceribus cap. 21.* ascribed to *Archigenes*, as also *Ambrose Parrey*, in the place aforementioned:  $\text{R}$  *cerusse polii montan. an. ʒʒ. picis liquid. q. s. ut fiat linimentum:* This cannot chuse but be effectuell; for the faculty of Tarre is known even to huntsmen and shepherds.

Pellamoun-  
taine

Medicaments  
killing worms  
from a hidden  
quality.

1 Minerals.

Cap 93.

Aqua aluminis  
magistralis.

As for those medicaments which kill worms from a hidden quality in ulcers; they are taken either from Minerals, or Vegetables.

Amongst the minerals all waters indued with the qualities of Mercury or Antimony are effectuell: wherefore you may use *Aqua aluminis magistralis* of *Fallopium*, set downe by him in his *Treatise of the French pox* thus:  $\text{R}$  *aq. plantag. & ros. an. lib. 1. alum. & Mercur. sublimat. an. ʒij. pulverizat.* These are to be ming'ed together, and being put into a separating glasse, the halfe of the water is to be breathed away: *Fallopium* counselleth the glasse to be set upon a gridiron, and coales to be put under: but the safest way is to have this done in a pan, with some sand set upon a little furnace. After that the halfe is breathed away, the separating glasse is to stand five dayes, and then the clear water is to be powred off, and kept for use.

The use of it

It is not to be used alone, but mingled sometimes with a double, sometimes triple, sometimes quadruple quantity of *Rose*, *Plantane*, or *Night-shade-water*. The ablutions of *Crocus met alorum* precipitate, and the *Turbith* minerall, are effectuell: *Vitriols* of all sorts, dissolved in faire *Springwater*, and having some *Camphire* added, are very good: for they not onely kill the wormes, but powerfully correct the putrefaction in ulcers.

Vegetables.

Amongst the vegetables which kill wormes, by a hidden and unknown quality, the *Tobacco* doth carry away the bell, and not onely the juyce of the green, but the decoctions of the dry also, do effect this, being applied to the ulcers by injection, or moistning the tents or pledgets with the same. Seeing you may find this medicament, whose faculty and operation are certaine, I will not trouble you by setting downe a rabblement of uncertain

toyes:

toyes : *unguentum de Pato*, having some Mercury precipitate mingled with it, is excellent in such ulcers.

Seeing wormes in the belly, by erosion, cause ulcers in the guts ; in so much that wormes have often come out at the navell and groynes, whereof you may read memorable Histories set downe by *Schenkius* in his third Booke Pag. 407. *siml. de Lumbricis*, it will not be a thing impertinent to discourse briefly of them, seeing they often trouble children, and procure sometimes death.

Of worms  
in the belly.

These worms are called in Greek *ἐμπίδες*, and *ἐμπελα, ferae*, because they cruelly torment the body ; in Latine *Lumbrici*. Their names.

The efficient cause is the temperate heat of the guts, for the intemperate heat rather doth burne the humors, than produce any thing of them. Their efficient cause.

The materiall cause, is the inconcocted part of the *Chylus*, sent away to the small guts from the stomach, and left undrawne by the mesaraicall veines to the liver, there to receive the forme of blood. This part of the *Chylus* being crude, and left in the intestines, mixed with the pituitous humor, is elaborate by the temperate heat of the guts, and the forme which lay hid in this matter before, is brought forth afterward by this heat : and according to the diversity of the latent forms, sundry sorts of worms are bred. In the aforementioned title of *Schenkius*, you may read of the stupendious figures of wormes, set down by learned and famous men, in their monuments, who have seene them. The materiall cause.

As for the differences of them : they are either ordinary, or extraordinary. The differences of worms.

Of the ordinary there are three sorts : The first is *Teretes*, the round ones, not unlike to the earth worms in figure, but in colour different : for they are whitish. 1. Ordinary.

The second are called *Ascarides* : these are like unto the worms which grow in cheeses, and maggots in flesh : they are for the most part bred in the *Intestinum rectum*. *Tenia*.

The third kind is called *Lumbricus latus*, the broad worme ; and *Tenia*, which in Greek is called a swadling band, by reason of its figure, for it is broad and long, and it hath sundry joynts. This worme will be of a strange length. *Plin. lib. 11. nat. histor. cap 33.* affirmeth that some have been thirty foot in length. *Conciliator. diff. 101.* saith, one avoided such a one fiftene

foot

foot in length. *Alexand. Benedictus*, in *proxim. lib. 21. Practicae*, saith he saw the like. If you desire greater variety of such Histories, peruse *Schenchius* his observations, *Lib. 3. pag. 411.* I my selfe when I was in the Newry, a town in the North part of Ireland, being desired to visit a young man who had a *Fistula* in *Perinaeo*, and whose body was exceedingly extenuate; when I had ministred a dose of 2. gr. of *Mercur. vitæ* to him, he avoideth such a worme, tucked like a crabtree cudgell, about the thickenesse of a childes finger, and fifteen foot in length, he kept it in a little pewter bason for my coming: when he was in voiding of it, he was in great fear, thinking that his guts came out.

The signes  
Of round  
worms.

As for the signes of wormes: You shall know any one to be troubled with round wormes by these signes: The party findeth gnawing, and pinching paine in the belly, hath gnashing of the teeth, chiefly in the sleep; is troubled with a dry and continuall cough, the nostrils itch; wherefore children having them, are still piking their nose; the face is evill coloured, the cheeks are sometimes of a red, sometimes of a livid colour; the eyes are hollow, the mouth is waterish, the breath is strong, there is a desire to vomit, the hicket oftentimes, hunger, and heaviness of the head, drowsinesse, convulsions, starting in the sleep, stretching of the belly; but an extenuation of the rest of the body; horrible dreames, loosenesse of the belly, ugly and stinking excrements doe fall out. This is holden for an experiment, if water be powred upon the stomach in the morning, the party being fasting, he or she shall find a drawing in of the belly, by reason of the shrinking of the wormes, shunning cold. All these signes are not found in every person, but some in sundry.

Of *Ascarides*.

If *Ascarides*, or small worms, be bred in the *Intestinum rectum*, a horrible itch troubleth the party, and they are often seen in the excrements.

Of *Tania*.

If *Tania*, or the long broad wormbe in the guts, the party hath an insatiable appetite, the body consumeth, and some substance doth come from it like to the seeds of a cucumber. The falling sickness oftentimes proceedeth from the round worms, but seldom from the broad, and the *Ascarides*.

The predictions.

Let us now comie to the presages which the diversity of worms afford.

1. The *Ascarides*, if they be small, they are of all sorts lesse dangerous, for they are farthest from the noble parts, and are most

most easily killed, by clysters, or injections of bitter things. It is otherwise if they be big, for then they are ingendred of a worse matter.

II. The *Tenia* is of all others the worst, because it is biggest, and hardest to be killed.

III. The bigger are worse than the lesser, and many more dangerous than few, and the red are worse than the white.

IV. If in the beginning of sharp diseases round worms come out alive, they betoken pestilent diseases.

V. It is good if round worms come out, either when the *crisis* is at hand, or in the declination of the disease.

VI. If in persons not sick, wormes come out either at the mouth or nose, it betokeneth no harme, because this they do for lack of food.

VII. If this happen in sick persons, it is an ill signe, for it argueth the malignity of the matter, which the worms labour to shun.

VIII. If worms expelled seeme to be sprinkled with blood, it is an ill signe, for it sheweth the guts to be ill affected.

As for the curation, it is performed by two indications; the first is by killing of them; the second by expelling of them killed. The curation.

They are killed either by internall medicaments, or externall applications. Medicaments that kill worms.

The internall medicaments are either simple or compound; the simple are either Vegetables, or Minerals, or Animals.

The most powerfull amongst the simple vegetables are these: *Co. allina*, the dose of it is ʒj. The seeds of *Tansie*, and the common wormseed, the dose of them is ʒj. the juyce of *Vervin*; give a spoonefull, the juyce of *Seordium*, *Wormewood*, the lesser *Centory*, *Carduus benedictus*, or Beer or Ale brewed with these, *Garlike*, the roots of *grasse*.

As for compound medicaments, let this be the first: *R corallin. lumbric. terrest. rasura cornu cervi, semin. santonici, & tanacetii an. ʒj. rad dictamni albi, rhabarb. agaric. trochiscat. an ʒij. fiat ex omnibus pulvis: dos. ʒj.* The second shall be that medicament, which *Quacklälvers* in Germany call *Panis vite*; the composition is this: *R mustacci ʒiiij. semin. santonici ʒv mellis puri q. s. ut fiat pasta: dos. ʒʒ. ad ʒj.*

The medicaments taken from minerals: *Mercur. crudus, d. s. ʒij. Mercur. dulcis, dos. a. gr. iiii. ad ʒo. secund. rationem. et atatis & viri-*



um, Mercur. vitæ, cuius dos. a. gr. β. ad gr. ij. vitrum antimonii, crocus  
metallicorum, in pulvere vel infusione.

As for externall applications receive these as patternes :

I. R. aloes hepaticæ. ℥ij. fellis taurini ℥iij. absynthii contus. ℥iij. fiat  
cataplasma applicandum umbilico.

II. R. farin. lupin. ℥j. myrrh. aloes an. ℥j. pulp. colocynth. ℥iij. croci  
℥j. fell. boum ℥iij. aceti acerrimi ℥β. misc. Applicetur cuminum pultum  
cum felle tauri, quod commendat. Sebastian. Austrum lib. de morb. in-  
fant. morb. 42.

A. C. 72.

The death of Herod by wormes is extraordinary, which is  
set downe by Saint Luke, undoubtedly to shew what subjects  
may offer to honour their Princes, and what Princes ought to  
assume unto themselves of right. Herod having begun to persecute  
the Church, caused Saint James to be killed, and Saint Peter to  
be laid up in prison. After he had done this, the third yeer of  
his raigne (as witnesseth Iosephus antiquit. lib. 19. cap. 7.) hee  
went to Cæsarea to keep some playes in honour of Cæsar. The  
second day of his playes, when he had given an answer to the Ty-  
rians and Sidonians, who sued after his favour, he being offen-  
ded with them : the people cryed out, The voyce of God, and  
not of man. O Herod, why diddest thou accept of this grosse  
flattery ? Had it not been sufficient to thee to have assumed  
subordinate Majestie, and truth in thy declamation, which  
was (I make no doubt) in some points of it failing ? Loe, whom  
prosperity could not bring to the consideration of his carriage,  
Gods visitation did. Wormes, not presented to view of men be-  
gun inwardly to torment him, and eat up his intrailles ; which  
caused him to burst out into these lamentable speeches : *En ego ille*  
*&c.* Behold, I whom you called God, am by fatall necessity  
commanded to leave life, it proving you to be lyers, and I,  
whom you saluted as immortall, am violently drawn to death.  
Being horribly tormented, he died the fifth day, although the  
people put on sackcloth, and made supplication for him. So  
much Iosephus. O that Christian Princes would not so much la-  
bour to delight the eares of the people by eloquent speeches, as  
to administer justice. And although they think themselves se-  
cure enough from such a judgement in this life as befell this ty-  
rant : yet let them not doubt, but that there must be an accompt  
made after death, where every debt must be paid with in-  
terest. I have delivered unto you what I thought fit concern-  
ning

Ioseph. antiq.  
lib. 18. cap. 13.

ning a verminous ulcer, now I will in few words deliver the doctrine of a lousie ulcer. A lousie ulcer.

The efficient cause of lice, is the naturall temperate heat, mixed and concurring with the heat putrefactive. The efficient cause.

The materiall cause, is the excrements of the third concoction, or assimilation, which are hot; but not sharp or maligne. This is the opinion of *Galen, lib. 1. de compos. medicam. secund. loca, cap. 7.* and *Avicen. lib. 4. sen. 7. tractat. 5. cap. 26.* That you may the better understand this opinion, you must understand, that when blood is turned to the nourishment of the parts, divers excrements are produced: of the which some are discharged by insensible perspiration, some by sweat, some cleave without to the skin, as the morphew; and the filth which cleaveth to the soles of the feet, called *Strigmenta*; and scales in the head and other parts: some stay within the *Cuticula*; and these are either sharpe, and of a maligne quality: and these cause shedding of the haire, or they are destitute of both these qualities, and they produce lice.

The differences of these lice are two: for some are most commonly without the *Cuticula*, and some within the *Cuticula*; of those that are without, some are familiar as the common sort; some are called *ayem, feri*, wilde and cruell ones. The differences of the lice.

As for the ordinary and familiar, most commonly in boys and girles, they swarm in ulcers in the neck below the suture *Lambdoides*: but sometimes, and in some persons, they possess the distance between the *Cuticula* and the *Cutis*, divelling and separating the one from the other. If one will know what store of these moveables may issue out of the *Cuticula* of one person, let him read *Amatus Lusitanus cent. 3. curat. 58. & schol. ad curationem eandem*, where he reporteth, that one of good note in Lisbon called *Tabora*, was so troubled with them, that two Negroes had enough to doe to discharge him of them, and to carry them to the sea; and that at last they procured his death. The ordinary.

The *ayem*, or *feri*, the crab-lice are most commonly engendered in the arm-pits, and in the Forrests of *Venus* in nasty men and women. Crab-lice.

Those which are alwaies found under the *Cuticula*, are called *Syrones*, unknown to the Grecian Physicians: they draw a trench, as Moles doe in the earth, under the *Cuticula*, leaving watery pustules behind them, as they march: their seat (when they rest)

is easily discerned at the end of the Trench, where when the *Cunicula* is opened, they may with the point of a sharp pin or needle be taken out: they resemble nits in Cheefe, and if you place them upon the cover of a book of black Leather, in the Sunne, they will passe alongst the cover with a marvellous agility; as often I have made triall my selfe.

The Prognosticks.

I. They who are troubled with any kind of lice are nasty persons.

II. In an Heetick feaver, they shew that one is entered into the third degree of it, and so is incurable.

III. In persons not diseased, if they abound, you may advise them to keep their hands from their mouth, and to labour to be cleanly.

When the lice swarm over the whole body, the disease is called *pedicularis* or *pediculus*, from lice.

The curation.

Three intentions are required for the curation of them: Phlebotomy, Purgation, and locall applications.

Phlebotomy.

As for Phlebotomy, the sex, age, constitution of the party and strength, with the rest of the indications are to be observed.

Purgation.

When you purge, use rather minerals than vegetables, because they more strongly evacuate, and are of a more subtil, durable, and penetrating faculty. These same will serve to hinder the increase of these, which I set down as powerfull to kill worms.

Local medicaments.

As for locall applications, *Amatus Lusitanus* in the place aforesaid, affordeth two: The one is a medicate vinegar; the other a liniment: The description of the vinegar is this: *R Lupin. amar. pug. iii. Staphysagrie pug. ii.* Let these be boyled in a sufficient quantity of vinegar, with it moysten the whole body. The liniment is thus made: *R Staphysagr. part. 2. Sandarach. Gran. part. 1. Salis petre partem dimidiam, postquam ista snere infusa in Oleo Raphanino part. 2. & Aceti acerrimi part. 3. fiat linimentum, quod illinatur toti corpori.* *Paulus Aegineta* affirmeth, that he found good successe in the application of oyle and vinegar.

Lib. 3. cap. 30

As for the Crab-lice, the waiting-mayds of *Venus*, rescontented with the application of an unguent made of sweet Sope and Quick-silver. If any one be desirous to know more of the mystery of these moveables, I will advise him to repaire to the Pilgrims of the tribe of *Gad*, in the Summer-time to be found by Coleman hedge, and thorowout the whole yeere in Barn-elmes barn. If any be desirous to read a learned and philosophicall discourse

of

of this subject, let them have a recourse to *Mimadous*, lib. 2. c. 9. de *turpitudinibus*.

## LECT. XXIII.

## Of Ulcers of the Hairy Scalp.

Seeing I have set down the generall doctrine of ulcers, sufficient to instruct any one how every ulcer in particular parts is to be cured; yet seeing some ulcers in these parts require some speciall considerations, I will runne thorow them to shut up the Lectures of this yeer: Nevertheless, I mean not to omit any thing which shall seeme materiall. I will begin at the ulcers of the head, partly because some are incurable of them, and that it is necessary that you know which be such; partly because it were a foule shame that women should goe beyond a Chirurgion in this businessse, who confidently take upon them the curation of these ulcers.

The ulcers of the head are of two sorts: for some are moyst, and some are dry.

The moyst are two, Achor and Favus. This dispositions of the head are called by the Arabians *Sabafati*, by *Avicen*. 7. 4. tract. 3. c. 1. *Serap lib. 1. tract. 1. c. 3.* *Avenzoar*, lib. 1. tract. 1. c. 7. and they are nothing else but small ulcerate tumors of the whole skin of the head, caused of sharp excrementitious humors. All small tumors, in Latine *Tubercula*, by the Arabians are called *Bubor*. So then as the *Cuticula*, or the scarfe skin, is the seat of *Pthiriasis* or the lowse malady, so the place of these griefes is the whole skin, both the *Cuticula*, and the *Cutis*.

The materiall cause is a sharp excrementitious humor.

Now sharp humors are of two sorts: for some are sharp of their owne nature, as cholera: and some by accident. By accident, humors may become sharp two manner of wayes. First, by exulsiion and putrefaction, as *Bilis atra*, and melancholy not naturall but excrementitious. Secondly, by admision of a sharp humor. These ulcerous tumors of the head may be caused, not onely of simple sharp humors of their owne nature, but also of humors made sharp by accident.

Differences of ulcers of the head.

The nature of these griefes and names.

The materiall causes.

The divers kinds of sharp humors.

The

The Chymists opinion concerning the material cause.

*Achor*, what it is.

The Chymists will have the salt of Vitriol to be the material cause of these ulcers. See *Ioan. Faber Chirurgia Spagyrica*, c. xv. *Achor* so called according to *Alex. Trallianus*, lib. 1. c. 8. because from it a sanious quitor called  $\chi\alpha\sigma\pi\delta\theta$  doth flow. *Galen* in his book of tumors thus discourseth of it: *Achor* also is a small ulcer in the skin of the head; you may thinke that it is caused of salt and nitrous phlegme; out of it floweth a sanious matter, which is not altogether waterish, nor so viscous and thick as honey, which appeareth in those ulcers which are called *Favi*; for in these there is a certaine tumor, and sundry holes; out of which floweth matter like unto honey. He also in his *Lib. 1. de compos. Pharmacorum secund. loc.* affirmeth the holes in this tumor to be lesse than are those which are called *Favi*, and that out of them floweth a thin humor with some clamminesse. *Oribas. lib. 4. ad Eunap. c. 4.* thus speaketh: *Achor* is seated in the skin of the head, and hath but small holes, out of which a thin and reasonable viscous Sanies doth flow. That affection which is called *Favus* is like to this; but it hath greater holes, which containe a matter like to honey. *Trallianus lib. 1. c. 9.* subscribeth to these in these words: Wee must know also that *Cerion*, (which is *Favus* in Latine) is a grieffe like to *Achor*, yet differing in bignesse; for the holes out of the which the humor issueth, represent the honey-comb: wherefore by Ancients it was called  $\chi\eta\sigma\iota\omega\upsilon$ . The like hath *Paulus Aeginet. lib. 3. c. 3.*

The differences between *Achor* and *Favus*.

*Favus* what it is.

So that *Achor* differeth in three points from *Favus*: for first, in it the tumor is lesser: secondly, in it the holes are lesser: and thirdly, the holes in *Favus* are conspicuous; but in *Achor* not. *Aetius lib. 6. c. 68.* hath these words: *Achor* is seated in the skin of the head, and hath but small holes, out of which a thin and viscous Sanies doth flow. The grieffe called  $\chi\eta\sigma\iota\omega\upsilon$ , or *Favus*, is like to this, wherein there are large holes, out of which issueth a matter thick, like unto that which is contained in honey-combs: wherefore it is called  $\chi\eta\sigma\iota\omega\upsilon$ . As for *Favus*, or  $\chi\eta\sigma\iota\omega\upsilon$  in Greeke, *Aetius lib. 2. de dignosc. morb. c. 5.* thus describeth it: Small ulcers arise in the head thick, and red like little dugs, of the which, that which is called  $\alpha\chi\alpha\sigma\pi\delta\theta$  hath but small holes, which sendeth out a clammy Sanies; but  $\chi\eta\sigma\iota\omega\upsilon$  or *Favus* hath greater holes, which containe an humor like to honey.

Out of these passages, which have bene alleaged out of these ancient and learned Authors, these descriptions of these two ulcers

ulcers may be gathered : Achor is an ulcerous tumor of the skin of the head, red and dug-like, having small holes, out of which issueth a thin and viscous Sanies. Favus is the like ulcer, yet wherein the holes are larger, containing an humor in thicknesse resembling honey, from whence it hath its name.

Achor.

Favus.

The primitive causes are in number two: corrupt nourishment, and contagion : of the first I have discoursed heretofore, of the second there is no doubt to be made : for it may be daily seene, that these griefes are communicate by contract and frequent conversation.

The primitive causes.

The materiall cause is a sharp and fretting humor, viscous in both these ulcers, yet thinner in Achor, than it is in that which is called *Favus*. *Galen* and *Aegineta* in the places afore-cited, affirme it to be a salt and nitrous flegme. The Chymists affirme them to proceed from the salt of the vitriol of the lesser world, or man.

The materiall causes.

The cause conjunct is the same humor impacted in the skin of the head.

The conjunct cause.

The signes of these two are these : First, in both these tumors there is an itching, and a tumor. Secondly, holes appear in both, but in Achor lesser, in Favus greater. And although Lice are often seene in both, yet it is proper for Favus to have scales.

Signes.

As for the Prognosticks, receive these.

I. Young persons are most subject to these griefes, and amongst these children most frequently : The causes of this may be two. First, because they may have received many impurities in the mothers womb, which when they are come to the light, the naturall heat increasing, they labour to expell ; or it may happen by reason of the corrupt milke of the Nurse, who useth an ill dyet.

The Prefages.

II. These ulcers, if they have continued long, and have much altered and corroded the skin, when they are cured, they leave behinde them baldnesse of the parts affected.

III. These griefes free children from the falling-sicknesse, according to *Hippocrates*, *Lib. de sacro morbo*, *Avicen*, *lib 1. 3. c. de Epilepsia*, For the humor which might cause this disease, is sent from the inner to the outer parts.

IV. If these griefs be hereditary, they hardly can be cured: seeing this is true in all other meladies, how much more certaine, when to the humor a malignity is joyned, as in these, as all must confesse?

The Indications of curing.

1. Physicall.

Dieticall.

Phlebotomy.

Purgation. Generall.

Particular.

The meanes which are appoynted for the curation of these griefes, are of two sorts, Physicall and Chirurgicall.

The Physicall are three; A convenient order of Diet, Phlebotomy, and Purgation.

As for the Diet, that is most fit which was set downe in the Lecture delivered concerning the curation of Leprosity: for by some this is accompted a particular Leprosie. All surfetting, strong and sweet wines, sharp, and salt, and fried meates are to be shunned; and such as afford a grosse and impure juyce, as hard Egges, Fishes living in muddy waters: Purcellane, according to *Avenzoar*, exceedingly furthereth these griefes.

As for Phlebotomy, two indications may induce you to use this: First, a Plethora of the whole body: Secondly, much corrupt blood settled in the vessels of the head. If there be a fulnesse in the whole body, then it is fit to open the Medians of both the armes: it skilleth not much at which you begin: Let some daies passe betweene the opening of the one and the other: Let the strength, age, time of the yeare, and the like circumstances shew you what quantity of blood is to be drawne. If much impure blood be congested in the head, open the Cephalica, the veines under the tongue, the *Vena frontis*, yea and the arteries of the temples; for they powerfully derive corrupt blood and foule spirits from the head.

As for Purgation: If this must be generall, then no medicament is better than *Confectio Hamech*, or *Hiera Diacolocynthidos*, with the syrup of Rose solutive with Agarick in Betony, Eyebright, Strawberry, Cowslip, or water of the black Cherries. Receive this description as a pattern: *Rx Confect. Hamech, aut Hier. Diacolocynth. ʒ iiij. Pulv. sancti ʒ ij. Pulv. Holland. ʒj. Syrup. ros. solut. cum Agarico ʒj. Aq. predict. ʒ iiij. Misc. ut fiat potio.* If the party affect pills, these or such like you shall finde very effectuell: *Rx Pilul. auroar. & aggregat. an. ʒj. Trochiscor. alband. pultorum gr. vij. Spirit. Vitriol. gutt. ʒ. Formentur pilul. ʒj. que deaureatur.* These purgative medicaments are to be ministred once every weeke, untill the party be cured.

If you goe about particularly to purge the head, use Sternutatories made of white Hellebore, and the best and strongest Tobacco, with a little of the powder of the seeds of sweet Marjerome and Lavender; or use Gargarismes: This water drawne by a quill into the nostrils, which I will set downe, in very effectuell: *Rx*

*Pulv.*

*Pulv. Lap. magne. & calamin. an. ʒij. Virid. aris & Euphorb. an. gr. vj. Lap. bœmatis. ʒj Succini albi ʒʒ. Aq. major. ʒj. Miscœantur.* Let this medicament be kept in a glasse, and drawn into the nostrils every morning, or every other morning, as the Patient is able to endure.

The Chirurgicall means are the artificiall dressings of the ulcers with locall medicaments. To attaine to this, two things are to be noted: The first is, what medicaments are to be applied. As for the qualities of the medicaments, they ought to be astringent and repelling: when I discoursed of tumors, I set downe an ample catalogue of them, whither I send you, because I hate idle repetitions.

Chirurgicall  
meanes.

But seeing some magistrall compositions are required in the curation of these griefes, which often prove very obstinate and stubborn, I will not leave you unfurnished, but will deliver unto you some which are very effectual. The first is this of mine own: *R̄ Butyri recent. lb ʒ. Axung. porc. ʒiiij. ol. Scorpion. ʒij. Sulphur. vivi, Hellcb. alb. & nigri. Rad. Emul. pul' veriz. an. ʒʒ. Calcis vivæ ʒiiij. Mercur. crudi ʒʒ. Misc. ut fiat linimentum.* The second is that of *Gordonius*, described by *Rinodens*, *Dispensator. medic. lib. 5. sect. 1.* thus: *R̄ Elleb. alb. & nigri. Sulphur. viv. Auripig. Lib' arg. Calc. viv. Alum. Gallan. Fulig. Ciner. Clavellat. an. ʒʒ. Mercur. & virid. er. an. ʒij. pul' veriz. and pulv. coq. in Succ. Borræg. Scabios. Fumar. Oxylap. & Aceti, an. ʒiiij. ad Succorum consumpt. deinde addantur Ol. veter. lb. j. Picis liquid. ʒʒ. Cer. liquat. q. s. ut fiat linimentum.* I have made triall of it, and have found it effectual. If you but consider the ingredients, you cannot but allow of it. The Author commendeth it in a scald head, all manner of scabs, and in *Malum mortuum* it selfe.

How persons  
of ripe age are  
to be dressed.

Compound  
unguents.

When you are to apply these unguents, which was the second point of the Chirurgicall means: First, you are to mark whether the roots of the haire be corrupt or no; for if the roots be corrupt, they must be pulled out: you shall know this by pulling out of a few, and observing the roots: for if the roots be thicker than ordinary, & moyst, you may be assured that they are corrupt: they are to be pulled out in children, that you may the better apply your Topicks: In aged persons, not onely to this end, but to open the skin also, and to make it more perspirable, that the corrupt humors may be the more easily corrected and spent.

The artificiall  
dressing.

The pulling  
out of the  
haire.

The haire is readily pulled out, by application of an Emplaster

Pulling out of  
the haire.



plaster of red wax newly made, drawn upon leather, and lying to the ulcers twelve houres. Secondly, above the unguents you are to apply Sparadrops made onely of wax, to save the unguents, and keep them to the sores without much waste. Thirdly, you are to foment the sores with red wine, or Tanners woofe, wherein Pomegranate flowers and rindes, Myrtill-berries, and Sumach, with red Rose-leaves dried, have been infused in a pot set by the fire-side, before you use the unguents.

How children  
are to be hand-  
led.

If the children be offered to you to be cured, you must have a care that you use gentle medicaments to them, and that their caps be so tyed to their heads, that they cannot pull them off. For children, receive these Topicks: the first shall be that of *Miradous*, in his Treatise *De turpitudinibus*, li. 2. c. 10. which he learned of a woman, who professed the curation of these griefes: *Rx Sulphur. vivi, Litharg. Argent. pulverizat. an. ℥j. cum aceto restera- rantur ac levigentur; tum adde Terra lemnia pulv. ℥℥. Succi Plantag. & Limon. an. ℥j. Ol. Lemiscin. & Myrtini. an. ℥j. Misc. ut fiat lini- mentum.* If the ulcers in children prove obstinate, use this of mine: *Rx Pomati, unguent. Popul. & Vng. albi capburat. an. ℥j. Ol. de vitell. ovorum ℥℥. Ol. Scorpion. ℥ij. Mercur. crudi ℥℥. Misc. in un- guentum.* You may adde ℥j℥. of Alome calcined and beat to powder, if you will have it stronger. These ulcers are to be dress- ed once in 24. houres, and towards the night: for then the me- dicaments will prove most effectuell. If these ulcers be very moist, & apt to be enflamed, by the application of an unguent, then you are to use a medicament made of the absterfive powders, which the Ancients called *Smeigmata* contempered with *Oxymel simplex*: such are the Ellebores, Sulphur vivum, Staphesager, the Pumick- stone, Cuttlebones, the roots of Iris, and *Aristolochia rotunda*, and Barley-meale: these being beat to powder, and by the ad- mixtion of *Oxymel simplex* brought to the consistence of a liquid Electuary, must be applyed to these ulcers, and above the medi- cament a cap of Ivy-leaves sowed together be set.

Of the Ma-  
stick tree

Of *Tinea*.

Having spoken sufficiently of the two kinds of moist ulcers, which are found in the head, Achor and Favus, it is time that we reason of the dry ulcer of the head, which properly is called *Tinea*.

This is a crusty ulcer, fretting the skin like a Moth (from whence it hath its denomination) without any great store of moisture, corrupting the roots of the haire, and sending out of the

the skin a dry filth which stinketh : *Videatur Hieron. Mercurial. c. 14. de morb. cutan.* But *Petrus Ioan. Faber*, in his *Cbirurgia Spagyrica*, thus describeth it, *c. 15. de Tinea* : It is a peculiar phagedænicall and cancerous ulcer of the head, caused of the salt of the Vitrioll of the body of man, which tretteth the skin, and produceth scales, sometimes white, and sometimes yellow. The materiall cause, and the manner of the generation of it, he thus profecuteth. The Vitrioll in the great world, while it is calcined in the fire, it is coagulate into a masse; either white, if the calcination be but moderate; or yellow, if the fire be increased. So in the little world (he meaneth the body of man) the Vitrioll, when it is separated from the Balsome of the body, it marcheth towards the skin of the head, which it corrodeth, and above it produceth a crusty and scaly substance. Thus he : and I protest very probably.

And if it be true which *Galen* and *Ægineta* affirme of the materiall cause of Achor and Favus, that it is a sharp nitrous flegme, as hath been said, it may very probably be affirmed, that the materiall cause of *Tinea* is *Phlegma vitriolatum*, phlegme endued with Vitrioll, yet grosser than that which is the cause of Achor and Favus. *Avicen*, *Mercurialis*, and the rigid *Galenists* affirme the melancholy humor to be the materiall cause, accompanied with some sharp humidity, which pricking the expulsive faculty, moveth it to drive out the humor to the skin of the head, and so to cause this ulcer : but this opinion carrieth no shew of truth : for first, this griefe most commonly seizeth upon phlegmatick persons : secondly, it cannot be apprehended, how melancholy, either by the admixtion of any humor, or by any degree of heat in the body of man, being of it selfe black, can produce such a coloured ulcer, to wit white or yellowish.

The primitive causes are four; Errors committed in the things not naturall, Heredity, the corrupt Milk wherewith children are fed, and Contagion or Infection.

The signes are dry crusty scales, most commonly white, sometimes yellowish, or of an ash colour, or greenish, never black altogether.

As for the presages : let this be the first.

I. This ulcer is hard to be cured, because it is maligne and venomous.

II. Inveterate ulcers of this kinde are more maligne, and harder

The materiall  
cause.

Cap. de Tinea.

Primitive  
causes.

der

der to be cured, than those which have but lately invaded any person.

III. When they are cured, they often leave behind them Alopecia, or Ophialis.

IV. Sometimes they end in the Leprositie, and pedicular or lowlie disease.

V. If in a *Tinea* the sk in be hard, or of a shelly substance, and send out many scales, and the haire fall by reason of the corruption of the roots of them, it is of al others most hard to be cured.

VI. If this ulcer being once cured, returne, pronounce it to be of hard curation: for there must be some seed of this maligne malady firmly impressed in the braine.

The curation

In the curation of this griefe, two indications offer themselves: The first is the removing of the causes; but seeing the causes are either primitive or conjunct: The primitive causes are removed, by rightly ordering those things which are called *Res non Naturales*: The cause conjunct is taken away by purgation and phlebotomie. As for phlebotomie and purgation, although that may suffice which I have delivered in setting downe the healing of *Tinea* and *Favus*, yet let me insinuate this unto you, that it is expedient that once a quarter you open the Cephalica, two daies before the full of the Moone, and that for purgation you call *Mercuriall* medicaments to aid, when Vegetables will not serve. *Parrey* is of the opinion, that the meanes which are used in curing of the French Pox, are effectually in curing this griefe: Use these then, *Mercurius sublimatus dulcis*, Turbith minerall, *Mercurie precipitate dulcified*, *Mercurie coagulate*, and fixed by gold and silver.

Lib. 6. c. 2. de  
*Tinea*.

The applica-  
tion of the To-  
pics.

Things to be  
noted before  
the application  
of locall medi-  
cament.

The second Indication is the curation of the ulcer it selfe by locall meanes.

But before you goe about to apply any locall medicaments, observe these passages: First that you meddle not with tender children, if they have a maligne *Tinea*, untill they be able to abide sharp medicaments; for you shall vex both them and their parents, and so shall procure a dimission to your selves. The meane time you may use a liniment made of the oyle of Egges, *Crocus Martis* and calcined Harts-horne to the part, laying above it either a cap of Ivieleaves, or Colwoortleaves. Secondly, that you apply no repercullives to the malady: for the humor causing it, is so thick that it cannot be repelled. The third is, that unto new *Tinea's* and milde, you apply milder; but to those which are old and maligne, sharper and fiercer medicaments. In

In the application of the Topicks, three things are to be done: Indications to be noted in the application of the Topicks. First you are to procure the separation of the scale: Secondly you are to pul out the haire by the roots: Thirdly, you are to heale the ulcer. You shall procure the fall of the scales, by embrocating them with a medicament made of the oyle of Trotters, and the Mucilages of the root of Althæa, Linseed and Fenugreece, adding some of the oyle of Arsenick, or Mercurie: How the haire is to be plucked up by the root, I have shewed before. To cure the sore, anoynt it with *Unguen. Enulat. cum Mercu. duplicato*, and above it lay *Emplastrum de ranis Vigoris cum Mercurio iridem duplicato*. Or use this of learned *Mercurialis*: *R. Succ. fumer. Scabios. Borrage. Oxylap. ubi, aceti an. ℥iij. Ol. antiq. ℔ j. coq. omnia ad succorum consumpti mem: postea inspergantur hi pulveres. R. uriusque Heliebor. Sulphur. vivi. Chalcantibi, Auripigmenti, Calc. vive, Alum. Galler. an. ʒβ. virid. eris. ʒij. Picis liquid. ʒiβ. Cera q. s. ut fiat Ceratum.* Apply this to the part affected: while you are thus busied, purge the partie every eighth day.

*Galen* and the Greek Physicians, who wrote after, have made mention of other affectiones of the scalp. And although they be not of that moment, of which the other are, yet I thought good to acquaint you with them, to the end you may take notice of them when they are named by Physicians: These are foure: *Ἐξαιθήματα, Ψοράκια, Σύκωσις, Ἐλύθρια*: according to *Trallianus*, lib. 1. c. 5. are small knobs like unto pufes, which are above the *Cuticula*; but *Ἐξαιθήματα* are superficial exulcerations of the skin, somewhat red and rough *ibid.* *Ἐλύθρια*, according to *Ætius*, are certaine small ulcers, thick and reddish, like unto teats out of which floweth an ichorous substance: *Σύκωσις*, seu *Ficatio*, is a small ulcer, round, somewhat red, sometimes painfull, like unto a fig, from whence it is so called, wherein flesh buddeth: See *Ægin. lib. 3. c. 3. Galen. lib. 11. de simpl. med. facultatib. Celsus lib. 6. c. 3.* maketh two sorts of it: The one hard and round, out of which a little glutinous matter issueth, which is seene in the beard: The other moyst and unequall, out of which more commeth, and hath an ill smell. This appeareth in the haire of the head.

The materiall cause of these is pituitous blood, but the flegme is saltish: when you goe about to cure these, you must first make them level with the skin, by rubbing of them with the caustick, or some cathæreticall powder. Afterward they are easily cured with *Unguentum Enulatum cum Mercurio simplice*, and *Emplastrum de ranis* of the same kinde.

## LECT. XXIV.

## Of the Ulcers of the Eares, and Ophthalmia.

**I**N my last Lecture I set down the divers kinds of the ulcers of the hairy scalp, and the curation of them, Empyricall, as well as methodicall. Now the course of proceeding requireth, that I set down the ulcers of the face. And seeing in it are placed the instruments of four speciall senses, to wit, of Hearing, Seeing, Smelling and Tasting; I will according to these, measure the diversities of the ulcers of it: I will begin first with ulcers of the eare, because in it are seated the instruments of hearing. And although the sight be more necessary, if we respect the pleasure which doth redound by the beholding of the multiplicity of the objects, or the commodity which it affordeth, in espying things which might hurt the body, that we may prevent and shun them: yet the hearing excelleth it, for it is *Discipline sensus*, the Sense of learning, according to *Aristotle*, and the entertainer of faith: for faith is bred by hearing, according to the Apostle. And as the sight furthereth invention, so by the hearing, things invented are communicated to others. Besides, by hearing, the perturbations of the mind, as anger, envy, wondering and such like, are most stirred up.

The excellency of hearing.

The causes.

The causes of the ulcers of the eares, are either antecedent, or conjunct.

Externall.

The antecedent is either externall, or internall.

The externall causes are two; to wit, a blow, or a fall: for by reason of either of both these the parts may be contused, and from hence quitted or bred, which being stayed long within the cavities of the eare, and having the eare-wax, and other sharp excrements of the braine, mingled with it, may erode the parts.

Internall.

The internall cause is a sharp humor sent from the braine to the cavity of the eare, which first of all causeth apostematation.

Presages.

As for the Prognosticks, let this be the first: These ulcers are not to be neglected; for if the curation be prolonged, deafnesse may ensue.

II. If greater plenty of matter issue out of the eare than the part of its own selfe is likely to afford, than you may pronounce

nounce that the greatest part of it is sent from the braine ill affected.

III. If before matter issue out of the eare, the party feele pulsation, and great paine, you may pronounce that a Phlegmon hath invaded the part.

These ulcers are either without any excrescence of flesh or they have excrescence. The differences.

In the curation of ulcers of the eares, it is requisite that ever before the application of any locall medicaments the head be purged by cephalicall pills. Receive a description of those which are very effectuall. The curation.  
Purgation.  
*Rx pilul. aggregatar. & aurear. an. ℥j. trochiscor. Albandal. & diacrid. an. ℥ss. spirit. vitriol. q. s. ut formetur massula. Ex hac massa efformentur pilul. iij. deglutiat. duas hor. 5. matut. sequente die sumat totidem. Exactis 4. horis a sumptione pilularum capiat jusculum sine pane, prandeat autem hora consueta.*

In the application of locall medicaments, these five points are to be observed, according to *Petrus a Largelata Medicus Bononense. sis.* Application of locall means.  
Li. 5. tract. 9. c. 9

I. Let no sharp medicament be put into the eare before the body be well purged, lest we procure a fever, and cause an attraction of humors.

II. Let all medicaments which are powred into the eares be neither too hot, nor too cold; for they being (for the greatest part) framed of spermatick parts, they can hardly endure any excessse in heat or cold.

III. Let all the medicaments which are to be powred into the eare be of a liquid substance, that they may enter the deeper.

IV. After the party is dressed, let him or her lie upon the sound eare, the ill affected eare being stopped with cotton or wooll for a good space of time.

V Let not fatty medicaments be either powred, or injected into the eare, for it is composed of spermatick parts, and such things will cause a sordid ulcer.

The locall medicaments which are fit to be applied to ulcers of the eares, wherein there is no superfluous flesh, are these: *Trochisci Andronii in aceto sambucino dissoluti: Hac autem est eorum descriptio: Rx balaust. vitriol. aristol. gallar. an. ℥ij. alum. mirrb salis Ammon. an ℥j. Excipiantur omnia melicrato & fiant trochisci.* If you boile *Crocus Martii* in strong wine vinegar, untill both come to the consistence of a linement, it is a good medicine. The Sanative

Syrup made of the vulnerary plants, as, Sesse-heale, our Ladies-Mantle, Avens fanicle, Solomons-seale, Plantane, Horse-taile, Yarrow, Knotgrasse, is very effectuell, not onely in ulcers of the eares, but in all hollow ulcers in like manner, if Balauftia, Pomegranate-pils, Sumach, Mirtle-berries, and red Rose-leaves be added. These medicaments are sure, and such as you may trust unto. In the winter time, if you boyle a sufficient quantity of dry Tabacco in strong Ale, and boyle the decoction strained, you shall have an effectuell medicine, chiefly if the ulcer be foule, and have wormes, which you may conjecture by intolerable itching, which they will cause by their motion. If these ulcers afford great store of quittor, they must be dressed every foure and twentieth houre; but if they yeeld but little matter, it will be sufficient to dresse them once in two dayes.

The curacion  
of the ulcer of  
the eare with  
excrecence of  
flesh.

It falleth out sometimes, that if ulcers in the eares continue long, that superfluous flesh doth so increase in them, that it filletth up all the cavities of the eare, and causeth deafenesse. This happened to a gentlewoman of the race of the *Fittons* in Chester, when I practised Physick and Chirurgery there.

An experiment  
of the Authors

I thus cured her: First, I ministr'd unto her Cephalick pils. This being done, I consumed the spongyous flesh by often application of the *Fistula*-powder, so that it did not touch any part in the circumference. This powder I set downe in that Lecture, wherein was set downe the methodicall cure of a *Fistula*.

Thirdly, I made injection into the eare, made of two ounces of white Wine, one dramme of *Aegyptiacum*, and halfe an ounce of *Mel rosatum*.

Last of all, I healed, and cicatrized it with my vulnerary syrup dissolved in Plantane-water.

If such an accident come to your hands, proceed thus methodically, and you shall undoubtedly bring to passe that which you shall goe about. So much I thought good to deliver unto you concerning the dignotion, and curacion of ulcers of the eares, which often prove troublesome to the Patient and Chirurgeon, and loathsome to others; who approach to the party grieved, by reason of the evill smell, which the ulcer sometimes sendeth forth.

Of ulcers of  
the eyes.

Now I will come to the ulcers of the eyes, which ought exquisitely to be handled, seeing the sense of sight, the instrument whereof is the eye, is so pleasing and necessary to all persons. Of

all

all the ulcers of the eye, *Fistula lachrymalis*, or *Ægzylops*, first doth offer it selfe; but seeing I amply discoursed of it, when I delivered the doctrine of *Fistula's*, I will remit you to that Lecture.

In this my discourse of the other ulcers of the eyes, I will first set downe the generall doctrine of them, and then descend to the particular handling of each one of them. Three points of the generall doctrine.

In the generall doctrine, I will deliver three things: to wit, their causes; secondly, their prognosticks; and thirdly, the indications of curing of them.

The causes, are either externall, or primitive, or internall.

The externall causes are two; to wit, a blow, or a contusion by reason of a fall.

The internall causes are sharp and eroding humors.

As for the Prognosticks, let this be the first: Ulcers of the eyes in persons of an ill habit of body, seldome end without leaving some scar, or infirmity. I.

II. For this cause be wary what you promise; for bountifull promises can hardly be called back; and the Patients, being for the most part carefull of the comelineffe of their parts, will undoubtedly expect the performance of them. II.

III. If children, or disordered persons, be presented to you to be cured of ulcers in the eyes, ever pronounce that the cure will prove difficult and hard. III.

The methodicall generall intentions of curing these griefes, are in number foure; Good order of diet, Phlebotomy, Purgation, and the application of the Seton or Fontanell for revulsion and derivation.

Having dispatched the three points which the generall doctrine of ulcers doth containe, I am come to set downe how each one of these ulcers in particular is to be cured. The manner of curing these three ulcers in particular.

As for the difference of them, they are either milde, or maligne. The milde are either of the *Adnata*, or *Conjunctiva*, or *Cornea*, or *uvea*. The ulcers of *Conjunctiva* most commonly proceed from *Ophthalmia*.

Of it then I will speak, because it most frequently seizeth upon the eye: *ὀφθαλμία* in Greek, but *Lippitudo* in Latine, according to *Galen 4. de medicam. local. cap. 4.* is an inflammation of that tunicle of the eye which is called *Adnata*. Ophthalmia what it is.

There be two kindes of it: One properly so called, proceeding from inward causes. The differences of it.



The other proceeding from externall causes, which properly is called *νεγξις*, or *Perturbatio*.

Againe, *Ophthalmia vera* is either more milde, when only the *Conjunctiva* is inflamed or vehement, when as the eyelid besides is red, turned up, and somewhat ulcerate.

How it breeds. This griefe is thus bred, according to *Cassius Medicus 66 probl. medic.* When humors are impacted in the eye, they stop the passages, and keepe in the heat: the heat kept in, burneth when it cannot breath thorow, and inflameth the humors: and these inflamed, caueth *Ophthalmia*, and hinder the sight: for the *Conjunctiva* being inflamed, great pain and heat are felt in the eye. They draw humors into the eye: the humors attracted being dispersed thorow they eye, troubled the humors and spirits; and these being troubled, of a necessity hinder the sight. The eyes are subject to these afflictions; according to *Arist. probl. 7. sect. ultim & Alex 1. probl 35.* because they are moist, and *ευσταθεις*, very passable.

The causes of  
*Ophthalmia vera*  
conjunct.

All sorts of humors may cause a true *Ophthalmia*, but sundry wayes; for hot humors, as bloud and cholor, of themselves cause great inflammations; but small inflammations may be caused of cold humors mixed with hot.

Primitive.

The primitive causes are the heat of the Sunne, paine of the head, a burning fever, dust, smoake, great cold binding the part, blowes upon the head, blustering winds, ebriety, venery, and according to *Paulus*, oyle. It bringeth an *Ophthalmia*, because it cleaveth fast to the tunicles, and so stoppeth the pores, and so the heat is kept in, and inflameth the eye.

Why in hot regions the inhabitants are more frequently troubled with these inflammations.

*Hippocrat. lib. de aer, aquis & locis*, writeth, that they which inhabit the South, and hot regions, are easily assaulted by such diseases, and easily cured: and by the contrary, that they who dwell in the Northerne parts are not so easily tainted with this griefe, but are more hardly cured: *Avicen* yeeldeth the reasons for this, saying, that they who dwell under a hot climate, have their heads full of vapours and humors, which being resolved by the hot aire, fall to the eyes, and being there stayed, cause an inflammation, which afterward is easily cured. First, because their bodies are more perspirable. Secondly, because they have still a loose belly. But in cold regions, although they have plenty of humors in their heads, yet they are congealed, and doe not so promptly flow to the eyes; but if they come to the eyes, and be there impacted, they cannot so readily be dissolved, by reason of the

the thicknesse of the skin, and constriction of the pores. So inflammations of the eyes happen more frequently in the Summer to those who have their heads stuffed with vapors and humors the heat colliquating them, and turning them to the eyes. In like manner in those diseases wherein there is an ebullition of the blood, *Ophthalmia* are forerunners, as in the small pox, measles, and sometimes the plague, hot and sharp vapours being carried up to the head.

As for the signes of an *Ophthalmia*; they are generall, or particular.

The generall are these: according to *Galen. 4. de medio. loc. 4. & lib. de totius morbi temporib. & Rhazes lib. 9. ad Almanf.* The generall signes of a true *Ophthalmia*.  
 a swelling of the eye, a rednesse of it, paine sometimes pricking, sometimes corrosive, sometimes tenfive, flowing of teares.

The particular signes of a true *Ophthalmia* are these: a great tumor and paine, horrible heat, turning up of the eyelids, shew a great inflammation. The particular

These accidents, in a more remisse degree, shew a milder *Ophthalmia*: if the humor proceed from the stomach, then the party will desire to vomit: if from the head, the headach vexeth: and seeing the humor may be sent both from the vessels within, and without the *Cranium*, if the veines of the forehead, and the rest of the face be full, if the arteries of the temples beat, and if the eye lids be heavy, then the humor commeth from the vessels without the *Cranium*; but if none of these symptomes appeare, and yet the party often neezeth, and findeth itching in the nose, the humor or vapour is sent by vessels within the *Cranium*. Signes of the parts sending.

Signes of the humors sent are these: If blood be it, the eyes and face will be red, the veines will be full, the paine will be gravative, the matter that floweth will not be very sharp. If it be a vapour or flatuosity, there will be a ringing in the eares, and a tenfive paine. If it be pituitous blood, the tumor will not be very red, but whitish, lesse heat and meane, great heavinesse of the eye and eye-lids; the eye-lids in the night time will be glued together. Signes of the humors sent.

This happeneth for three causes: First, because in the day time the eye is still in motion, and suffereth not the humor to cleave to the eye-lids. Why in an *Ophthalmia* the eyes cleave together in the night time.

Secondly, because moisture is multiplied in the night time.

Thirdly, because the humor doth concoct in the night time, groweth

groweth thick, and so is more apt to cleave to the eye-lids, they then being immoveable. If choler be the cause, there will be but little rednesse mingled with yellowesse; the humour which runneth from the eyes will be thin, the paine will be pinching. If flatuosity or a vapour, then none of these signes will appear, yet the eye will be somewhat swelled, and a noyse will be noted in the eares, and no humidity flow from it.

The predictions.

As for the predictions: I. An inflammation comming of externall causes, is more easily cured than that which commeth of an inward.

II. When a continuall paine of the head is joyned with *Ophthalmia*, and continueth long, blindnesse most commonly ensueth.

III. If in an inflammation of the eye, the humor which floweth from it be thick, it will not long continue: for it betokeneth the benignity of the humor, and strength of nature.

6. *Agb* 17.

IV. If a milde fever, or a lask seize upon one troubled with *Ophthalmia*, it ceaseth within a short time, the humor being dissolved by the first, and revelled by the second.

V. If the tumor of the eye be great, the paine vehement, and the matter which floweth from the eye be copious and thin, the *Ophthalmia* is like to continue long; but short if signes contrary to these appear. Thus much then concerning the causes, signes, and prognosticks of an *Ophthalmia vera* shall suffice.

*Ophthalmia spuria*, what it is.

Now it remaineth, that we speak a word or two of *Ophthalmia spuria*, a Bastard *Ophthalmia*: This is caused onely by externall meanes, whereof we have spoken sufficiently before, when we set down the primitive causes of *Ophthalmia vera*. And if the accidents, as inflammation, rednesse, and the like, be but moderate, it will easily cease, and without great difficulty, by removing the extrinsecall causes, and applying cooling waters, as Rose-water, or Plantane-water, with Camphire.

The curation of *Ophthalmia vera*.

Precepts before the application of Topicks.

In the curation of *Ophthalmia vera*, some precepts are to be observed before the application of locall medicaments.

I. The party must eat and drink sparingly, abstaine from venery, and keep the body solable.

II. Let the party be kept in a dark room, and let the sleep be moderate; because immoderate sleep draweth vapours to the head.

III. Let the objects, which the party beholdeth, be green, blew, or black.

IV.

IV. Let anger, serious cogitations, and motion be shunned.

V. If the haire be too long and heavie, let it be polled.

VI. Let the drinke be small Beer, or Barley-water, wherein have beene boiled Fennell-seeds, Coriander-seeds, and eye-bright.

VII. Let meats salt, vaporours, sharp, and hard of digestion be shunned.

VIII. If the party be strong, open first the Median, then the *Cephalica*, then the *Vena frontis*, and those behinde the eares, and in the temples, if the inflammation be great: if circumstances will not admit Phlebotomy, apply Ventoses to the shoulders, and thighs; and Frictions and Ligatures to the armes and legs.

IX. Purge according to the humor offending, as cholera with *Pilule coccie*, or *electuar. de succo ros.* flegme with *Diatribis cum agarico*, or *Diaphenicum*, or *Diacaribamum*.

X. If you use fomentations, these five things are to be observed. Fomentations

1. That the body be clean, otherwise the matter (being scattered by fomentation) will run to the eyes.

2. The matter must be discharged into the eye, and not in motion.

3. That it be used when the matter is thick, for it attenuateth it.

4. That it be used in the declination of the griefe.

5. No astringent fomentations are to be used; for they wedge in the humor, and exasperate the griefe.

XI. To stay the fluxion, you are to apply a strong defensive to the forehead and temples.

XII. Opiaticall medicaments not well corrected, are not to be used; for if they be but weak, they may procure a little ease for the time, but the fluxion and pain will returne more fiercely: if they be strong, they may cause inevitable blindness, by hindring of the influence of the visive spirit. Opiaticall medicaments.

The locall medicaments must have three qualities: for they must be somewhat astringent, cooling, and anodine; such are the water of the white of an egge, the mucilage of Fenugreek, and Quince-seeds drawn with Rose and Plantane-water, with a little Saffron; *Trochisci albi Rhasis sine opio* (unless the paine be very great) dissolved in Violet, or Succory, or Eye-bright-water. What I have spoken, I would have you to understand it of an ordinary *Ophthalmia*. If

The venereall  
*Ophthalmia.*

If you perceive it to be venereall, or a symptome of the great Pox; then you must cure the griefe, and then the accident will cease: If after the using of these meanes, the *Ophthalmia* prove rebellious, you must blister the neck.

The use of the  
Seton.

If this will not serve, you must apply the Seton, or make a Fontanell in the neck or arme; but the Seton is most effectually: for first, by reason of the great paine which it bringeth, it maketh a stronger revulsion: Secondly, it dischargeth the humor more plentifully, it having two orifices, but the Fontanell onely one.

## LECT. XXV.

*Of the rest of the ulcers of the eyes.*

Now order requireth, that I should set down the doctrine touching the ulcers of *Cornea*.

Superficiary  
ulcers of *Cor-*  
*nea.*

These are either superficial, or deep, corroding the substance of the *Cornea*.

The superficial are four, whereof the first is called *ακαλίε, και της ακαλίε*, which signifieth a troubling of the aire: and it is a very thin, and superficial exulceration, of a bluish colour, resembling a dark aire, and possessing the greatest part of the black of the eye: the Latines call it *Caligo*, a mist in English.

I. The second is called *νεφελιον*, in Latine *Nubecula*: this is deeper than *Achlis* or *Caligo*, yet narrower, and whiter.

III. The third is called *αρημιον*; it is an ulcer which groweth about the circle *Iris*, possessing part of the white, and part of the black of the eye: without the *Iris* it appeareth red, but within the *Iris* white.

IV. The fourth superficial ulcer is called by *Aetium επινευμα*: this is a superficial ulcer also, which maketh the *Cornea* rugged by erosion, and to be of an ash-colour, resembling a lock of wooll, for the which cause it is called of *Avicenna*, the woolly ulcer.

The three  
kinds of deeper  
ulcers of  
*Cornea.*

Of the deeper ulcers of *Cornea* there are three sorts:

The first is called *βόθρον*; and it is an ulcer of the *Cornea*, hollow, narrow, without filth, like to a round puncture; in Latine it is called *Fossula*; for *βόθρον* in Greek doth signifie *Fovea*, a pit.

I. The second is called in Greek *κοιλωμα*, and it differeth from *βόθρον*, in that it is wider, although not so deep.

The

The third, of the deeper ulcers of the *Cornea*, is called ἕλκημα by *Ætius*; by *Scribonius Largus* *ustio*; and by others *inustio*, and it is an impure, and crustie ulcer of *Cornea*, thorow which sometimes the humors of the eye come out, when it is made cleane, by cleansing medicaments applied.

These ulcers of the *Cornea* of the eye, whether they be superficialie or deep, are not to be slighted, but carefully to be dressed: but those especially which have deeply seized upon the substance of the membrane, lest they corrode thorow the whole membrane, and so the humors issuing out, the eye sinks, and both deformity and inevitable blindness ensue.

For the materiall cause of these ulcers is a salt and nitrous humor, as *Paulus Ægineta* speaketh, *Lib. 3 c. 27.*

If the *Cornea* be quite thorow corroded, then the *uvea* falleth down; this disease of *uvea* is called ἀπὸ πρῶτος βαρυειδὲς χυτῶ, *uvea procidentia*.

Of this disease there are four kinds.

If it fall out but very little, it is called μωνίφαλλον, *caput muscæ*, the head of a flie, and of *Avicen*, *Formicalis*, like the head of a pismire.

If it fall downe yet more, and equall a grape in bignesse, it is called ἀφὸ λαμα, *uvea*, or *uvatio*.

If it fall downe yet further, and hang out like a little apple, it is called μάλλον, *malum*, the apple-like rupture.

But if the *uvea* fall downe and grow hard, brawnie and flat, it is called ἄλος, *clavus*, the naile like rupture. All these foure kinds of the rupture of *uvea* for the most part are uncurable: onely the apple-like, and grape-like rupture, if the roots be small, and the party be of a good constitution, may be by binding cured, to take away and mitigate the deformity of the eye. For if the sight be taken away before by these breaches of *uvea*, the deligations will not restore the sight, which must be intimate to the party before you goe about these operations, that he thinke not himself deluded, having hoped for the recovery of his sight, as the reward of his patience. in enduring the manuall operations.

Seeing all ulcers of the eyes argue a cathocymicall body, for they are caused of sharp corroding humors, the constitution of the body must be altered, not suddenly, labouring to remove the whole cause at once: but ἀποκρίσεων, & that is according to *Galien. li. 9. meth. medend.* when by little and little that is discharged

Prognosticks.

The materiall cause of these ulcers.

The falling downe of *uvea*.

Four kinds of it.

I.

II.

III.

IV.

Predictions.

The alteration of the body.

which is faulty, that that which is good may succeed in its place. Wherefore you are to shun all strong catharticall meanes, lest they procure vomiting, which is very prejudiciall to weak eyes, such as are those which are ulcerate. The body having been gently purged, nature very often doth correct the residue of the humor, by turning that part which is benigne into nourishment, and expelling that which is superfluous, by stoole, urine, and sweat. Those twelve observations which I set downe in the deliverie of the curacion of *Ophthalmia vera*, I commend unto you in the curing of the ulcers of the eyes also, which need not any repetition.

Locall medicaments.

To set downe all the locall medicaments, which are delivered by the Ancients in curing ulcers of the eyes, were a fruitlesse labour.

For superficiall ulcers of Cornea.

Neverthelesse, I will furnish you with a few approved medicaments. Then in superficiall ulcers of *Cornea*, use these I. R. *succi rutæ fenicul. chelidon. euphrasie an. ℥ij. vini albi potentis ℥iij. sacchar. cand. ℥iij. aloes, sarcocoll. an. ℥β. fellis capon. ℥ii.* Distill these, and use the water.

II. R. *aq. chelidon. & rutæ an. ℥iβ. aq. ros. ℥j. croci metall. ℥j. fiat infusio.*

III. R. *succi fenicul. rutæ an. ℥iij. mell. optimi ℥ij. exponantur soli inclusa vitro stricti orificii probe obturato per mensem tempore aestivo. Utendum hoc medicamento abjectis faecibus.*

IV. R. *axung. porci, aq. ros. abluta ℥ij. capbura ℥β. tutia preparat. gr. x. Aloes pulv. ℥j. sacchari cand. gr. xvj. fiat collyrium.*

For deepe ulcers:

In deepe ulcers of *Cornea tunica* use this of *Hernius*, which he bought at a deare rate, and which he hath set downe method. *ad praxin, lib. 1. pag. 106.* R. *calaminar. ter usi ac bis in vini aceto extincti ℥j. myrrhæ, plumbi usi ac loti an ℥β. croci gr. v. opii gr. ij. eris usi ℥iij. decocti fenugræci ℥j. terantur omnia supr lapidem pictorum ac fiat collyrium.* Having first made cleane the eyes with a sponge dipped in the mucilage of Fenugreek and Linseed, dresse the ulcerate eyes twice in the forenoone, and so often in the afternoone.

*Collyrium de plumbo* described by *Rinodæus*, set downe by him in *Dispensatorio medico lib. 5. cap. 11. de collyriis*, is an effectuall medicament. R. *pulmbi usi, antimon. tutia lotæ, eris usi, gummi Arabici, tragacanthi an. ℥j. opii ℥β. fiat ex omnibus pulvis ex quo cum aqua rosacea formetur trochisci*: dissolve one of them in Plantane and Purfelane water, and dresse with this medicament the eye.

When

When you are dressing the ulcers of the eyes, minister once a week a purging medicament. If you use Pills, minister (according to the advice of the Arabians) *Pilule alexandrinae*, or *Pilule lucis majores & minores*, or *de agarico*, minister a dram made up into foure Pills, which are to be covered with silver foile: or use this pill. R *Spicier. hier. ʒʒ. Diagridii ʒ ij. Trochiscor. A. bandal. ʒv. Cum Syrupo Augustano fiat massa.* One pill of this composition weighing twenty granes, will purge sufficiently. If the party cannot swallow pills, minister to him this potion: R *Caricossin. & Electuar. lenitiv. an. ʒ iij. Pulv. sancti. ʒ iij Pulv. Holland. ʒ j. Syrup. ros. solutiv. cum Agarico ʒvj. aq. Beton. Fenicul. aut Euphrag. ʒiii. Mise. ut fiat potio.*

Purging of the body.

To these medicaments both inward and outward, the right use of those things which are called *Nen naturales* must be joyned, or else the curation will be protracted and prolonged.

The ordination of the things not naturall.  
The Aire.

The aire then must be temperate in its first qualities, as being neither too hot, nor too cold, too moyst, or too dry. It is not good to abide in the heat of the Sun, nor the beames of the Moone, or any open aire: the party is to shun Southerne and Northerne winds: for the Southerne wind, according to *Hippocrates*, troubleth the sight, causeth hardnesse of hearing, an heavie head, dull senses, a lazie bode, it begetteth grosse spirits. And the Northerne wind is very sharp, and therefore it stingeth and pricketh the eyes; neither must the aire be too lightsome; for it scattereth the spirits.

Aphor. lect. 3.

The bread must be made of cleane wheat, well leavened, and somewhat salted, wherein may be put Fennill, Anise, and Coriander seeds; for unleavened bread is accompted hurfull to the eyes.

Bread.

As for fresh-meats, these are good: Chicken, Capon, Hen, Partridge, Pheasant, Pigeons, Larks, the Pie, the Swallow, and the Goose-flesh are accounted good for the sight.

Flesh;

As for fish, Trouts, Rochets, Pearches, and Pickerels of fresh-water fish may for varietie of diet be admitted: of saltwater fishes, Whiting-mops, and the Smelts are accounted the best. Baked and fried meats, strong spices, as Peper, Ginger, Mustard, and the roots of the Horse-rettish are not to be used. To meats minister this composition instead of salt: R *Euphrasie, Semin. Fenicul. an. ʒ j. Cinamomi & Macis, an. ʒ j. Salis communis ʒ j. fiat ex omnibus pulvis.* All bulbous roots, as Onion and Garlick, and Pulses, as Pease and Beanes, are to be rejected; as also moyst

Fish.



and raw fruits : Stewed Prunes, and Peares, or Quences preserved, are permitted after meat, to stay the ascending of vapors to the head, and the Marmalade of Quinces, with some Aniseseds, Fennilseeds, and Corianderseeds Comfits.

Drinke.

As for drinke, no liquor is more convenient then six shillings Beere, neither too new, nor too stale, having had a bag of boulding-cloth hung in it, filled with Eye-bright, Fennilseeds, Betony, Rosemarie, sweet Marjerome and Sage.

Wine.

If the party hath beene accustomed to wine, let him use some small wine, not sharp or vaporous, wherewith some good spring water must be mingled, and Borrageflowers, and Burnetleaves are to be put into the cup : and this will serve for two purposes: for the colour will comfort the eyes, and the herbs by their propretie will repress the vaporosnesse of the wine. The lesse one doth drinke, the better will the patient be, and the sooner cured. A small kinde of Meath made after this manner will (not be amisse. *Rx Aq. font. lb. xv. Mellis optimi lb. j. Fœnicul. Eupbrag. an. man. j. Macis ʒj. Coq. ad tertiæ partis consumptionem, semper spumam auferendâ, ac tandem colando.* Immoderate sleep filleth the head full of vapours, and immoderate watching doth spend the spirits, coole the braine, and hinder the sight. It is good to goe to bed three or foure houres after supper, and to rise early, and to walk softly up and down the chamber, to comb the head, pick the eares, and to emptie the excrements. Much reading is not good, especially after meales, and weeping is verie hurtfull.

Sleeping and watching.

Exercises.

Solublenesse.

The body must still be kept soluble with lenitive clysters of Diacathol-the syrup of Althæa, and the oyle of Lilies dissolved in the ordinarie decoction appointed for clysters. Take this for a patterne : *Rx Diacathol. ʒiʒ. Syrupi de Alibæa ʒij. ol. Lil. albor. ʒij. Decoct. communis pro clysterib. ʒviiij. Misc. ut fiat clyster.* If the partie will not admit a clyster, then minister halfe an ounce of *Electuar. lenitivum*, in seven spoonfulls of broth made of a Chichen. After meales use this or the like digestive powder: *Rx Semin. Fœnicul. & Coriand. Saccharo semel incrustatorum, an. ʒi. Cort. Citri, & Myrobalan. Kibul. condit. an. ʒiiij. Eupbrag. siccat. ʒij. Macis ʒj. Sacchari rosat. Tabellat. ʒiʒ. fiat ex omnibus pulvis. Dos. cochol. i. a singulis partibus.*

Of Maligne ulcers of the eyes.

Hitherto I have delivered unto you the differences of milde ulcers ; now I will speake of the divers kinds of maligne ulcers  
of

of the eyes. These are either not contagious, or contagious. The not contagious are two; *Noma*, and *Ulcers cancroſa*. The contagious are three; *Carbunculoſa*, *Veneræa*, *Morbilloſa*. Of theſe in order I will diſcourſe briefly.

*Noma*, or *Ulcers deſipientia* are malign ulcers, which ſometimes <sup>Noma.</sup> begin at the corners of the eyes, ſometimes at the white, and ſometimes ſeize upon the horny membrane. In corrupt bodies they fret exceedingly, and goe forward in ſuch ſort, that oftentimes they conſume the parts adjacent, as the muſcles and lids of the eye: from them floweth a ſinking ſlimy matter: the <sup>Signes.</sup> paine is grievous, and the diſeaſed party hath an accidentall fever.

This ulcer is dangerous, and ſeldome cured without deformi- <sup>Prognosticks.</sup> ty and loſſe of the light: wherefore my counſell is, that you fore-tell the danger. if ſuch ulcers be offered to you to be cured.

Onely I will acquaint you with ſome locall meanes, having <sup>The locall Me-</sup> ſpoken ſufficiently of the generall intentions. Apply then to the <sup>dicaments.</sup> ulcer the juyce of Plantane, Horſe-taile, Knot-graſſe, Night-ſhade, and Yarrow clarified with Honey, and the whites of Egges: Dreſſe theſe ulcers morning and evening. dropping a few drops into the affected eye, covering the eye with a cataplaſme made of *Unguentum roſinum*, the pulp of a Quince boyled, and ſome oyle of Poppies. If theſe ulcers prove very maligne and corroding, you may correct them by intilling ſome oyle of Vitriol, or Sulphur, mingled with Plantane-water, taking onely the fourth part of it. To aſſwage the paine, uſe this cataplaſme: *R. Mala Cy- dania numer. 2. Sedi major. & Solani hortens. ana man. ij. coq. in ſiq. Lact. muliebr. vacc. capr. aut. aſine; addatis Croci ʒj. ac fiat cata- plaſma.*

*Ulcus cancroſum*, a cancerous ulcer followeth, which the Chy- <sup>The cancerous</sup> miſts pronounce to be cauſed of an Arſenicall ſalt, and it is like <sup>ulcer.</sup> to be ſo: for in this ulcer, beſides corroſion, there is a ſepticke or putrefactive quality. It beginneth in the black of the eye.

In it the black and white of the eye are reddiſh; lines ſeeme to be <sup>Signes.</sup> ſent from the black to the temples: the Patient refuseth food, by reaſon of the exceeding great paine, a thin darkiſh and ſharphumor floweth from it, and it is exaſperate, by reaſon of the applica- tion of ſharpe medicaments.

You can onely promiſe a palliative cure of this maligne ulcer, <sup>Prediction.</sup> by the application of anodine meanes, after you have uſed the ge- neral

nerall indications before specified. *Paulus Aeginet lib. 3. c. 22.* affirmeth it to be an incurable evill. He counselleth to feed the Patient with milk, panado's, and other meats of a good juyce, and of an easie concoction.

**Locall meazs.** Milde eye salves are also to be applyed, as this: *R Mucilag. Semin. Cydon. et Palicur. Aq. ros. extract. ℥j. Trochisc. albor. Rbas. cum opio ℥j. si ut collyrium quod tepidum applicetur. Renovetur mane et vesperi. Desuper applicetur hoc cataplasma. R Poma cocta num 3 Cassia. recent. extract. ℥β. Croci ℥j. Lactis mulieb. ℥j. Albumen ovi unius: si ut cataplasma.* So much then concerning the handling of malign ulcers of the eyes, wherein there is no contagion.

**Maligne ulcers**  
proceeding of  
contagious diseases.

**I.**  
**Of ulcers caused**  
of the  
Small Pox.  
Topicks.

Ulcers which are caused of contagious diseases follow, as the Small Pox, the French Pox, and the Plague: If you fear that the Small Pox are like to cause ulcers in the eyes, which you shall conjecture if there was an inflammation in the eyes, before any did appeare in the body; if the party feel paine in the eyes, and cannot open the eye-lids, then are you to apply gentle fomentations to the eyes, and the brest-milk of a sound woman, having a little Saffron mingled with it; or the Mucilage of Fenugreeke, Lin-feed, and Quince-seeds, drawn with Rose-water, having some Saffron added to it. You shall not need to look for any other medicaments in these ulcers.

**Venereall ulcers.**

If the ulcers be venereall, caused of the great Pox: then with all expedition are you to goe about the curation of the maine grieve, lest blindnesse quickly ensue, and then to labour to cure the ulcers of the eyes, which are but onely symptomes of the disease. *Rinod. in dispensat. med. lib. 5. c. 11.* setteth down an excellent eye-salve for this purpose, ascribed to *Lansfrank* by the Neotericks, which he could not find in the works of *Lansfrank* (as he confesseth) so that by all likelihood it is a magistrall receipt. The description of it is this: *R Vini albi lb. j. aq. Plantag. & rosarum an. ℥iij. Auripigment. ℥ij. Virid. ar. ℥j. Alces, Myrrb. an. ℥j. Terantur ista subtilissime, & fiat collyrium.*

**Of the ulcer**  
caused of a  
pestientiall  
Cabo.

I will adde a little of the ulcer of the eye caused of a pestienciall Carbo, or Anthrax, and so end. In this case, first there ariseth a small tumor in the eye, hot, hard, painfull, and contagious, caused of a thick, burned, and venomous humor: It is hot, the unnaturall heat causing an ebullition of the humor. It is hard, because the heat burneth the humor: It is contagious, by reason of the venomous humor which causeth it: when it yeeldeth

yeeldeth matter it stinketh, by reason of the putrefaction of it.

It is accompanied with watching, drought, internall heat, raving, and the urine is sometimes of a fire colour, sometimes thick and troubled. The symptoms

If these symptoms appeare, then are you first of all to minister such Antidotes as are fit for a pestilentiall fever, as *Theriaca Andromachi*, *Antidotus de sanguinibus*, *Eleuarium de ovo*, and such like, to tame the venolity of the matter, and then to proceed to the curing of it. If you perceive a pustule in the top of it, open it with a lancet: then to extinguish the immoderate heat, foment it with *Aqua spermatis ranarum*, wherein Camphir is dissolved, and lay a cloth moistned in the same, to the eye: above this cloth apply a cataplasme made of Goats, or Cowes milk, bread made of bran, and the juyce of Plantane: when the crust is false, mundifie and fill up the ulcer, by applying *Adel rosatum* dissolved in Plantane-water. The curing of it.

Last of all, skin the ulcer with this medicament: *R Vin. albi lb. j. int. prep. aloes, an. ʒss. Sacchar. cand. ʒ ij. Hec inclusa vitro stricti orificii probe obturato, exponantur soli omnibus diebus canicularibus.* *Guilmeau* in the 5. *sect. c. 11.* of his Treatise of the diseases of the Eye, confesseth this salve to have bene given and communicate to him, as an undoubted experiment, in skinning the ulcers of the eyes, and procuring a comely scar in the Cornea. How to skin ulcers of the eye, and make the scars faire.

If it fall out at any time, as if often doth, by the negligence and unskilfulnesse of the Chirurgeon, that the eyelids grow to the externall membranes of the eye, to wit, the *Conjunctiva* and *Cornea*: when he hath not a care in the time of curing, to keepe them asunder, then the naturall motion of the parts of the eye is hindered, a deformity ensueth, and the sight is much diminished. Of the cleaving of the eye-lids to the membranes of the eye.

It is called *σφραγή*, and *αρχόλη*, in *Galen. lib. de definit. medicis*, and *σφραγισμός*, according to *Aeginet. lib. 4. cap. 55.* and *σφραγισμός*. In Latine *Coalitus*, or *Inviscatio palpebrarum*, in English the cleaving or growing together of the eye-lids. *Galen.* then in *Isag. seu medico*, c. 15. thus speaketh of it. The eye lids grow to the white of the eye, (he meaneth the *Conjunctiva*, or the black, which he nameth *Cornea* elsewhere.) If they cleave to the black, the sight is altogether hindered; but if they cleave to the white onely, the sight is lesse impaired. *Celsus lib. 7. c. 7.* thus discourseth of this disease: Sometimes one of the eye-lids doth grow to the other. The names of this disease. What it is.

other, so that the eye cannot be opened: unto which griefe this inconvenience is often annex'd, that the eye-lids cleave to the white, as when a sore in each, or both, hath beene negligently cured: for he hath joyned together in curing, which ought to have beene kept asunder: both these grieues the Greeks call *αγκυλοβλήφαρον*.

The kinds of it.

Lib. de morb. ocul. sect. 4. c. 10.

Out of these words of *Galen* and *Celsus*, we may gather that there are two kinds of this griefe: The one is, when the eye-lids cleave one to another: The other is, when the eye-lids grow to the Conjunctiva and Cornea. *Guilmeau* noteth that the first happeneth from the nativity, as the matrix is often shut up. This I will leave to that part of Chirurgery, called by me *αρθροτική*, which teacheth to disjoyn and separate those parts which are unnaturally united. As for the second, seeing it is an accident which hath happened to an ulcer of the eye negligently cured, I am not to let this passe.

The Prognosticks.

I marvell that *Guilmeau*, in the booke and chapter aforementioned, pronounceth out of *Celsus* and *Mesius*, not noting the places of the Authors, this griefe to be incurable: Seeing not onely *Celsus* and *Ægineta*, but he himself doth set down the manner of curing of it, which he might well have spared, if he thought his labour lost. Yea, *Pabric. ab aq. pend. operat. chirurg. part. 1. c. 8.* who in all Chirurgical operations is very wary, doth inject no such scruple; but boldly proceedeth in the curation: you are not to be daunted then by his discouraging. If the eye-lid cleave to the Cornea, against the apple of the eye, the sight never will be perfect; because the scar will hinder the passing of the *Species visibiles* to the chrystalline humor.

The manner of curation.

As for the manner of curation, it is performed by manuell operation onely: in this operation goe on thus: Having placed the Patient in that posture as you shall thinke most convenient for your hand, lift up the eye-lid which cleaveth to the membranes, and pnt betweene the eye-lids and the membranes, in that part which is free (for never doth the eye-lid wholly cleave to the tunics, as *Aq. pendens*. well observeth) an instrument like to that which you call the capitall instrument, the gibbous or arched part being blunt, and having a back; but the belly being as sharp as a razor: when you have compassed all the part united, having turned the back of the instrument towards the eye-lid, cunningly separate the parts united, neither offending the eye-lid,

Loco citato.

nor

nor any tunicle of the eye. But if either of these must be touched, it is best that the eye lid suffer, than any tunicle: for it may more securely suffer the injury. When this operation is performed, if you be not vigilant in keeping the parts separate asunder, they will easily unite againe as *Celsus* noeth.

In setting downe the operation, *Celsus* calleth the instrument *Specillum*: As for that instrument which goeth commonly amongst the Ancients under the name of *Specillum*: It did absolutely represent your ordinary *Spathula's*, being on the one end narrow and round, to serve for a probe, ending in a round small button, to hinder it from offending, when you are to trie the depth of an ulcer, or wound, and on the other broad and flat, to spread your unguents: of the broadest end *Galen* speaketh, *Method. 13. c. 5.* where he adviseth to besprinkle an ulcer with the powder, using *lato Specilli mucrone*, the broad end of the *Specillum*, or *Spathula*.

One thing is to be noted, that if (in putting in of the instrument into the eye, to comprehend the parts united) you feare to hurt any part with the point, then it is requisite to arme it with a little wax, that it may be like the end of a probe.

To the parts thus separated, apply a Collyrium made of *Plantane-water*, and *Tochisci albi Rhasis sine opio*: dissolving in an ounce of the water, a dram of the *Trochifces*. Keepe the parts asunder with small dosils of lint put between the parts disjoyned, laying upon the eyes a couple of boulders, crosse-wayes, moistened with the afore-named medicament, and then rouling it up: Dresse the eye morning and evening, to hinder union, and hasten the cure, untill the incised parts be cicatrized, and no feare left of cleaving together againe of those parts, which by manuell operation were severed.

## LECT. XXVI.

Of *Ozæna*.

HAVING set downe the ulcers which ordinarily possesse the eares and eyes, I must not let those passe which sometimes trouble the instruments of the other two senses, to wit, smelling and tasting, which are the nose and the mouth. Of all the ulcers

of the nose, I will onely speake of Ozæna, omitting the rest; because they require no singular consideration: for the generall indications of curing of ulcers, will serve to lead any man to the curation of these.

The Etymon.

Ozæna hath its denomination from *ὄζον, us*, which according to *Celsus, lib. 3. c. 11.* is *Factor oris*, the stinking of the breath.

What it is.

Of it *Galen, de comp. medicam. sec. loc. lib. 3. c. 3.* so discourseth: Polypodes are bred in the nostrils, which are tumors unnaturall: but Ozæna are a kinde of ulcers, &c. First of all, I will speake of the Ozæna, which are produced of the influxion of sharp, and putrid, or rotten humors. These humors, if they be onely sharp, they produce ulcers hard to be cured; but not of a grievous smell: Out of *Galen* then you may gather, that Polypodes are onely tumors

The differences of Ozæna.

in the nose, but Ozæna are ulcers. Secondly, that there are two sorts of Ozæna; the one is of these which erode, being caused of the influxion only of sharp humors, but stink not. The other is of these which smell grievously, and are caused not onely of sharp humors, as the former, but such also as have putrefaction annexed to the erosion. *Azuar. lib. 2. c. 10.* so speaketh of this kinde of ulcer. Ozæna doth manifest it selfe by its very name, which it hath taken from the stinking smell which it sendeth out. It is caused when rotten and corrupt humors gather about the *Meatus colatorii*, or the holes of the Ethmoides, and communicate their malignity to the adjacent parts, and infect others which flow thither with their ill smell. And although at all times the breath of the Patient stinke; yet it is chiefly observed in strong expiration. *Celsus, lib. 6. c. 6.* thus writeth: But if ulcers be about the nostrils, which have crust, and an evill smell (which the Grecians call Ozæna) you are to understand that this griefe can hardly be cured: so that you see that to erosion and putrefaction *Celsus* addeth crusts in an Ozæna. *Gorrem definitionum med. lib. 13.* affirmeth that this griefe is more frequent in our times, than it was when the ancient Authors lived and practised: by reason of the *Lues venerea*, or great Pox, which hath gotten sure footing in all Nations, and may be accompted the badge and character of wandring lusts, and Gods judgement inflicted upon some for this hainous offence.

The Ozæna of the Ancients.

The Ozæna of the Ancients was onely a maligne ulcer: but ulcers of the nose which are seene in the great Pox, are symptomes of that griefe which is contagious, and by contact may infect others.

others. *Aegineta lib. 3. c. 24.* affirmeth Ozæna to be a carious and rotten ulcer, bred of sharp humors flowing to the nostrils, and eroding them.

Out of these discourses of the Ancients, this description of an Ozæna may be framed: Ozæna is a malignant ulcer in the nostrils, about the holes of the Ethmoides, caused of sharp humors eroding the parts, if no evill smell be adjoyned; or having a putrefactive quality, if a noysome smell accompany the ulcer; sometimes without, sometimes having crusts.

The description of an Ozæna.

The causes antecedent are corrupt and sharp humors flowing from the braine; but sent thither by the veines and arteries, where in such humors are contained.

The antecedent causes.

The causes conjunct are these same humors impacted, and sett'ed in the part.

The conjunct causes.

The Ozæna is two-fold: for it is either not contagious, such as the Ancients knew, or it is contagious, a symptome of the French disease.

The differences.

As for the Prognosticks, receive these:

The Prognosticks.

I. All sorts of Ozæna are of a malignant nature, because such is the humor which produceth each one of them.

I.

II. All such ulcers are of hard curation: First, because the brain doth still afford plenty of these corrupt humors. Secondly, because the part affected is of a moist temperature. Thirdly, because the faculty of internall medicaments, which are prescribed for correcting of the malignity of the humors, is much abated before it come to the head.

II.

III. An Ozæna, a symptome of the Pox is more easily cured, than that which is a disease it selfe: First, because the last cometh neerer to a cancerous quality than the first: Secondly, because wee have more sure medicaments against the first than wee have against the second: if this kinde of ulcer continue long, it taketh away the sense of smelling.

III.

IV. That which is apparent is of easier curation than that which is hid or latent: seeing then the ancient Authours, with an unanimous consent, pronounce the curation of an Ozæna to be difficult, in setting downe the method of curing this grieve, my part is to shew unto you what meanes moderne practisers by their industry have found out to remove this doubt of hardnesse of curing.

IV.

The meanes then which are appointed for the curation of this

The meanes of curing.



this malignant ulcer are either Physicall or Chirurgicall.

Physicall.

The Physicall are in number three : to wit, observation of a good Diet, Phlebotomy, and Purgation.

The diet.

As for the Diet, that is most convenient which I set downe in the two former Lectures, wherein I discoufied at large of the curing of ulcers of the eyes. If any one offer himfelfe to be cured of fuch an ulcer, let him be tied to thefe observations: Firft of all, that he fhun all forts of meats which are either of an hard concoction, or afford a corrupt and evil ioyce. Secondly, that he ufe great moderation in the ufe of whofome and convenient food.

How fasting is profitable.

Fasting often in this cafe is very requifite : Firft, becaufe it drieth the habit of the body: Secondly, becaufe it furthereth concoction : Thirdly, becaufe by fasting thofe vapours are digefted, which otherwayes would mount up to the head. And although in the beginning, while the body is fraughted with fharp humors, the fore may be exasperated by fasting : yet after that the body is cleane, and difcharged of fuch humors, by frequent evacuations, you fhall finde the commodity of fasting : howfoever, the dinner muft not be riotous, and the fupper very fpare.

Phlebotomy.

The fecond Physicall meane is Phlebotomy : If the body be plethorick, Firft, open the Cephalica of the right arme in the Spring and Summer ; but of the left, in the Harveft and Winter : Then three or foure dayes afterward, open the veines under the tongue, which will ferve for derivation of the humor, as the former did for revulfion of the fame.

The commodities of it.

This muft much further the curation : For Firft, Phlebotomy impaireth the quantity of the humors contained in the maffe of the blood : Secondly, it maketh way for the receiving of better blood into the veffels, which of a neceffity muft enfue after the appointing of a convenient diet, and exquisite purging of the body, which immediately after Phlebotomy is to be performed.

Purgation.

The third Physicall meane appointed for the curation of an Ozana, was faid to be purging of the body by catharticall medicaments : for vomitive medicaments are not fo convenient as the catharticall, in the difeafes of the head, unleffe the ftomack be foule, and pelted with raw and corrupt humors, which require a long time for concoction : Vomitions (as is confefled by all Practifers) fend up vapors to the head.

Their kinds;

Thefe purging medicaments are of two forts : for they are either vegetable, or minerall.

As for the vegetable medicaments, they must be of the strongest, which are appointed for disburdening of the head of ill humors: such are Agarick, Turpetum, Coloquint, Scammony, the black Ellebore. But seeing the purgative simples are seldome ministred alone, I will shew unto you what compounded medicaments are fittest to be used in this case. The compounded purgative medicaments are either Pils or Potions. The vegetable purgatives.

As for the Pils: If the humors be mixed, then use *Extractum Pambimogicum* of Paracelsus, or the *Pilula extracta Rbizidii*; of them minister halfe a dram for a dose: Let the Patient use this medicament twice a weeke. If choler and flegme corrupted be the materiall cause of the ulcer, then minister the pils called *Sine quibus esse nolo*. If thick and grosse humors be the cause, minister *Pilula aurea, & coccia*. if corrupt flegme be the cause, minister *Pilula de Agarico*. Of these pils minister one dram for a dose: let the number of the pils be according to the swallowing of the Patient.

If the Patient be hard to be moved to the stoole, you may acuate, and make the pils more effectuell, by adding to every dose of the pils foure granes of the Trochilces of Alhandall, and three graines of Dacrydium.

If the party cannot swallow pils, then you are to minister potions. The Electuaries most fit for this purpose, are *Diacarbolicum, Caricostinum, Diaphœasicum, Electuarium de succo rosarum, Confectio Hamech, Diacarthamum*. Of these Electuaries, and convenient syrups, distilled waters, or decoctions, you may make potions fitting the constitutions of the parties grieved. Purgations.

For one of a cholerick constitution minister such a potion: *Rx Caricostin. & Electuar. de succo ros. an. ʒ iij. Syrup. de Cichorium Rbat. ʒ j. aq. Endivia ʒ iij. Misc. ut fiat potio.*

If the party be of a phlegmatike constitution, minister this potion: *Rx Diaphœn. & Diacarthami, an. ʒ iij, Syrupi ros. solut. cum Agarico ʒ j. aq. Beton. ʒ iij. Misc. ut fiat potio.*

If the diseased person be of a melancholy temperature, then minister this potion: *Rx Confect. Hamech ʒ iij. Diacartham. ʒ iij. Syrupi Augustani ʒ j. aque Fumariae ʒ iij. Misc. ut fiat potio.*

Thus you may purge the body with vegetable medicaments, if the body of the diseased party be weake, or if you feare the use of minerals. But let me insinuate so much unto you, that the mineral medicaments, if they be well prepared, are most effectuell,

and if they be ministred by a skilfull Practiser, howsoever they are slighted and despised by those who glory of the denomination of Galenists, amongst whom some may be found whose skill is inferior to the envy of an understanding man.

Minerall medicaments.

The minerall medicaments are more subtill and piercing than the vegetables, and sooner alter the complexion of the party unto whom they are ministred. These medicaments are most commonly taken from Antimony and Mercury.

Antimony.

The Antimony which purgeth most by stoole is excellent. The Sulphur of Antimony drawn by Art from the recements of the Regulus is good; as also the Regulus it selfe calcined and fixed with Saltpeter, and brought to a white powder. The glasse of it, and *Crocus metallorum*, are not so convenient and secure, because they procure strong vomitions.

Mercury.

There be divers preparations of Mercury which are very effectuall; as Mercury precipitate, with *Aqua fortis*, the oyle of Vitrioll, or Sulphur, with Gold or Silver, or precipitate alone, without the addition of any thing. There is none of any note amongst you, who is not able by one preparation or another of Mercury to procure salivation.

These Mercuriall medicaments are effectuall, as well in an Ozæna which is a primary disease, or of it selfe, as in that which is a symptome of the French Pox. You have heard what dyet is most convenient, and what internall medicaments are most effectuall in curing of an Ozæna: The last point which I propounded unto my selfe to attaine the curation of this ulcer, was the right use of the externall medicaments.

The externall medicaments.

These are in number two; to wit, the locall medicaments, and the actuall cautery.

How the crusty substance is to be removed.

As for the locall medicaments, they are either waters, or decoctions, or unguents: But before you apply any medicaments to mundifie, incarnate, or cicatrize, you must labour to remove the crusty substance, which doth fix it self in the fore-part of the Ethmoides, or Os Cribriforme: and that for two causes: First, because the braine is hindred from discharging of the residue of the maligne humor, which causeth the ulcer, and so the curation is protracted: Secondly, because the medicaments cannot touch the affected parts, and so no alteration can be procured.

For the removing of the crusty substance, I commend unto you two medicaments:

The

The first is this: *Rx Ol. Amygdalarum dulcium ʒj. Spermat. Ceti ʒij. exquisitè miscantur.*

The second is this: *Rx Axung. Vrsi ʒj. Pinguedin. Taxi ʒʒ. ol. Semin. lin. ʒij. Misc.*

You must thus dresse the Patient: Turn his face upward, and let his head be bent backwards, then morning and evening with three feathers tied together, drop still some of these medicaments warmed in a Sawcer, into the nose, and let the party grieved still draw in his breath, untill he feel the taste of them in his mouth.

The manner of the applying of these medicaments.

When you have perceived that the crust is soft, morning and evening let him snuffe up into his nostris some of this sternutatory powder: *Rx Ellebor. albi, Nigilla, Tobacc. an. ʒj. Rorismar. Salv. a. ʒij. Moscobi gr. ij. fiat pulvis subtilis.* Let him snuffe a little up into his nose every morning, after you have moystened the crust with some of the medicaments set down before. When part of the crusty substance is falne out, dresse it still after this same manner, untill all the crust is spent: then proceed to the application of the medicaments named by name.

The medicaments to be applied.

Use these waters.

First, the preheminnence shall be given to *Aqua aluminis magistralis* of *Fallopins* allayed with Plantane, or white Rose-water.

I. Waters.

The second shall be this: *Rx Aq. Plantag. Card. Benedict. Ceras. nigror. & fragor. an. ʒiiij. Spirit. Vtriol ʒi. Misc.*

The third shall be this. *Rx Aq. aurifabror. & gemar. quercus an. ʒiiij. Alum. ʒij. Exquisitè miscantur & depurentur.*

The fourth shall be this: *Rx Aq. Alum. & Plantagin. an. ʒiiij. Mercur. dulcis ʒii. Digerantur in cinerib. calidis per hor. 2.*

As for Decoctions, I commend unto you these:

I. *Rx Flor. ros. rub. pug. ii. Balsamior. ʒʒ. rad. Tormentill. ʒi. fol. Plantag. Polygon. & Vincæ pervinc. an. pug. 1.* Boile these in six ounces of spring water, untill the half be consumed; straine then the three ounces remaining, and dissolve in them one ounce of *Mel rosatum.*

II. Decoctions.

II *Rx Rhois Cori. ar. lb. ʒ. Alumin. ʒii. coq. ista ac clarificentur albimine ovi unius, ac colentur. Colaturæ adde mellis rosat. Syrup. Myrtill. & de ros. rub. sic. an ʒi.* I will not trouble you with great variety, as I might out of the monuments of the Ancients; seeing these will suffice, or else none.

The waters and decoctions you must inject by a syringe warm to make your topicks answerable to the ayre, which is drawn by

The manner of using of waters and decoctions.

the nostrils, in the first qualities, to wit, moist and hot : moist, I say, *actu* ; but *potentia*, drying ; seeing ulcers require such medicaments : seeing both waters and decoctions being applyed, doe quickly evaporate, and leave the part affected dry, and thirsting for other topicks.

The unguents. The unguents shall offer themselves ; I will not supererogate in this point, but will onely deliver unto you such as shall be effectuell ; and what is deficient in number, shall be supplied by efficacy. Receive this as the first, out of *Daniel Sennert. m. d. pract. lib 1. part. 3. sect. 4 c. 1.* R*x* *plumb.usti, lithargyr. an. Di. ceruss. bol. Armen. balausi. an. S*ol. ros. myrtin. an. ʒ*β. cere alb. Di. Ducantur ista in mortario plumbeo, donec acquirant unguenti consistentiam. The second shall be this: R*x* unguent. de tutia, & unguent. albi capburati, an. ʒi. ol. myrtill. & cydon. an. ʒii. Mercur. dulcis ʒi. ʒ. pulverizati. Miscantur. These ulcers are to be dressed twice a day, morning and evening.*

Cancerous  
ulcers.

Cancerous ulcers also seaze upon this part. This grieffe hastened the end of that famous Mathematician, Mr. Harriot, with whom I was acquainted but a short time before his death ; whom at one time, together with Mr. Hughes, who wrote of the Globes, Mr. Warner, and Mr. Turperley, the Noble Earl of Northumberland, the favourer of all good learning, and Mecænas of learned men, maintained while he was in the Tower, for their worth and various literature. But seeing those documents which I delivered for the curation of cancers already, may suffice, I will onely set down the description of an effectuell water in this grieffe, which is this :

A water for a  
cancer in the  
nose.

R*x* *spermat. ranar. & limacum, an. lib. ii. gemmar. quercus, & bedere terrest. an ʒiiii.* Extrilietur aqua è stillatorio communi, unde prolici solet aqua rosacea in recipiens cui immisse sint capbura calcinata ʒii. Inject this water into the nose, and lay to the sores either double clouts, or lint moistned in this water, as you shall think most fit, morning and evening.

The applica-  
tion of the  
actuall cau-  
tery.

It resteth onely now that I speak a little of the application of the actuall cautery, which was said to be the second externall mean in the curing of an Ozæna : this meane is only used when the sore is rebellious to powerfull ordinary means ; which hapneth either by reason of malignity, or too much, or superfluous humidity ; for according to *Hippocrates aphor. lib. 1. aphor. 6.* Against extreme griefes, extreme remedies are best.

When it is to  
be applyed.

The uses of it.

The actuall cautery is applied for two purposes :

First,

First, to cause an eschar by impressing of it upon the ulcer.

Secondly, it is used onely to dry the ulcer, by often applying of it, still desisting before the party feel any paine, by reason of extreme heat.

If you meane to procure an eschar, both the ends of the pipe The pipes. by the which the cautery is carryed, must be open; but if you intend desiccation, the end which you apply to the ulcer, must be shut.

If you have procured an eschar, the fall of it is to be procured as I did shew in removing of the crust: this being done, proceed in curing of the ulcer as hath been taught.

If onely you have caused desiccation by iteration of the application of the actuall cautery, the manner of curing is not to be altered.

LECT. XXVII.

*Of the ulcers of the mouth.*

**N**OW am I to discourse of such ulcers as befall the instrument of taste, which is the mouth.

It beginneth at the lips, and reacheth to the beginning of the wind-pipe, and the *Gula*, or mouth of the stomach. The limits of the mouth.

It hath foure uses: I. It serveth for breathing, it sending fresh aire unto the lungs, and discharging fuliginous vapors sent from the heart by the *Arteria venosa*. The uses of it.

II. It receiveth the food, and having prepared it by the chewing of the teeth, and the mandible, it sendeth it to the stomach there to be chylified.

III. It serveth for speaking: the externall and internall parts of it serving for the framing of the voyce.

IV. It serveth for the discharging of the excrements of the braine, by spitting out of the excrements of the lungs by expectoration, and of the excrements of the stomach by vomiting.

Seeing then the uses of it are so manifold and necessary, it behooveth me to discover such diseases (belonging to our purpose) as deprive us of one or more of these commodities which it affordeth to us. But seeing some of the parts of it are externall, as the lips; and internall, as the teeth, gums, rooffe, the tongue, the almonds;

monds, the *uvula*: I will onely meddle with the ulcers of the lips, roose, tongue, almonds, *uvula*, and the ulcers of it beyond the *uvula*, as onely being proper to my intention.

Of the ulcers  
of the lips.

I will begin first with the ulcers of the lips: how hurtfull the ulcers of the lips are, you may gather from the commodities, which they (being sound) afford to man.

The lips afford a sixfold commodity to the life of man:

The commo-  
dities of the  
lips.

I. They serve for the conveniencie of eating and drinking, for they keepe in the meat untill it be chewed.

II. They beautifie the face if they be well fashioned.

III. They keep in the spittle of the mouth.

IV. They keepe the teeth and gums from externall injuries.

V. They serve for the framing of the speech.

VI. They serve for kissing, the earnest penny of Iust.

And although the benefits which doe redound unto us by the lips, being well effected, may be hindered by sundry meanes; yet I will touch onely but two sorts of solation of unity befalling to the lips, as proper to the subject which I have in hand, which are the chaps of the lips, and the ulcers of the same.

The chaps of  
the lips.

*Fissura labiorum*, or the chaps of the lips, proceed from a salt, sharp, and drying humor, which causeth these narrow, but long small ulcers, which are hot and painfull, chiefly when the party speaketh, eateth, or laugheth.

Their cause  
materiall.

Predictions.

These chaps, although they may without any great difficulty be cured in persons of laudable constitution, yet in cacochemical bodies they will give you somewhat to doe: in so much that the Patient will wonder and fret, that such toys and trifles cannot more speedily be cured; for so they terme such griefes, considering not the quality but quantity of the greife.

The curation  
of these.

For the curation of these, I will commend unto you two medicaments of my owne; which I familiarly use: The first is this: *Rx cer. flv. Zij. ol. ros. mell. & axung. porc. in aq. ros. lot. an. Zij. li- tharg. argenti, myrrhe, zinzib. pulv. an. Zj. stat linimentum s.a.* First, moisten the part with the parties owne spittle, and then anoint the part affected with the liniment: it is effectually, not onely in chaps of the lips, but in other chinks or *Fissurae* in what part of the body soever they be; and it cureth speedily.

The second is a *Pomatum*, the description whereof is this: *Rx Poma numero 3. quibus insige cariophyll. ℥ss. styrac. calamis. ℥iij. ben- zoini ℥ij. ladan. ℥i℥ss. calam. arom. cinnamon. an. ℥j. axung. porc. lib.*

*lib. ij. aq. lavenderul. & ros. an. ℥iiij. Moschi, civete an. gr. iß. Indantur ista vasi terreo satis amplo, ac calore B M, evaporentur aque, & coletur pomatum, quod in vase puro servetur.* You may conjecture the efficacy of this medicament by the ingredients.

As for the ulcers of the lips, they are either milde, or maligne. Ulcers of the lips.

As for the milde ulcers, this oyntment described by *Rinoda* For the milde:  
*us, Antidot. lib. 5 sect. 1. cap. 11.* which he calleth *Unguentum de minio*, or *Unguentum rubrum capburatum*, is very effectuall: *compos. hæc est: R minii tritii ℥iiij. lith. ar. argent. ℥ij. cerusse ℥iij. tut. ℥ii. capbur. ℥ij. ol. ros. lib. j. cer. albi, ℥iiij. fiat ung. ut ars præscribit.* This unguent is effectuall against even old and inveterate ulcers, in what part soever of the body they be.

If you perceive an ulcer of the lip to be malign or cancerous, which you may conjecture if the colour be livid, or blackish, if the brims be hard, if the heat and paine exceed the quantity of the ulcer, and if it yeeld a fanious and ill smelling quitor; then are you to look about, and to espy which are the most powerfull medicaments. For the maligne.

When I discoursed of a Cancer, a Nome, and a Phagedænicall ulcer, I delivered unto you choise of locall medicaments: for such ulcers, if they happen to invade the lips, at this time I will onely deliver unto you a description of a distilled water, and of a magistrall unguent.

The water is thus to be made: *R fol. plantag. solani hortens. veronic. sempervivi major. & minor. an. man. iiij. albumina ovorum conquisata numero xij. & uniu. contus. lib. ß. capbur. ℥iij. Excoletur aq. calore balnei: fomentetur canerosum aut malignum ulcus hac aqua, que & faciei ruborem tollit.* The description of the unguent is this: *R plumbi ℥iiij. fundatur in crucibulo, eique addatur Mercur. ℥iij. postquam refluxit man. in pulverem vertatur massa, cui adde unguenti de rutia ℥vj. cere ℥ii. terebinthin. ℥j. myrtil. ℥iij. fiat ung. quod ulceri post fetum applicetur. Delinatur ulcus singulis diebus quoties opus est.* If you find the ulcer to be rebellious, and not to yeeld to these very convenient and effectuall meanes, then are you to apply such medicaments as I have set down for the curation of Nome, Phagedæna, and Cancer, when I discoursed of them, whither I remit you, to shun tedious and fruitlesse repetition.

To the ulcers of the lips, the ulcers of the *Palatum*, the roof The ulcers of the Palatum.  
of the mouth must be annexed: It is vawred, that the aire being repercuſſed,



Its figure.

The instrument of tasting.  
The instrument of feeling.

What is to be done when *Os palati* falleth out.

Of the government of the tongue.

repercussed, the voyce should be the sharper : it is wrinkled and rough where it covereth the bone, that it might the more firmly cleave to it, and the better stay the meat whilest it is in chewing.

Now seeing all the internall parts of the mouth are indued with the sense of tasting, but chiefly the membrane which covereth the tongue, and have the exquisite sense of feeling by reason of the nervous fibres, whereof they have great store, you are to have a care that your locall applications be not distastfull and loathsome, seeing the parts will abhorre them. If then the wrinkled skin, which covereth the *Os palati*, be ulcerate : first, touch it with *Aqua Fallopii*, allayed with Plantane water, if it be foule; or with this : *Rx aq. plantag. card. benedict. & spermat. ranar. an. ℥iij. mellis ros. ℥ij. ol. sulphur. aut vitriol. ℥j. Misc.* Having touched the ulcer with either of these waters warmed sufficiently, apply this medicament : *Rx syrup. è ros. rub. sicc. e baccis myrti, & de succo granatorum an. ℥j. ol. vitriol. ℥℥. Misc.* Seeing the part is moist, and will not admit any deligation, you are to dresse it the more often. If you perceive the *Os palati* to be bare, then mingle some of this powder following, mingled with these syrups : *Rx jar. bord. rad. irid. hyssopyi, tormentill. an. ℥℥. mastiches, boracis, sarcocoll. an. ℥℥. fiat ex omnibus pulvis.* If the rough skin unite, as I have often seen, then have you obtained your desire.

If a small peece of the *Os palati* fall out, using these incarnative meanes, and keeping the brims of the ulcer raw, you may bring them together ; but if a large peece of the bone come away, there is no hope of union. In this case, you are to cause the party to weare a plate of silver to supply the defect of the bone, that his speech bewray not the losse of it.

The third internall part of the mouth, which useth to be ulcerate, is the tongue. The tongues of Angels are not able to express what benefits doe redound unto man by the right ordering of the tongue, and what harmes and inconveniences againe when we give it free reines to lash out. The frequent exhortations from the second, may make us wary in our discourses and conferences. It is that part of the body by the which God is chiefly Glorified; by it we praise and magnifie him, as godlesse persons blaspheme him ; with it we confesse our sins, by the which we provoked him to anger ; and againe we poure out our prayers with the tongue to obtaine remission for them.

The



Answer.

I answer, because there was no mention made of these medicaments at the first, and it was too late to minister them at the last, nature being surpris'd; for this only would have made the medicaments odious, and the Physician (who should have advised this course) obnoxious to calumny and reproach.

Of ulcers of the Uvula.

Now time admonisheth me to come to the ulcers of the Uvula, or gargarion.

Of mild ones.

If they be milde and ordinary, the former medicaments set downe for the curation of the tongue will suffice.

Of fretting ulcers.

But if it be a fretting ulcer, first you are to admonish the Patient of some accidents, which may ensue: and those are two in number.

Prognosticks.

The first is, that if the Uvula be wholly fretted away, the party shall hardly be able to speak clearly and distinctly. Howbeit both *Barbinus* in his *Theatr. anatomicum*, and *Guilielmus Fabricius cent. 2. observ. 21.* doe affirme that in some they observed it to have bene lost, not leaving any defect in their speech.

The second accident is, the danger of phtisis, or cough of the lungs, for this is to be feared, seeing the member which did hinder the roushing in of the cold ayre into the lungs, and put back from the breast humors distilling from the head, is wholly taken away. Having acquainted the Patient which prognosticks, I proceed to the curation.

The curation.

This is performed either by the application of convenient medicaments, or else by cutting it away.

1. By medicaments.

As for the medicaments, use first this gargarisme: *Rx fol. plantag. veronic. et sigill. Salom. an. man. ʒ. scord. orig. centaur. minor. an. man. ʒ. Bulliant ista in lib. 2. aq. font. ad consumpt. lib. 1. & coletur decoctum, in quo dissolve oxymellis simplicis ʒ iij.* Then touch the sore morning and evening with this linement: *Rx ung. Agypt. ʒ ʒ. alum. pulv. ʒ ʒ. mell. ros. ʒ i ʒ. Misc. applicetur mane & vesperi.*

If it proceed from a venereall cause, use this topick twice a day: *Rx aq. card. benedict. & plantag. an. ʒ vi. aq. fort. ʒ i. Misc.* you may also use the blue water, which you may buy for three pence a pinte after the silver is separate, after solution, and hath no other mettall in it, but a little of *Venus*. If these meanes will not prevaile, then you must wholly cut it away.

\* Lib. cap. 3.

But according to *Valescus de Taranta*, \* you must observe these five things before you goe about this operation.

1. You must purge the body well.

2. No humor must be in flowing to the part.
3. You must not attempt this operation as long as there is hope that other medicaments will prevaile.
4. Goe not about this operation, unlesse it be small about the root; for if it be thick, and red, or blue, such a flux of blood may ensue, as will strangle the party, and cause fainting.
5. Marke how much of a necessity must be cut off, for a little remaining will both further the speech, and repell the cold ayre from the lungs. If after the cutting of it off, a flux of bloud ensue, either apply astringent powders to it, or else cauterize it with the Uvula spoone made hot.

If the Tonsilla or almonds be ulcerate by reason of the influxion of sharp humors, which your eyes can discern, the tongue being pressed downe by your spathula, carry in mind these prognosticks.

- I. If the ulcers be without a fever, they are the more safe.
- II. If these ulcers happen in the summer, they sooner spread.
- III. If the almonds become scirrhous, they are hardly or never cured.

IV. These ulcers as all other ulcers of the mouth, require stronger desiccatives than the ulcers of the externall parts: first, to hinder them from spreading. Secondly, because they are still kept moist with the spitte.

For the curation of these ulcers, I will deliver unto you two locall medicaments: The first is the decoction of the root of the devils bit to be used in steed of a gargarisme. The second is a liment to be applyed after gargarization tryed by *Sennertus*, and set downe *medicin. pract. li. 2. c. 22. R. centaur. minor. rad. irid. stercor. canini. an. ʒj. cum melle despumato sicut electuarium*. As for the faculty of a white dogs turd, read *Galen. li. 10. de simpl. med. facult. c. de stercore canino*.

If the throat beyond the Uvula be ulcerated, use this water in steed of a gargarisme as a certaine experiment. *R. aq. plantag. li. ʒj. ros. rub. flor. arantior. an. ʒj. pulv. Ader. subli. ʒij. digerantur in arena per horam quadrantem ac coletur aqua, que in vase vitreo servetur ad usum*. If by reason of these ulcers the party cannot swallow any solid meat, minister to the Patient *mercurius dulcis* for foure mornings together, and you shall perceive a wonderfull effect. Give it in new milke.

## LECT. XXVIII.

## Of the ulcers of the lungs.

Seeing the lungs very often become ulcerate, a solution of unity in the substance of them, or an apertion of the vessels of them which are the branches of *vena arteriosa*, and *arteria venosa*, being caused by a wound: I must not let such ulcers slip untouched.

The causes of the ulcers of the lungs after a wound.

The causes of ulcers of the lungs after a wound inflicted may be assigned two: to wit, a solution of unity in the substance and vessels of the lungs, and the effusion of blood into the hollownesse of the breast. You shall discern the lungs to be wounded,

Signes of the lungs wounded.

I. First, if frothy blood issue out of the wound and mouth by coughing, which shew some of the vessels to be wounded, and opened.

II. Secondly, difficulty of breathing troubleth the party wounded.

III. Thirdly, the paine of the sides is grievous, which he felt not before.

IV. Fourthly, it is more easie for the patient to lie upon the wounded, than the whole side: So that often he can speak readily so lying, but being turned upon his sound side he can but with paine and difficulty speake.

Signs of blood poured out into the capacity of the breast.

You shall perceive and gather blood to have beene poured out into the capacity of the breast by these signes.

I. First, if a heavy weight seeme to presse downe the midriff.

II. Secondly if the party breath with great difficulty.

III. Thirdly, if the fever increase.

IV. Fourthly, if the wounded party void blood at the mouth.

V. Fifthly, if the breath of the party stinke after a while, for that betokeneth the blood to be turned into quittour.

VI. Sixthly, the wounded person can onely lie upon the back.

VII. Seventhly, the party hath a desire to vomit, and striveth to rise, from whence ensueth fainting; for noysome vapours arising from the clotted blood turned into quittour assault the heart, and weaken it exceedingly, and dissolve the faculty of the stomach.

After

After that the wound is inflicted, and that you have dressed it so long a time as you have required in former times for healing of a penetrating wound of the breast, (which will be shorter in the summer, then in the winter: for heat helpeth digestion) you may feare that a fistula at the least, or a putrid ulcer of the lungs will ensue: chiefly if a thinne sanies, and not a laudable quittour doe flow out, farre in quantity exceeding the bignesse of the wound.

Whether after a wound of the lungs an ulcer will ensue.

Why in wounds of the lungs, so much quittour every day is sent out, these are the causes.

Why wounds of the lungs send out much quittour.

I. The vicinity and neerenesse of the heart, which being the wellspring of the vitall blood, doth send too much of it to the part affected: And when as it cannot make use of all of it by reason of weaknesse, it turning the remainder by its naturall heat into quittour, dischargeth it by the orifice of the wound.

I.

II. Because the sound parts send unto the diseased blood and spirits without meane or measure.

II.

III. Because the lungs draw more nourishment to themselves by their motion, heat, and paine, than they are able to digest.

III.

IV. Because the ulcer like a devouring wolfe by its malignity and filth, presently corrupteth the blood sent for nourishment unto the lungs, turning the greatest part into quittour, and defrauding the part affected of maintenance: from whence ensueth the extenuation of the whole body.

IV.

Now that you may the better foresee and foretell to the patients the events of such ulcers, I would have you to marke these prognosticks which I shall deliver unto you.

The Prognosticks.

1. All ulcers of the lungs are hardly, or with great difficulty cured, and that for foure causes.

1. Because the muscles of the breast, lungs and heart, are in perpetuall motion: now motion hindreth consolidation, as all by experience know.

2. Because the lungs are onely environed by the Pleura, the skin inwardly investing the ribs, which is endued but with small store of blood, and being a spermatick part, to wit, a membrane, is not easily united; and that onely by the second intention.

3. Because locall meanes cannot be kept to these ulcers, by rowling, bowlstering, and emplastring, as they may to the ulcers of the externall parts.

4. Because the orifice of the ulcer is not most commonly in a

depending part; but either parallel, or higher than the ulcer. How hard a matter it is for quittour to ascend, I leave it to your consideration.

5. If the party pine not away, if he expectorate easily, if he sleepe reasonable well, if he digest his meat, if his stools be orderly, if the quittour be indifferent good, you may conceive some hope of the cure.

6. But if the diseased parties breath smell ill, if he consume, if the quittour which floweth from the ulcer stink, if he hath a grievous cough, and difficulty of breathing, if a lingring putrid fever troubling him chiefly toward night, and hindering his sleep, follow him, if his appetite decay, and the concoction of the aliments be empaired; if a rotten peece of the liver, or of the branches of the windpipe be thrown out at the mouth, if he have a whistling voice as if he spake thorow a cane, his case is desperate.

7. If his haire fall, which happeneth by reason of the want, and corruption of the nourishment: if the nailes grow crooked, the flesh of the tops of the fingers being spent, if the cheekes grow to be of a leady colour; but when after meat they seeme ruddy, vapours mounting thither; if the feet begin to swell, the naturall heat being spent, if lice multiply by reason of the corruption of the humours, you may pronounce that a *diarria* or humorall flux ensuing, the party shall depart.

VIII. Although some have lived many yeeres who have had an ulcer of the lungs, as *Avicen* reporteth, that he saw a woman who lived twenty three yeeres, or thereabout, with an ulcer of the lungs. And as *Marib. de Gradib. in 9. Rbas. c. 54.* affirmeth, that he saw a woman who still was busied about the fire, who lived twenty eight yeeres; yet be not you too forward to take in hand such persons as have ulcerate lungs: for the curation is uncertaine, and that for foure causes.

I. By reason of the symptomes which ensue, as are a lingring fever, and consumption of the body.

II. Because the quittour which is contained in the spongiouse substance of the lungs, cannot be voyded by expectoration without coughing; which doth much trouble the lungs, and exasperate the grieft.

III. Because the medicaments which are ministred to cure these ulcers, cannot come to the lungs in their full force.

IV. Because the fever and consumption of the body require those

Lib. 3. sen. 10:  
tratt. 5. cap. 18.

Why the curation of the ulcers of the lungs is uncertaine.

those things which are moistening, but the ulcer those things which do mundifie, and dry.

If it chance that by Art and good luck you cure an ulcer of the lungs, charge the party that he walk circumspectly in the course of the residue of his life; for many times when the ulcer hath seemed to have been cured, yet the cicatrix being removed by the ill carriage of the patient, the ulcer hath gotten footing, and been the cause of untimely death, as *Galen* witnesseth, *lib. 4. de loc. affect. c. 5.*

When you goe about to cure such ulcers, you are to propose three indications curative to your selves. The indications of curing.

The first is, the appointing of a convenient diet.

The second is, the ministering of fit pectorall decoctions.

The third is, the artificiall dressing of the ulcer.

As for the diet: the party having an ulcer of the lungs, must eat meat of an easie concoction, because nature is much weakened; of good juyce, lest putrifaction be increased; and lastly, of much nourishment, because the body in this griefe is most commonly much extenuate: only I will briefly touch some kindes of food which are endued with these qualities. The dyet.

The first that offereth it selfe is Milk, for it nourisheth the body, it affordeth matter to bloud, it correcteth the acrimony of corrupt humors; with the wheyiest part it mundifieth the ulcer, with the cruddy part it consolidateth, and with the buttery part it moisteneth, and stayeth the desiccation of the body; womans milk is most familiar: By the sucking of a womans breast I saw a Welch Gentlewoman called *Mrs. Price*, recovered of a Pthisis, who could not turn her selfe in her bed, by reason of weaknesse, and could not take any other food. Asses milk is thinner and more wheyish, and so more apt to mundifie. Goats and Cowes milk obtain a meane between these two. Milk.

But lest it corrupt in the stomach, you are to dissolve some sugar or hony in it.

You are to minister it only when the stomach is empty, and no other meat is to be taken before it be digested; otherwise it will crud, become sowre, and be corrupted.

So much of it is to be given, as the stomach of the party can well digest: wherefore first prescribe the lesser quantity, and ascend to a greater.

Abstaine from appointing of it, if the party be feverish, have



the headach, and be troubled with flatulosity.

Snails, Crabs.

Snails and Crabbes are much commended in this grieve; nevertheless, seeing they are of a thick, terrefiall, and slimy substance, and afford corrupt and excrementitious juyce, it may be doubted whether they be good or no: to omit that they are of hard digestion; the broth of them boyled in milk, and sweetened with sugar, and mingled with other broths, may be good: for so the nourishment will be the more solid.

Pectorall decoctions.

As for pectorall decoctions, I will not trouble you with any great varietie of them; onely I will set down a few; but the paucity shall be recompenced with the efficacy.

I. *R. rad. enul. ℥ij. scob. guaiaci lb. β. byssopi, marrub. albi, an. man. ij. polyspod. liquirit. an. ℥ i β. ficuum incisur. passul. major. exacinat. an. ℥ iij. Infundantur infundenda per noctem in aqu. font. fervent. lb. xvij. deinde additis reliquis coq. ad consumpt. lb. vi. ac coletur decoctum, quod clarificetur additis sacchari & mellis. an. ℥ ij. croci ℥ i. atque iterum coletur: utatur eger hoc decocto loco consueti potus.*

II. *R. rad. chin. ℥ iij. symphyti, tormentill. irid. an. ℥ i. capill. verner. tussilag. scabios. marrub. albi, byssopi, an. man. i. flor. viol. borag. buglos. an. pug. i. flor. herbe paralyf. pug. ij. flor. alib. pug. i. β. caricar. ping. ℥ iij. liquirit. ℥ ij. semin. coriand. anis. an. ℥ vi. Infundantur ista ut superiora in pari quantitate aque, ac decoq. ad consumpt. lb. vi. ac coletur decoctum, quo utendum loco consueti potus.*

Every morning the patient is to take halfe a pinte of either of these decoctions warm, and to eat a lozenge of *saccharum rosarum tabellatum*, or two drammes of the conserve of red roses, being a twelve-moneth old.

The artificiall dressing.

Now I am come to the artificiall dressing of ulcers of the breast.

The medicaments which are fittest for dressing, are Injections by a large syringe.

Injections.

As for the simples whereof the injections are made, they must not be of bitter things, as Wormwood, the lesser Centory, or *Cardus benedictus*; for as judicious and diligent *Ambros. Paræus* noteth, *Chirurg. lib. 9. c. 31.* these bitter things being injected, are first drawne in by the spongeous substance of the lungs, and from thence are sent by the *trachea arteria*, to the throat; where such a bitterness is felt that it causeth a desire to vomit; so that they rather hurt then profit.

Absterfive injections.

These injections are either absterfive or consolidative.

Of absterfive injections I will set down a few, as a pattern, by the which you may make others.

I. R<sup>x</sup> marrub. alb. byssopi, scabios. an. mar.  $\beta$ . coqu. in lb. iij. aqua font. ad medietat. consumptionem, ac coletur decoctum; quod postea clarificetur addit. mell. lb  $\beta$ . atque iterum coletur.

II. R<sup>x</sup> aqua. bord. lb. i. mellis ros.  $\zeta$ ij. sacchari rubri  $\zeta$ ij. Misc. bulliant 3. aut 4. ebullitionibus ut injectio clarificetur, qua postea coletur.

If you perceive that the ulcer is sordid, and affordeth much matter, you may adde either of *unguentum Aegyptiacum*, or the oyle of Sulphur, or Vitrioll, so much as you shall find fit to cleanse the ulcer.

When you perceive that the ulcer is sufficiently mundified; which you may gather, if laudable quitour flow, and in no great quantity; then hasten to consolidate the ulcer: I will in this case furnish you also with effectuall topicks, and but a few: the first shall be this:

R<sup>x</sup> decoct. pectoral.  $\zeta$ iii. syrupi è ros. rub. siccat.  $\zeta$ i.  $\beta$ . fiat injectio.

II. R<sup>x</sup> hed. terrest. flor. & fol. symphyt. sanicu. plantag. polygon. millefil. vinc. pervinc. Equiseti, hyper. eupat. beton. valerian. in. man. ij. li. maces numero 40. caneros flavi atil. numero 10. Addita aqua. pluviali: instituat<sup>r</sup> distillatio in alembico, ut extilletur aqua. R<sup>x</sup> aqua. bujus lb  $\beta$ . syrup. myrsill. & è ros. rub. siccat. an.  $\zeta$ i.  $\beta$ . syrupi granat.  $\zeta$ i.  $\beta$ . Adisc. ut fiat injectio.

These injections must be warmed when they are to be used. In<sup>o</sup> to the orifice which is in the breast somewhat must be put to keep it open: this then is to be performed either by a tent, or a pipe made either of gold or silver.

The materials of the tents are three; lint, fine tow, and a sponge. Lint is altogether unapt, for it is apt to fall a sunder after that it is made up into a tent: if therefore a peece of it part and rest upon the *diaphragma*, it must putrifie there, and send noysome fents unto the heart, which cannot but bring faintings, and at the last shorten the life.

Good tow then is better than it, because it cleaveth fast together; but the sponge is best of all, because it doth not only cohere firmly, but draweth also strongly the quitour, and doth imbibe it.

It is good so to forme the tents, that the outer end being broader than the inner, it may be stayed from slipping in: it is not amisse to halter them with thred for this same purpose.

A pipe is best of all; it must be of thickenesse proportionate to the orifice, having two staves to hinder the slipping in of it into pipe.

the cavity of the breast; and sundry holes somewhat large about the end, to give way to the quittour. It must also be somewhat arched, lest the lungs butting against it, should suffer any hurt. The outer hollownesse of it is to be stopped with a sponge dipped in *aqua vite* and wine mingled together, and warmed, and wrung. Above the tents and the pipe apply *emplastrum de minio*, or *diachyleites*.

If the ulcer run much, it must be dressed twice a day; but if it run little, once dressing will serve.

Quest.

You may demand of me, when the tents and pipe are to be left?

Ans.

I answer, when the ulcer yeeldeth but a small deale of quittour, and that good; and seemeth to be almost dry: for *siccum est sano proximum*, that which is dry commeth neer to that which is whole.

If you keep the orifice of the breast too long open, it will fistulate.

What course is to be taken if the body grow leane.

It falleth out many times, that in ulcers of the breast, the diseased person groweth leane. In this case you are to permit the party to drink some Almond milk made of chicken broth, wherein have been boyled Pompion, Cucumber, and Muskmelon feeds, with Mallow roots, Cowslip flowers, Succory flowers, and Marigold flowers, between meales, and in the night time after two a clock; or minister a dramme and a halfe of this powder which I will set down, every morning and evening, in six ounces of one of the pectorall decoctions, which I described in the beginning of this Lecture.

The description of the powder is this: *Rx semin. papav. albi ʒi ʒ. gummi tragacant. far. orobi an. ʒij ʒ. semin. alb. portul. cucum. melon. pepon. plantag. hyoscyam. alb. an. ʒiij. coral. rub. preparat. perlar. preparat. succini albi preparat. an. ʒi ʒ. liquirit. ʒiiij. sacchari rosat. tabellat. ad pondus omnium; fiat pulvis.*

If these courses being used faithfully, do not prevaile, acquaint the diseased parties friends with the dangerous estate wherein he is; for no other medicaments are like to prevaile.

## LECT. XXIX.

Of the Ulcers of the back, the abdomen, and joynts.

**N**OW I am, according to my promise, to deliver the last Lecture appointed for this year, & withall to shut up this Treatise of Ulcers; that when I shall ascend to this place again, I may begin to handle a new subject, which will be of wounds. And although one might rest contented with that which hath been already delivered concerning ulcers; yet that none may justly say that any thing absolutely necessary, hath been omitted, and to further the practice of those which are not so well versed in the curing of all particular ulcers, I will briefly set down some notes concerning the ulcers of the back, the abdomen, or lower belly, and of the joynts.

*Ulcera dorſi*, or ulcers of the back, most commonly fall out of *Ulcers of the* ter *phlegmonis*, *oedematous* phlegmons, wherein *morbi* back.  
*acuti ex decidentia* end:

Now that you may the better understand what I mean, I must digresse a little, and briefly shew you what diseases are termed *morbi acuti*, and how many kindes of them there are.

*Morbi acuti*, or sharp diseases, are properly called such as with great expedition, force, and danger, go on to their *status* and extremity of the symptomes, as may be gathered out of *Galen. 2. aphor. 19 & 23.* Which are to be accounted sharp diseases. Three kindz.

Now there be three kindes of these *morbi acuti*, or sharp diseases; for they are either *peracuti*, very sharp, or *acuti simpliciter*, simply sharp, or *acuti ex decidentia*, or sharp diseases ending into other griefes.

*Peracuti* end at the furthest the seventh day, and they are of two sorts, *exquisitè peracuti* or *perperacuti*, or exquisitely very sharp, which end the fourth day, and *non exquisitè peracuti*, which are not exquisitely very sharp, which continue till the seventh day.

Now the *simpliciter acuti* in like manner are of two kindz: for they

they are either exactly so, and end for the most part the fourteenth day; or not exactly so, which may continue till the twentieth day. You may, and (I make no doubt) do see examples of these in burning and pestilentiall fevers almost every week. Last of all are *acuti in metastasibus, ex decidencia*, which may be prolonged to the fortieth day: Diseases which continue longer than forty dayes, are called *morbi chronici*, or *dinturni*, long or lingring diseases. Some of these chronicall diseases may end in sixty, some in eighty, some in an hundred, some in two hundred dayes: some may continue a whole yeer, some seven yeers, some twice seven yeers.

Histor. I.

I saw a Scottishman whose surname was *Iohnson*, a Sadler by profession, who followed the Court in Queen *Elizabeths* reign, who was troubled twelve yeers with a quartan ague without intermission: neither can I affirme that it left him during his life time.

II.

I being in the Ile of Sheppey in Minster street curing one *Clower* an aged man, whom I dismembred, there was a girle brought to me, of seven yeares of age, which for the space of six yeers was grievously tormented with an exquisite quartan. The lifes of these personages may be well termed living deaths. Some of these lingring diseases againe continue in boyes untill the fourteenth yeer of their age, and in maids untill their courses flow: as the falling sicknesse.

Apostemes  
and ulcers of  
the back.

Now to come to apostemes of the back, which leave ulcers after they are brought to suppuration and opened; They are for the most part criticall translations of humors, sent in *morbis acutis ex decidencia*, sharp diseases which continue untill the fortieth day; or in chronicall diseases, the continuance of which is uncertaine, sent from the inner either noble or ministeriall parts from within outward; the Physicians say this to be done *per diadosin*: whereas if noxious humors be turned from without inward, as in pestilentiall and venereal buboes, they affirme this to be done *per metastasim*.

Criticall ending of griefs.

Criticall endings of griefes, are either performed by excretion or translation of the griefe.

By excretion nature doth expell the peccant matter sundry wayes, as by vomit, siege, sweating, bleeding at the nose, the flowing of the menstruous course, and the apertion of the hemor-

hemorrhoidicall veines, as you may obſerve every day in termination and ending of ſharp fevers.

II. In tranſlation, the peccant matter is not altogether diſcharged out of the body; but is ſent from the part affected unto another part by provident nature.

But in ſeeing the humor may be ſent from the outward parts to the inward, and from the inner parts to the outward, this laſt tranſlation is moſt ſecure; for if the firſt be done in malignant and contagious diſeaſes, as in the Pox and Plague, all underſtanding practiſers pronounce either death, or protraction of the cure.

When therefore theſe apoſtemes appear either in the back, or one of the great joynts, which afterward degenerate into ulcers, the motion of the matter by nature is laudable doing it by tranſlation, ſeeing ſhe cannot by excretion, partly by reaſon of the weakneſſe of the principall parts, or by the plenty, or hard concoction of the humor.

But this is the miſery, that the friends or kinsfolks of ſuch a diſeaſed perſon think him or her to be altogether ſafe and ſecure, when they ſee them eaſed by the tranſlation of the humor, and therefore to ſpare charges call not for ſkillfull Phyſitians, and Chirurgeans, by whoſe ſkill and diligence the motion of nature might be farthered. And ſo it falleth out many times, partly by reaſon of the thickneſſe of the ſkin, as in the back, or by reaſon of the thickneſſe of the ſkin and compactneſſe of the membranes as in the joynts, that the vertebræ of the back are corrupted, and the cartilage, and tendons of the joynts, before remedy is fought for.

But that you may meet with theſe hide-bound patients, and keepe your ſelves from incurring danger or diſcredit, marke theſe prognofiicks which I will deliver unto you.

1. If after inquisition you finde that a tumor in the back continued a long time before it did breake of it ſelfe, or was opened, ſuſpect the ulcer to be of hard curation: for it is likely that the vertebræ of the back are foule.

The prognofiicks of the ulcers of the back.

2. If the vertebræ be foule, which you may eaſily find out by your finger or probe, the caſe is deſperate: wherefore take heed that you promiſe not curation.

3. If in ulcers of the back you see the parties body day by day to become more and more extenuate, advertise the parties friends of the danger: for it is an evident argument that the principall parts are weakned, and cannot wholly discharge the humor which offendeth.

Why ulcers in the upper part of the *Spina* are of easier curation, than those of the lower.

4. Ulcers in the upper part of the *Spina dorsi* are more easily cured, than those in the loynes: Because the abdomen or lower belly sendeth out more superfluities than the thorax or the breast, which is the middle cavity. Secondly, because they are neerer to the heart, the sunne of the little world, who by his heat is able to consume much superfluous humidity.

Historics.

I think it will not be unpleasant to you to hear me confirme that which I have delivered unto you in my last prognosticks, by true relation of the events which befell me when I practised in Wales in the like griefes: seeing examples leave a deeper impression in the mind, than precepts, and lead best to the curation of externall griefes.

In Denbigh town there was one *Richard Pryce* an Haberdasher, sonne to *John Pryce*, who kept the principall Inne of the Town, who after he had been troubled with a chronicall disease, felt in his back a little below the shoulder blades, a tumor still increasing in the outward parts as he was eased in the inward, untill at the last it grew to the bignesse of a penny loafe. I having been called unto it, by opening of the Aposteme, and using methodicall indications, cured the Patient. This man (as I heare) having given over his trade, still keepeth the Inne which his father did.

In this same Towne about the same time, a lusty young man, whose surname was *Owin*, whose father was a retainer to *Sir John Salisbury*, had the like tumor in the Vertebrae of the loynes, after a lingring griefe: I having been entreated by the truly worshipfull, *Sir John Salisbury*, (who had not an ordinary skill in the knowledge of the plants, and in performing chirurgicall cures) took a view of the young Gentleman. After mature deliberation, I told *Sir John* and the young mans friend, that there was much quittor in the tumor, which must be discharged; and that the event of the

curation

curation would be uncertain, if the matter were let out, for the reasons above speci- ed. At the entreaty of Sir *John Salisbury* and the young mans parents and friends, I opened the Aposteme which was in the *Vertebræ* of the loynes: And although no means were omitted, which seemed unto us effectually, for the recovery of the young mans health, and that the *Vertebræ* of the loynes were not foule; yet he fell into a *Marasmus*, or extenuation of the body being otherwayes a proper and valiant young Gentleman; and so ended his life before age called for his dissolution, to the great griefe of his Parents, having no other Sonne but him, and the commiseration of the worthy Knight. I have delivered unto you my observations in this griefe, whercof I hope you will make good use: you having occasion ministred to be wary, by the examples of others, which is no mean benefit.

How I performed the curation of the first Patient, now I will declare unto you: First, I purged his body with a gentle medicament: It was this; *Rx Electuar. lenitiv. ʒiiij. Electuar. de succo ros. ʒi. Syrup. ros. solutivi cum Agarico ʒj. aq. Cichor. ʒiij. Misc. ut fiat potio.* Secondly, I applyed the *Lapis infernalis* to the depending part of the tumor: Thirdly, I opened the Aposteme, making but a small orifice thorow the eschar. Fourthly, every day I dressed the sore, still suffering a little of the quittor to flow out untill all was discharged. Fifthly, I used a mundifying injection, untill I perceived the sore to be clean, not stinking, and so to afford both laudable, and small store of laudable quittor. Sixthly, I used a consolidative injection, and boulders somewhat thick, to compress the sore.

The mundifying injection was this: *Rx Vini albi lb. j. m. l. l. rosati ʒiij. Unguent. Ægyptiaci ʒʒ. Misc. ut fiat injectio usurpanda calida.* The consolidative injection was this: *Rx aq. Plantag. ʒiiij. Syrupi myrtini & ros. rub. sicc. an. ʒʒ. Trochisc. albor. Rh. s. sine opio ʒi. Misc. ut fiat injectio applicanda item calida:* All such injections must be warmed; for cold, as *Hippocrates* witnesseth, is hurtfull to the *Spinalis medullæ*. The Emplaster which I used was *Diachylon cum gummis*. By these meanes I cured the party in three weekes space.

How the Harberdather was cured.

The description of the injection.



Of the ulcers  
of the Abdo-  
men.

Now the ulcers of the Abdomen, or of the lower belly, doe offer themselves onely to be but compendiously touched. Seeing there are three parts of it, *Regio epigastrica, umbilicalis,* and *hypogastrica*, the upper, the umbilicall, and lower region; I am to shew unto you what parts in these regions most commonly suffer ulceration.

1. Of an ulcer  
penetrating of  
the stomach.

I saw the stomach of one Mistresse *Ferne*, together with the muscles perforate by the erosion of a sharp humor, in the Howit, a towne distant from Chester five miles: the meat, drinke, and chylus came thorow the perforation: the ulcer also smelled strongly. I being unwilling to deale with her, perscribed some locall meanes, which wrought but small effect; for she died of a Marasmus, or extenuation of the body, within a short time: the ulcer hindring the chylification of the aliment, and so defrauding the body of nourishment. My opinion was then, and now is, that ulcers penetrating into the cavity of the stomach are mortall, although wounds of this kinde be sometimes cured: for in the second there is but a bare solution of continuity; but in the former there is a solution of continuity having annexed to it the sharpnes and malignity of the matter. Here in London, in the Inne a little above Fleet-conduit, one *Riehard*, who was Tapster of the Inne, had for a long time a great paine in the right side of the epigastricall region of the Abdomen: in progresse of time there appeared a great hard tumor, causing a sharp fever: at last the Phlegmon breaking of it selfe, sent out great store of quittor. I then being lodged within the signe of the Naked Boy, a little below the Conduit, and being of his familiar acquaintance, was sent for, finding him in a strong fever, and having difficulty of breathing, the tumor of the liver hindring the free motion of the *Septum transversum*, the instrument of naturall respiration, I pronounced his grieffe to be mortall, and so it fell out: for although no rationally meanes were omitted, fit to have recovered the party, if the grieffe had beene curable, yet the party died. It were but a fruitlesse labour to set downe the medicaments which were used, seeing they prevailed not.

Of an ulcer of  
the liver.

This history I though good to set downe, that you may  
imagine

Imagine what the event is like to be, if you be called to the like grieſe.

It falleth out ſometimes, that ſuperfluous fleſh groweth above the navell, if it be ſlackly bound, and be left ſome-what long, which doth become ulcerate: This I ſaw once in Tavellſtock, a towne in the Weſt Countrey, in Devonſhire, in a childe of Maſter *Moones*, a Draper of that towne. I having beene called to the cure, firſt bound off the navell by a ſtrong ligature, afterwards I cured it by the application of *Unguentum de ceruſſa*.

Of an ulcer of navell.

In the groine after a Phlegmone of it opened, oftentimes an ulcer is left penetrating thoroꝝ the oblique and tranſverſe muſcles of the Abdomen: If you perceive ſuch an ulcer, pronounce it to be not of eaſie curation, chiefly if it fall out to be after a venereall Bubo: For firſt, there is *morbus cum cauſa*, a grieſe having the cauſe annexed: Secondly, it corrupteth the Fibres of the muſcles: Thirdly, it corrupteth ſometimes the Vertebrae of the loines, in which caſe all medicaments are fruitleſſe, becauſe the grieſe is mortall: This happened to a young woman, who dwelt with the Lady *Luoie*, whom Maſter *Napkin* dreſſed, and opened after her death. Both M. Doctour *Gifford* and I were called to view the ſore ſundry times; and although means were uſed for her recovery, yet they did not prevaile; ſo that ſhee died of a *Marasmus*, the body becomming extreameſly extenuate; although ſhe ſeemed to be of a firme and thick habit of body, when the tumor firſt appeared. If any ſuch tumors come to your hands, after they are brought to maturation, uſe the generall means preſcribed for the curation of *Luis venerea*, leſt the like event happen to you.

A penetrating Ulcer of the groine.

An Hiſt. by.

I will touch briefly the curation of ulcers of the joynts, which differeth but very little from the curation of ulcers in other parts, ſaving that they require medicaments of more deſiccation without any ſharpeſſe, and more powerfull anodine cataplaſmes for aſſwaging of paine, which is an inſeparable accident of ulcers, ſeizing upon theſe parts

Of ulcers of the joynts.

Apply then to the ſore *Deſiccativum rubrum*, and anoynt the brims with this liniment: *Rx Unguent. popul. & albi Capſuarati*

The Topicks.

*phurati an. ℥j. Ol. Cydonit. & Papaverin. an. ℥ss. Misc. ac  
fiat liniment. ex arte.* Before you apply your medicaments,  
foment the part with a fomentation made of Sumach, Pome-  
granate pils and flowers, red Roses dried, and Myrtle-  
berries infused in astringent red wine, being put into a long  
and narrow galley pot, and set in a warm place, or in a pot-  
net having in it boyling water.

In curing of these ulcers often purging is required, to stay  
the flowing of sharp humors; but seeing every purgative me-  
dicament is not of like efficacy, I will set downe one as a  
patterne, after the which you may frame others: *R Car-  
icofin. & Elect. de succores. an. ℥iij. Syrup. ros. solut. cum Aga-  
ric. ℥j. aq. Cichor. ℥iij. Misc. ut fiat potio:* You may either  
detract from the quantity of the purging Electuaries, or adde  
to them what you shall think fit, after you have diligently  
considered the strength of the party: with this I will end the  
Lectures for the present, and finish the Tractation of Ulcers.  
When God shall permit me to ascend again into this seat, I  
will begin the Lectures of wounds.

---

F I N I S.

---

A  
TREATISE

OF

THE FIRST PART OF  
CHIRURGERY, called by me

Συνδετικὴ: The part which teacheth the  
re-union of the parts of the  
body disjoyned.

CONTAINING

The Methodicall Doctrine of  
Wounds: Delivered in Lectures in the  
Barber-Chirurgeons-Hall, upon Tuesdaies,  
appointed for these Exercifes, and the  
keeping of their Courts.

BY

ALEXANDER READ, Doctor of Physicke, a  
Brother of the same Company, and one of the  
Fellows of the Phylitians Colledge of the  
famous City of *London*.

LONDON,

Printed by *E.G.* for *Richard Thrale* at the signe of the  
Crosse-keys in *Pauls*-church-yard. 1650.

TREATISE

OF

THE FIRST PART OF

CHIRURGERY, called by me

Wounds: The part which teacheth the

re-union of the parts of the

body injured.

CONTAINING

The Methodicall Doctrine of

Wounds: Delivered in Lectures in the

Barber-Chirurgions-Hall upon Traditions

appointed for these Exercises, and the

reasons of their Cure.

By

ALEXANDER READ, Doctor of Physick,

Brother of the same Company, and one of the

Fellows of the Physicians College of the

City of London.

LONDON,

Printed by E. G. for Richard Thorne at the signe of the

Cross key in Pauls-church-yard. 1650.



TO THE RIGHT  
HONOURABLE

PHILIP HERBERT Earle of *Pembroke* and *Montgomery*, Baron HERBERT,  
of the most Noble Order of the Garter,  
and one of his Majesties most Honourable Privie Counsell.

**S**OME things there are which move every one who goeth about to publish any monument of his skill, knowledge, or experience, to dedicate it to some person, whom the Author best liketh of: for partly the excellency and eminency of the person induceth him to do so: partly that the worke may be the sooner accepted of, and entertained by the Readers: partly, that by it the tongues and pens of calumniators may be stayed: partly to expresse a thankfull minde for some benefit received: and lastly, to be a pledge of former acquaintance and love.

The first three considerations have emboldened mee to present to your Honour this my *Treatise of Wounds*. I am loth to write a Panegyrick of the gifts which God hath bestowed upon you, which are either of the mind, body, or fortune, (as they are by the heathenish phrase termed) lest I should seeme to some to flatter. Your employments in his Majesties affaires, are sufficient witnessses of your wisdom, discretion, affability and magnanimity. If any will turne his eyes and mind to the

*The Epistle Dedicatorie.*

the consideration of the gifts of the body, hee shall find it endowed with such as surpasse those which may be found in most, even of the inferour ranke. The frame of it is comely, the stature proportionate: the temperature and strength are such, as that they are sufficient for the dispatching of the weightiest busineses, and hardest employments. As for the externall or gifts of fortune, your Honour hath them in such a measure, as that they exempt you from the number of such as must be beholden to others, and make you able to oblige others to you, whereof there is no small number, who almost daily have accesse to your Honour. They will bee loth to meddle with that whereof you have vouchsafed to be a Patron.

Besides all these motives, the favourable respect which I ever hitherto have found, when I had occasion to use your Honour in my lawfull busineses, hath deserved some expression of a thankfull mind at least. And seeing I may despaire to performe this duty by any other means, than by the fruits of the minde: I am enforced at this time to present this meane Treatise of Wounds to your Honour, which you will (I hope) accept of, although it bee a present much inferiour to the worth of your Person; seeing it doth proceed from one who is an unfained reverencer of your good parts, and heroicall vertues. Which onely remaineth, I wish unto you long life, to the good of the Commonwealth, and the comfort of those who attend upon you; Health, and all other happinesse, and will ever rest

*Your Honours to command,*

ALEXANDER READ.



## The Contents of the Treatise of WOUNDS.

Lect. I	Of the description of a wound, the differences, and of the generall fountaines of the speciall prognostications.	page I.
2	Of the meanes of staying an immoderate flux of blood in a wound.	7
3	Of removing from the wound extraneous bodies.	14
4	Of the preservation of the temperature of the part, by the right ordering of things not naturall.	21
5	Of the fifth and sixth duties belonging to a Chirurgeon in curing of a wound.	27
6	Of the common symptoms of wounds.	32
7	Of the stitching of wounds.	38
8	Of agglutinative medicaments, and rowling.	45
9	How a wound is to be cured after the second intention.	50
10	Of a convulsion in wounds.	56
11	Of a palsey, and cruditie in a wound.	63
12	Of a wound made by a poisoned weapon.	70
13	Of a wound by the biting of a mad dogge.	77
14	Of a wound made by the biting of an adder.	82
15	Of wounds made by Gun-shot.	88
16	Of the meanes to avert humours from the wounded head.	95
17	Of the rest of the points common to most wounds of the head.	101
18	Of the wounds of the parts placed above the skull.	105
19	Of the generall points to be observed in wounds of the skull.	112
20	Of the section of the hairy scalp, and opening of the skull.	118
21	Of the curation of fractures appearing in the wounded part.	125
22	Of fractures in other than in the place wounded, and those which happen when the Cutis Musculosa is not wounded.	131
23	Of wounds of the meninges and the braine.	135
24	Of the curation of wounds of the face.	146
25	Of the curation of wounds which happen to the instruments of the senses.	152
26	Of the wounds of the vessels of the throat.	158
27	Of the wounds of the other parts of the neck.	162
28	Of wounds of the brest.	168
29	Of the curation of a Fistula of the brest, following a wound thereof.	175
30	Of the wounds of the Abdomen, or lower belly, which penetrate, and yet without any hurt of the parts contained.	179
31	Of penetrating wounds of the belly wherein some parts contained are wounded, and first of the parts appointed for chylification.	184
32	Of wounds of the parts appointed for sanguification and procreation,	189
33	Of wounds of the nervous parts.	195
34	Of wounds of the joynts.	200



# The Table of Wounds.

Of the doctrine of Wounds, there are two parts :

1. Containeth the  
generall doctrine  
of Wounds. This  
hath three mem-  
bers :

1. Setteth downe the nature of a  
Wound, shewing

1. What a Wound is.  
2. The maine differences of Wounds,  
and so they were

Either knowne to the Ancients, and these are

Either simple,

Either Milde,

Either by a poi-  
soned weapon,

or compound, and these are

or Maligne, caused

or bititings, or  
stingings of  
venomous  
beasts.

or unknowne to the Ancients:  
and these are Wounds made  
by Gun-shot.

2. Sheweth how the wounds of the fe-  
verall parts of the body, which re-  
quire a speciall consideration, are to  
be cured: as for example, the wounds  
of the

Ventricles,  
which are

Head.

Brest.

Belly.

Extremities,

Armes.

Legges.



## The Contents of the Treatise of Wounds.

1.	OF the description of a wound, the differences, and of the generall fountaines of the speciall prognostications	page 1
2.	Of the means of staying an immoderate flux of blood in a Wound	7
3.	Of removing from the Wound extraneous bodies	14
4.	Of the preservation of the temperature of the part, by the right ordering of things not naturall	21
5.	Of the fifth and sixth duties belonging to a Chirurgion in curing wounds	27
6.	Of the common symptomes of wounds	32
7.	Of the stitching of wounds	38
8.	Of agglutinative medicaments, and rowling	45
9.	How a wound is to be cured after the second intention	50
10.	Of a convulsion in wounds	56
11.	Of a pallie and crudity in a wound	63
12.	Of a wound made by a poysoned weapon	70
13.	Of a wound by the biting of a mad dogge	77
14.	Of a wound made by the biting of an Adder	82
15.	Of wounds made by Gun-shot	88
16.	Of the means to avert humors from a wounded head	95
17.	Of the rest of the points common to most wounds of the head	101
18.	Of the wounds of the parts placed above the skull	106
19.	Of the generall points to be observed in wounds in the skull	112
20.	Of the section of the hairy scalp, and opening of the skull	118
21.	Of the curation of fractures appearing in the wounded part	126
22.	Of fractures in other then in the place wounded, and those which happen when the <i>Cutis Musculosa</i> is not wounded	131
23.	Of wounds of the meninge and the brain	135
	a	24. Of



## The Contents.

24. Of the curation of the wounds of the face	146
25. Of the curation of wounds which happen to the instruments of the senses	152
26. Of the wounds of the vessels of the throat	158
27. Of the wounds of the other parts of the neck	162
28. Of wounds of the breast	168
29. Of the curation of a Fistula of the breast, following a wound thereof	175
30. Of the wounds of the <i>Abdomen</i> , or lower belly, which penetrate, and yet without any hurt of the parts contained	179
31. Of penetrating wounds of the belly wherein some parts contained are wounded, and first of the parts appointed for chylicification	184
32. Of wounds of the parts appointed for sanguification and procreation	189
33. Of wounds of the nervous parts	195
34. Of wounds of the joynts	200



## The Contents of the Treatise of the *Muscles of the whole Body.*

1. <b>T</b> he description of a muscle	page 1
2. Of the differences and actions of muscles	4
3. Of the muscles of the eye-lids	6
4. Of the muscles of the eye	ib.
5. Of the muscles of the nose	8
6. Of the muscles of the lips	ib.
7. Of the muscles of the lower jaw	10
8. Of the muscles of the eares	12
9. Of the muscles of the tongue	13
10. Of the muscles of the bone of the tongue	14
11. Of the muscles of the <i>larynx</i>	15
12. Of the muscles of the <i>uvula</i> and throat	16
13. Of the muscles of the head	17
	14. Of

*The Contents.*

14. Of the muscles of the neck	18
15. Of the muscles of the breast	ib.
16. Of the muscles of the loynes	20
17. Of the muscles of the <i>abdomen</i>	21
18. Of the muscles of the genitals	23
19. Of the muscles of the bladder and <i>anus</i>	24
20. Of the muscles of the shoulder-blade	25
21. Of the muscles of the arme	26
22. Of the muscles of the <i>ulna</i>	28
23. Of the muscles of the <i>radius</i>	29
24. Of the muscles of the wrest	30
25. Of the muscles of the palme of the hand.	31
26. Of the muscles of the four fingers	32
27. Of the muscles of the thumbe	34
28. Of the muscles of the thigh	35
29. Of the muscles of the legge	37
30. Of the muscles of the instep	39
31. Of the muscles of the toes	41

---

Courteous Reader,

**T**Here is another Tract in a smaller Volume,  
called, The Manuell of the Anatomy or  
Dissection of the Body of Man, written by Dr.  
Read, with sundry Figures thereunto belonging,  
very usefull for such as are practitioners in Chi-  
rurgery.

# Of the description of the parts of CHIRURGERY. Table. I.

- Of Chirurgery, which is an Art which teacheth the curation of diseases of the body of man by manuell operation, there are four parts.
- |    |  |
|----|--|
| 1. | Συνθετικὴ, or Compositrix, the part which teacheth to unite parts disjoyned.   |
| 2. | Ἀποστικὴ, or Separatrix, the part which teacheth to sever or separate parts which are unnaturally joyned together.           |
| 3. | Ἀφαιρικὴ, or Ablatrix, the part which teacheth the removing of those things which are superfluous.                           |
| 4. | Προσθητικὴ, or Additrix, or Appositrix, the part which teacheth the supplements of such things as are deficient in the body. |

## Of the branches of the first part Συνθετικὴ, or Compositrix, Tab. I.

- |  |  |  |  |   |  |
|--|--|--|--|---|--|
| Συνθετικὴ, the part which teacheth the union of the solution of unity of the parts, sheweth the union of parts disjoyned : | <p>Which either may be gathered and inferred by rational discourse, rather then be deprehended by the senses; hence ariseth the first branch de Tumoribus, of Tumors.</p>  |  |  |   |  |
| Or may be deprehended by the senses; and this is   | <table style="border-collapse: collapse;"> <tr> <td style="border-right: 1px solid black; padding: 5px; vertical-align: middle;"> <p>Either in the soft parts, and from hence arise two branches :</p> </td> <td style="padding: 5px;"> <p>1. De Ulceribus, of Ulcers.</p> <p>2. De Vulneribus, of wounds.</p> </td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px; vertical-align: middle;"> <p>Or in the hard parts, and from hence spring two other branches :</p> </td> <td style="padding: 5px;"> <p>1. Of the fractures of the bones.</p> <p>2. Of the luxations or dislocations of the same.</p> </td> </tr> </table> | <p>Either in the soft parts, and from hence arise two branches :</p> | <p>1. De Ulceribus, of Ulcers.</p> <p>2. De Vulneribus, of wounds.</p> | <p>Or in the hard parts, and from hence spring two other branches :</p> | <p>1. Of the fractures of the bones.</p> <p>2. Of the luxations or dislocations of the same.</p> |
| <p>Either in the soft parts, and from hence arise two branches :</p>   | <p>1. De Ulceribus, of Ulcers.</p> <p>2. De Vulneribus, of wounds.</p>   |  |  |   |  |
| <p>Or in the hard parts, and from hence spring two other branches :</p>  | <p>1. Of the fractures of the bones.</p> <p>2. Of the luxations or dislocations of the same.</p>   |  |  |   |  |



LECTURE I.

*Of the description of a wound, the differences, and of the generall fountaines of the speciall prognostications.*



**I**N the last Lecture which I delivered unto you, from this seat immediatly before the vacation from these exercises, I shut up the doctrine of ulcers, which was the second treatise of the first part of Chirurgerie, called by me *Συρδετικη*, which teacheth the union of parts disjoyned. Now order of doctrine doth require, that I discover of wounds in like manner: whereby the apparent solution of the unitie of the soft parts of the body is procured, as well as by ulcers.

Of this Treatise there shall be two parts. In the first I will set downe those things which concerne wounds in generall. In the second part, I will shew how the wounds of the severall parts of the body, which require speciall consideration, are to be cured. The parts of this Treatise.

In the generall doctrine concerning wounds, I will set downe these three things; The first shall be of the nature of a wound: the second of the generall prognosticks of curation: the third shall be of the last scope of the Chirurgion. The nature of a wound is made manifest by setting downe, first what a wound is; secondly, which be the maine differences of wounds. In shewing what a wound is, first I must deliver the denomination of it: secondly, the description of it. Three things set downe in the generall doctrine.

A wound so called in English, in Latine is termed *vulnus*, and in Greeke *τραύμα*. Now to set downe the variety of the descriptions which are assigned by Authors, who have delivered monuments of this subject to posterity, it would prove a taske more laborious than fruitfull: and the examination of them would serve rather for ostentation, than edification. Most of them which are set downe by the moderné Writers will not endure the triall of the Lawes required by Logicians in a good definition. Wherefore seeing when I first began to reade, I promised to acquaint you with materiall The denominations of a wound.

points, only of those subjects which afterward I should handle; I will leave the refutation of the escapes committed by Authors in this matter, which onely teacheth what is not to be learned. *Hieron. Fabricius ab aqua pendente Chirurgiæ suæ part. secunda lib. 2. c. 1.* thus defineth a wound.

## 1 Description.

It is a solution of continuitie caused in a soft part of the body by an externall instrument: for explication of himselfe he addeth: By a soft part I understand every substance of the body, the bones being excepted.

## The examination of this definition.

But by his good leave, as a solution of unity in the bone caused by erosion, and putrifaction, is called *τραγήδιον* or *caries*, and if it be caused by a violent but blunt externall instrument, it is called *κλάσμα*, or *fractura*; so if a solution of unity be procured in it by a sharpe incising instrument, it may be called *τραύμα*, or *vulnus*, a wound. Truly *Hippocrates* in his sixth section in his treatise of wounds of the head thus speaketh: *Vulnerum ossis capitis tot sunt genera*: Of the wounds of the bone of the head, so many sorts there are, &c. Besides this, in adding to a cariosity of the bone caused of a corrupt humour, & to a fracture procured by the violence of a blunt instrument, a wound inflicted by a sharp instrument incising, the discourse will be more methodicall and plaine: To the end then, that you may fully know the nature of a wound, receive this description of it.

## 2 Description.

A wound is a solution of unitie, caused by an externall instrument incising in any part of the body. In this description you are to note these foure things; the first is the *genus*, the second is the efficient cause of it, the third is the subject of it, the fourth is the manner of making a wound: The *genus* is comprehended in the first words, where it is said to be a solution of unity; for this is common to a tumor, ulcer, wound, fractures of the bones and luxations of the same, for in all these there is a solution of unitie, the efficient cause is said to be an externall instrument: An externall instrument, I call that which is without the *cuticula* or scarfe skin, and hath no coherence or familiarity with the parts of the body, as a sword or knife. By the efficient cause it is distinguished from an ulcer; for an ulcer is procured by a sharpe internall humour eroding: So a wound is caused by a sharpe external instrument incising. The subject, wherein the wound is received, I affirme to be any part of the body, whether the part be external, as when the head is wounded w<sup>th</sup> a sword; or internall, as when the stomach is cut either by a peece of glasse,

## The difference betweene an ulcer and a wound.

or a Diamond swallowed, they being sharp-edged or pointed: And if the bone be incised, as well as the soft parts, a solution of unitie in it is called *vulnus*, a wound, against *Fabricius ab aqua pendente*. The manner of the inflicting a wound is termed by me incision, or division by cutting: and this tearme doth make the difference betweene a wound and a contusion: for as a contusion is caused by a blunt instrument forcibly separating; so a wound is inflicted by a sharpe instrument incising. So you have the description of a wound, and the explication of every part of it briefly set downe: By the which you may examin the definitions of others who have written of this subject, when you shall take them into your hands. The second point w<sup>ch</sup> I affirmed fully to make up the nature of a wound was of the differences of it. And in setting downe of these, expect not the full enumeration of all which may be named, as those taken from the quantitie, whereby a wound may be called great or small: or from the time & continuance, from whence a wound may be said to be new or old, and such like, which must be touched in the prognosticks of every particular wound: Only I will deliver such as are taken more inwardly from the nature of a wound. Then a wound is either such a one as was known to the ancient writers, or was unknown: The wounds known to the ancients are either simple or compounded: The compounded are either mild or maligne: the maligne are caused either by a poysoned weap<sup>o</sup>, or bitings or stingings of venemous creatures. The wounds which were not knowne to the Ancients, are those which are made by gun-shot. Here you have the requisite and necessary differences of wounds, which doe cause some variation in the cutting, represented to the eyes of your mind, as in a table, which in my proceeding I meane to handle exquisitely. So much then shall be sufficient to have been set downe concerning the nature of a wound, which I affirmed in the beginning to be manifested, by delivering the description of a wound, and the divers kinds of it: Now it followeth that I speake of the second generall point, to wit, of the generall prognosticks of cutting of wounds. Whensoever then a wounded person is presented unto you to foretell the event without error, you are to consider that wounds are two fold: for they are either mild, which are easily cured, as a small wound in a fleshy part; or they are grievous, & cured with some difficultie at the least. Grievous wounds are either *Periculosa*, or *Malefica*, or *Leibalia*, or *Difficilia*. *Periculosa*, or dangerous wounds, are such as sometimes are cured, although for the most part they bring death;

The difference between a contusion, and a wound.

The differences of wounds.

Diversities of wounds.



4

2. such superficial wounds of the braine. *Difficilia*, or wounds of hard curation, are such as may be cured, if they be skilfully dressed, but if they be not handled by a cunning Chirurgion, remaine uncured, as
3. some penetrating wounds of the breast. *Malefica*, or mischievous wounds, are such as leave a hurt still after them when they are cured: such is that wound by the which a muscle is cut transverse quite asunder; for then the use of that part is taken away, which was moved by that muscle.
- 4.

*Lethalia*, or deadly wounds, are such as bring inevitable death: such are wounds which divide the great vessels neere to the liver or heart. So the noble D. of *Buckingham* was dispatched by a wound which he received in the *arteria venosa*.

How wee may  
reducea wound  
to one of these  
kinds.

Things to be  
considered in a  
part wounded.

If you would know to which of these a wound which is offered to you to be cured, is to be referred, you must diligently examine these foure things: First, the part affected. Secondly, the adjuncts of the wound. Thirdly, the habit of the body. Fourthly, the things not naturall.

As for the part, you are to consider, First, its dignity: Secondly, its substance: Thirdly, the temperature: Fourthly, the situation of it: Fifthly, the quantitie, in the bignesse and number: Lastly, the use of the part.

The adjuncts  
of wounds.

Adjuncts to be considered in a wound are these: The bignesse, the figure, the situation, the symptomes, and last of all other diseases complicate with the wound, as the French pox, or dropsie, &c.

The habit of  
the body.

As for the habit of the body, you are to consider, whether it bee good or ill, of a loose or a firme substance, whether it be full or extenuate: neither is the temperature of it to be neglected.

The things not  
naturall.

Predictions  
drawne from  
the forenamed  
prognosticall  
springs.

As for the things not naturall, as ayre, meat, and drinke, sleepe and watching, and the rest of them, I will shew the use of them when I am come to the consideration of every particular wound.

Now it followeth that I shew you the use these prognosticall springs or fountaines, by setting downe some predictions derived from them.

First, a noble part, the beginning of a faculty in continuall motion, the body being of an ill habit, receiving a great wound, must of a necessity cause death: by induction I will make this manifest.

2.

Secondly, the heart being deeply wounded, causeth either a suddaine or speedy death. First, because it is a principall part: Secondly, because the naturall faculty proceedeth from it: Thirdly, because it is in continuall motion: Fourthly, because it is of a  
hard

hard and compact substance, and so not so easily united: Fifthly, because it is a very hot part, & so very subject to inflammation: Sixthly, because it is single, and there is no other part which can performe the function of it.

Vide Hipp. &  
Aphor. 26.

Thirdly, the wounds of the braine in like manner are deadly, if they penetrate to the basis; because it is a principall part, the well-spring of the animall facultie, in continuall motion, and because inflammation, and a sharpe fever insueth. If the wound of the braine be onely superficiall, it is to be accompted onely dangerous; partly because the motion is gentle, partly because the substance of the part is soft, and so apt to receive consolidation.

Fourthly, small wounds of the liver, although they bee dangerous, yet they may admit consolidation: First, because the substance of the liver is like coagulate blood, and so may easily be united: Secondly, because if one part of it be wounded, the other will performe sanguification, as we may observe in those, the part of whose liver is possessed with a scirrhus tumor.

Fifthly, a wound received in the *vena cava*, within the belly or breast is deadly: First, by reason of the use of it; for it doth furnish naturall blood to the whole body: Secondly, by reason of its substance, for being nervous, it hardly admitteth consolidation: Thirdly, by reason of the situation of it; for a Chirurgeon can hardly come to it to apply any locall medicaments.

Sixthly, wounds in the fleshy parts of the *diaphragma*, or mid-driffe, are dangerous: First, because wee cannot come to dresse them: Secondly, because it is in continuall motion: Thirdly, because the parts within the breast are easily inflamed. But if it bee wounded in the nervous parts, irsevitabile death ensueth: because a *delirium* by reason of the inflammation alwayes doth ensue, and sometimes a convulsion.

Seventhly, Wounds of the lungs are sometimes deadly, if a great vessell in them be divided, as the *vena arteriosa*. Yet if the party live, they prove most commonly mischievous, leaving a fistula: of the curation of which I discoursed in my Lectures of Ulcers, 1634.

Eighthly, wounds of the spleene, if they be not great, and procure not an hemorrhage, they are not deadly, because it is, neither a principall part, nor the beginning of any facultie, but only appointed by nature to be a receptacle of fæulent and black melancholy blood.

Ninthly, wounds of the *cystis fellis* bring death at the last, although

3.

4.

5.

6.

7.

See Galen. 5.  
Method. c. 9.

8.

9.

slowly. First, because we cannot come to it conveniently to apply fit medicaments: Secondly, because it is of a nervous substance, which doth not easily admit union. Thirdly, because the humour which it ought to containe untill the time of excretion, corrupteth the parts unto which it is sent.

10 Tenthly, a wound in the mouth of the stomacke is grievous: First, because it is of an exquisite sense: Secondly, because fearefull symptomes, and swooundings and faintings doe ensue: Thirdly, because there must be a difficulty of swallowing.

11 Eleventhly, wounds of the kidneyes, if they passe not to the cavity, bring not inevitable death: yea some are of opinion, that *vesperatula*, that is, extraction of stones out of the kidneyes by incision, may safely be admittred. Of this operation I will speake in its owne place.

12 Twelfthly, wounds of the small guts are for the most part deadly: First, because they are of a membranous substance: Secondly, because they are of an exquisite sense. But wounds in the thick guts are more easily cured, because their substance is more thicke, and so admitteth more promptly agglutination; and being not so sensible as the small guts are, faintings and other fearefull symptomes doe not so frequently invade.

13 Lastly, if one be wounded in the Mesentery, inevitable death must ensue: First, because there must bee a great flux of blood by reason of the multitude of the veines in it: Secondly, because wee cannot easily come thither to apply locall meanes: Thirdly, because the chylus is staid from passing to the liver to bee made blood, and so sanguification is hindered, without the which the body cannot subsist.

Examples of  
*maligna vulnera*.

I did affirme some wounds to be *maligna*, or mischievous, which leave some hurt or imperfection in the parts after they are cured: of such receive these examples following.

1 First, a wound above the eye browes, with a fracture of the scull, when the wound is incarnate, it can hardly be brought to a cicatrice.

2 Secondly, if the braine be remarkably wounded, the party remaineth foolish, and more stupid then he was before.

3 Thirdly, if the bottom of the stomach be wounded, imbecillity and weakenesse of concoction ensueth.

4 Fourthly, if a nerve or a ligament which tyeth bones together, or a muscle be transversly cut asunder, motion is hindered.

Fifthly,

Fiftly, when the *Glarea*, or the substance which is found in the great joynts to moysten them, resembling the whites of egges, is let out by a wound, the joynt groweth stiffe, and so the motion is impaired.

## LECT. II.

*Of the meanes of staying an immoderate flux of blood in a wound.*

**H**AVING in the former Lecture set downe the two first points of the generall doctrine of wounds, to wit, the nature of a wound, and the fountaines from whence the prognostickes of wounds are fetched; and having by propounding some examples shewed the practice of them: now I am to set downe the third generall point, which is the last scope and end which the Chirurgion doth propose to himselfe when he goeth about to cure any wound; and that is the union of the parts joyned.

The union of parts separated.

First, then I will set downe the divers sorts of union or union of the parts; then the causes which procure this union.

The differenc-  
ces of union.

Of union then there are two kinde: the first is called *symphysis*, or agglutination, or concretion. The second is named *lyssarcosis*, colligation, or concarnation. *Symphysis* is the union of parts disjoyned, no middle substance concurring.

This kind of union is said by the Chirurgions to be performed by the first intention. And if the terme of the first intention or scope were not so to be taken, that would be absolutely false which *Hippocrat. 6. Aphorism. 19.* affirmeth, that the *præputium* or foreskin being cut asunder, doth not admit union. But it is not to be doubted, but that it will admit consolidation by a fleshy substance uniting the parts disjoyned: although this cannot be done by meer agglutination. And whereas *Galen 90. art. Medic.* averreth union in the instrumentary parts to be impossible; to make this good which he affirmeth, wee must observe one thing, that in this place an instrumentary part is not taken in its amplest signification, by the which it comprehendeth all parts which are ministeriall to other parts: and so the veines and arteries are instrumentary parts, because they serve the liver and heart for the distribution of the naturall blood and spirit, and the vitall blood and spirit for the maintenance and good of the body. But an instrumentary

I  
The first intention.

tary

tary part is here taken as it is opposite to a simple part: for all the parts of the Body are either simple, as the flesh, veines, fibres, &c. or compound or instrumentary, as a finger; and so instrumentary parts taken in this signification are not united by *symphysis*, they being wounded; but by *Sissarcosis*, that is, not after the first, but second intention. And so *Galen* in 91. cap. following doth explicate himselfe: where talking of a wound in a bone, hee saith, But if a bone suffer solution of unity, it cannot be united, as I said: and he addeth this clause, Yet it may be united by the second scope. He meaneth by the growing of a fleshy substance betweene the parts of the bone severed.

Question.

But you may demand of mee what parts admit union by *symphysis*, or the first intention.

Answer.

I answer, that the fleshy parts disjoyned, admit this sort of consolidation in all the periods of the life, and the spermatick parts before the seventh yeare be expired, the bone being excepted: but they are only united by the second intention after the seventh year expired.

2

The second kind of union of parts severed by a wound is called by *Galen* de comp. med. secund. loc. cap. de plaga, *Sissarcosis*: and it is nothing else but the union of parts disjoyned by a middle substance. Now this substance is sometimes like to the parts which it uniteth, as in wounds in fleshy parts: or it resembleth not the parts which it uniteth, as in the wounds of the spermaticke parts after the seventh yeare.

The causes of union.

1. Efficient Nature.

Having delivered unto you the two kinds of the union or consolidation of parts separated by a wound, now I am to come to the causes of union or consolidation of the parts separated. These causes are either efficient causes, or instrumentary. The efficient causes are two, to wit, Nature, and the Chirurgeon. Nature out of all doubt is the chiefe efficient cause, for she ever labouring to preserve her selfe, sendeth unto the parts of the body so much of the naturall balsome of it as is sufficient to unite the parts disjoyned. If you would know what I meane by the terme of the naturall balsome, I meane the radicall and alimentary moystrure, the seat of the naturall heat, by the which two every *individuum* or singular person is maintained, and subsisteth.

The foure impediments of nature.

Now there are foure things which may hinder nature from effecting of the union of the parts disjoyned: The first is an evill conformation; as when the brimmes of a wound are not proportionally

tionally and handsonly united and set together. The second is the continuance of this ill conformation. The third is an unnaturall body remaining in the wound: this unnaturall body is either unnaturall by event, as a shiver of a bone separated from the hole, or by its owne nature; as when a peece of weapon which wounded doth stick in the wound. The fourth is the distemperature of the wounded part: for if it be either too hot, or too cold, the distemperature must be removed, and the naturall temperature restored, before that union can be expected or procured.

The second efficient cause of the union of the parts severed by a wound, I affirmed to be the Chirurgeon: he is the Minister, not the Lord of Nature, and is onely to further her designes, and to labour to remove the lets and impediments which may hinder her from attaining to her purpose, which is the restitution of the parts disjoyned to their naturall union. The Chirurgeon then is to performe some duties. Now these duties are either common to both the kinds of union, to wit, *symphysis* and *syssarcosis*, or they are proper to each. The common duties are in number seven, First, the staying of the blood. Second, the removing of strange bodies from the wound. Third, the provision that no such bodies fall into the wound. Fourth, that he maintaine the naturall temperature of the part. Fifth, that he restore it if it be lost. Sixth, the consideration of the quittour and excrements, which flow from the wound. Seventh, is the removing of generall accidents.

In the staying of blood the Chirurgeon is to set two things before his eyes: The first is, how much blood he is to suffer to flow before he stay it, if the wounded person must leese any blood: The second is, by what meanes the blood is to be stayed.

As for the quantity of the blood which is to be suffered to flow, you may suffer it to flow plentifully, if the party be of a sanguine constitution, have a fleshy habit of the body, if the veines be large, and if the season be hot, for this doth hinder inflammation to ensue. If you observe indications contrary to these, then it must flow but sparingly, for it is the treasure of life.

The meanes of staying of the blood are in number eight.

The first is, the application of pledgets, or dosils of lint or tow moystned either in the whites of egges beaten, or in vinegar and water, taking in tender bodyes one part of vinegar, and three of water: but in hard bodies you may take one part of vinegar, and two onely of water. This mixture is called *Posca*: it must be

2. Efficient cause.

The duties of the Chirurgeon.

1. The staying of the blood.

The meanes of staying bleeding.

I

applied warm; for cold applications are hurtful for wounds. Apply not dry lint or tow dry, to a wound bleeding in any way; for they cleave so firmly to the brims of the wounded parts, that they procure often a new flux of blood, when they are removed, seeing they must with some force be removed: Unless fomentation with some moistning and malaxing liquor be used, as with milk or butter, and beer warmed: which are not to be used in wounds in the fleshy parts.

2. The second is the deligation of the vessel, which sendeth forth blood, whether it be vein or artery: This is to be used when great vessels are wounded. *Ambrose Parrey lib. 11. c. 20.* would have this mean to be used after the amputation of a member, whom you may read: but in my judgment his practise is but a troublesome and dangerous toy: as he shall finde, who shall go to make trial of it. In the deligation of a vessel, two things are to be considered.

The first is, that if a nerve accompany the vessel, which sendeth forth blood, (as you may see in the foporal artery, which hath the recurrent nerve annexed to it,) you are with your nailes to separate the nerve from the vessel: because the part into the which the nerve is inserted shall be deprived of moving, and feeling, and extraordinary pain will be caused.

The second thing to be considered, in the deligation of a vessel is, that the binding be not too strait, because so the vessel shall be cut asunder too soon, and so a new fluxion shall be procured.

The threed wherwith the vessel is bound must be either of strong silk or steel hemp, as they term it, such is the sealing threed: For these are not so subject to putrifaction, and so there is less fear of a new hemorrhage, which would prove more dangerous than the first.

3. The third mean to stay bleeding, is the application of Sarcotical, or incarnative medicaments. Such is that which *Galen* prescribeth, 5. *Method.* 4. of aloe, frankincense, the haire of a Hare, and the white of an egge, all being brought to the consistence of hony. In tender bodies, take one part of frankincense, and two of aloe: In hard bodies, one part of aloe, and two of frankincense. In those, who have a mean habit of body, use equal parts of both. *Olibanum in guttis* is better than frankincense. Apply this medicament upon pledgets or dosils of lint or tow. The manner of dressing is this. Couch the vessel with the finger, then cleanse the wound  
from

from the clotted blood, and all moisture, with a piece of sponge wet in red wine or any astringent decoction. Afterward besprinkle the parts of the wound about your finger, with the powder of aloe and frankincense. Then apply a pledget or a dosil armed with the aforementioned medicament, which presently press down with your finger. Last of all, keeping down the applications either with your finger, or with a probe, fill up the wound with pledgets or dosils armed. This being done, nothing remaineth, but to apply a double cloth moistned in some astringent liquor, and wrung, to the wounded part, and to roul it up; begin to roul below the wound, when you are come to the wound, compass it with three or four circumvolutions: Then ascend and roul the part above the wound, to press the blood out of the vessel, and so the flux of blood will be stayed. You are not to open the wound afterward, but either upon the third or fourth day. Then all the pledgets or dosils, except the last, which immediatly cleaveth to the vessel, are to be taken away, and new ones to be applyed, the wounded parts having been besprinkled with more of the powder. Thus you are to dress the wound every other day, until the part be incarnate, and no fear be left of any more bleeding.

The fourth way to stay bleeding, is the injection of astringent medicaments; if we cannot come to reach to the vessel with the finger, by reason of the depth of the wound, such are bole Armeniack *terra sigillata*, marking stone, *hypofistis sanguis draconis*, new gauls, the juyce of the Sloe, Plantane, Comfrey, Knotgrass, Milfole, Horse-tail, and Leeks; of these you may frame such compositions as this is:  $\text{R succi consol. major. polygon. equisetian. } \zeta\text{ss, succi fol. porri } \zeta\text{i. bol. oriental. } \zeta\text{i, sanguin. dracon. } \zeta\text{ss. Misc.}$  Such medicaments are powerful, when the menstrual courses in women flow immoderately.

The fifth way to stay bleeding, is the tranvers section and cutting asunder of the great vessel, which powreth out the blood. Whensoever a horrible effusion of blood followeth after a wound, you may gather that the vessel is not cut asunder tranvers, unless there be an enorme separation of the parts wounded, not differing much from dismembring: for if the vessel be cut tranvers wholly asunder by a sharp weapon, that part of it which is next to the radication of it, shrinketh up towards it beginning, and is covered with the flesh of the adjacent parts. If such a case be presented to you, follow Galen his counsel, who 5. *Method. 5.* adviseth that you list



up the vessel from the subjacent parts with a silver hook, and so divide it being separate; and that afterward you twist the upper part of the vessel, which is easily done by laying hold of the part of the vessel which is without the hook. That kinde of silver hook which is used in Anatomical dissections, is fittest, for this wreathing of the mouth of the vessel hindreth the effluxion of blood.

6.

The sixth way to stay bleeding in a wound, is to cause an eschare. Now this may be done either by an actual cautery, or by an escharotical medicament: But we ought not, but upon great necessity, to have recourse to usion. First, because it is horrible to the sight and apprehension; for it doth in a manner exanimate cowardly persons. Secondly, because the benefit of it is uncertain: for often times after that the crust or eschare is fallen, a new hemorrhage doth ensue. If you be driven to use the actual cautery, then you are to observe two things in the action: The first is, that you cleanse the wound from clotted blood, that the vessel may plainly appear, otherwise you having burned only the coagulat blood, you shal think it burned to be a crust caused in the vessel, which is not so; and so the next day it being dissolved, will give way to a new fluxion. The second is, that you apply the actual no more than once, or twice at the most: for by the first impression of the cautery, the vessel doth shrink together; but by the second, it is wrinkled, if you apply the actual cautery; the third it is turned into a coal, which being dissolved by the moisture of the blood in the vessel, will fall away, and so make way to a new fluxion of blood. The medicaments which stay bleeding by causing of an eschare, are these, *Vitriol*, *Allum*, *Ægyptiacum*, sharpned with calcined *Vitriol*, the oyle of *Vitriol*, and the oyle of *Sulphur*, *Aqua fortis*, and *aqua regis* the trochises of *Minium* described by *Vigo*. But a medicament made of *Umber*, an earth, which the Painters use, and *Calx viva* exceedeth all these, for it causeth little pain, and mightily closeth the mouthes of the vessels. About twenty years ago returning from the Bath in Somersetshire to the Howlt five miles from Chester, where then I remained, having lodged in Newport in Shropshire by the way, I was called by this Lord *Gerrards* Grandfather, to *Gerrards Bramley*, to take a view of his Taylor, who had fractured both the sockets of the legg, a little below the knee, about the breadth of a Palme. When I did behold the fracture with a wound, and the extenuation of the body, for the accident fell out ten weeks before, neither were the bones united; and besides, there was a great tumour

A History.

mour

mor in the knee; I pronounced a lingering death to the party, unless he were out of hand dismembred above the knee. Being intreated by the sick party, and the Earl, to perform this operation, I yielded unto thier request; but having by me, neither instrument, nor medicament, thus I supplied the defect of both: I made a medicament of Umber and unslaked Lime, taking equal parts of both which I found there, the house then being in reparation; I used a Joyner's whip-saw newly toothed: And in the presence of two Chirurgeons, Mr. Cole, who dwelt in Lichfield, and Mr. Heywood, who dwelt in Newport, I dismembred the Lords Taylor, unto whom the Lord gave ten pounds a year during his life time, who lived many years afterward. When I dressed the wound the fourth day, I found the mouthes of all the vessels shut by incarnation, so powerful was the restrictive medicament, made of equal quantities of Umber and unslaked Lime, rubbed to a fine powder, and reduced to the form of a liniment by the addition of the whites of eggs beaten, and the hair of an Hare. Fallopius in his book of wounds hath an ingenious device, which is this. He will have you to take a reed, which in bigness is answerable to the capacity of the wound. The one end being stopped with a cork, he will have you to fill it with Germane or Hungarian Vitriol melted; when the Vitriol is cold, it is to be thrust in one end an inch without the reed, and to be kept to the vessel for the space of an hour; in the which space of time the mouth of the vessel will be shut firmly.

Seventhly, a flux of blood is stayed by opening of a vein in the opposite side, although much blood hath been lost; but the blood must be drawn leysurely; Besides this, the extremities of the body must be bound with reasonable strait ligatures, where it shall seem best to the skilful Chirurgeon.

The eighth way to stay blood, is to cool the whole body: for so the blood is congealed, and so made unapt to flow: This is performed by two wayes: First, in letting down the wounded party, laid in a sheet, into a bath of extream cold water, to procure a lipothomie or fainting, and by this the spirits return from the extremities of the body to the center. Secondly, this is performed by Narcotical medicaments: Receive this one as a pattern: *R. diascord ℥iij. Philon. Persici ℥ss. Syrup. papav. albi ℥i. aq. papav. errat. aut spermat. ranar. ℥iij. Misc. ut fiat Po. sumenda frigida:* After the patient hath taken the potion, let him be kept quiet, and let him address himself for sleep. Although this dose of narcoticals may seem too large,  
yet

yet it may be given again after that twelve hours are expired, if need shall require: These two last practices are recommended in moderate hemorrhages at the nose.

## LECT. III.

*Of removing from the wound extraneous bodies.*

The kinds of  
extraneous bod-  
ies.

**T**He second duty which a Chirurgeon is to perform to nature, to assist her, and to further her inclination, to procure the union of the parts severed by a wound, is to provide that no external or strange body be suffered to be in the wound, which may hinder union. In this Point two things are to be set down: First, the differences of strange or extraneous bodies: Secondly, the means by the which they are removed. As concerning the differences of these bodies, they are extraneous, either by accident, or of their own nature. Those which are extraneous by accident, are of three sorts: for they are either soft, as pieces of contused or separated flesh, and clots of blood; or they are hard, as pieces of bones or cartilages; or they are of a mean substance, as pieces of membranes, tendons, chords and hair. Now those bodies which are extraneous of their own nature, are either soft, as pieces of the wounded mans garments; or hard; and these are either metalline, as pieces of steel, weapons and bullets; or not metalline, as shivers of wood, gravel, and such like.

Having described as it were in a table, the divers sorts of extraneous bodies, to help the memory, which are able to hinder the parts disjoyned in a wound, as long as they continue in the wound; I am now to deliver unto you the waies and means by the which they are to be removed, and taken out of the wounds.

How things  
accidentally  
extraneous, are  
to be extracted.

First then, things extraneous accidentally, as clotted blood, hairs, dirt or gravel, they may be washed away with claret or white wine warmed, *Aqua-vitæ*, vineger and water, oxymel dissolved in water: or if you be in the countrey, where these things cannot be had, you may use milk, or beer, or ale warmed: you are not to omit the cleansing of the wound with a Probe armed with lint: If splints of bones, or pieces of flesh, membranes, tendons, ligaments stick in the wound, you are to take them out either with  
your

your Forcips or Ravens bills. Having shewed you how things accidentally extraneous, which might hinder the union of the wound, are to be removed : Now I must in like manner set down how bodies of their own nature extraneous, which stick in wounds and hinder consolidation, as pieces of the weapon, bullets, and such like, are to be taken out. In the extraction of these bodies, you are to set before your eyes these two things ; to wit the circumstances and the manner of extracting of them ; as for the circumstances, these two are to be observed.

How bodies of their own nature extraneous, are to be taken out.

First, that you attempt not the extraction of such bodies as cannot but with great difficulty, pain and danger be drawn out, and with the which remaining in the body the wound may be cured ; such are bullets sticking deeply in the great joynts, as are the elbow and the knee.

Circumstances to be observed before extraction.

The second is, that you goe not about the extraction of such bodies, if you see the wound to be mortal, and that the party must dye, the Prognosticks of such wounds I delivered unto you in my first Lecture of wounds, page 4. whither I remit you : for if you draw out the weapon wherewith a great vessel of the liver or heart is wounded, you shall hasten death : so the pulling out of *Felton's* knife out of the bodie of the Duke of *Buckingham*, the *arteria venosa* having been wounded, procured speedy death. So much then of the circumstances to be observed before the drawing out of extraneous bodies.

Now I will acquaint you with the means, by the which they are to be removed : The means are two : Medicaments and instruments. We use medicaments ; First, when the extraction cannot easily be performed : as when we cannot lay hold upon the extraneous body by any fit instrument : Secondly, when there is no suspicion that the weapon was poysoned, or that apostematation is not like to ensue. If therefore a thorn, or a needle so stick in a part that they cannot be taken out, without great pain and large incision of the part, it is best to have recourse to medicaments. I saw one who carried a thorn which run into his legg above the *tibia*, between the *periostium* and the skin, ( when he thrust through a hedge in hunting ) five years. The medicaments which have a faculty of drawing out those bodies which of their own nature are extraneous, are of two sorts : for they are either simple or compounded.

The means by the which such bodies are taken out.

Simple medicaments which draw out extraneous bodies by a hidden quality.

As for the simple medicaments, they are of three sorts. For some effect

effect this by an hidden or occult faculty : Of such *Paulus Aegineta*, lib. 4. cap. 52. thus writeth : Pieces of weapons, arrows, and thorns, which stick in the bo ly, these things underwritten draw out. Both the Pimpernels, the root of *Aristolochia rotunda*, *ammoniacum*, the leaves of the henbane stamped and applyed in form of a cataplasme : The root of the reed beaten and mingled with hony : you may add to these the horned Poppy leaves stamped, and used as the Henbane. Other medicaments do extract such bodies by an accidental heat purchased by putrification, as birdlime, stinking old pigeons dung, leaven, and such like.

The third part of such medicaments are hot in the 2. or 3. degree, and of subtiler and thinner parts, as Onyons and Garlike roasted, pitch, rosin of the Pyne, *Albenepaiyca*, *assa fetida*, *elemni*, *propolis* or *bee-glew*, the green leaves and roots of dittany, *Sagapenum*, *Galbanum Euphorbium* : but in a small quantity, and mingled with other matters.

Compound  
medicaments  
to this effect.

Of these simple medicaments, sundry compositions may be framed : but to omit superfluities, I will only deliver unto you three compound medicaments, whereof the first two are set down by famous *Fallopious* in his book of wounds : The third is *Emplastrum sacrum*. The first of *Fallopious* is this R $\bar{x}$  *propolis*, *rad. recentis dictamni*, *sagapeni an.* ʒj β. *fermenti. stercoris columbin. putris*, an. ʒi. *cepam coliam numero unam*, *picis liquid. & mellis an.* q. s. *ut omnia acquirant formam cataplasmatum quæ in mortario diligenter elaborentur*. The second of *Fallopious* more strong than this, receiveth these ingredients : R $\bar{x}$  *rad. recent. dictam. uni. pulv. dictamni Cretici*, *sagapeni, assæ fetidæ, elemni an.* ʒi. *visci ʒβ. resin. pini ʒj. euphorb. ʒβ. sulphur. vivi ʒij. picis liquid. & mell. crud. an.* q. *ut formetur cataplasma*. The third compound medicament which I promised to deliver you, was *Emplastrum sacrum*. The description of it is this : R $\bar{x}$ . *libaryr. ʒj. ol. ʒij. colophon. ʒβ. β. cera ʒiiij. Ammon. ʒij. galbani ʒj. β. aristol. rot. ʒij. thuris ʒi β. ærug. rad. dictamni Cret. aloes hepat. squame eris propol. an.* ʒvj. *rad. gentian. ʒj. fiat emplastr. secundum artem* : This is an excellent emplaster also against maligne ulcers, and dryeth also moist bones in ulcers, wherein the bones are carious. *Paracelsus* undoubtedly framed his stickick emplaster after this description. Neither is it inferior to his in operation, with the which you may furnish your selves sufficiently : seeing it hath so manifold uses : if you would have greater variety of such medicaments, you may peruse *Acrius*, lib. 15. cap. 14. and *Galen. de Composit. medicament.*

*dicament. secund. loca*: But either these medicaments which I have set down will serve, or else none.

*Cornelius Schylander*, a Physician of *Antwerp*, in his practise of Or Charms. *Chirurgery*, published *anno Domini 1577. de vulnerib. lect. quinta*, hath these words: If by reason of the veins, arteries and nerves, the wound will not admit any dilatation, then we are to use medicaments, which digest, relax, and draw; or charms, which he calleth *Verba constellata*, by the which he affirmeth, that all sorts of weapons may easily be drawn out with the fore finger and the thumb. He professeth that he saw this done: yet the charm he setteth not down. It may be that the party, whom he saw practising this did not acquaint him with the charm.

Howsoever, the use of charms is very ancient: For *Homer*, in his *Ilias*, or Poeme of the destruction of *Troy*, sheweth, that *Podalirius* and *Machon*, sons to *Æsculapius*, who went to the siege of *Troy* with the Grecians, cured the wounded persons not only with salves, but *μαλλακας ἐπεόων*, with soft words also. Now 2816. years are expired since the destruction of the city of *Troy*. But seeing such practices are accounted by the judicious infamous, I will leave them to *Empyricks*. The use of charms is ancient.

Having then set down how extraneous bodies, which stick in wounds, and hinder their union, are drawn out by medicaments, it followeth, I acquaint you with extraction of them by the help of instruments: In this operation I will set down these two points. The extraction of extraneous bodies by instruments.

The first shall be of the occasions, which may move you to go about the drawing of these bodies out of a wound.

The second shall be of the circumstances remarkable in the drawing out of them.

The occasions are three. First, if the weapon may easily be drawn out. Secondly, if we fear apostematation, which may corrupt the wounded part. Thirdly, if we fear the weapon to be poisoned. The occasions.

The circumstances are twofold: for some are to be noted before you go about the extraction of these bodies, and some are to be observed in the extraction it self. The circumstances.

The circumstances which are to be noted before the extraction, are in number four. Before extraction.

The first is, that the Chirurgeon mark the form of that body which is to be drawn out.

The second, that he observe how deeply the weapon hath pierced.

The third is, that the Chirurgeon be a good Anatomist, and know the frame of the part : for so he shall be able to know which way weapons, or such extraneous bodies are to be drawn out.

The fourth, the symptoms of the part wounded, are to be considered, as well those which are to ensue, as those which are present: as for example, if the wounded party finde great pain, the extraneous body is without delay to be drawn out. But if a fearful flux of blood must ensue after the extraction, it is to be deferred.

Four things to be observed in the extraction.

In the extraction of these extraneous bodies four things are to be observed.

The first is, when it is most fit to remove these bodies.

The second is, by what way they are to be taken out.

The third is, the figure of these things which are to be extracted.

The fourth is, by what instruments they are to be drawn out. I will discourse briefly of all these in order.

The time.

As for the time fit for extraction, if the pain be intollerable, the weapon is presently to be taken out, although we must add pain to pain, for this being done, all pain will cease.

Secondly, we must not defer the extraction, if the weapon be poisoned, or cankered, although we must divide the muscles, vessels, and nerves : for we are to have a greater care of the whole, that it miscarry not, than of the part. Neither need we to fear the application of the actual cautery : for the fire doth consume the poyson, and taketh away all fear of a convulsion : How you may conjecture the weapon to be poysoned, I wil amply and plainly declare in the proper place. In five cases you are to delay the extraction of the weapon.

When the extraction of a weapon is to be deferred.

First, if there be a fear of a great flux of blood, which may endanger the life of the wounded party : This doth fall out, if the wound be inflicted where the great veines and arteries are placed by nature.

Secondly, if fearful symptoms, as horrible pain, a convulsion, a sharp fever, or a syncope, are like to ensue.

Thirdly, if the weapon be round, we may more securely leave it in a wound, than if it were flat : for the edges of it will cause pain of a necessity, whereas the other will not procure a pain so great.

Fourthly,

Fourthly, if the orifice of the wound be made narrow by an inflammation or a tumor, we are to defer the extraction of the weapon, until those accidents be removed, otherwise we shall torment the patient, and procure swollings, and a fever, and it may be a gangreen or fideration of the part.

Fifthly, let us not attempt the extraction of any weapon, or part thereof, unless we have at hand a fit and convenient instrument: Otherwise we shall vex the wounded party, without any fruit, and make him the more unwilling to suffer, when we are better prepared for the action.

The second thing to be observed in the extraction of these bodies, <sup>2 The way.</sup> is the way by the which they are to be drawn out. In three cases the weapon may be thrust out the contrary way.

First, if it be almost through, but chiefly towards the depending part: for so less pain will be caused, and the quittour will more promptly flow from the wound.

Secondly, if the figure of the weapon will not suffer it to be drawn out the same way, by the which it was sent in, as appeareth in barbed arrows.

Thirdly, if there be no fear of cutting great vessels, or nerves. In other cases we are to draw out the weapons the same way they went in.

But you may demand of me, whether it be safest to draw them out <sup>Quest.</sup> whole, or by piece-meal.

I answer, that all things brittle which stick in a wound, as glass, <sup>Ans.</sup> and bones, are to be drawn out whole, if it may conveniently be done: But if they cannot be pulled out whole, but with pain and fear of symptomes to ensue, they are to be broken, and then taken out. As for weapons, which cannot be broken, and are like in their extraction to procure some mischief, as barbed arrows, you are to take them out with such an instrument as is able to defend the wounded parts from harm: Of the which I will speak by and by.

The third thing which I wished you to observe in the extraction of strange bodies was their figure: for the observation of this point is requisite: For the figure oftentimes doth make the extraction more easie or difficult, as hath been exemplified in a round and flat weapon. <sup>3 The figure of the weapon.</sup>

Now the fourth thing observable in extraction of extraneous bodies was by me said to be the diversity of instruments. Of them <sup>4 The diversities of instruments.</sup>



I could make sundry *Lectures*: but I mean not so to mis-spend good hours: Necessity and Observation invented them at the beginning, when man being enraged by the insigation of the Devil, and the perturbations of his own minde, not contented with his own members which Nature had granted him for offence and defence, found out a mean compendiouly, to send his brother (the image of God) to dwell with *Pluto* for all eternity, and to be estranged from his Creator. O that we could pack up injuries for the present, until the day of judgment, the great assises come: Then we should see a number of injured persons sufficiently avenged of their oppressors, whom we shall see adjudged to eternal torments, because they bid patience farewell, and would by entertaining revenge become Iudges of their own causes, and deny God the trial and revenge. Many instruments used in our fore-fathers time, are become now out of use. Man in every age doth devise new instruments of death. A compend we have in our age, *Gun-shot*, the imitation of God his thunder; but the example is more fierce, and sendeth more souls to the devil, than the pattern. Of instruments, I will but only point at a few, as necessary, referring the rest to the industry of judicious Chirurgeons, which shall be employed in Military affaires.

1. First, you must have a *Blunt hook* to lift up a vein, artery, or nerve, when a bullet or arrow head is to be taken out of a musculous part.
2. Secondly, you must have a pair or two of forcips hollow, strong, and of good steel, to lay hold on barbed arrows, or such weapons as may hurt the parts as they are drawn out.
3. Thirdly, Goose-bills round and hollow at the points, double and single, to take out bullets in like manner.
4. Fourthly, The Ravens bill, strong to squise and take out arrow heads, bones, and such like.
5. Fifthly, the *forcipes incisorii*, which cut being dilated on each side: These must be of good steel, well tempered, and very sharp. Those which are sold in the shops are worth nothing. These may have use when a wound is to be incised, to draw out of it any extraneous thing.

## LECT. IV.

*Of the preservation of the temperature of the part, by the right ordering of things not natural.*

**I**N the former Lecture I discoursed of the second and third duty, which the Physician or Chirurgion (called to cure, a wound) was to perform to nature, and those were his care that no extraneous body should be suffered to stay in the wound to hinder the union of the parts: and if it by fortune were there found, it should by his skill be removed.

In this Lecture, I am with the like brevity and perspicuity to deliver unto you the third and fourth duty, which doth belong to a Chirurgion or Physician, Natures friends, in assisting her in preserving her self, and labouring to shun wrongs offered by her adversary, which hath done the best to procure her overthrow and dissolution, by disjoyning parts united. These duties are two; to wit, that the Physician and Chirurgion first labour to preserve the natural temperature of the part wounded: And secondly, that he labour to restore it, if it be lost.

The natural temperature of the body, is preserved by two means. The first is, the right ordering of these things which are called not natural: The second is the application of convenient medicaments. But before I go about to deliver unto you the means, either to preserve the natural constitution of the part wounded not being altered; or how it is to be restored when it is lost; I must describe unto you the natural constitution, that knowing it aright, you may be able, using as a rule to see, as it were in a glass, the defects which have seized upon Nature, and the degree of their declination from that which is *secundum naturam*, or according to Nature.

Now the natural temperature of the part is, *Naturalis ejus siccitas*, or the convenient siccity or driness of it. So much we may collect out of Hippocrates, who in that Treatise which he hath left to us, *de Ulceribus*, or of Ulcers, affirmeth that *siccum est sano proximum*, that is, that, that which is drie commeth neer to that which is whole. In your practise by observation, you have learned to prognosticate to your selves health to every patient having either

The 3 and 4 duties of a Chirurgion.

The means by which the temperature of the body is preserved.

What the natural temperature of the part is.

ulcer

ulcer or wound, when you see small store of laudable quittour to flow from the sore.

*Doubt.*

But you may doubt, and not without cause, why *Hippocrates* did ascribe the natural temperature of the bodie to driness, a passive quality, and not to heat or coldness, which are active qualities.

*Sol.*

I answer, that this cause moved him to think so; because if the natural ficcity or driness of the part doth continue unviolat, the natural degrees of heat and coldness are preserved in the body; But by the contrary you have observed, that if in the part wounded, by reason of pain, superfluous humidity be attracted, and extraneous heat be increased, that the natural heat oftentimes is corrupted, and corruption of the part ensueth, or else that it being more than the natural heat can rule and dissipate, doth cause a schirrus of the part, either wounded or ulcerated: or so you see that if the natural driness of the part wounded be maintained, that neither the natural heat is corrupted, nor the natural coldness increased.

Which parts  
are cold and  
hot.

When I speak of natural coldness, I would not have you to think that I speak of an absolute coldness, which quite extinguisheth the natural heat, and causeth the sideration or death of the part: but of a comparative coldness found in some parts, which is so great in them, that if it be compared with the heat of other parts, it may seem a privation of heat, although not perfect. Such are the spermatick parts, if they be compared with the fleshie, and amongst those the bones, if they be compared with the muscles, your senses will teach you so much. Having spoken so much of that which is meant by the terms of a natural temperature of a part wounded, as is needfull for a Chirurgeon to know: I must labour to perform that which I promised in the beginning of the Lecture, and that was the setting down of the means by the which it is preserved. I affirmed them to be two; to wit, the right ordering of things not natural, and the convenient use of locall medications.

As concerning the first point, receive these documents. Seeing then a special care is to be had of the Aire, the Diet, of evacuation, of rest, and exercise, of watching and sleeping, and last of all, of the passions or perturbations of the minde, which he that is dangerously wounded is to observe, if he be presented to you to be cured; I wil briefly set down how every one of these is to be ordered.

As

As concerning the Aire : That aire which is temperate, and so proportionate to the temperature of the parts of the body, is most fit for wounded parts: Nevertheless some require both a hotter constitution of the aire, and warmer applications than others do. Will you know which these parts be? Hippocrates shall resolve you, *Aphor. lib. 5. Aphor. 18.* besides whom, these words are found: Cold is an enemy to the bones, teeth, sinewes, brain, the spinal marrow; but heat is pleasing to these. Heat principally delighteth the joynts, because naturally they are cold, being framed only of spermatike parts, as tendons, membranes, ligaments, cartilages, and bones, and that as well in the Summer, as in the Winter. A temperate aire is most convenient for other parts.

If any parts may endure cold, these are the ventricles, according to *Hippocr. lib. de Ulceribus*: for the confirmation of this his opinion, two reasons may be yielded.

For first, the external cold doth increase the natural heat, by keeping it in, by sealing up the pores, by the which it might breath out, and so it doth cause the better concoction, and maketh them more able to expel all excrements; but immoderate heat doth eliquat or melt the humours, induceth an unnatural heat, which doth dissipate the natural heat, and so maketh the ventricles unapt to execute their functions.

Secondly, in the ventricles there are great vessels which contain plenty of blood and spirits, which are able to resist any cold impression. In the breast you have the *vena cava* ascending, the *vena arterialis*, the *arteria venalis*, and the *aorta*. In the lower ventricle you have the mesaraical veins, the *vena portæ*, the radication of the *vena cava*, and the *aorta* descending. What I have spoken of the Aire, I would have to be understood of the Chirurgeons hand, the medicaments, and linnens which are to be used about the dressing of the wounded partie. If the season of the year afford not unto you an Aire answerable to your desire, you are to procure it by art.

Now it followeth, that I appoint a convenient diet for persons wounded: As concerning the diet, receive these Aphorismes. First, in great and fresh wounds, and in such as threaten an inflammation, which happeneth most usually if the body be plethorick, a slender diet is to be prescribed. Secondly, in wounds of the ventricles and joynts, and in those which have been stitched, the like diet is to be used. Two questions here may be moved.

Quest. 1.  
Quest. 2.  
Sol. 1.

The first is, what *victus tenuis*, or a slender diet is.

The second is, how long this diet is to be continued.

A slender diet is that which affordeth but little nourishment, and cooleth; for such a diet is most fit for the contemperating of the heat of the humours, and the staying of the influx of the same.

Sol. 2.

This diet is to be continued until the seventh day be past, which is the first critical day in sharp diseases. Then the use of wine, flesh and eggs are to be forbidden: let the wounded party take thin broths altered with Lettice, Spinage, Purslaine, Endive, Succory, the common and wood-forrel, adding the emulsion of the seeds of the Muske-melon, Pompion, and Cucumber. Thin Panadoes, and Oatmeal gruels are fit. Sallets of the aforementioned herbs, boyled and dressed with vineger and sweet butter, may be permitted: Apples and Pears, either roasted or baked, cold may be granted. Let the drink be small beer or ale to those who have used them in their health: But if you have in cure one, who cannot abide this liquor; then you are to appoint for him water boyled with the bottome of a wheat-loaf mingled with *Oxyfaccbarum*, or the syrup of Endive, Succory simple, or Violets, taking  $\text{ij} \frac{3}{4}$  of water, and one of the syrup. Receive the description of a parable julep, which will serve all persons; *R. aq. font. lb. ij. vini albi lb. j. avenæ mundat. ℥. iij. Bulliant ista ad consumpt. lb. j. at coleur decoctum, cui admisce aq. ros. cocbl. iij. sacchar. op. ℥. iij. ut paretur julapium clarum.* In wounds wherein there is no fear of ill accidents, you may grant poched eggs, so that the wounded party eat as well the white as the yolke. Having shewed unto you what aire and diet are most convenient for wounded persons, I am in like manner to talk of Evacuation: Of it there be two kindes, Phlebotomie, and purgation by siege. As for Phlebotomie, the end of it, is to procure liccitie, or driness to the wounded part, according to *Celsus, lib. 6. cap. 16.* whether phlebotomie be to be used or no, these things following will shew you: The wound it self, the habit of the whole body, the passions of the minde, and the aire it self, from the wound it self. Of this operation receive these canons.

Evacuation.  
Phlebotomie.

Indications  
from the  
wound it self.

First, in great wounds, from whence small store of blood hath issued, and when weak parts are wounded, as the joynts, whither superfluous humours may be turned, phlebotomy is necessary. The reason of the first part of the canon is this: If the wound hath bled but little, the part not being sufficiently dried, fluxion and inflammation may be caused.

Secondly,

Secondly, if in a wound either deep, or many stitches have been taken, a vein is to be opened : for the pain which is caused by reason of the stitching, is like to procure attraction of humours, and an inflammation.

Thirdly, in wounds, wherein there is no great pain, and in the which neither deep nor many stitches have been taken, you may spare phlebotomie.

Fourthly, in wounds of the fleshie parts which are strong, as also in those parts unto the which a humour can hardly be carried, as in the hairy scalp and face, you may abstain from blood letting.

As for the habit of the body, take this Aphorisme: If the body be plethoricke and feverish, if choler abound, boldly open a vein ; but not so, if the party be melancholicke, for this humour can neither be so easily inflamed, nor slow to cause any inflammation. You are in like manner to note the passions of the minde. If the party wounded be furious and hastie, if he sleep not well, if the spirits be extraordinarily moved, open a vein ; but if the wounded party be of a dejected spirit and fearful, and be but little moved, you may spare blood letting.

From the habit of the body

From the passions of the minde.

Last of all, you are to observe the constitution of the aire : In hot weather then you may more boldly use phlebotomie than in the cold; and so the rather in the Summer season, than in the Winter, for in hot weather the humours are hotter and thinner than in the cold, and so more apt to flow to the wounded part.

From the season of the year.

As for the purgation by stool, it is appointed for staying of humours from flowing to the part wounded. But seeing the symptoms which arise by reason of a fluxion, are most commonly two, a Phlegmone or *Erysipelas*, it is evident that those purgative medicaments which evacuate choler called *cholagogas*, are most fit : such are *manna*, *tamarindes*, *cassia*, the syrup of *Roses* and *Violets* solutive, *Electuarium lenitivum*, *elect. de succo rosarum*, *dicatholicum*, *diaprunum*, &c. In five cases such medicaments are to be ministred: First, in wounds of the ventricles Secondly, in wounds of the joynts. Thirdly, if the part wounded, be troubled with an inflammation, or *Erysipelas*. Fourthly, if the wounded part hath been stitched. Fifthly, if either incision, dilatation or rasping of the bone have been used. As for rest and motion, receive these admonitions : First, as in wounds of the lower limbs, it is ill to walk or to stand : so in wounds of the upper limbs, it is hurtful to

Of purgation by stool.

The posture of  
the patient.

exercise them. Secondly, if either the superiour or lower parts receive a great wound, it is good to keep the party in bed: but let the wounded part be placed in that posture, as is like to afford greatest ease. As for example: if the hand or foot be wounded, let them be placed somewhat high, to hinder flowing of humours to them. If the member must be kept unmoveable, the use of it will shew the best situation: for some parts must be kept bended, as the elbow and fingers; but others must be extended, as the knee and foot: and from hence sprang this observation, *cubitus ad colulum, crus ad lectum*, the elbow is to be tyed to the neck, but the foot to the bed. As for watching and sleeping, seeing watching doth drie the body, as sleep doth moisten it, according to *Hippoc. Aphor.* it is not good for the wounded party to take immoderate sleep, in two cases: First, if we fear that humours will flow to the part wounded, which we may conjecture that it may do in plethorick bodies. Secondly, if a wound fall out to be in a joynt, for sleep doth cool the joynts; but if the pain be great, then it is good to suffer the wounded person to sleep; yea, to procure it by anodine means, inwardly ministred, and outwardly applyed, if you see Nature of her self not inclined to sleep; for so the spirits being retired into the center, the faculty is at rest, and so the pain is eased. Last of all, I will conclude at this time by speaking but sparingly of the minde: we must labour to remove all perturbations of the passions of the minde from those who are wounded. Wherefore no ill tydings are to be brought to those, who are come to the years of discretion, and children by all means are to be kept from crying and weeping.

Watching and  
sleeping.

The passions of  
the minde.

Venus is to be  
abandoned.

Above all other things, let *Venus* be abandoned: for it exceedingly hindereth consolidation: for by it the blood and spirits are inflamed, and by the motion, noxious humours flow to the part: There are few amongst you (I make no doubt) who have not by experience in Patients observed the incommodities of this action.

LECT.

## LECT. V.

Of the first and sixth duties belonging to a Chirurgion in curing of a wound.

**I**N the former Lecture, I did shew you as briefly and plainly as I could, how the natural temperature of the wounded part, is to be preserved by the right ordering of those things which are called *non naturales*, or not natural. Now I am to shew you how this same is to be effected by the application of local medicaments: for in *Pletborick* or *Cacochymical* bodies, all means being used according to art, will sometimes, but with difficulty prevail.

Seeing, as I did shew you, that the natural temperature of the part is nothing else but the natural *siccitie* or dryness of it: it is out of all controversie, that the medicaments which are to be applied to the wounded parts, ought to be *siccantia* or drying.

But seeing there are sundry degrees of drying medicaments, you may demand of me, in what degree of dryness those medicaments ought to be, which are to be applied to wounded parts?

I answer, that both the temperature of the whole body, and of the part affected, will declare this unto you. One thing is to be noted, that the medicament which is to be applied to a wounded part, ought ever to be somewhat dryer than the part itself.

As for example, if the cheek of a Boy or Girl be wounded, you are to apply medicaments which are dry in the first degree, as *St. Johns wort*, *avens*, *camomil*, *melilot*, *saffron*, *barley and bean meal*: But if a Boy be wounded in a joynt, or nerve, you are to apply such things as are dry in the second degree. If these things happen to an aged person, or a strong clown; then you are to apply such *Topicks* as are dry in the third degree. Wherefore in soft parts wounded, as in the bellies of muscles, and fleshy parts, a medicament is to be applied, which is of the strongest in the first degree. In parts which are hard, as in the tendons, or cartilages wounded, you are to apply to the parts wounded such medicaments as are strongest drying in the third degree. But to parts wounded, which are of a mean temperature, neither too soft nor too hard, you are to apply for medicaments the strongest desiccatives in the second degree.



What things  
are unfit for  
Wounds.

Of this which hath been spoken, you may gather, that neither spring-water, nor oyl, are fit to be applyed to wounds : because both do moysten and relax too much. Besides this, if cold spring water be applyed, it may procure a gangreen by too much refrigerating the part, and quenching the natural heat. Let me warn you of one thing, that these desiccative medicaments must have a moderate astringtion : for so the blood being ingrossed, more shall not flow to the part than is requisite for the nutrition of it. Seeing I have made mention of such simples as are fit to be applyed to wounds, to procure there union, you will expect (no doubt) a brief enumeration of such as are accounted the most effectual. I will only name them, leaving their description, and other effects to be gathered out of the monuments of such as have published Herbals, and have discoursed of Animals, or living creatures and Minerals, from whence these means are fetched.

Which au-  
thors are to  
be consulted  
concerning the  
nature of Vegeta-  
bles, Animals  
and Mine rals.

If you are desirous to know the nature of Plants, have recourse amongst the Ancients to *Dioscorides*, who was a stipendiary Souldier under *Cleopatra* Queen of *Egypt*, who was overcome by *Augustus Caesar* in fight by sea at *Actium* the promontory, about 42. years before the birth of *Christ*. As concerning Minerals, *Fallopian* hath left a Treatise of them, who hath delivered so much of them as is requisite for a Chirurgeon to know : If you have a minde to know what variety of Living Creatures there be, peruse the monuments of *Conradus Gesnerus*, *Ulysses Aldrovandus*, and *Rondeletius*, who have written of these subjects. The Simples then which are most effectual for the consolidation of wounds, are deduced either from Vegetables, or Animals, or Minerals. As for those which are taken from Vegetables, I commend unto you these ; *St. Johns woort*, *St. Peters woort*, *betonie*, *agrimony*, *birthwoort*, *vervine*, both the sorts of *avens*, the *pomgranate flowers*, *horse-tayl*, *plantain*, *knot-grass*, *mil-foile*, *lunaria* the greater and lesser, the *shepherds-purse*, *perwinkle*, the *larks heale*, both the *centories*, but the greater is more effectual, *dittanie*, *comfrey*, our *Ladyes mantle*, *self-heal*, the *clowns ale heal*, *serpentaria*, the *adders tongue*, the *lilly*, *partstrife*, *horehound*, the *myrtill*, the *red rose*, *myrrhe*, *mastick*, *elemni*, *olibanum*, *frankincense*, *Solomons seal*, *turpentine*, *pitch*, *rosin*, the *willow*, *rew*, *sarcocol*, *borax*, our *ladies torch*, *birdlime*, the *wilde bastard saffron*, and *carduus benedictus*, *tobacco*. Of these simples taking the *juyces* and the *herbes stamped*, you may make *balsoms* ; and if you add *swines greafe*, *wax*, *rosin*, and *gummi elemni*, you may

Vegetables for  
wounds.

may make Unguents effectual for the curation of wounds.

Living Creatures put to their helping hands : of them you have *Mummiæ*, earth worms, snails, the fat of a horse, sheeps sevet, swines greafe, deersewet, goats greafe, the extract of mans blood, the spyders web, bones burned to white ashes, and harts horns calcined, if they be brought to an impalpable powder, being ground upon a painters stone, and made up into the form of trochisces, with the distilled water of snails, and then being beat to powder, and mingled with *unguentum Basilicum*, or *aureum*, exceedingly further the curing the wounds of the joynts, nerves, and tendons.

The Minerals also are no niggards in this case. The Licharges present themselves first, without the which, hardly can any emplaster be brought to a laudable consistence. That which is called litcharge of Gold, doth afford a brighter colour to emplasters, than that of silver : yet the effect is all one. Copper doth afford *asustum*, *squamma æris*, and *es viride*, all very useful in the practise of Chirurgery. *Iupiter* or Tinne, yieldeth his stores by sublimation, or if it be dissolved in a convenient liquor, Crystals : which being dulcified and brought to powder, and mingled in a due proportion with convenient unguents or emplasters, further exceedingly the healing of wounds and ulcers. *Mars* or Iron affordeth unto us his *crocus*, as 'tis termed : How powerful it is not onely to hasten consolidation of solution of unity ; but in laskes, *gonorrhœa*, and other diseases also, there is none ignorant, who hath had but a reasonable practise in Physick or Chirurgery. What shall I speak of *Minium*, both the Corals, *Tutia*, *Calaminaris*, and the Loadstone. By the enumeration of these few means taken from Vegetables, animals and minerals, for the curing of wounds, you may perceive how bountiful Nature is to Mankinde in supplying his wants. O that he were not wanting or deficient to himself. If we would take pains onely to prepare those things, whereof Nature hath left us no small store, and judiciously according to the prescript of art apply them, we should finde in our practise a better success than sundry times falleth out : Neither should we have need to blame the irregularity of patients, and the ill correspondence of those things, which are called *non naturales*, or not natural. Whosoever thinketh that he may without any stop or stay, go through the curing of all wounded persons, in what part soever the wound is inflicted, with the ordinary unguents, caried about in salvatories, he deceiveth himself.

These

These for the present use must be in a readiness; but if he finde these after application not to answer his expectation, he must have recourse to others. Which medicaments are fittest, the collation of the part wounded, and the Topicks will shew, as I have told you before.

How the natural temperature being altered, is to be corrected.

Having delivered unto you how the temperature of the part is to be preserved by the right ordering of these things, which are called *non naturales*, or not natural, as aire, meat and drink, evacuation and retention, sleeping and watching, &c. as also by the application of fit Topicks to the part, you may require according to my promise, how the natural temperature, if it be altered, may be reduced to its own tenor again. Let me tell you, that by the same means it is to be reduced, by the which it is preserved. Onely this is to be observed, that the means which cure, must be more forcible, and more intended in their qualities, than those are, which are applyed to maintain the natural temperature.

As for example, if a wound prove very moist, and send out much quittour, you must labour strongly to dry the habit of the body, by bleeding, purging, a slender diet, watching, and such like, and by applying to the wounded part medicaments, which strongly dry; and are endued with a certain astringion. If other elementary qualities, as heat, cold, driness appear, they are to be removed by their contraries, but intended in their qualities above that degree which was sufficient to maintain the natural temperature of the part wounded.

Now the sixth duty, which I affirmed to be required of the Physitian or Chirurgion, when he is called to cure a wounded person, was the observation of the excrements, which flow from the wound, and their true and natural causes: I will deliver first unto you the diversitie of excrements or quittour, which a wounded part sendeth out, and then I will shew unto you the causes of them.

Of the diversities of excrements which flow from a wound. Ichor from the veins.

The excrements which flow out of a wound, are in number three; *Ichor, Sordes, Pus*: *Ichor* is a thin excrement: The cause of it is inconcoction. Of it there are two kindes: for either it is an excrement issuing from the veins themselves, or else it proceedeth from the wounded part: If it issue from the veins, then it is a watrish and thin humidity, flowing from the capillar veins, not altered, and without any noysome smell, by its colour shewing which of the four humours hath dominion in the mass of blood.

Wherefore

Wherefore if the blood be very pure, it hath a certain bright redness representing water, wherein flesh hath been washed. If yellow choler be predominant, then this *Ichor* is of a clear yellowish colour: If fear abound, then the *Ichor* is whitish: If melancholy surpasts, then the *Ichor* or thin humidity is of a darkish swart colour. If this thin humidity spring from the part wounded, because it is altered and corrupted by the part which sendeth it out, it hath an unpleasant smell, being an excrement of the part. As the first kinde of *Ichor* is called *serum sanguinis*, the wateriness of the blood, which is mingled with the blood contained in the *vena cava*, that so being made more fluxible, it may the more easily be distributed by the branches of *cava*, to the habit of the body to nourish it; so the *Ichor* which is an excrement of the wounded part, is called *sanies* and *virus*, and according the degree of the corruption of the part, it is more or less stinking. If it flow from a part possessed with a cancer it is wonderful maligne and stinking: If it issue out of a part sicerat or mortified by reason of a *spbacelus*, it is cadaverous. By the exhalation which is breathed out of the pores of the skin, raised from the *serum sanguinis*; by the natural heat dogs finde out their masters, and will constantly hunt after that game, about the which they are first set about. This bewrayeth the complexion of the *Individuum*; but *sanies* and *virus* sheweth the corruption of the part.

*Ichor* from the part wounded.

The second kind of excrement is called *Sordes*: This is a compact and viscous excrement, so cleaving to the wounded parts, that it will not be removed without the use of a firm instrument: for lint upon a probe will not bring it away.

*Sordes*.

Of this thickness three causes may be assigned: the first is the dry constitution, both of the whole body, and the wounded part also: the second cause may be the error of the Chirurgeon, who hath applied too drying medicaments to the affected part: the third cause may be the cold aire, which having been let in to the wound, by the carelessness of the dresser of it, hath condensed, and thickned the *Fus*.

The cause of the thickness of *Sordes*.

The third excrement which wounded parts send forth is called *Fus*. This is an excrement white, smooth and equal or uniform, without any grumous or knotty substance, having no ill smell, not so liquid as *sanies*, nor so thick and viscous as *sordes*: See *ippocrates lib. de Prædictionibus. Galen. 2. ad Glaucon. 8. & 5. Met. od. 10.*

*Fus*.

Now

The causes of excrements in wounds.

Now to come to the causes of the excrements which are sent forth from wounds, which was the second point propounded concerning these excrements, note these aphorismes. First, the causes of these excrements are either the efficient or material causes. Secondly, the efficient causes are two, the natural and unnatural heat. Thirdly, the natural heat is the cause of concoction, whereby a laudable *pus* is engendered: But the unnatural heat working upon humidity causeth putrifaction, and an evil smell. Fourthly, the material causes are two, to wit, contused flesh, which by digestives must be turned to quittour and a humour, which most commonly symbolizeth with the complexion of the party wounded, whether it be natural or accidental. If then the natural constitution of the party wounded be good, the *pus* is laudable: But if by reason of errors committed in the use of those things which are called not natural, in the course of life a sickly complexion be acquired: As for example, if one be become hydropick, pockie, or leprous; then the wound is like to cast out no good excrement; but either *sanies*, *virus*, or *sordes*.

---

## LECT. VI.

### *Of the common Symptomes of wounds.*

The two general accidents of wounds, pain, and Fainting.

**A**T the last, I come to the last general duty, which the Chirurgion is to discharge to Nature in assisting her, in joyning disjoyned parts procured by a wound, and that is the seventh duty in number, as I set down in my second Lecture concerning this subject of wounds. This I affirmed to be the removing of some general accidents which ensue, and oftentimes invade the wounded party, after that a wound is inflicted: Now these are in number two; Pain, and swooning, or fainting; I call them general, because they may accompany all sorts of wounds, as well simple as compound: As for pain, no wound can be inflicted without causing some pain, either more or less: This is certatin, in all compound wounds, and agreed upon by the unanimous consent of all Authors who have left Treatises of this subject to posterity: Besides this, seeing the skin, at the least, must be divided in simple wounds; who can imagine this can be done without pain, seeing the skin is the instrument of touching and feeling? As for fainting  
and

and swooning, it also often falleth out in both simple and compound wounds: And in simple wounds daily observation doth evince this to bee most true. I know that none of you have beene employed about bloud-letting, hath beene so carefull and fortunate in performing the operation, but that hee hath had sundry who have fainted under his hands, before any remarkable store of bloud hath been drawne. Now what wound can be accounted more simple, than that which is made with the lancet or fleame, which will be united within the space of few houres after that the veine is shut and bound up. It fell out once that I sate at the table with sundry Gentlemen, amongst whom there was one noted for his valour; he having but lightly cut his finger, and by the advice of one, who sate next unto him, applied a little salt to the part incised, with his knife, presently sunke downe from the table, and was carried away; I spare his name, because he yet liveth, and might justly be offended, if this relation should come to his eares.

Of these two accidents, I will first discourse of Paine, because it extendeth it selfe farther than Fainting or Swooning doth; for no wound, whether it be simple or compound, can be without more or lesse paine, when it is first inflicted, for the reason which I yeelded a little before. Whereas sundry have received grievous wounds, and yet have not fainted; for it must be not a small matter, which will cause a stout or magnanimus person to faint: Besides, this paine very often is the cause of fainting; now the cause by nature hath the priority of the effect. Paine then in Latine is called *dolor*, which is deduced from the verbe *doleo*, which signifieth to grieve or to feele paine. First, I will describe unto you what paine is; secondly, how this accident is removed from the wounded parts, by the application of convenient locall application, which most properly is the office of the Chirurgeon.

Paine is described by *Galen* to be *tristis sensatio*, a grieving feeling, this description of *Galen*, rather sheweth how paine is caused, than what it is; for paine is procured by some offending object, moving the instrument of touching: And in truth we must acknowledge, that paine is not the feeling it selfe simply; wherefore *Galen* did not call paine feeling absolutely, but feeling with a griefe. In paine two things are to be noted: First, the apprehension of the sensible object, as it is sensible: The second is the apprehension of the same, as it is pleasing or unpleasant. If we fur-

The first description of Paine.

Two things to be noted in Paine.

ther inquire in which of these two the nature of paine doth subsist: we must confesse, that dolour or paine is not the very apprehension of the sensible object, but the griefe which is caused by the apprehension of the unpleasant sensible object, and the corruption of the organ. Wherefore, paine may thus fitly be described; It is a grievousnesse, which is felt in the instrument of the sense of touching, caused by those things which make a solution of unity.

2. Description  
of paine.  
Two Kindes of  
griefes.

In this description, three arguments of Logick are to be marked. The first the *genus*, which is said to be *molestia*, or grievousnesse: for there are griefes as well of the minde as of the body; as envy at the prosperity of another, which is diabolicall; and rash anger, which is bestiall; but paine is a griefe of the body. The second argument is the subject wherein paine is seated, and that is the organ of touch. The causes make up the third argument; and those are thought to be such things as cause solution of unity in the instrument.

Quest.

Here a question may be moved, whether a paine may not be felt in instruments of others senses, as the hearing, seeing, &c. as in the instrument of touching?

Ans.

To this I answer, that two kinds of troublesomenesse may be deprehended in every sense, besides touching. The one is, when the instrument of touching it selfe is offended, which is imparted unto all the rest of the senses: The other is, when the proper sense it selfe is offended; as when a scholler doth meditate, and is hindered by the ringing of bells; or when one having composed himselfe to sleepe, is troubled with the unpleasant howling of dogges, noyses of carts and coaches, and clamour of drunkards, which is frequent enough here in London; where the hearing is offended; or when one with griefe and commiseration doth behold his deare friend extinguished with an apoplexie, who sate with him at table immediately before his fall, which hath been often seen, where sense of seeing is troubled. But there is a great difference betweene the paine in the organ of touch, and these troublings of the other senses: The first truly deserveth the name of paine; but the second may be termed averfations or dislikings of the objects, rather than paines. This moved Galen to say, 1. *de sympt. caus.* 6. delight and griefe happen to all the senses, but not with the like evidence. But as concerning paine, which offendeth the instrument of feeling, thus he writeth, *de different. sympt. c.* 3. The sense of touching, above all other senses, hath obtained a most remarkable symptome,

to me, to wit, paine in it action. And although other senses may feele griefe, yet this griefe doth onely proceed from their externall proper objects; but paine may happen unto the sense of touching, not onely from externall, but from internall affections also resting within the body, which sometimes have beene so vehement, that sundry persons have dispatched themselves. I will not goe about to confirme this last point, affirmed by *Galen*, seeing I am to deliver to you chirurgicall doctrine, and not historicall narrations. But who will give himselfe content, let him peruse and turne over the volume of *Sbenkius* his Observations, where he shall reade examples more than enough. Thus much I thought good to deliver vnto you concerning the nature of paine, which is an accident proper to the organ of touching: And although it be somewhat philosophicall; yet it cannot but be profitable for you, seeing it is able to enrich your understanding, that you may be able to expresse what is meant by paine, whē it is named, & to discerne when it is a proper symptome of the instrument of feeling, and when by reason of the instrument of feeling it is communicate to other senses. It is now full time to set downe such topically medicaments as are effectually to assuage paine. These medicaments are of two kinds: for either they are Narcoticall, or Anodine: Anodine medicaments by the Grecians are called *ανωδινά*, and by others *καρπυρεννά*, asswages of paine. These medicaments are temperate, answerable to the constitution of our bodies: and therefore they maintaine the substance and naturall heat of the body. By their pleasant heat they gently open the pores of the body; by the subtilnesse of substance they enter into the pores, and make all the humours uniforme, they soften and loosen the part, and so it becommeth lesse apt to receive paine: And if they exceed in heate a little, they open the pores more effectually, and discusse some of the thinnest part of the peccant humour which is most fierce, and so abate somewhat the cause of the paine. The simples of this order are Camomill, Melilot, Dill, the Elder, Wall-woort, the ordinary Mallow, Marsh-mallow, the roots and flowers of Lilies, Fenugreeke, Linseed, Barley, sweet Sallat-oyle, oyle of sweet Almonds, Mans grease, Capons grease, Swines grease, Goose-grease, Butter without salt, Marrowes, creane and sweet milke. Of these, oyles and cataplasmes may be framed fit for your purpose. This parable medicament I commmend unto you, *Reducatur unguentum album capburatum in formam*

Anodine medicaments.

Simples:



Narcotical me-  
dicaments.

*mam linimenti oleo lilii, anathino, aut chamemelino, & applicetur.*

Narcotical medicaments neither take away the cause of pain, neither assuage the pain, but stupifie the part, that it cannot feel that which is painful: such medicaments are cold in the end of the third degree, and in the fourth, which drive away the natural heat and spirits from the part. Of this sort are the water Lily, the Henbane, Hemlock, the deadly night-shade, Mandrake, the apple of Peru, the black Poppy and Opium, Darnel, and the seeds of the former Simples, of which Simples you may make both cataplasmes and oyles. In stead of all other you may use this liniment, R. unguent. popul. & albi capburat. an. ʒi, ol. hyoscyami & mandragor. an. ʒi β: Misc. ut fiat linimentum, applicandum parti vulnerata.

Syncope.

Now followeth the second general Symptome, which followeth after that a wound is received, *λεπτοθυμία* and *συνκοπή* fainting or swooning: Syncope is derived from *συνκοπῶ*, *concido*, to cut together, because in it both moving and feeling are taken from the body, so that it lyeth for a time as if it were dead. *Lipothymia* differeth from it only in vehemency: for in this the party loseth not altogether feeling, and cold sweat doth burst out; because that that which cureth the greater grief, is able to cure the lesser in this same kinde. I will only discourse of a Syncope, because the nature of it being known, and the curation of it learned, the less grief, *lipothymia* or fainting, is easie to be dealt withal.

Syncope.

Syncope then is a sudden decay or abolition of the strength of the body, according to Galen, 12. Method. cap. 5. As *lipothymia* is only an inminution of the same: the part affected is the heart.

The causes of a  
Syncope.

As for the causes, receive these Aphorismes. First, a Syncope may happen when there is not matter ministred for the generation of spirits, as in famine. Secondly, it may happen when the constitution of the heart is altered by reason of some disease, as in pestilent fevers. Thirdly, when a maligne matter is communicate to the heart, as it happeneth in a deadly mortification of a member. Fourthly, when the spirits are spent, and dissipate by too great heat, watching, travel, Immoderate evacuations. Fifthly, it may happen by antipathy, so it hath been noted that some have swooned at the smell of a Rose. Sixthly, fear also may be the cause. Seventhly, it happeneth when the spirits are suffocate by a crude humour or vapour. Eighthly, it may invade, when a maligne vapour is sent from another part of the body to the heart, as in fits of the

the mother. Ninthly, the sensibleness of the part wounded may be the cause, as if it be a joynt, nerve, tendon or membrane.

The signes of a *Syncope*, are these: First, the face groweth pale, the pulse is small, slow and unequal, a green or yellow colour is represented to the sight, then the sight becommeth dimme, the hands and feet become cold, sweat breaketh out about the forehead, and at the last the pulse altogether ceaseth, moving, feeling and speech are taken away, and the body lieth for a while as if it were dead.

As for the Prognosticks, receive these: First, if a man come not to himself again after that he is rubbed with rose water or *aquaviva*, hath wine or strong waters powred into his mouth, and hath had strong sneesing medicaments blown up into his nose, the *Syncope* is accounted deadly. Secondly, if a *Syncope* surprize one, who before was feeble and weak, it is dangerous. Thirdly, a *Syncope* proceeding from an inward cause, is more dangerous than that which proceedeth from an outward cause. Fourthly, A *Syncope* which proceedeth from the oppression of the spirits is more easily cured, than that which proceedeth from the dissipation of these same, by reason of inanition. Fifthly, they who often swoon without a manifest cause, at the last they dye suddenly. *Hippoc. 2. aphor. 41.* Sixthly, that *Syncope* which is a primary affection of the heart is more dangerous than that which happeneth by the consent of other parts. Seventhly, when a *Syncope* happeneth by reason of immoderate evacuation of blood in wounds, we have no cause to despair, chiefly if the wounded party be of a good constitution: for blood by a good dyet is easily restored. Eighthly, when one doth come to himself after swooning, if the pulse and fresh colour return not, he is like immediatly to fall into it again. Ninthly, who goeth not about to prevent a *Syncope*, when he seeth a *Lypsbomy* to have possessed the wounded party, he is to be accounted accessory to the death of him, according to some Authors.

Now as concerning the Therapeutical point of this discourse, expect not whatsoever may be said of it: for many things delivered would be impertinent, no way belonging to the practise of Chirurgery: and the discourse would require more time than the limits of this exercise can permit: I therefore wil acquaint you with those means only, which your duty doth require. The curative means then are either external or internal: As for the external, these which follow

The signs of a  
*Syncope.*

The Prognosticks.

The curations.

External means.

follow are accounted most effectual: First, the temples and nose are to be bedewed with odoriferous liquors. If the party be hot, apply such as are either temperate or not very cold, as the water of Orange flowers, the waters of meadow sweet, balme, roses, the ordinary sweet waters: If the party be cold, apply the spirits of balme, mints, wormwood, or Angelica. If the party wounded be a woman, you are not to rub these parts with things odoriferous, lest you bring on the mother. To these then use the spirit or extract of *castoreum* and rue, which are excellent. Secondly, use shaking of the body, frictions of the extremities, hard pressing the parts adjacent to the joynts of the lower jaw under the lobes of the ears, shouting into the ear, and calling upon the party by his own; moistning of the tongue with *Theriaca Andromachi* dissolved in cinamome water, having added a few drops of the oyle of Sage and Amber. See *Paræus lib. 8. de vulnerib. c. 14. Sennetus pract. li. 2. part. 4. c. 6.* If it be a strong *Syncope*, it will not be amiss to pull hard the haire of the temples and neck.

Internal  
means.

As for the internal means, a Sop in strong wine, as alligant, malmesee, canary wine, or white bastard, is very good, so that the wine, drunk together with the toast. Confectio alkermes dissolved in cinamome water, or treacle dissolved in *aqua celestis* and ministred are effectual. If these medicaments be not at hand, give *aqua celestis*, wormwood-water, balm-water, mintwater, yea, the common *aqua vitæ* must serve. I commend unto you this composition. *Rx. aq. card. benedict. ℥iij. aq. iberiacal. & cinamomi an. ℥ss. confect. Alkerimes ℥ij. diamargariti calid. ℥iij. lap. Bezaar oriental. ℥i. syrapi acetositat. citri ℥ij. aq. ros. odorifer. cochl. 3. Misc. ex l. a. Exhibeatur cochl. 1. 3<sup>a</sup>. quaque hora post agitationem.* If these means prove not effectual, seek for no other; for you shall leese your labour.

## LECT. VII.

### Of the stitching of Wounds.

**I**N the second Lecture of this subject of Wounds, I affirmed the last scope and end which a Chirurgeon proposeth to himself when he goeth about the curing of a wound, to be the reunion of

of the parts disjoyned by an external instrument. I set down also the differences of union, which were *συμφοσις* or agglutination, and *συσσφραξις* or concarnation : give me leave to use these termes to expresse the Greek words.

Agglutination, I said to be the union of parts separate no middle substance concurring. This kinde of union the Chirurgeons averre to be performed by the first intention. Agglutination.

Concarnation, I defined to be the union of parts disjoyned by the intervention of a middle substance : This is said by the Chirurgeon, to be done by the second intention : for the better procuring of union in wounds, I proposed seven duties, which a Chirurgeon is to perform to Nature, to further her endeavour in this action : which I hitherto have profecuted in six several Lectures. Now the order of doctrine doth require, that I shew by what means union is procured in wounds. Concarnation.

First of all, I will shew how agglutination is brought to pass : Then I will shew how *συσσφραξις* or concarnation is procured : And this order I have chosen for sundry reasons moving me thereto : For first, agglutination is a more simple kinde of union, because it is performed without any middle coming between the wounded parts severed. Secondly, because it is more speedily performed than concarnation : Thirdly, because in it there is neither such art and skil, or such choice of medicaments required, as are in *συσσφραξις*. Why Symphysis is first to be handled.

Now to bring *συμφοσις* or agglutination the first kinde of union to pass, three curative Indications offer themselves : First, the brims of the wound are to be joyned together. Secondly, the parts joyned together must be so kept. Thirdly Agglutinative medicaments must be applied. The indications for procuring *συμφοσις*.

The first indication is to be performed by the Chirurgeon : for he is to bring together with his hand the brims or lips of the wound gaping : In bringing of the lips of the wound gaping together, five things are to be observed. First indication. Things to be observed in joyning the brims of the wound.

First is, that he bring gently, and by degrees, not violently or suddenly the parts severed.

The second is, that the parts disjoyned be equally brought together, not stretching one more then another, unless one part will not admit dilating : as when it doth cleave to a bone, the other being fleshy for a great distance, and at liberty.

The third is, that if the brims of the wound have become stiff, 3.  
Hydrelcum, &c.  
by

by reason of the cold aire, (they having for a space remained uncovered) they be fomented with *Hydrelaun*, the medicament made of oyl and water. The proportion of the oyl and water is to be conjectured from the constitution of the whole body, as well as from the temperature of the part affected. As for example: If the party wounded be of a dry and thin habit of body, more oyl than water is to be taken, as one part of water, and two of oyl; but if the habit of the body be fleshy and succulent, more water is to be used than oyl.

4. Fourthly, in this conjunction equality must be observed. So the superficies of the one part of the wound must exquisitely answer the superficies of the other part: and there must be a due correspondency between the inner sides. Otherwise the cicatrix will be ugly and unequal.

5. Fifthly, no dosill or pledget must be put between the parts of the wound separated, when you meane to consolidat the wounded parts by the first intention, for then you shall cause flesh to grow, and procure the union of the parts according to the second intention.

Second intention, how it is brought to passe.  
Dry stitching.

As for the second intention, which is the keeping of united parts together, it is performed by three meanes. The first is by *Laqueation* or dry stitching, as it is termed: The second is by *Sutura*, or stitching with a needle: The third is *Fasciis*, by rowling. *Laqueatio* or dry stitching is, when pieces of cloth being placed on each side of the wound, the parts of the wound disjoyned are brought together, by drawing the pieces of the cloth with a needle and thrid.

When this is to be used.

This kind of stitching we use in three cases. First is, if we cannot come conveniently to roule the wounded part, as in transverse wounds. The second is, when the externall beauty is like to be empaired, by making of new scarres, as it happeneth in wounds of the face. The third is, when the parties wounded will not admit *Sutura*, or stitching with the needle; as women, and eminent persons.

Things to be observed in the application of it.

In the application of the dry stich, three things are to be observed. The first is the preparation of the pieces of cloth. The second is the meanes by the which they are to cleave to the wounded part. The third is the forme of them.

I. As for the first, the pieces of cloth must be strong, that they yield not unto the threed, when they are drawne. Secondly, one must

must answer another : Thirdly, they must be hemmed, or doubled towards the wound ; but they must be ravelled where they are furthest from the wound.

As for the second : The meanes by the which these clouts are to cleave to the skin firmly, ought to be wonderfull emplastick medicaments : I will set downe a few examples of such.

The first shall be this : Dissolve Ilinglaße in vinegar, and by boyling, bring it to the consistence of glew.

The second shall be this : *R. farin. volat. mastiches, gypsi cocti, boli Armen. aloes, gummi tragacanth. & Arab. an. ʒi. fiat ex omnibus pulvis, qui oui albumine admistus consistentiam mellis referat.*

The third shall be this : *R. mastich. ʒii. bitum. Iudaic. carab. an. ʒi. colophon. ʒi. Adjecto pauco vernice paretur emplastrum durum, quod igne liquecat, quum usus venit.*

The fourth shall be this : *Agitetur exacte albumen oui in patina stannea : postea ita aspergatur pulvis calcis vivæ albumini agitato, at vix appareat. Si pulveris plus satis deciderit, spiritu oris diffusetur : Imbuantur tela hoc medicamento, ac partibus vulneratis applicentur.*

As concerning the third, to wit, the forme of these clouts, let them be of the forme of the wounded part. If therefore the part be Triangular, let the clouts be Triangular. Howsoever, let the forme be such, as is fittest to draw the wounded parts together. As for example, if the cheeke be wounded transversely, because the upper cloth must not be quadrangular, ( for so it should cover the eye ) it must be cut triangular, and reach to the temple of the head.

Now the tyngs of the threeds ought to be distant one inch from another : So much I have thought good to deliver unto you concerning laqueation or dry stitching. Now I am, according to the order of doctrine set downe by my selfe, to discourse briefly de *Suturis* or stitching with a needle or needles.

Of stitching with needles these five points are to be observed. First, what is meant by this stitching : Secondly, The divers kinds of it : Thirdly, The uses of it : Fourthly, The instruments which are used about this operation : The last point shall containe the Documents, which shall informe you how this operation is to be performed according to art.

*Sutura* then or stitching is the bringing together of the lips of a wound by a needle threaded, and the keeping of them together by these two meanes.

2.  
Formes of emplastick medicaments.

1.

2.

3.

4.

3.

The distance of the tying.

Of stitching with needles.

What stitching is.

The differences of stitching.

Of stitching there are two meane differences, for either the brims of the wounded parts are kept together by the threed onely, or else the needle also is left in them.

1.

The differences of stitching performed by the threed onely.

Of the first sort of stitching there are three kinds. 1. Is *Sutura continuata*, or the glovers stitch : This kind of stitch we use in the wounded guts, when the excrements come out of the wound, and the guts must be stitched. Wee use it also when great branches of *aorta* and *vena cava* are wounded, and there is a great flux of blood if we can conveniently come to the vessels wounded.

2.

The second kind of stitching is *Sutura non continuata* : This kind is performed by taking divers stitches each being distant from another, so far as the largeness of the wound shall require, & the Chirurgion shall think fit : So many such stitches shall be taken, as shall be able to bring the lips of the wound to a proportionate smoothness & equality of the skin. In every stitch the ends of the threads are to be cut off neere to the knots, that they stick not to the em-plaster.

3.

The third kind of this stitching is called *Gastrophagia* : This is used when the great muscles of the belly, and the *peritonæum* are divided by a large wound. Of this I will discourse when I come to the wounds of the *abdomen*.

The second meane kind of stitching.

The second meane kind of stitching is, when both the needles are left in the wound, and the threed also is used. In this kind of stitching when the needles are passed through the lips of the wound, and they are brought together, the needles are left there, and twisted about both the ends, as Taylors doe when they fasten their needles to their sleeve : This stitching is to be used in the cure of the hare lip, and when the *Trachea arteria* is wounded. In stead of needles we may use silver or brasse pinnes : And when they are twisted about, their ends may be cut off with a paire of small nippers, made for such a purpose, to avoyd the cumbersome of the sharp ends of the pinnes.

The uses of stitching.

1.

The uses of stitching are three ; for either wee use stitching to procure a quick agglutination of the wound : And it is called *Sutura incarnativa*. And in this kind of stitching the brims of the wound are to be brought neere together.

2.

The second use of stitching is to keepe the brims of a wound in a reasonable distance one from another. And it is called *Sutura re-tentiva* : this kind of stitching we are to use when a wound cannot be united after the first, but second intention ; wherefore in this the

lips

lips ought not be too farre afunder, lest the aire coole the parts too much; nor too neere, because agglutination is not to bee expected.

The third use of stitching is to stay bleeding, as when a veine or artery is wounded. This kind of stitching is called *Sutura sup-pressiva*.

Now the instruments requisit for stitching are needles, threed, and the stitching quill. As for the needles, they ought to be either of steele or silver. Those of silver will bend best, but then they must not be hardned by beating upon the anvill. The steele needles you may distemper by holding them lapped in brown paper wet for a while in the flame of a candell. But it is good to have still some in readinesse crooked as streight.

Their points may be round, flat, three square, or foure square. The square pointed needles pierce best. They ought to have good eyes, and well grooped, that they may receive the threeds readily, and couch them the better.

As for the threed, we use most commonly white, or crimson filke threed: blacke is to be rejected, for it is most commonly rotten, and fretteth. But the Low-country white threed made of the best hemp hath no fellow: for it swelleth in the wound, and doth not so cut as the silk doth, which groweth small, and cutteth too speedily.

The stitching quill, called in Latine *Canaliculus fenestratus*, ought for the credit of the Chirurgeon to be of silver. It hath two uses. First, it keepeth the needles. Secondly, it stayeth the opposit part of the wound, that the needle may the more readily passe through the adverse lip. Now onely remaineth that I set downe according to my proposition some Documents, which teach what remarkable things are to bee observed, when you goe about to stich. These are in number thirteen.

1. We are to labour to stich with the greatest ease that may be, that the patient may the better endure it.

2. Let the lips of the wound be with moderation broght together: for if they bee too straitly drawne together, the flowing of the quittour will be hindred, and so a tumour will be procured: But if they be left gaping, the inner parts will be cooled by the aire.

3. The knots of the threeds must be sure: otherwise they may loose, and so we must be inforced to stich the second time, which



will be more terrible to the patient than the first.

4. 4. In stitching we must beware of the chords and sinews : for if they be touched, great pain will ensue.
5. 5. If ligaments be cut asunder, we are not to stitch them, for it is but labour lost, because they are only united by the second intention.
6. 6. In all parts of the body the skin may be sticht, yea even in the joynts, deep wounds, and wounds of the bones, after they are smoothed with the raspatory : for by this means the spermaticke parts are covered, defended from the aire, the natural heat is kept in, and the cure is better performed.
7. 7. A reasonable quantity of the brims of the wound is to be taken by the stiches, otherwise if the stiches break, we shall cause filthy tranverse scars.
8. 8. Let the stiches be distant by the distance of the breadth of the fore-finger, or the least finger at the least : for if they be too thick, they will cause the more pain ; if they be too thin, they will hinder the union.
9. 9. In deep wounds of fleshy parts, we must take deep stiches ; for if the skin only be stitched, the wound will only superficially heal : and the quittour setling in the bottome, will cause apostematation and a hollow ulcer.
10. 10. In strait wounds of the limms we may spare stitching: for the lips may be brought together by laqueation and rowling : But if the wounds be tranverse, we are alwaies to use stitching, because the flesh and all other parts in such wounds shrink towards the sound parts, and so gape much.
11. 11. If wounds be in the joynts, we are to draw a good quantity of blood. First, because the joynts are weak, and so apt to receive the influxion of humours. Secondly, because they require strong desiccation. Thirdly, because the joynts being weak, it may be feared that too much blood may cause the suffocation of the natural heat.
12. 12. In wounds of the ventricles phlebotomy is not so necessary. First, because they require not great desiccation. Secondly, because if we use large phlebotomy in them, we take away the fewel of the natural heat, wherewith they abound.
13. 13. In long wounds we are to begin from one of the ends ; but in short wounds (as in curing the hare lip) we are to begin at the middle ; for so we shall shunne pursing together of the lips of  
the

the wound, which will cause inequality in the skin, and so deformity.

## LECT. VIII.

*Of Agglutinative Medicaments, and Rowling.*

**I**N my former Lecture I affirmed, that that the lips of wounds which are to be united by agglutination, ought not only to be brought together, but to be kept so also: I set down in like manner three means by the which the brims are kept together: to wit, ligation or dry stitch, *sutura* the stitch with needle and thread, and *fascie* rowling.

Having amply discoursed of the first two, now am I to speak of Rowling: the third mean, to wit, Rowling. *Fasciatio aut deligatio per fascias*, is when we labour to keep the lips of the wound, that they may the sooner and more firmly be united together by the means of rowling. As concerning this mean, which industrious Chirurgeons have devised, to attain to their end and scope, which is the union of the parts disjoyned, I will set down these three points: the first shall be of the matter of Rowlers. The second shall be of the divers kindes of rowlings in wounds. In the third point I will shew how they are to be applyed according to art.

As concerning the matter of rowlers, they ought to be of linnen: for woollen rowlers are apt to admit stretching, and so cannot make such constriction as those of linnen doe. Secondly, they cause itching, and heat the part too much, by which means attraction of humours is caused, which altereth the natural temperature of the part, and so hindereth the union of the parts of it severed. The matter of rowlers.

Now the linnen rowlers must not be of cloth too new, for then they will be too stiff and hard: nor of cloth too much worn, for then they will be too weak. Neither must they be of cloth too thick, for then they will be too heavy and boysterous; or too thin, for then they will be most apt to receive wrinkles, which is unseemly. They must also be of even cloth, not having unequal threads; for so they will cause pits in the skin. Besides this, they ought to be clean; for filth in rowlers, stoppeth the pores, and The qualities of linnen rowlers.

and hindreth the perspiration, and so may bring inflammation.

The Dimensions  
of rowlers.

As concerning the Dimensions of rowlers, those which are appointed for the trunk of the body, ought to be broadest; then those which are ordained for the thighs: Next unto these, those that are to be applyed to the armes: The narrowest are most fit for fingers and toes. As for the length, it is to be found out by the number of circumvolutions as shall be found fit and requirit.

Galen de Fasciis

As concerning the divers sorts of rowlings, Galen hath left a whole Treatise of them; by his pains and labour he hath deserved a thankful commemoration from all posterity. But all what he hath set down, cannot be applyed to this subject which we have in hand: Only four kinds do serve our purpose, to wit, *Incarnativa*, *Retentiva*, *Expulsiva*, and *Aequans*.

Fascia incarnativa, and its kinds.

*Fascia Incarnativa*, or the manner of rowling, appointed for agglutination, is of two sorts,

1.

The first is performed by a rowler with two ends. Now in this sort we must begin to rowl in the sound part, opposit to the wound, and rowle upwards, and so return to the wounded part with one end; with the other end we are to rowl downwards, crossing the former, that the lips of the wound may be artificially brought together. In this kinde of rowling, the wound must be twice as broad as the rowler, because by this kinde of rowling, the rowler doth draw the wound together two times: Once rowling upward, and once rowling downward, and so to avoyd wrinkling the rowler ought not to be so broad as the wound.

2.

The second kinde of agglutinatiue rowling, is performed by one cloth, which must be broader than the wound. The middle of it we apply to the sound part, that the sides may meet above the wound; then we are to sew the sides of the rowler together with a tranverse stitch: But this kinde of rowling is not so ready as the first, because at every dressing we must cut the former stiches and use new. *Fascia retentiva*, is that kinde of rowling, which is used to keep close to the wounded part, the applications, as pledgets, emplasters, boulders, clouts, and such like. A simple rowler will serve for this purpose. This kinde of rowling ought to be no stricter than is sufficient to stay the applications; otherwise, it may hinder the influence of the nourishment to the part, and so procure a sideration or mortification of the wounded part. The third kinde of rowling is called *fascia expulsiva*, or the repelling kinde

Fascia retentiva.

Fascia expulsiva.

kind of rowling. This manner of rowling suffereth not any thing to lodge in the cavity of the wound. Now seeing defluxions most commonly invade the dependant parts in this case, we are to begin our rowling in the sound parts below the wound, and so to proceed to the wounded part; whither when you are come, you are to use fewer or more loose circumvolutions, and so to ascend to the sound part above the wound, and then to use more strict rowling to hinder the descent of any humor; and so by this same kinde of rowling wee wring out the matter which hath already flowed, and hinder the influence of any new matter, *Fascia Fascia aequans aequans*, or a smoothing rowling, is that which reduceth unequall parts, whereof some are high, some low, to a decent equality: This is brought to passe by boulters and a simple rowler.

There are other sorts of rowlings besides these, yet either not so necessary, or belonging to other operations in Chirurgery; as *fascia prohibitiva apostematis*, that kind of rowling which hindereth apostemation. In this case we are to begin our rowling about the wound, and to goe upward to the joynt of the sound part. Contrary to this is *fascia apostematis factiva*, that kind of rowling which causeth apostemation. There is also *fascia disjunctiva*, that kind of rowling which keepeth parts asunder, and *fascia directiva*, that sort of rowling which reduceth distorted and crooked members to their naturall figure: Of these I will discourse when I reade of those points wherein they are required.

Now concerning rowling, this onely remaineth, that I set downe some duties which are required of a Chirurgeon when he goeth about to rowle. The first is, that hee be nimble and quicke in dispatching, that the patient be not wearied. The second is, that hee carry a light hand, for so he shall not hurt the patient. The third is, that he rowle handsomely to content the eye. To performe this, we are to have a care that threds hang not at the rowler, lest wee may seeme to have robbed beggers of their rags. In my former Lecture I affirmed that *συνωρισ* or agglutination, was performed by three intentions; to wit, by bringing of the lips of the wound together, by keeping them together, and by application of agglutinative medicaments. Having set downe how the two first indications are artificially to be done; now am I to deliver unto you what agglutinative medicaments are fittest to procure agglutination.

Of these medicaments I will deliver these three points: The first shall

Other sorts of rowlings.

Duties required of a Chirurgeon in rowling.

Glutinative medicaments.

shall be of their matter : The second shall be of the divers kinds of them : The third shall set down the artificial application of them. As for their matter, they ought to be cooling or temperat to hinder inflammations, and astringent, to resist the influxion of humours, and drying to hasten consolidation. These medicaments are of two sorts; for they are either simple or compounded.

The simple. These which follow, are to be accounted Simple : *Hypericum, Sideritis Achillea, Polygonum, bursa pastoris, equisetum, sigillum Salomonis, consolida major, bugula, ophyoglossum, Valeriana, panax coloni, centaurium utrumque, solidago Sarracenicæ, plantaginis, species, pentaphyllum, Tabacca, carduus benedictus, sanicula, alchymilla, cariophyllata, lunaria minor,* <sup>a</sup> *vinum rubeum astringens, rhus coriariorum, aqua aurifabrorum albuminibus ovorum clarificate, Humor melleus vesicis, quæ lateribus foliorum ulmi mense Maio adherent conclusus.* It healeth wounds very speedily; thus it is to be prepared: Fill a glass with this liquor, then stop it well; then bury the glass a foot deep in the ground, and cover it with salt; suffer it to remain there for the space of twenty or five and twenty dayes: last of all, separate the clear liquor from the feces: the natural Balsame is; Of this kinde are *Burnet, Perwinckle, bole, terra sigillata, lapis hematites, corallium utrumque, galla immaturæ, myrtus, sanguis draconis, omnes resine, gummi elemni, sanguis draconis* Of these you may frame unto your selves compound and effectual medicaments. The compound medicaments are either in form of oyles, which are called Balsames, or in the form of an unguent, or in the form of an em-plaster. I will acquaint you with some patterns of all the three forms: The efficacy of them shall recompence the paucity. This shall be the pattern of a Balsame: *Rx. Ol. oliver. lb. 2. succi Nicotiana lb. ʒ. gemmarum hyperici, sanicula, alchymilla, sigill. Salamon. cariophila, borten. phygloss. pyrol. valerian. alchymil. panax. colon. an. man. i. Herba minutim incisæ admisceantur oleo, & succo Nicotiana: postea coquantur onni alento igne ad consumptionem humiditatis aqueæ, at coletur Balsamus, cui admisce ol. lumbricorum ʒiij. terebintine & verniceis claræ an. ʒiij. Servetur Balsamus in vase stanneo aut vitreo, scz. mundo.* I need not to commend this Balsame unto you, seeing the ingredients themselves do shew of what efficacy it is in consolidating wounds. *Fabricius ab aqua pendente* exceedingly commendeth the green Spanish Balsame; But I mean not to mispend time in setting it down, seeing you may finde the description of it in his second part of Chirurgical discourses. As concerning Unguents,

Their matter.

Their kinds.

The simple.

<sup>a</sup> Galen. 4. de simp. facultatib c. 8.

The compound medicaments.

The pattern of a Balsame.

of all which you use, *Franciscus Accæas* his liniment is the best for this purpose: The learning of the Author, and his extraordinary skill in the practice of Chirurgery doth (I make no doubt) perswade you of the efficacy of the medicament. Nevertheless this shall not hinder me from setting downe the forme of an Unguent composed of the simples before named by me, which you shall finde effectually, not in wounds onely, but in ulcers also: I desire not to be credited, before experience shew the excellence of the one above the other: The description of the Unguent shall be this: *R. Axung. porcin. lb. 1. colophoz. ℥vj. ceræ ℥iij. gummi elemni ℥ij. succi Tabacæ ℥ix. sanicul. alchimill. gemmar. hypen. card. benediç. opbyogloss. vinc. per vinc. sigil. Salomon. Pimpinell. valer. centaur. maj. & minor. an. man. 1. Herbae incisæ miscantur cum predictis: postea coq. omnia lento igne ad consumptionem humiditatis aqueæ, at coletur unguentum: cui admisc. vernicis claræ, ac terebinthin. Cypr. an. ℥j. Tandem reponatur unguentum donec usus poscet.* The ingredients will shew you what benefit is to be expected from the application of it to wounded parts.

The forme of  
an Vnguent.

As concerning Emplasters, I meane not to set downe any curious descriptions for the curing of a wound by the first intention, seeing a familiar one will serve the turne; receive this then: *R. resin. abiet. lb. iij. ceræ. lb. 1. sevi ovilli ℥iij. gummi elemni ℥iij. succi Nicot. & melilot. an. lib. ij. Nicotian. contus. man. ij. fiat emplastrum secundum artem.* This is not a little better than the common melilot, cheape, and parable. As for other wayes of curing, know first, that cold water is not fit to be used; although *Celsus. lib. 5. c. 26.* affirme that it may serve for such wounds as Nature her selfe is able to cure. For first, cold is hurtfull for wounds; Secondly, it may procure a gangreen in bodies which have small store of naturall heat. Oyle in like manner is not convenient, if it be simple, because it moistneth too much. The whites of egges also are to be rejected, when we meane to glutinate a wound: first, because they speedily dry: secondly, because they doe not penetrate; yea, if glutinave powders be mingled with them, they hinder their penetration. But what shall we say of hallowed cleane clouts? I answer, that they also are not to be used, because they onely drie the superficies, and passe not to the cavity of the wound: As for the hallowing or blessing, it is but a device of crafty mates, abusing the credulity and simplicity of the common people.

Other meanes  
of curing.

Now to speake a word or two of the application of these medicaments,

Of the appli-  
cation of these  
medicaments.

caments, which was the last point proposed by me to be handled, concerning medicaments: If the wound afford but small store of matter, it is onely to be dressed every other day; but if plenty of matter flow, it is to be dressed once every day, but never twice a day, for then the aire will doe more harme, than the medicament good. Wherefore they palpably erre, who thinke often dressing to further consolidation. Secondly, if you perceive the lips of the wound to be consolidate or agglutinate, straightwayes cut the stitches, whether this happen the second, third, or fourth day: for union after the first intention is most commonly performed in this time: The next day following, when you see the lips firmly to cleave together, pull out the threeds with your forceps, or fingers.

## LECT. IX.

*How a Wound is to be cured after the second intention.*

**I**N the former two Lectures I have shewed unto you how wounds are to be handled, which are to be cured by agglutination, or the first intention: Now time and order of doctrine doe admonish me to goe on, and to teach in like manner how wounds are to be dressed, which are to be united by the second intention, called by the Grecians *συνεπιχειρισμοί*, which may be expressed by this word Conarnation. It is not amisse sometimes to coine vocables of art to expresse the matter which is in hand.

The indications  
of curing of a  
wound by the  
second intention.

Now to cure a wound after the second intention, three curative indications doe offer themselves. The first is to procure the filling of the wound by new flesh. The second is to abate the flesh, if it become superfluous: And the third is to skin the part wounded, when sufficient flesh is growen.

The first indication.

As for the first indication, which is the filling of the gaping of a wound with flesh; of it you are to consider the motives, which induce you to goe about this manner of union, and the meanes by the which it is brought to passe. In five cases you are to go about the consolidation of wounds by the second intention.

When wee  
ought to cure  
by the second  
intention,

1. The first is, if there be losse of substance, whether it be flesh, or any other substance, as bone, cartilage, or ligament. Neither is this a general

neral rule : for if the parts be loose and flaggy, they may admit union after the first intention : as we may perceive in the curing of the hare lip, and wounds of the fore part of the neck.

Secondly, you are to attempt this kinde of curation, where you cannot conveniently bring the lips of the wound together by stitching, or rowling : as in great wounds of the joynts, and when the ligaments are cut asunder, as the great tendon, which is called *Nervus Hectorius*, and is inserted into *Os calcis*.

Thirdly, this is to be done when we look for the scaling of a bone, or the separation of a piece of a ligament or cartilage.

Fourthly, we are to take this course, when otherwise a great and dangerous flux of blood cannot be avoided, as in wounds of the neck, where the internal jugular veins and saporal arteries are divided.

Fifthly, we are to address our selves to this manner of union, when great store of quittour is like to flow to the wounded part ; and this doth fall out in four cases.

The first is, when we cannot hinder the influxion of humours by rowling, as in wounds of the arme-pits and joynts.

Secondly, in cacochemical bodies.

Thirdly, in persons who have a scirrhoty in the Liver and Spleen.

Fourthly, if the wounded party have a contagious disease, as the Pox. In these cases we are rather to attempt union by the second, than first intention, especially if we fear no deformity by reason of a scarre : As it happeneth in wounds of all the parts of the body, if you except the face.

The causes which ought to induce you not to attempt union after the first intention, when there is loss of substance, are these : First, pain and inflammation will ensue by reason of the violent bringing of the lips of the wound together : Secondly, there will remain a great deformity in the part wounded after that is cured. So much then concerning the occasions, which are to admonish a Chirurgeon, when he is about to cure a wound, whether he ought to perform this by the second intention.

Now I am to shew unto you what means are most apt to generate new flesh : These means are in number three : The principal efficient cause : The causes adjuvant : The material cause.

The principal efficient cause is the natural temperature of the whole

2.

3.

4.

5.

When great  
store of quittour  
is to be  
looked for.

1.

2.

3.

4.

Why wounds  
with loss of  
substance are  
not to be cured  
by the first in-  
tention,

The means fit  
for incarnating.

The principal  
efficient cause



whole body, and of the part affected also, which ought to incline to driness: If it be present, it is to be maintained; but if you find it not, you are procure it by phlebotomy, purging, and the right ordering of those things which are called not natural: But seeing I have amply discoursed of these points, when I set down the methodical curation of ulcers, I will remit you to that Treatise and will not trouble you with a fruitless repetition of these same things.

The adjuvant  
causes.

The adjuvant causes are two, to wit, the Chirurgeon, and convenient medicaments. As for the Chirurgeon, he ought to dress the party with as much ease as may be. Secondly, he ought to have a care that the applications be applyed to the wound very neatly: for by want of this, a slubberer and sloven is discerned from a cleanly workman. This the Chirurgeon can hardly perform, if he be not cunning in fitting of linaments, upon which the medicaments are to be laid, which are to be applyed to the wounded part.

Linaments.

Now the linaments are of three sorts; *Turundæ*, *Tentæ*, and *Splenia*. *Turundæ* or dosils represent an olive in figure. *Tentæ* or tents are long, and somewhat small. *Splenia* or pledgets ought to represent the spleen of living creatures, from whence they have their denomination.

The applicati-  
on of pledgets.

The pledgets which are applyed ought first to be somewhat larger than the wound: Secondly, they ought to be armed with medicaments which have a moderate tenacity or clamminess, and which ought to have a faculty to stay an inflammation, to assuage pain, and to repel humours, which might flow to the part. Such are *diapalma* dissolved in the oyl of Myrtills, quinces or roses, *Unguentum de tutia magistræ*, *unguentum de minio*. If for the present you be destitute of these compositions, you may use the red astringent wine, or tanners woole, or smiths water clarified, mingled with one of the oyles before named: and then it is good to moisten the rowlers in this medicament. These linaments are to be made of lint or tow; the tow ought to be without shivers: It dryeth more than lint if it be of hemp.

The material cause of the generation of new flesh is laudable blood, answering the temperature of the part wounded. So if a spermatick part be wounded, the blood ought to be somewhat cold, thick and dry, which is to gender a mean to unite the parts severed. But if a fleshy part be wounded, the blood is to be hotter

and

and more humid. Having set down the part of the Chirurgeon, whom I affirmed to be the first adjuvant cause, in producing new flesh, now am I to acquaint you with those medicaments which are termed by Artists Sarcotical, or apt to engender new and tender flesh.

All Sarcotical medicaments, as they ought to be of a drying faculty, so they ought to be voyd of a sharp and biting quality. The differences of drying medicaments are either taken from the degrees of their drying quality, or from the diversities of their kinds: from the degrees of drying, these three differences are drawn: For either they are of a mean operation, and these will serve when the quittour is *album, leve, and equale*, white, smooth, and of an equal substance, one part of it not being thin, and the other grumous. Or they are somewhat stronger, as when the matter which floweth from the wound is thin and ichorous; for then stronger desiccatives are required to incrassat or thicken this thin matter. The third degree doth comprehend the strongest desiccatives: As when *sordes* or a sluch appeareth in the wound. These medicaments are called *Medicamenta detergentia* the Chirurgeons mundificatives, & those medicaments according to *Galen 1 Method. 12.* ought to be of a drying and penetrating faculty; for those things which are united in the bodies of living creatures, are united by moysture: Wherefore dryness spending the humidity, they are again separated; as we may for an example see in a table glewed together, if it be too much dried by the fire.

Now there be two kinds of these drying medicaments, for either they are simple or compounded. The simple drying medicaments, according to *Galen 3. Meth. 3.* are of three sorts.

The first, dry in the first degree, for those who have but a tender and soft constitution of body, as are children and young Gentlemen. Children are esteemed to be of this constitution, until they attain to the fourteenth year of their age.

The second sort is of such as are dry in the end of the first degree, and the beginning of the second.

The third sort is of such as are dry in the end of the second degree: And as these besit bodies of very hard and firm constitution of body, such as saylers, and artificers of hard trades have, as smiths and felt-makers: So the second sort of desiccatives are fittest for such as are of a mean habit of body, neither too loose nor too hard, as Gentlemen in their consisting age.

Unto the first degree of Desiccatives these may be referred: *ibus*, in the first degree, *fatina* gree.

Sarcotical medicaments.

The degrees of drying medicaments.

The two kinds of drying medicaments.

Simple drying medicaments and their degrees.

Desiccatives

farina hordei, & fabarum, ut & zea utriusque, mastiche, olibanum in guttis.

2. To these of the second degree you may referre all sorts of ro-fines, as the yellow, the black ship pitch, and elemni, clarified honny, farina cicerum, & metallica quedam, ut minium, libargyrium, plumbum ustum; sed omnia lota.

3. To the third degree you may referre: farina orobi amari, lupinorum, iris, aristolochia utraque, mirrba, sarcocolla, lapis calaminaris, tutia, Æs ustum.

The use of these.

So those simples which are drying in the first degree, serve for those who are of a soft habit of body: Those which are in the second degree, serve for those who are of a meane habit: but those which are of the third degree, are fit for those who are of a churlish habit of body, as I have noted. Now what I have spoken of the habit of the whole body, I would have you to apply it to the habit of every severall part: So the fleshy parts are softest, although there be degrees amongst them: The lips are softest of all: The sinewes and membranes are of a meane hardnesse, but the cartilages and bones are hardest of all.

The compound drying medicaments.

Basilicum magistrale.

Of these simple Sarcoticall medicaments, you may frame unto your selves sundry compositions, as occasion shall move you: Onely I will set downe one for a paterne, and it is this: R. Balsam. bypericon. simpl. lb. β. resin. ℥vj. cera ℥iv. picis navalis. ℥iij. gum. elem. ℥ij. vernic. & sevi ovil. an. ℥iij. terebin. Cypr. ℥i β. oliv. & mirrb. pulveriz an. ℥j. This I have termed my Basilicum Magistrale: I will not stand much upon the commendation of it; the effects will praise it: If variety of such compound Sarcotical medicaments doth delight any one, let him have recourse unto the dispensatories of sundry men, and nations: If he be not by them satisfied, I shall thinke that hee hath appetitus caninus of the imagination.

Nota.

One thing is to be noted, that cathereticall medicaments, as Alumen ustum, Æs viride, and Vitriolum calcinatum, may become sarcoticall, if they be mingled in compositions with sarcoticals in a small quantity.

How superfluous flesh is to be removed.

It is not enough in curing by the second intention to procure the growing of new flesh in wounds; but wee must bee wary that it doe not overgrow. If this happen, we must take order with it. The cause of superfluous flesh is too much blood sent unto the part. This is abated by appointing a strict dyet, and the use of aliments, which doe feed much. Secondly, cooling and astringent medicaments

caments are to be applyed to the sound parts adjacent to the wound Thirdly, we are to use hard frictions and strait ligatures to the opposite part : For by all these meanes the immoderate influence of blood is stayed.

Now superfluous or proud flesh is taken away three manner of wayes. First, by an instrument; as an incision Knife or a Rasor. How proud flesh is abated. Secondly, by rubbing it away by a rough linnen cloth. Thirdly, it is removed by Cathereticall medicaments : such are *alumen ustum, vitriolum calcinatum, Merc. precipitatus*. If the party wounded bee of a tender habit of body, *Merc. lotus* will serve being thus mingled : *Rx. ung. basilic. magistral. ʒi. Merc. precipita i loti ʒi. exquisite miscantur* : But if he or shee be of a hard and stubborne habit, let this medicament be made : *Rx. Merc. precipitat. n. loti ʒij. aluminis usti ʒj. super marmor Piciorum levigentur : postea Rx. bujus compos. ʒj. ung. Basilici magistra. ʒvj. Optime misc.* If you apply the aforelaid powders unmingled with an unguent, they will cause an eschar if need bee. Whosoever he be that hath brought a wound to that passe, that the supercrescent flesh doth require a stronger cathereticall medicament than these, he must be a novice in his Art.

The wound being thus sufficiently incarnat, nothing doth remaine, but to cicatrice it. Concerning cicatrizations these three questions may arise. First, what manner of skinning is most laudable. Secondly, when wee are to goe about skinning. The third shall be of the causes which procure skinning. To the first I answer, that the cicatrix which in colour and conformation best representeth the naturall skin, is most laudable. To the second question I answer, that we are not to goe about the skinning of the wound before the flesh bee somewhat higher than the naturall skin : for otherwise the cicatrix will bee hollow, which is unseemly. If a piece of a bone either be taken out or cast, we cannot shun a hollow cicatrix. As for the causes ;

The efficient cause is a faculty resident in the sound skin, adjacent to the wound : So we see skinning to begin from the brims of the naturall skin.

The materiall cause is flesh hardned.

The adjuvant causes are epuloticall or skinning medicaments.

As concerning the medicaments, wee are first to consider their faculty ; secondly, to set downe their kinds. As for their faculty, they ought first to dry strongly, and to reach to the end of the

third.

Of skinning of a wound.

The efficient cause of skinning medicaments.

The materiall. The adjuvant.

third degree of deliccation; because such medicaments ought not onely to consume the extraneous humidity, but the natural also. Secondly, seeing they are to stay the influxion of more blood, which might ingender more new flesh, they ought to be very altringent, to that it may be discerned by the tongue and palat. Yet they are to have no acrimony, for then they would erode.

The divers  
kinds of cicatrizing  
medicaments.  
Simple epuloticks.

These medicaments are of two sorts, for they are either simple or compounded. For wounded persons of a soft habit, these will serve; frankincense, the bark of the Pyne-tree, lead calcined and washed, oyster-shells burned and washed: for those who have a mean habit of body, these will serve which are drying in the beginning of the third degree; as are the unripe gales, the flowers and rinds of the wilde pomgranates, sumach, the myrtill berries, *sanguis draconis*, *terra umbra*, *rubrica fabrilis*. For those who have a very hard habit of body, use *Æs ustrum*, *alumen ustrum*, *caput mortuum*, *vitrioli distillati ablutum*.

Compound  
epuloticks.

The compound Epuloticks are in like manner of three degrees: For some are for tender bodies, as *Unguentum de minio*, *ceratum de minio*, *unguentum de tutia*: Some are for bodies of a mean habit; these will serve for such: *diapalma*, *unguentum de tutia magistra cujus hæc est compositio*: R. ol. ras. ℥xij. ol. myrtin. & ung. popul. an. ℥iij. fol. plantag. & solan. hortens. contus. an. man. ii. evaporet lento igne humiditas aquea, atque instituat colatura, in qua liquefiant cer. alb. Quum incipit medicamentum frigesce, insperge litharg. auri ℥vi. tutie prepar. ℥i. ceruss. ℥ii. minii. ℥vi. capbur ℥i. Omnia hæc pulverizentur. Ducatur hoc unguentum per hor. 2. in mortario plumbeo. For those that are of a hard habit of body, use this *unguentum de tutia magistrale*, adding to every ounce of it *æris usti* ℥i, or *vitrioli ad rubred. calti* ℥℥. You have in the Apothecaries shops *unguentum de bolo Armeno*.

## LECT. X.

### Of a convulsion in Wounds.

**H**itherto I have delivered unto you such precepts as concern all wounds in general. Now the Method which I proposed unto my self in the beginning of this Treatise of wounds, doth require

quire that I set down in like manner such points as concern all particular wounds.

The mean differences of wounds are taken from three things. The first from their accidents : The second from the nature of wounds : The third, from the parts affected. From the Accidents, wounds may be said either to have been known unto the Ancients, or not to have been known unto them. From the nature of wounds these differences are taken : Wounds are either simple or compound. A simple wound is, which hath neither any cruel symptome, nor any other kinde of grief, which may draw the Chirurgeon from going about the curing of it, according to the intentions set down in the general doctrine of wounds. Thither then I send you : for I mean to avoid fruitless repetitions. A compound wound is, which hath either a cruel symptome, or some disease, or both annexed.

The differences of wounds

A simple wound.

Lect. 7.

Lect. 8.

Lect. 9.

A compound wound.

The number of

The symptomes are in number five : Pain, Fainting, a Convulsion, a Palsey, and Crudity. Of pain and fainting I have discoursed already ; because they happen often, as well in simple as compound wounds, as hath been shewed Lect. 5<sup>a</sup> Wherefore I am only to speak of the last three : of the which a convulsion is the first : If you require a description of it, receive this : A convulsion is a contraction or drawing together of the muscles or parts which are appointed for voluntary motion towards their beginning ; which are either the brain, or the *spinalis medulla* or chine of the back.

symptomes.

Of a convulsion.

A convulsion is two-fold : for it is either natural or unnatural : A natural convulsion happeneth when one of two muscles appointed for a motion is contracted, the other being transversly wounded. This is to be seen in wounds of the head, when one of the temporal muscles is transversly cut asunder, and in wounds of the fingers : for if the inner muscle of a finger be cut asunder transversly, the outward muscle is contracted. An unnatural convulsion is which happeneth not because one of two muscles ordained to perform this same action is transversly wounded. This is two-fold, *Motus convulsivus*, and *conversio vera*. *Motus convulsivus*, or the convulsive motion, is caused of a thin and halitious matter, moving to and fro, tossing the nerve : And it doth not continue long ; for in the part affected the matter being kept, so the brain and the beginning of the sinews are affected, that they leese their action ; from whence ensueth the Palsey in that side : Then a maligne vapour being raised from hence, and passing to the beginning of the nerves of the

A natural convulsion.

An unnatural convulsion.

*Motus convulsivus*.

How this is caused.

found part not altogether spoiled, the nerves are shaken, and so *Motus convulsivus* caused.

*Quest.* If any man demand, why a malignant vapour resting in the brain procureth only a stupiditie, but a convulsion if the beginning of the nerves be affected;

*Ans.* I answer, that this happeneth, because n<sup>o</sup> body can have motion in it self, which is not fibrous: Seeing then the brain is not fibrous, it cannot have extension and contraction: But the beginning of the nerves may, although they be soft: for they are framed of many filaments covered with a membrane. Not unlike to this is *Spasmus flatulentus* or the crampe. This is caused of a thin humour or flatuositie nipping the beginning of the muscle: so you may observe, that they which are troubled with a quartane ague, or increase windiness in the body, to be most subject to this grief. This very often is a forerunner of a true convulsion: Wherefore it seemeth only to differ from a true convulsion, that in this, the matter is less, sharp, and the contraction endureth not so long.

*A true convulsion.* A true convulsion is that which is caused either of a plentiful gross matter stopping the sinews, or of a dryness purring of them, or by consent, a noysome vapour being sent to the beginning of the

*Four kinds of a true convulsion.* there are four kinds: *Emprosibotonos*, *opisibotonos*, *tetanos*, and *Spasmus cynicus*. *Εμπροσδοτονος*, is when not only the neck, but the rest of the body also is drawn forwards, so that the party cannot stand upright, the nerves of the neck, and of therest of the spina which

*Emprosibotonos.*

*Opisibotonos.*

*Tetanos.*

*Spasmus cynicus.*

move the body forward, being illaffected *Οπισδοτονος*, is when the whole body is bent backwards, so that it cannot be brought forward; which happeneth when the muscles w<sup>ch</sup> bend the body backward are hurt. *Tetanos* is when all the fore & back parts of the body are equally contracted, and so kept. This happeneth when all the afore said muscles are kept at a stay. In this kinde of convulsion the body remaineth stiff as a stake, so that it cannot bend it self to any part, *σπασμους κωνικους seu oris tortura, aut oris distortio*, according to *Celsus lib. 4. c. 2.* when the mouth is pulled awry, is caused of the contraction of the muscles of the face. Now the chief muscles of the face are those of the lower jaw, the nostrils, lips, and cheeks, which have their sinews for the most part from thte hird conjugation.

*The signes of a convulsion.* As for the signes of a convulsion, it is easily discerned: for in it the nerves and muscles being drawn towards their beginnings against

against the will, cause the member also which they move to follow this depraved motion, so that it continueth stiff, and cannot be bent as the diseased person will. This is only pathogmonical sign of a true convulsion. In a convulsive motion this distention is not performed at once, and so continueth; but it cometh and ceaseth often, and shaketh the part sundry wayes.

The causes of a convulsion are three; fulness, inanition, and content.

The causes of it.

*Pletora* or fulness, is thus discerned: The habit of the body is thick and fleshy, the vessels appear full, the pulse is strong, a constant age, the spring time, a temperate region, a full dyet of much nourishing meats, a ruddie colour of the chin, and if the party bleed little at the wound, shew the same: the sleep is sound and long, dreams of red things and blood present themselves. In motion the body is not nimble, the urine is laudable, and plentiful.

Convulsion from fulness. The signes of it.

To cure such a convulsion, both Physical and Chirurgical means are required: As for the Physical means, first, bleeding is necessaric: In phlebotomie, what quantity of blood is to be drawn, the strength of the party, the part affected, the age, the season of the year will shew, if no Physitian be at hand to direct. A slender dyet is also requisit: for little meat doth take away lassitude or heavinesse, and allwageth thirst, as it is noted 6. *Epid. m. com.* 3. text 28. Purgation is not to be omitted: Begin first with clysters which must be reasonable strong, and have anodyne oyles mixed with them. Receive this as a pattern: R. *diacathol.*

The curacion. Meanes. Bleeding.

Dyet.

Purging.

*ʒi. confect. Flamech. ʒʒ. spec. hier. pier. ʒij. vl. lil. alb. & chamemel. an. ʒi. decoct. communis pro clysterib. ʒx. misc. ut fiat clyst.* If you be enforced to use catharticall means, use these two, the descriptions of which are these: 1. R. *cariocostin. & elect. de succo ros. an. ʒiii. syrup. ros. solut. cum agarico ʒi. aq. lil. convall. flor. iiii. vel ceras. nigror. ʒiii. Misc. ut fiat potio.* 2. R. *diaphen. elect. de succo ros. & cariocostin. an. ʒi. antidoti convulsiva ʒii. turpet. alb. & rad. e fal. major. an. ʒʒ. diagryd. ʒiii. castor. ʒii. costi, xinzib. cariophyll. an. ʒi. semin. cummin. rut. croci an. ʒi. Cum yrup. ros. sol. cum agarico s. q. fiat elect. s. a dos. ʒʒ. in predict. aquarum ʒiii.* The composition of *Antidotus convulsiva* is this: R. *rad. peon. maris con-*

A clyster. Purging medicaments.

Descriptio antidoti convulsiva

*veniente tempore eruta. & visci quercin. an. ʒi. castor. ʒiii. satur. ʒv. v. baccar. lauri. cranii humani an. ʒi. theriac. Andromach. & Mithridat. optimi an. ʒvi. Cum mellis despumati ʒxii. fiat electuar. dos. ʒii. in aq.*



Aqua hirundi-  
num.

salvia, rorismar, lavenderul, aut aq epilept. Langii, aut aqua hirundinum, cujus hanc accipite descriptionem. R. pullos hirund. numero 50. Forficis auferantur extremitates peninarum major. semin. sesel. card. benedict. an. ℥β. calam. aromati. cyperian ℥ii. sol. majoran. rut. an. nian. β. flor. lil. & lil. corvall. an. pug. ij. visc. quercin. rad. paon. luna decrecente collect. an. ℥i. castor. ℥vi. Infundantur isti per dies 3. in vini Malvat. lib. viii. postea instituat. distillat. in B. Maria. dos. ab. ℥β. ad ℥i. in aq. predictarum ℥iiii. Give also ℥β. extracti castorei in aq. salviae electuarium ad spasmum. This following electuarie is excellent :

Cardant prax-  
is.

R. castor. sagapen. opopanax. an. ℥i. succi laseris vel asse fatid. ℥i β. acori, scord. an. ℥ii. trium piper. schenanthi. carui. an. ℥ii. asari. scille assat. an. ℥i β. rad. irid. semin. apii. mastich. an. ℥i. stechad. ℥iiii. cum mell. despumat. & mellis anthosati an. ℥v. fiat elect. dos. ℥i. singulis diebus in aq. mulsa. Cardanus de curat. admirand. c. 15. affirmeth that he cureth one troubled with Opisthonos thus : He caused him to refrain from flesh, wine and eggs : he applyed to the neck, the whole spina, and parts convelled, clothes moystned in oyle of camomil and lillies. Inwardly he ministred Mithridat with the electuarie of muske, with the which he mingled pearls, the jacynth and emeraud prepared. These things being done, we

Topical means.  
Oyles.

are to come to the Topical means : These must resolve and discusse : such are oyles, liniments unguents, fomentations, bathes. Utendum his oleis, vulpino, de castor de catell. pinguibus, Philosophor. jupiter. laurino, rutacco, terebinth. petrol. de spica lumbric. hyper. cum gummis. de costo. irino. lil. albor. chamomel. rutaceo. pingued. vulp. taxi. anserum sylvest. humana, & ursina. As for unguents, you have Aregon, Marciatum, dialthaa cum gummis : of these and the oyles, you may frame unto your selves Liniments : as R. axung. human. can. ursi. taxi, anser, sylv. an. ℥i. ung. dialth. ℥ii. ol. lumbric. vulpini. hyper. cum gummis. lii. alb. & castor an. ℥i β. fiat linimentum s. a. If great delication and discussion be required, you may use this liniment : R. ung. aregon. & Marciati an. ℥. pingued. human. & ursin. an. ℥ij. ol. terebinth. Philosop. & petrol. & petrol. an. ℥i. ol. salu. ℥i.

Unguents.  
Liniments.

Fomentations.

As for Fomentations boyle Mallowes, Fenugreek, Scordium, Sage, Lavender, Tansey, Germander, Time, Camomil, Dill, Bay-leaves, the flowers of the white Lily, Woodbind, and Betony, in Sacke and Muscadell, taking equall measure of each.

Bathes.

Bathes you may make also of these simples, boyling them in water and milke. Last of all, let the parts be lapped with Fox, wild  
Cats,

Cats, Conies, or Hares skins dressed.

Having discoursed of a Convulsion proceeding from a *Plethora* or plenitude; I am to shew how a Convulsion from inanition is to be dealt with: whether it proceed from inanition or no, you are to examine those signes which I set down to finde out a convulsion caused of fulnesse. If you finde in the part wounded signes opposite and adverse to those, you may boldly pronounce that it doth proceed from inanition.

In such a convulsion abstaine from phlebotomie and purging; only keepe the body soluble with emollient clysters, as this; *Rx Lactis cui incoxerint albæa, violæ, parietaria, rosæ pallidæ, bonus ben- ricus, mercurialis, ℥x, ol. viol. & linian. ℥j, sacchari rubri ℥iij. Misc. ut fiat clyster.* As for the locall medicaments, they must be of a remollient and moistning quality.

The Oyles of this kinde are, The oyle of Violets, Linseed, Quin-ces, Neats-foot and trotters, egges, of sweet Almonds, new Sallat-oyle, you may use also May-butter, new swines grease tried: Of these you may make Liniments; take this description as a patterne: *Rx Butyri Maialis & axungie porcine recentis an. ℥ij, ol. ovor. cydon. & viol. an. ℥ß. Misc. ut fiat linimentum.*

As for Bathes, you may boyle in milke and water a sheeps head and feet, Mallow-leaves and flowers, Violet-leaves and flowers, Pillitory of the wall, Linseed and Fenugreeke: when the Bath is made, you may adde to it some of Neats-feet oyle, and oyle of trotters.

Now last of all, a Convulsion by consent doth offer it selfe: This may happen three manner of wayes:

First, by a maligne vapour offending the beginning of the sinews, as it happeneth in poysoned wounds; In these the wound is to be dilated, that the venomous matter may have a free vent. Then cupping glasses are to be applyed to stay the ascent of the vapors.

The medicaments which are to be applyed to such wounds must be of a liquid substance, that they may the more readily passe to the bottome of the wound. They must also be of a drying and a digesting quality, to resolve and draw out the virulency of the matter: such are *Theriaca Andromachi*, and *Mithridate* dissolved in the spirit of wine, or *aqua Theriacalis*. It is not amisse to adde some of the powder of Mercury precipite well washed in Plantane, and red-rose water: for in such wounds it is an excellent antidot. Now I onely point at the curation of such wounds, setting downe but a few

Of a convulsion caused of inanition.

Of bleeding and purging.

Liniments.

Bathes.

A convulsion by consent.

1. From a maligne vapour.

The qualities of the medicaments.

few generall indications of curing, because hereafter I am to discourage of all sorts of poysoned wounds in particular.

2. From paine.

Secondly, a convulsion by sympathy or consent happeneth, the sinewes drawing themselves towards their beginnings, by reason of the great paine which is felt in the wounded part: In this kind of convulsion anodine medicaments, or such as assuage paine, are to be applyed. But seeing I have at large discoursed of such, Lect. 6. I will remit you thither, not willing to use idle repetitions.

3. From cold.

Thirdly, a convulsion by consent may happen by reason of immoderate cold, making the sinewes stiffe. In curing of this symptom, first you must keepe the wounded party in a warme roome; secondly, you are to use warme medicaments, as oyle of Camomill, Dill, Rue, Bayes, Lilies, Rape oyle, dogs grease, beares grease, horse grease. Of these you may frame unto your selves liniments, as this: *Rx pingued. canine, ursi, & equine an. ℥ij. ol. raporum, cbame-melin & rut. an. ℥ss. misc. ut paretur linimentum.* In this case it is excellent to foment the part with the decoction of Turneps being very warme; for it is a specificall medicament in this case.

Aphorismes  
concerning  
convulsions in  
wounds.

Before I end this Lecture, I will set downe a few Aphorismes in concerning convulsions in wounds which will serve for prognosticks.

1.

The first shall be this: A convulsion or raving, which ensueth after immoderate bleeding, is ill, according to *Hippocrates*, *Aphor.* 3. not onely because the sinewes are dried, but because choler and corrupt humors offend the beginnings of the sinewes after the evacuation of blood.

2.

Secondly, if a convulsion ensue after a wound, it is most common deadly, *5. Aph.* 2. partly because sharpe humors nip the sinewes, partly because the sinewes must bee enflamed. *Hewrnius* writing upon this Aphorisme, setteth downe a dainty medicament in this case, which I thought good to impart to you; and it is this: presse out the oyle out of the seeds of Saint *Iohns* woort: next infuse the flowers of the herbe in the same oyle: This oyle apply warme.

3.

Thirdly, whosoever are taken with a *Tetanos*, they dye within the space of foure dayes; but if they passe these, they escape, *5. Aphor.* 6. for first it is a most sharpe disease, & such doe end the fourth day: Secondly, nature cannot longer endure the horrible paine which is caused by the strong tension of the sinewes, both of the foure and

back

back part. One thing is to be noted, that they which dye of a convulsion, remaine long hot, because they dye being stifled, the muscles appointed for respiration, being also convell'd: for the muscles of the necke being distended, the *septum transversum* also mult suffer; for sinewes springing from the fourth *vertebra* of the necke are inserted into the midriffe, and so the neck suffering a convulsion, respiration is hindred.

## LECT. XI.

Of a palsey, and crudity in a wound.

HAVING delivered unto you in my former Lecture so much as was fit for a Chirurgion to know concerning a convulsion, in the first proper symptome of a compound wound: now I am to descend to the second, which is a Palsey, a symptome opposit to the other. *Paralysis* is deduced from *παράλυσις*, which is to be resolved; because the sinew, and the muscle into which the sinew is inserted, are so resolved, loosened and weakned, that they become unfit instruments for voluntary motion: This particule *παρὰ* doth in this composition signifie a diminution; so that *παρὰλύμενος* may be termed such as are taken lame in one side, or any one part: but *λύμενος* and *καταλύμενος*, such as are taken throwout the whole body with such a griete; such are persons taken with an Apoplexie, or are a dying: of the which *Hippocrates* speaketh, 2. *Aphor.* 47. It is called by *Avicen* and his interpreters *Mollificatio*, because the nerves in this griete seeme to become softer. *Ναρκή ἢ σόφκωσις, τὸ πορὰν ἢ stupor*, numnesse commeth neare unto this disease. And although this affection seemeth onely to be a dulnesse in feeling, yet is taken for a passion compounded of the difficulty as well of moving as feeling. It is often a fore-runner of the palsey, and onely differeth in the degree of the cause, it being milder. *Paralysis*, or a palsey, is the privation of motion alwayes, and sometimes of feeling also in one or more parts, proceeding from the stopping or intercluding of the animall spirits, which are the efficient causes of voluntary motion. By those who have written of this disease a question is moved:

How it commeth to passe that in a palsey, sometimes both moving

*Etymon.*

*Stupor.*

*Quest.*

ing

ing and feeling are taken away; sometimes the motion and not the feeling, and sometimes the feeling and not the motion?

Answer.

In those parts wherein there are divers nerves serving for motion and feeling, the answer is easily made; for in such parts if the nerves appointed for motion be onely affected, then the motion is hindred, the sense remaining sound, and if the nerves appointed for the sense be affected, the sense is hindred, the motion remaining: So in the eye, if the optick nerves, the first paire bee hurt, the memory, the second paire being safe, the sight is taken away, the moving of the eye remaining; and in the tongue, if the third and fourth conjugation of nerves of the braine be offended, and the seventh part be sound, the taste is offended, the motion of the tongue continuing, and by the contrary. If the same nerve doe afford both moving and feeling unto a part, the matter is not so plaine. Authors doe ascribe this to the defect of the animall spirits; so that moving may be abolished, feeling remaining: for fewer spirits are required for feeling, than motion, which must have greater strength of the faculty; and therefore if feeling be abolished, the motion cannot be safe: for it is not likely that the weaker operation being taken away, the stronger should remaine. If a nerve inserted into a muscle be so affected, that the influence of the animall spirit is stayed, it may fall out that both feeling and moving may be taken away: but if a nerve being inserted into a membrane, or into the skin, be so affected, the feeling may be abolished. the moving of the member remaining; for these similiary are not appointed for motion.

The immediat  
cause of a pul-  
sey.

The immediate cause of a palsey, I appoint to be some unnaturall affection of the sinewes, which are inserted into the parts, which are by nature destinate to voluntary motion: for from the sinew every muscle hath the faculty of moving, which carrieth to it the animall spirit.

How a nerve is  
to be consid-  
red.

Now a nerve hath a twofold consideration; for it may be considered, first, as it is a similiary part concurring to the composition of a muscle; or as it is an organicall part carrying the animall spirit from the braine to it, which is the principall efficient cause of motion.

The distempe-  
rature of a  
nerve.

As it is a similiary part, it may suffer distemperature: This distemperature all practicers agree to be a cold and moist distemperature; for such a distemperature doth relax the nerve, and maketh  
it

it altogether unapt to receive and carry the animal spirit.

The external causes of this distemperature may be the cold ayre, the north winde, immoderat *Venus*, narcotical medicaments, lying in snow, or in water. *Galen. 4. de loc. affectis, c. 4.* affirmeth, that one who in the winter season, in cold and rainy weather, had lapped his neck with a wet cloake, and kept it so somewhat too long, became paralyticke in one hand, the sinews of the fifth, sixth, and seventh *vertebra* of the neck having been offended.

The external  
causer  
*Historia.*

The internal cause which bringeth a palsey, is a phlegmaticke, moyst and cold humour; moystening and cooling the nerves too much, and relaxing them, and so altering their natural temperature, and making them unfit either to receive the influence of the animal spirit, or to bring it to the parts ordained for motion. If the nerves of the *spinalis medulla* be so altered, it is to be thought that the humour primatively doth fall from the brain; for the *spinalis medulla* is nothing else but a prolongation of the brain. So we see that an apoplexie which killeth not, endeth in a palsey of one side, the humour being turned down from the head to the cavities of the *vertebrae* of the *spina*, wherein the *spinalis medulla* is contained, and moystning the sinews which proceed from thence. Neither is it to be denyed, that the marrow of the back hath two parts, as the brain it self, from whence it proceedeth, to wit, the right and the left, and that one side may be affected, the other remaining sound. This humour doth primarily affect the sinews, and secondarily the muscles.

The internal  
cause.

Nothing doth more promptly procreat this humor, than frequent ebrietic, chiefly if it be procured by wine. One *Ralph Featherstone* an Atturney at law, by once being drunk with wine, the second day afterward became paralyticke in his right side, and so continued as long as life did last. *Rondeletius* thinketh wine to produce this effect, because it is hot, and of subtile parts, and so is able to dissolve such humours, and to bring them to nerves: *Rudius* thinketh this to come to pass because the wine becometh sharp and eager in the sinews. *Platerus* is of this opinion, that wine hath a narcotical faculty in it, and *Fernel. li. 5. de part. morb. & symptom. cap. 8.* affirmeth, that he saw one whose whole skin became stupid by drinking drunk with wine, and sleeping long. In the scurvy the limms become lazie, because the sinews and muscles are too much

Why wine  
doth readily  
engender this  
humour,

How a nerve being affected as an organical part may the cause of a palsy.

1. Narrowness by obstruction.

2. By compression.

3. By densation.

4. By solution of unity.

The signes of a palsy.

1.

2.

3.

moysined with the thin and waterish humour.

Now if you consider a nerve as an organical part; appointed for the carrying of the animal spirits to the muscles, the instrument of voluntary motion, it may be the cause of a palsy, if it become thicker and narrower, and so unapt to receive the animal spirit.

This narrowness may be induced three manner of ways : By Obstruction, Compression, Densation, and Solution of continuity.

By Obstruction it may come to pass, when as by a thick and a tough humour the sinew is so stoppt, that the animal spirits cannot pass.

The causes of a Compression of the nerve are sundry. First, from humours beating down the nerve. Secondly, from a tumour doing the like. Thirdly, from a contusion. Fourthly, from a laxation; yet if this laxation, be not suddenly performed, but by degrees, it bringeth not a palsy, as we may see in those who are crook-backed. Fifthly, from a strait ligature. Sixthly, too long leaning upon a part, as when we sleep leaning our head upon the palm of our hand. Seventhly, cold may be the cause, for if it be able to bring a mortification of a part, it may more easily cause an infirmity or weakness of the same.

Densation or thickning may be procured by two means : First, if the party hath been nourished by thick and slimy meats : Secondly, if immoderat cold hath congealed it.

Last of all, a palsy may be caused by solution of unity, when the nerve which bringeth the animal spirit to the part is either cut transversely, or torn, or eroded with a sharp humour.

The signes of a palsy are manifest, to wit, the privation of moving, and sometimes of feeling also.

The part primarily affected is not so easily found out : But that you attain to this, receive these aphorismes.

1. If one side of the face be affected, and the speech hindered as well as one side of the body, both the brain and the *spinalis medulla* are affected.

2. If only one side of the face be troubled, the rest of the body being untouched, the cause is only in the brain.

3. If all the parts of the head being sound, either of the sides be paralytick, the cause is in one of the sides of the *Spinalis medulla*.

4. If the armes only be paralytick, the cause is in the fifth, sixth and seventh *vertebræ* of the neck.

5. If the disease be only resident in the legs, then you are to conjecture that the cause is in the *vertebræ* of the loynes and *os sacrum*.

6. If any several part be paralytick, then the cause is not in the brain, or the *spinalis medulla*, but in the sprig of some nerve inserted in that part.

As for the differences of a palsey; it either universal, when all the parts under the head are seized upon; or of one side only, and then it is called *Hemiplegia*. The kinds of

As for the prognosticks receive these.

1. If a palsey happen because the nerve is tranversly cut asunder, it is incurable; *Hippoc. 6. aphor. 19.* The prognosticks.

2. Every strong palsey proceeding from an inward cause is hard to be cured, because it is caused of a gross, cold, and viscous humour which hardly can be removed.

3. A palsey taking an old person in the Winter, is hardly cured, because diseases in the winter are more rebellious, and the natural heat in such persons is weak.

4. A palsey which followeth after an apoplexie is hardly cured, because the cause is vehement, the parts are weak, and there is still a fear of relaps.

5. A palsey wherein both motion and feeling are taken away, is more dangerous, than that wherein one only of these symptomes happen.

6. A palsey ensuing after a strong and sudden luxation of the *vertebræ* of the *spina*, is dangerous; because the nerves are much bruised: and by reason of the inflammation following they hardly can be reduced.

7. A trembling after a palsey is good: for it sheweth that the passage of the nerves by the which the animal spirit doth pass is somewhat pervious.

8. If the paralytick members be actually hot, there is some hope of curing.

9. If the paralytick member be extenuat, and the flesh colour thereof be changed, it can hardly be cured, because the spirits must be few and the natural heat weak.

10. If the eye of the paralytick side be weak, the disease is incurable: for this argueth the defect of the natural heat, and of the animal spirits.



11.

A fever following after a palsey doth give good hope of curation, because it warmeth, dryeth and discusseth the matter.

12.

A flux of the belly happening by the benefit of nature may further the curation of a palsey; it discharging the sinews of the matter impacted.

Rhaf. I. con  
tin.  
The Curation.

In the curation of a palsey, you must set down a convenient dyet: It must be such as dryeth and warmeth the body: The decoction of guajack is good, used in stead of ordinary drink, for it doth digest and discusse the material cause: If the party like not this drink, let a bag be hung in good beer or ale stuffed with herbs, which strengtheneth the sinews, as cowslip-flowers, *chamaepytis*, sage, rosemary, *stachas*, betony, hypericon, calamint, the lesser centory, nutmegs, cloves, cinamome and *calamus aromaticus*. Metheglin and meath may be permitted. Wine is not convenient, for according to all Authors, it is offensive to the sinews: let the bread be biscuit: the flesh of partridges, pheasants, chickens, pigeons, and of other mountain birds roasted, is good, sauce being made with cloves and cinamom.

Phlebotomy.

Clysters.

Purgings.

Phlebotomie hath here no place, because paralytick persons are most cold and flegmatick: and because they are subject to costiveness, clysters are to be administered: In this case then dissolve *diaphænicum*, *benedicta laxativa*, or *hieradia colocynthidos*, in the decoction of sage, sweet marjoram, hyssop, calamint, the lesser centory, bayberries, cumin seeds, the flowers of *stachas*, melilot and camomill, It is expedient that the paralytick be purged sometimes; but first you are to prepare the matter by ministering the syrups of *stachas de 5. padicibus*, *de Bizantitis*, *de hyssopo*, with the decoction of *heonie*, *ruscus*, *asparagus*, *iris*, betony, sage, savory, peny-royal, *chamaepytis*, the flowers of sage, rosemary, and cowslips, aromatized with nutmegs, cloves and cinamom. Then purge with *pilule de biera*, *de agarico*, *assaiereih*, *elephantinae*, *masticina*. If you would use stronger, give *pilule cocciae*, and *felidae*, and *extractum panchim agogon*. If the diseased party require potions, minister *diaphænicum*, *diacarthammum*, *hieradiacolocynth. cum agarico trochiscato*. Inwardly to strengthen the party give the conserves of rosemary flowers, sage, flowers, betony flowers, cowslip flowers, peony flowers, and the the clove gillover, nutmegs preserved, ginger preserved, *diambrae*, *mitridat*. Of these you may frame electuaries, adding the syrup of *stachas*.

The local  
means.

1 Frictions.  
2 Ventoses.

As for the local medicaments, ever rub the affected part with  
warm

warm clothes; but gently, lest the spirits which are attracted be dissipat. Secondly, apply ventoses to the head of the muscle of the affected part, but let it be but narrow, and stay but a little while. Thirdly, apply an emplaster of pitch and rosin of the pine-tree. Fourthly, touch the stupid parts with quick nettles. Fifthly, tubifying medicaments may be applyed to attract the spirits. Sixthly, fomentations of the nerval herbs above specified may be used. Seventhly, you may embrocat the part with these cyles following, *ol. vulp. lumbric. coamemel. lil. alb. rut. de euphor. castor. spica, oleo juniper. ceræ, succin. salu. rorism. thymi, lavendul. cariophyll. chymico. ol. de lateribus synapi per expressionem factum.* Eightly, apply *unguentum Marciatum, Aregon, Agrippæ*; then apply the spice, emplaster, or any one of that faculty. Last of all, lap the member in hot furs. Many commend the holding of the paralytick member for the space of an hour every morning, for the space of 16 dayes, in the huskes of the grapes, left after the wine is pressed out, in the harvest time. They in this countrey use in stead of these, warm grains, and oxes bellies newly killed. Natural sulphureous, and bituminous baths are excellent in this case: This countrey ought much to exalt the benignity and bountifulness of God, who hath furnished it with the waters of the city of the Bath, profitable in this and other griefs.

*Of crudity in wounds.*

The second thing which doth hinder the union of a wound, and maketh it compound, I affirmed to be crudity in a wound. A crude wound I call that which doth not afford laudable quittance, which must be white, smooth, and uniform: This happeneth by six means. First, by reason of a continual flux of blood. Secondly, by an instrument bruising, as in wounds made by gun-shot. Thirdly, by reason of the nature of the part, such as deep wounds in the joynts. Fourthly, by reason of the coldness of the aire. Fifthly, by the application of unfit medicaments, as cold water, bole, &c. Sixthly, by reason of too strait binding. How blood is to be stayed, I have declared in the second Lecture of this subject. Contused wounds are to be digested, medicaments drying without mordication are to be applyed to the joynts, to preserve the temperature of them: The aire is to be corrected, fit medicaments are to be applyed to the wounded part, and a mean deligation neither too strait, nor too slack, is to be used: Of all which seeing I have already discoursed amply, I will repeat nothing.

## Of a Disease complicat with a wound.

The last thing which maketh a wound compound is a grief complicat with a wound, as the dropsie, french pox, and leprosie; but seeing they belong to the practise of Physick, I will leave them to those who have written, and list to write of that subject, lest I may seem to reap the corn of another mans field.

## LECT. XII.

## Of a Wound made by a poysoned weapon.

Hitherto I have delivered vnto you the intentions which serve for the curation of milde compound wounds. Now am I to acquaint you with the means by the which maligne compound wounds are to be cured. Such wounds are commonly termed poysoned wounds: but before I descend to the handling of the particular differences of them, it will not be amiss to speak of poyson and poysonable diseases in general: for this will make way to the better understanding of the particulars.

The denomi-  
nations of poy-  
son.

*Venenum* is nothing else but *Medicamentum mortale*, a deadly medicament. The Greek Authors call it φάρμακον, Hippoc. 6. Epidem. Com. 6. text. vocat κακόν εγγον, maleficium, a mischievous medicament. In his oath he called it θανάσιμον deadly: Theophrastus, Dioscorides, and Galen call it sometimes φάρμακον φθοροποιόν, modo θανάσιμον, modo δηλητήριον, corruptorium, or letale. Aristot. 1. probl. 36. calleth poysons φάρμακα θανατηφόρα, medicaments which procure death. It may be thus described.

The descripti-  
on of it.

*Venenum* or a poyson is a compound substance, not natural, ad-verse to the heart, and which corrupteth the nature of man. In this description it is called a substance, and so it is: for contraries are contained in this same predicament: Now seeing *alimentum* or a nourishment is in the predicament of *substantia*, *venenum* or a poyson must be in the same, seeing it is contrary to nourishment: for this maintaineth the nature of man, the other destroyeth the same. Galen. 3. de temper. 4. assigneth this difference between these two, that *alimentum* is that which is overcome by nature, and turned into its substance; but *venenum* or a poyson is that which overcome

Nature,

Nature, and destroyeth it. In the description it is said to be a compound substance: for seeing according to this Philosophicall axiom. *actiones sunt compositiorum*, actions are produced by things compounded; a poyson must be a thing compound, seeing the actions of it are manifest. It is a folly to thinke that a poyson is onely an accident, for an accident may either be in the subject, whereof it is an accident, or absent from it without the destruction of it, which cannot be affirmed of a poyson; for being ministred it killeth the party, unlesse it be hindred by Antidotes. One may thinke that the poyson by biting of a mad dogge, or by the stinging of a Scorpion, are qualities, rather than substances: but in truth they are compound substances, although the body seeme small, and scarce to be discerned by our senses. *Galen. 6. de Loc. affect. cap. 5.* seemeth to intimate so much to us, when he saith, that the poyson of a Scorpion is most forcible in efficacy, although it be but small in quantity.

In the description, a poyson is said to be a substance not naturall, or preter-naturall; for things naturall are alwayes good; but things called preternaturall are alwayes of their owne nature ill, as diseases and the causes of them. Poyson is said to be adverse to the heart; for it aimes chiefly at the heart, for as soone as one hath either taken poyson inwardly, or is outwardly touched with it, he presently is taken with the palpitation of the heart, the weaknesse of the same, and last of all swooning and fainting. In this they differ from purgative medicaments, because these onely offend the stomach: wherefore their correctives ought still to be mingled with them. Last of all in the description of a poison, it is said to corrupt the nature of man; for whether nature according to *Aristotle. 2. Physic.* be taken for the matter, forme, or the whole frame of man, it corrupteth all. The materials of the body of man are the humors, the spirits, and the solid parts: that these are corrupted by poyson, no man doubteth. If in a man you take the forme to be the temperament, or whatsoever different from the temperament, it is overthrowne in like manner by poyson.

Last of all, a man by poyson being deprived of life, becommeth a *cadaver*, or a dead carcase.

But here a doubt ariseth, to wit, how it commeth to passe that *Dub.* some are not hurt by poyson.

Sundry reasons may be alleaged for this. The first is the property of some particular persons; for some have obtained such a

constitution from nature, that hardly any thing can hurt them. *Sextus Empyricus*, 1. *hypotheseon empyricarum* writeth, that there was an old woman, who without receiving any harme, could take 3xxx. of Hemlocke at one time; and that there was one *Lysides*, who would eat halfe an ounce of *Opium* safely; *Athenagoras* was not hurt by Scorpions. The black Moores, who dwell by the River *Hydaspis*, are said to feed upon Scorpions and Serpents, without taking any harme; which falleth out by reason of a strange and hid constitution of the body.

The second reason may be the preparation of the body by antidots, so *Mithridates*, King of *Pontus*, could not be poysoned, because he armed himselfe against poyson, by often taking the *Mithridaticall* confection.

The third reason may be the taking of slimy or fat meats, or drinckes before the taking of the poyson, for these are apt to keepe in poysons, and to abate much of their strength.

The Fourth reason may be the vomiting of the poyson before it could take hold.

The last reason may be the small quantity of the poyson; for *Galen* 3. *de Simpl. medicam. cap. 23.* writeth, that all medicaments, whether they be deadly or purgative, require a certaine measure for the effecting of their operations. We are to consider also why some poysons kill presently, some slowly.

Why some  
poysons kill  
presently, some  
slowly.

The first cause is the strength of the poyson it selfe. *Nicolaus Florentinus*, *serm. 4. tract. 3. summa 2. c. 9. & tractat. 4. c. 6* doth write, that one *Franciscus Ordellaphus*, a Captaine, had a certaine kind of poyson, which if it had been cast upon burning coles, presently did kill all the standers by.

The second reason is the disposition of the bodies; for they who have but a weake heart, are more easily killed by poyson. They in like manner who have hot bodies are soonest offended by poyson, for they have wide and large passages, and so the poyson more promptly passeth to the heart.

The third reason may be the quantity of the poyson ministred, for a great quantity sooner dispatcheth than a small.

The fourth reason may be the time when they are gathered: *Theophrast. l. 9. de hist. plant. c. 15.* writeth that poysons gathered in the summer time, are stronger than those which are gathered in the spring time.

The

The fifth reason may be the taking of a poyson fasting, for then it killeth sooner, than when the body is full.

The last reason may bee the composition of the poyson. All the medicaments set downe in the dispensatories shew how requisite the manner of composition is; so *Theophrast.* in the aforesaid book and *cap. 17.* rejecting the composition of the Hemlock, which the inhabitants of the Iland *Cibios* used for poysoning, setteth down a more sure and quick way.

There is a question moved by those who have written of poysons, whether a poyson may be made, which not suddenly, but slowly, and at a determinate time may kill, as within the space of a moneth, or a quarter of a yeare, or a whole yeare. Some are of opinion that such a poyson may bee composed: as *Theophrastus lib. 9. de hist. plant. cap. de aconio:* who writeth that it was wont so to be prepared, that it was able to kill within the space of a moneth, sometimes within the space of two or three moneths; yea, after a yeare expired.

For the determination of this question, it cannot bee doubted but that a poyson may be so prepared, that it may either sooner, or more slowly kill; but that it may kill at a determinate time, it seemeth altogether absurd: for actions which are produced, at a determinate time, proceed from a faculty, which worketh by discourse and judgement: But who can affirme that there is any such faculty in poysons? Secondly, seeing poysons are contrary to the nature of man, I see not how they can be contained any long space of time within the body of man, not doing him any harme. Thirdly, it is more likely that a purgative medicament could be ministred to a worke at a definite time, seeing it is more mild than a poyson; but no such medicament could ever hitherto bee found out. Onely then poysons may bee dressed to kil more speedily or slowly. This we may perceive in the biting of a mad dog, and in the French pox, which in some bodies shew their forces speedily, in some slowly.

It may be that you may aske by what meanes these poisons and deleteries doe kill.

I answer, that they neither kill by their excessive qualities, seeing we use medicaments hot in the fourth degree, as *Euphorbium*, and *Cantharides*; neither by their temperature resulting from a certaine mixture of the elements; but they worke by a more hidden and secret forme, and by a certaine nature or forme infused after the tem-

perature, which is not known unto us by the constitutive causes, but by the effects, as many other things are <sup>a</sup>. This nature (whatsoever Philosophers say) they had from the creation, and not from the starres, or any new celestiall influence, as *Peirus Aponensis lib. de venenis.*

Quest.  
Answ.

If you demand what things in man they chiefly assault;

I reply, that those things are chiefly the naturall heat, and the radicall moisture; for they extinguish the first, and corrupt the second. One then would thinke it a strange thing that the naturall heate of the body of man should stirre up this propriety of poysons, its professed enemy, to quench it selfe. But nature hath ordained that the naturall heat must goe about the elaborating of every thing which entereth into the body of man, to finde how it may be made profitable for preservation of the life of man. Wherefore it finding poyson, goeth about to digest it, not by the intention of nature, but by the necessity of its action, for it cannot be idle.

The subjects  
of poysons.

Now the subjects wherein this deletery propertie is lodged, are three: a vapour, a juyce or humor, or a terrestriall substance: for whatsoever poysons are taken either from plants or minerals, or living creatures, they are resident in one of these three substances.

The divers  
kinds of poy-  
sons.

Now as for the divers kindes of poysons; some are artificiall, some naturall: If I could shew the innumerable differences of both the kinds, I would not: for it were a hainous crime to further the wicked intentions of some malicious persons of this desperate age, in this businesse.

Why poysons  
were created.

One may wonder why God and nature have ordained and brought forth poysons. This wonder we may easily qualifie, if wee say that poysons may be considered two manner of wayes.

Basil. loco ci-  
tato.

First, as they are naturall bodies, and so they concurre to the constitution of the world, and they have good uses. First, they are requisite in some crafts or trades, especially in Painting and Dying. Secondly, they are appointed for the feeding of some creatures: so Stares feed upon the Hemlocke, Swallowes upon the *Cambarides*, the Quailes upon Ellebore. Thirdly, they serve for the curing of some diseases in man; so Ellebore cureth madnesse, the Libbards bane the sting of the Scorpion; Cakes made of Arsenicke are used in the plague time.

Secondly,

Secondly, poysons may be considered as they are aduerse to our bodies, and deadly, and so they have no use; but are abused by peruerse and wicked persons: So innumerable sorts of weapons are made of iron and steele, devised by the wit of man, furthered by the Deuill, the enemy of mankind, for the killing and dispatching of man.

As for the signes of poyson, *Galen. 6. de loc. affect. c. 5.* expresseth The signes of them briefly in these words: when a man having sufficient store of poyson. good humours, and living healthfully, dieth suddainly, (as it falleth out when one hath taken a deadly poyson,) and that afterward his body becometh of a livid colour, or blacke, or spotted, or that it runneth by reason of moysture, or sendeth out a noysome smell, they say that such a man hath taken poyson, and not without cause. *Mercurialis de morb. venenos. & venen. lib. 1. c. 16.* addeth these; fainting, a panting of the heart, filthy vomits, casting of blacke blood, the hicket, trembling, stupidity, retention of urine, a weake pulse, burning in the whole body, a little before death coldnesse, and casting of cold substances, spots thorow-out all the skinne, pustules, tumors, gnawing in the stomacke, griping in the guts: These are signes of poyson taken within the body.

As for the Prognosticks of poyson, two shall suffice: First, if The Prognosticks. the poyson cannot be driven out of the body, either by vomit or siege, if remedies preuaile nothing, but that the symptoms continue, as if fainting continue, the whole body groweth cold, cold sweats breake out, and the pulse ceaseth, & the whites of the eyes turne up, according to *Arist. 4. Problem. 1.* there is no hope of escaping, & death it self approacheth. Secondly, if the poyson be expelled by vomiting or siege, if antidotes bring ease, and the Antidotes cease, then there is hope that the poysoned party will escape.

Besides these poysons which doe kill, being inwardly taken, Of outward there are some which offending first the externall parts, by degrees passe from thence by the wayes of the arteries to the heart, and bring at last those symptoms, whereof I have spoken, and death it selfe. There are two sorts of these externall poysons, which properly belong to the subject which we have in hand, to wit, wounds: which are solutions of unity by a poysoned weapon, and by the bitings and stingings of venomous beasts.

Wounds inflicted by poysoned weapons, are thus discerned: Of wounds First, they cause unaccustomed and intolerable paine in the part made by a poysoned weapon. Secondly, strange tumors appeare. Thirdly, the part wounded.



wounded doth become discoloured, of a livid, blacke or spotted colour, the part notwithstanding having not been contused. Fourthly, the part putrifieth in progresse of time, and sendeth out a stinking sanious quittour. Fifthly, having passed from the affected part to the heart, those fearefull symptomes which I have set downe do ensue.

The presages. As for the presages, no wound made by a poysoned weapon can be secure; for poyson of it own proper nature is so adverse to the nature of man, that it ever threatneth destruction. Secondly, if after the using of methodicall and convenient meanes the signes begin to be abated, there is some hope of recovery left.

The curing of such wounds. If you would know which these meanes are, if the poyson hath not passed further than the part wounded; if the party be not of an eminent quality, tender or fearefull, it is good to use the actuall cautery, for it doth much stay the activity of the poyson. But that the eschar may speedily fall, you are to use deepe scarifications, which must reach to the sound part: Then you are to use the medicaments, which are fit to procure the fall of the eschare, that the poyson may have vent to issue out. If the poyson hath passed deeply into the body, beware of using of the actuall cautery; for this were to adde griefe to griefe. If the party be tender and fearefull use ventoses after scarification. To the part use convenient medicaments, such as *Vnguentum de pæro is*, or the *Basilicum* described by me: But with these you must alwayes mingle Mercury precipitate, or Turbit minerall washed, with some *Theriaca Andromachi*, or *Mithridate*, or *Antidotum de sanguinibus*, or *Atbanasia*, or *Electuarium de ovo*. To the parts adjacent, apply attractive emplasters, as *Oxyroceum*, and such as receive the hot gummess, as *Galbanum*, *Ospanax elemni*, &c. This doe unlesse the wounded part be so hot that it threatneth a gangren, for then you must goe about to meete with this symptome, leaving the curation of the griefe for a while.

Topickes.

In these wounds, untill three dayes be expired, you are to refrain from bleeding, purging, vomiting and clysters: The party must sleepe sparingly, and use a moderate dyet, eating such meats as are of easie digestion, and afford a good juyce. During this time you are to minister every day, morning and evening, one of the Electuaries afore-named, giving a dram or more, according to the person of the party in some convenient liquor, as *Carduus* water, Strawberry water, or blacke-cherry water, adding some *aqua theriacalis*.

LECT.

## LECT. XIII.

Of a wound by the biting of a mad dog.

**I**N my former Lecture, having first discoursed of poyson in generall, I set downe the method of curing of such wounds as are made by a poysoned weapon. Now am I therefore to descend to the other branch of maligne compound wounds, which are procured by the biting or stinging of venomous beasts: of these there are two sorts; the biting of a mad dogge, and the biting or stinging of serpents.

I will then first begin with a wound caused by a mad dogs, because it most frequently happeneth in these parts, and Physicians and Chirurgeons are most often employed about the curing of this kind of wound. And although other beasts besides dogs may be mad, as wolves, foxes, cats, horses, and sundry other, and by biting kill a man; yet by most who have written of this subject, this kind of poyson hath its denomination from the dog, because hee of all other beasts most frequently doth run mad. This poyson, which is the cause of the madnesse, doth not consist in the first qualities heat or cold, moisture or driness; for dogs and wolves run mad, as well in extreme cold weather, in the middle of winter, as in the summer in the Dog-dayes.

Wherefore it must be a specificall kind of poyson which most frequently is engendred in a dog by a peculiar property, and inclination to this kind of madnesse, and to communicate it to other living creatures. *Baccius in tractat. de venen.* writeth that he saw a man killed by a mad house Cocke.

This poyson is communicate two manner of wayes: First, by biting and the slaver: Secondly, by slaver without biting: This slaver is easily imparted by kissing any mad beast; for the skin of the lips of man are very thin and tender, and so apt to admit this kind of poyson; yet, sometimes this poison is received by the thick skin of any part. *Matth. de gradib. consil. 82.* affirmeth one named *Iohannes Coquinarius*, by putting his hand in a mad dogs mouth, after many daies to have become mad.

After that this poyson is received, some sooner, some more slowly become mad; for some rage within the space of a few dayes, or

a week; some a long time: after. *Brassavol. lib. 2. Apbor. comment. 23.* writeth, that in some this poyson hath lurked seventeen years, *Guainerius in tract. de venen. cap. 12.* protesteth, that he heard of one of credit, that one was taken with madness the eighteenth year after the poyson was received; yea, *Alzibaravius* affirmeth, that he found by experience this poyson to have lyen lurking in the body fortie years.

Why it may  
be so.

The reasons which may induce us to believe this to be true are sundry: First, the variety of the parts offended: As for example: If a nerve, vein, or arterie be hurt, the poyson may more promptly be communicate by these conduits to the noble parts, from whence they spring, than by other parts ignobler which have no such consent with them. The second is the nature of the poyson it self, which sometimes is stronger, sometimes weaker, and so more or less active. The third is the weakness or strength of the party bitten: and so if sundry persons about the same time be bitten by the same dogg or wolf, neither do they all sustain the like harm, neither do the symptomes appear about the same time in all, because the bodies of some are stronger, and of some weaker to resist the poyson. The fourth is, because the poyson is more fierce in one beast, then in another: and so two being bitten by two severall doggs, the one may sooner dye than the other, by reason of the vehemencie of the poyson. Fifthly, the season of the year, and the constitution of the climat may much further, or hinder the symptomes: And so the poyson of serpents in hot countries, and in the summer time is most fierce. Sixthly and lastly, the dyet of the diseased party may much further or hinder the appearing of the symptomes: for if he use a dyet which doth abate the force of the poyson, they must of a necessity appear more slowly.

The signes of  
a mad dog.

That the dogg that bit is mad, you shall know by these signes. A mad dogg doth refuse both food and drink; much slaver issueth out of his mouth and nostrils: He looketh wilde: his eyes are red and fire: He barketh but a little, and that hoarsly: He becometh lean: He carrieth his tail under his belly: He hangeth out his tongue out of his mouth, which appeareth either yellow, as if it were dyed, with choler, or blackish, or reddish: other doggs shun them: sometimes they run mainly, sometimes they stand still: in running oftentimes they strike against trees or blocks: He knoweth not his owner, but runneth fiercely upon all indifferently.

If

If we cannot have the dog to examine whether he be mad or no, authors have set down some means to finde this out by the wound it self. The first is, we are to beat some walnuts, and to apply them to the wound, & to suffer them to lye to it for a nights space: when they are taken away, they are to be given to a cock or a hen. If the dogg hath not been mad, they shall live; but if he was mad, they shall dye the day after. Secondly, others lay wheat to the wound: others draw blood and quittour from the wound, and adding to it flower make a paste, which they give to a hen. If the dogg was mad, the hen dyeth. Thirdly, *Avicen* and *Rhazes* wil us to rub the wound with the crumme of a loafe, that it may imbibe the blood and quittour of the wound, and to offer it to a dogg; if the dogg refuse to eat it, or to smell unto it, and if after eating of it he become mad or die, it is likely that the dog was mad.

How we may know by the wound whether the dogg was mad.

Having set down the means by the which we may finde out whether a dogg which hath bitten a person was mad; it is requisit also that I set down the signes by the which you may finde out, whether the party bitten is like to be mad.

How we may know whether the party bitten is like to become mad. Signes of madness beginning.

The signes of madness beginning are these: The party becometh discontented and angry without any just cause; he feeleth a gnawing, and heaviness in the stomach: He complaineth of unseasonable weather, although it be fair, his body becometh heavy and lumpish: He is given to watching; and if he do sleep, his sleep is troublesome. He feareth without cause: He drinketh less than he was wont: He beginneth to murmur, and to speak to himself: He desireth candle light by day: In the part wounded although skinned a pain will be felt, which mounteth up towards the head: whither when it is come, a giddiness is caused, that the party cannot walk steadily forward. When these last signs appear, be assured that madness is at hand.

These are the signes of madness confirmed: the face and body become red: the party becometh troublesome; he foameth at the mouth: He hath a wilde looke: He spitteth upon those which stand by: Amongst such persons some do bark like doggs, and offer to bite: It is common to all those who become mad by the biting of a mad dogg, to hate water, and all liquid things: The true cause of this, is the antipathy between this poyson and liquid things: for by such things it becometh more fierce, and the diseased parties are more offended. The pulses of such are small and inordinate: Their members become more and more lumpish; they

Signes of madness confirmed.

become

become costive : The urine cometh away by dropping : their voyce becometh hoarse : they are troubled with difficultie of breathing ; they put out their tongue ; when the grief increaseth, they vomit either yellow or black choler : A day or two before they dye, some of them are troubled with the hicket, and a little before death with convulsions, and a fearful gnawing of the teeth.

The prognosticks.

As for the prognosticks of such wounds, receive these : First, if the wound be not deep, and hath not offended a nerve, vein, or arterie, there is great hope that it may be cured, if art be used. Secondly, if the party bitten become mad and fear water, there is small or rather no hope of his recovery.

The curative intentions.

As for the curation, the Chirurgeon is to set three intentions before his eyes : First, that he labour by all means to draw the poyson out of the wound, that it go not deeper into the body. Secondly, the principal parts are to be strengthened, that they may the better withstand and repel the poyson. The third is, that he labour to overcome the malignity of the poyson.

How the poyson is to be drawn out.

The first he shall attain unto, if first he apply a ligature three or four inches above the wound ; yet *Celsus lib. 5. cap. 27.* will not have this ligature to be too strait, lest the part be benumbed : But if the part will not admit a ligature, then is he to apply a defensive to the parts adjacent made of *Bole, terra sigillata, sanguis draconis* and such like, tempered with the whites of eggs. Secondly, he is to scarifie the wound, if it be not large enough already, and to apply cupping glasses with a large flame, to make the stronger attraction, If the part cannot be cupped, yet it is alwaies to be scarified, and the blood to be drawn by a dry sponge, not wet in water. Thirdly, it is not amiss to pull the feathers from the bummes of hens or cocks, and to apply them often to the wounded part, or to apply young pigeons or chickens hot being cut asunder.

Local medicaments.

After this he is to apply attractive local medicaments, as cataplasmes made of garlick, onyons, pigeons dung, mustard, walnuts, treacle, rue, leven, salt and honey. *Galen li. 2. de antidot. c. 11.* highly commendeth an emplaster made of Pitch, opopanax, and vinegar and affirmeth that he never saw any that dyed, unto whom this emplaster was applied : The composition is this : *℞. picis lib. i. liqu. scat. cui adde opopanacis in aceto acerrimo soluti, atque ad justam consistentiam reducti ℥iij. formentur deinde magdaleones.* These attractive medicaments

are

are to be applyed before a week at the furthest be expired, otherwise they will prove unfruitful. See *Dioscorid. li. 6. cap. 39.* and *Paulus Aegineta li. 5. cap. 3.* You shall know the poyson to be overcome, if you use the experiments set down by me to know by the wound it self, whether the dogg was mad.

Bleeding is not to be used, because it weakeneth, and stirreth the poyson. Bleeding.

Purgation in like manner in the beginning is not convenient; for it is like that it will draw the poyson to the inward parts: If the poyson hath possessed the inner parts, then it will not be amiss to use evacuation sundry times before 40<sup>th</sup> day be expired: for wounds caused by the bitings of mad doggs, must be kept open 40 dayes at the least. The purgative medicaments which are to be used in such cases, ought to be strong according to al authors: as antimonie, white Ellebor, *mercurius vitæ*, *piluli de lapide lazuli*, *confectio Hamech*, *biera diacolocynth*, *electuarium Indum majus* &c. Purging.  
When purgation is fruitfull.

I affirmed that the second intention of the Chirurgeon in curing of these wounds, was to strengthen the principal parts for the repelling of the poyson, with antidots contrarie to this poyson: In the exhibition of these, you are to give twice as much in curing as preventing. In the shops you have alwaies in readines the *Theriaca Andromachi*, and *Mithridatium*. You may minister every morning ʒi β. of either of them for the space of 40 dayes in the morning; but the *Theriaca* is most effectual: At night you may minister some other Antidot: I will only set down three approved ones. The second intention.

The first is *Scaligers the Father Rx. Mithridat. & pulv. rad. aristoloch. rut. an. ʒij. terr. sigil. ʒβ. muscas que de napelli fructibus victum querunt nuro 20. cum succi citri recentis s. q. fiat mistura. dos. ʒi β.* Antidotes.  
1.

The second is set down by *Palmarius li. de morb. contag.* thus: *Rx. fol. rut. verben. salv. plantag. polypod. absynth. vulgar. menth. artemis. melissophyll. beton. hyperic. centaur. min. singul. equale pondus. colligantur justo tempore, ac siccantur, postea in pulverem redigantur. dos. ʒi β. in principio singulis diebus 3. horis ante cibum, sed ʒiij. aut 3. si post septimanam vocemini.* This is a parable and effectual antidot. He adviseth also to foment the wound with wine or mead, wherein ʒi β. of this powder hath been dissolved, and then to apply your other local means. He addeth in like manner, that neither man nor beast ever dyed which used this medicament, although it were 2.

ministr'd long after the wound was received; so that the wound was not in the head in those parts which are above the mouth, and not washed with cold water as soon as it was received.

3. The third is *Antidotus de cancris fluvialibus*, commended by *Dioscorid. li. 6 c. 37.* and *Galen 2. de antidot. cap. 11. it. 11. de s. m. facult. Galen.* affirmeth that none ever died who used the powder of these crabs rightly. They must be gathered after the beginning of the dogg dayes, when the moon is 18. dayes old, and calcined in a frying pan of red copper: then they are thus to be ministr'd, *Rx ciner. cancror. ʒii. pulv. gentian. ʒi. vini meraci cyathos iiii. Misc. ut fiat po. bibenda singul. dieb. mane per dies xi.* See *Galen. lib. 11. de s. m. facult.* These antidots may be ministr'd not only in wine, but in posset drink, and broths also to give the patient content.

## LECT. XIV.

Of a Wound made by the biting of an adder.

**Y**OU heard in my last Lecture, how wounds made by the biting of mad beasts were to be dealt withal: In this Lecture I will shew how wounds caused by the bitings and stings of Serpents are to be cured. God hath created a strange varietie of them: who as they serve for the perfecting of the *universam* or frame of the world; so they are employed by God for the punishing of sinners. Read a memorable example of this, *Num: 21. à vers. 5. ad. 9.* where it is set down, that for the murmuring of the people of Israel, God sent against them a fiery Serpents, by the biting of which much people died, until at the last *Moses* set upon a pole the brazen Serpent, by the commandement of God, by beholding of which, the bitten persons were kept alive: This brazen Serpent was a figure of Christ crucified, as he himself testifieth, *John 14. 15* in these words, *ver. 14. As Moses lifted up the Serpent in the wilderness: Even so must the Son of man be lifted up: vers. 15. That whosoever believeth in him should not perish but have eternal life; for according to Isaiab c. 53. v. 5. He was wounded for our transgressions; he was bruised for our iniquities: The chastisement of our peace was upon him; and with his stripes we are healed.* *Lucan* the Poet in the ninth book of his *Pharsalia* setteth down the journeying of *Cato* and his Souldiers through the desert of *Lybia*, where out of *Nicander* the ancient

\* *Iunius* in his translation called them *presters*.

ancient Greek Poet and Physitian in his *Theriaca*, he maketh mention of sundry serpents. Lucans verses are thus turned into English meeter by Mr *Thomas May*, the most eminent English Poet of our age.

<sup>a</sup> First from that dust so mixed with poyson, bred,  
 Rose the sleep-causing aspe, with swelling head,  
 Made of the thickest drop of Gorgons goare,  
 Which in no Serpent is compacted more.  
 In scaly folds the great Hemorrhous lyes.  
 Whose bite from all parts draws the flowing blood.  
 Chersidros then, that both in land and flood  
 Of doubtful fyrtes lives; *Cœlydri* too,  
 That make a reeking slime where ere they goe.  
 The *Cenchrus* creeping in a tract direct,  
 Whose speckled belly with moe spots is deckt,  
 Than ere the various *Theban* <sup>b</sup> marble takes.  
 Sand coloured *Ammodites*: the horned snakes,  
 That creep in winding tracks: The *Scytale*,  
 No Snake in winter casts her skin but she:  
 The <sup>c</sup> double head: *Dipsas*, that thirsty makes;  
 The water spoyling *Newt*, the dart <sup>d</sup> like Snakes.  
 The *Pareas*, whose way his tayle doth guide;  
 The *Prestor* too, whose sting distendeth wide  
 The wounded's foamy mouth; The *Seps*, whose bite  
 Consumes the bones, dissolves the body quite.  
 The *Basilisk*, whose bisse all Snakes doth scarre,  
 You *Dragons* too, &c.

<sup>a</sup> The Poets  
 faine these  
 Serpents  
 to have  
 been bred  
 of the quitrou  
 which did flow  
 from *Medusæ's*  
 head, and the  
 earth.

<sup>b</sup> *Ophites* *Cerastes*, &c. is.

*Amphisbæna*,  
<sup>c</sup> *Natrix*.

<sup>d</sup> *Acantia*, &c.

O fearful brood armed against the sinful sons of *Adam*: We who are born in these parts are to glorifie God, who hath freed the soyl of such mischievous creatures. I mean not to insist in the description of every one of these Serpents, the symptomes which ensue after the biting, and the manner of cure, because it would be a fruitless labour, the land being free from them, and so from their harm. In this countrey only the *Adder*, and the *slow-worm* are found, who oftentimes do great hurt. Of these then I will discourse, as also of the *Toad*, because here is great store of them, and their poyson is able to procure death.

I will first deal with the *Adder*. It is called *Coluber* in Latin, either *quia colit umbras*, because it haunteth shadowy places, or *à lu-*



*bricis tractibus*, from her winding pace or path. It is long like an Eele, black on the back, having yellow spots on the belly: The head is more flat than the Snakes head. It is a crafty and venomous Serpent, biting suddenly those that pass by. Whereupon *Jacob* in his Testament, or last Will, *Gen 49 v. 17.* calleth *Dan* by reason of *Sampson*, who was of that Tribe, *Coluber in via*, an Adder in the way.

The signes of  
her biting.

When the Adder hath bitten a man, the part becometh of a Leadie colour, and very painful, and if it be not presently cured, much black and stinking quitour doth issue out from the fore, like to that which doth flow from *Ulex depascens*, a fretting ulcer. If it bite any cattel very often they dye.

A History.

When I was in the city of Bathe in Sommerfet-shire, nine years ago, a little land Spaniel bitch belonging to one *Mr. Lloyd* who dwelt three miles from thence, being bitten by an Adder by the way, died the next day, having intollerable pain & swelling of the whole body.

The poyson of it is hot, for an Adder is more hot than a Snake; which is not poysonable here with us, although it be in hot countreyes, as *Italie*. The Adder hisseth and molt nimbly moveth the forked tongue, as the Snake doth.

The curation  
of the biting  
of an Adder.

As for the curation of the biting of an Adder, the ancients have set down many medicaments, both simple and compound for the curation of wounds inflicted by venomous beasts: you shall finde great store of simples in *Dioscorides*, throughout the whole seventh book, and *Nicander* in his *Theriaca*, and *Alexipharmaca*. *Gr. Senus lib. 1. de venenis, cap. 36. & 37.* hath gathered them together, whom you may peruse. *Petrus de Abano in lib. de Venenis, cap. 4.* setteth down seven herbes effectual against poyson, and the bitings of venomous beasts, which are these, *Hypericum, Vincetoxicum, Enula campana, Raphanus, dictamnium, Aristolocchia, longa & rotunda, Lactucella*. He affirmeth these to have equal faculty with the triacle it self against the poyson. The ancient Physitians only used these and such like, before Triacle and Mithridat were invented. The juyces or the powders of the herbes they gave inwardly, to the wounds or sores they applyed also the herbes. As for compound medicaments, you may use *Mithridat, Theriaca Andromachi, Theriaca magna Esdrae, Diateseron, Electuarium Orvietani*.

How one bitten  
by an Adder is  
to be dressed.

If you be called to cure one bit by an Adder: First apply ligatures 3. or 4. inches above the bitten place; hold up the member as high as may be, scarifie the part, and apply cupping glasses: If you cannot apply them, apply defensives above the part.

Dress the wound with Triacle dissolved in the oyle of Scorpions.

ons, inwardly minister the Triacle it self in *carduus*, and Triacle water, or *Theriaca magna Esdrae*, which he is said to have brought from *Babylon*, when he returned from his exile with other Jewes to their native Country; *Electuarium Orvietani*, the juyce and leaves of the ash are highly commended. Nota.

It is a very strange thing, that if a Viper be compassed with the leaves of the ash on the one side, and fire on the other side, she will rather goe towards the fire than the leaves of the ash. Such an antipathy is between the Viper and the ash.

*Ambros. Patrus lib. 20. cap. 23.* sheweth how he cured one bitten by an Adder: because the History is memorable, I thought good to set it downe. At what time (saith hee) *Charles the Ninth* lay at *Melines*, I and Doctor *le Fure* the Kings Physitian, were sent for to cure a Cook of the Lady of *Castroperjes*, who was bitten by an Adder, as he was gathering wild hops in a hedge. The Cooke as soone as he was bitten in the hand, sucked the wound with his mouth, thinking thereby to mitigate the paine, and draw out againe the poyson. But as soone as the tongue touched the wound, presently it so swelled that he could not speake. Besides this his arme even to the shoulder blade did swell, and caused such sharp paine, that he swooned twice while I was by him, his countenance becomming yellowish, and of a livid colour like to a dead man: and although I did despaire of the recovery of the man, yet I forsooke him not, but washed his mouth with triacle dissolved in white wine, and ministred it to him adding *aqua vite*. I scarified the arme with many and deep scarifications, I suffered the blood which was waterish and sanious to flow plentifully from the parts about the sore; I washed the scarifications with *Mithridate* and Triacle, dissolved in *aqua vite*. The sick person I layd in his warm bed, and caused him to sweat, but forbade him to sleep, lest the poyson should have been drawn to the inner parts. By these means I so prevailed, that the next day all the maligne symptomes ceased. Wherefore to finish the cure I thought good that the wound should be long kept open, and washed with triacle: Neither was I deceived, for within a few dayes he recovered. Hitherto is the discourse of *Parrey*: by it you may observe, that whether poyson bee inwardly taken, or externally impressed, it is good to watch untill the force of the poyson be abated, lest it seize upon the inward part.

They who catch the Adders, apply the powder of them to the part affected, if they be bitten, and take this same powder inwardly; as they who catch the Vipers, use the powder and trochisces

of the Vipers. Others commend the powder of Tinne, and commend it as a secret and specificall medicament. But the method set downe by me is the safest way to cure: If you would make triall of the powders of the Adders, or Tinne, I would advise you to mingle them with the *Tberiaca*. Now a dayes the Adder and Viper wines are in great request: But a question may be moved whether they be wholsome.

*Dub.*

*Nicolaus Florentin.* 1 de *Venen.* following *Ralbi Moses*, and others, writeth that Viper wine being often drunken, is effectually against poyson. *Galen* also *Secl. 6. 6. Epidem. Text. 5.* affirmeth both Viper wine, and the flesh to be good against poyson: So that Viper wine by these mens judgements, cannot but be good for healthfull persons: When I travailed in *Bohemia*, I observed, that the Earle of *Rosenberg* the younger, during the summer time did eat the flesh of the Adders, for preservation of the sight, and staying of old age: But *Dioscorides* and others give advice that care be had that Serpents be not suffered to have accessse to wine vessels, lest they poyson the wine; which if they doe, then surely the wine is like to make a speedy way for the poyson to assault the principall parts.

*Sol.*

This doubt I thinke may be thus solved: If by chance Vipers or Adders be drowned in the wine; because the whole body lyeth in the wine, neither head, tayle, guts or gall being taken away: and no time of fomentation being granted, undoubtedly the wine must be venomous: But if it be made by art, these parts being taken away, and the flesh well prepared, and fermentation permitted; such a wine must be wholsome, if a skilfull Physitian unto whom diseases and complexions are knowne, do order the manner of taking of it.

Of the Slow-worme.

It is now time to come to the Slow-worme: it is called in Latine *Cæcilia* and *Cæcula*, because it is blind, and by *Nicander* *τιφλωλ*.

The description of it.

It is a little slender Serpent; it hath a hard skin of divers colours: For it is partly of a blewish, partly yellowish, partly of a light purple between these: It hath small eyes, and covered with a thin skin. It hath very small teeth, but more to be seen in the lower, than upper gum. Its tongue is cloaven: It hath a chink in the belly, which being opened it layeth egges: After the egges are laid, the chink doth consolidat againe. They are in length about a span, and about the thicknesse of a mans finger: towards the taile it is more slender: The female is more black than the male: The passage  
of

of the excrements, and place of conception, is transvers: It cometh abroad in *Iuly*: It is harmelesse unless it be hurt: It is seene most often in hilly places: In the winter it lyeth in the cliffes of rocks, and cavities of the ground. The storkes doe much prey upon them.

It is very venemous, the bitings of it are very small, and scarce appeare. The place bitten is red, and the whole body becommeth enflamed. Signes of its bitings.

As for the creation, you are to scarifie the part, and to apply a *ventose*. Then you are to apply Mithridate, Triacle, or *terra sigillata*, mingled with the oyle made of Vipers or Scorpions. *Platerus* affirmeth, that a Triacle made of the trochiscs of it, instead of the trochiscs of the Vipers, is effectually against the plague. The cure of them.

This Lecture I will conclude with the setting downe of the curacion of the poyson of a Toad: In Latine it is called *Buse*: The colour of it is blackish, mingled of blacke and a darke yellow; the backe is bunched and full of knobs; the skin is very thicke; the head is broad and thicke, and the colour thereof about the neck is somewhat pale, the heart is in the necke, and therefore it is not quickly to be killed, unlesse the necke be cut asunder, or deeply pierced: their eyes are of a flaming yellow colour, like those of a Goshawke: It leapeth not as Frogs, but creepeth slowly; partly by reason of its short legs, partly by reason of its sluggish body: It is altogether dumbe; it coupleth not onely with Toads of its own kinde, but frogs also, It delighteth in dry places, as in stables, dung, beds in gardens, and caves of the earth, it feedeth upon the slime of the earth, earthwormes, and bees which it draweth out of the hives by its venomous breath: It delighteth much to be in places where Sage is planted. It doth not onely infect all things over which it passeth by its poysonable pissing, but by bespattering herbs with its venomous slaver. Wherefore, it is not to be wondred if men dye, who have eaten unawares herbs, strawberries, and mushrooms infected by Toads: If one doe move it, it swelleth, and doth looke ugly with flaming red eyes, expecting opportunity to dart out virulent pissing, and a white juyce out of the mouth; yea, if it can touch one, it doth bite by the hard brims of the lips: Being pricked thorow the middle, it will live some dayes; and from it will drop a bloody poyson mingled with a yellow water. The description of a Toad.

The enemies of the Toad are the Cat, the Poulkite and viper. If one be infected with the poyson of a Toad, these symptomes ensue: How it doth infect.

First,

*Dioscor. lib. 6. cap. 32<sup>s</sup>* First, the colour of the body is changed to an ugly pale colour, which is seene in the box wood; the party hath difficulty of breathing, the breath stinketh, the seed floweth sometimes against the will, the hickets troublesome: *Caspar Schwenckfeldius in Theriotropico Siles. tractat. de Reptilibus* addeth a sudden giddinesse, convulsions now and then, the blacknesse of the lips and tongue, a forward countenance, much vomiting, dimnesse of the sight, a dysentery, loathing of meat, raving, the falling out of the teeth, a numbnesse of the whole body, a deepe sleeping, a cold sweat, and at the last death.

The curation  
of the poyson  
of the Toad.

As for the curation, *Diosc. loco citato* commendeth vomiting, the drinking of strong wine, running and quick walking, and two drams of the root of the reed or cane; whereby we may gather, that both the temperament of the Toad and the poyson is cold. *Schwenckfeldius loco citato*, commendeth womans milke, Triacle, Mithridate, Harts-horne, *agua Theriacalis*, oyle of Vitriol, Turbith minerall, the infusion of *Sibium*. The body is to be washed with such a *lixivium* as is prescribed against gangrenes: Oilea bathing is good, made of sea-water, wherein *scordium*, *hypericum*, *artemisia*, Worme-wood, Cermader, Lavender, Tyme, Sage, Tanley, and such like have beene boyled. It is not amisse to apply dried Toads to the aime-pits, the region of the heart, and to the wrists. Many thinke the wearing of the Toad-stone, and rubbing of venomous wounds with it to be very effectuell.

---

### LECT. XV.

#### *Of wounds made by Gun-shot.*

**H**itherto I have discoursed of wounds, which were knowne to the ancient Physitians and Chirurgeons: now I am come to speake of wounds made by Gun-shot, not knowne to them. *Bertholdus Niger*, *Schwartz*, or *Blacke* by surname, anno. 1380. a Franciscan Friar, and an Alchymist, found out the making of Gun-powder, and Ordinances which now are in use: He onely perfected this mischiese: for the use of Gunnes, although rude, was before: For in the time of *Carolus Magnus*, *Gamoscus* King of Frisland, killed the Count of Holand, and two of his sonnes, with a Peece. And *Roger Bacon*, who dyed about the yeare of the Lord 1284. maketh mention of Gun-powder. *Nauclerus* affirmeth Powder

der and Ordinances to have been invented in the dayes of *Otho* the fourth, and *Innocentius* the third, in the yeare of the redemption of mankind, 1213. *Froissard* anno 1340. and 1353. maketh mention of Guns. *Petrarcha*, who dyed anno. 1374. doth the like. <sup>a</sup> You may read in the history of *Alphonfus* King of Castile, when he besieged *Algezira*, a famous Towne of the Moores, 3. August. anno 1342. that they in the Towne shot out of it bullets of iron out of Ordinances, according to *Mariana*. Yea, *Petrus Matterus* affirmeth, that brasse Ordinances have beene used by the Chinoyes many ages agoe: So that the Friar was not the inventor, but perfecter of Guns, and Gun-powder.

<sup>a</sup> *Sethus Galvisus Chronolog. p. 752. col 2*

As for the wounds which are made by Gun-shot, these points concerning them shall be set downe; first, their nature; secondly, their differences; thirdly, their signes; fourthly their symptoms fifthly, their prognostickes; sixthly, the medicaments which have been proved effectually in the curiation of these wounds.

The nature of them I will set downe in these three propositions: First, wounds made by gun-shot are not poysoned, if in the melting of the bullets nothing be added to the metall. This is the opinion of all Authors, if you except *Vigo*, *Alphonfus Ferrus* c. 8. *Franciscus Rota Bononiensis*. This proposition thus I prove: Neither the gunpowder, nor the bullet is poysonable; therefore the wounds caused by them are not poysoned. As for the gunpowder, it is not venomous, whether you consider each simple whereof it is made severally, or them all joyntly in the composition: for first of all, the brimstone is not venomous, *Galen. 9. simpl. 36.* affirmeth it to be effectually against the itch, and daily experience proveth this to be true: It is good also in diseases of the lungs, according to *Dioscorid. lib. 5. c. 73.* Sal-peter is used in the curiation of burning fevers; there is none such a novice in the practice of physicke, unto whom the faculties of *lapis prunelle* is not knowne; yea, it may be safely used instead of ordinary salt to meat. The coles either of the willow, or stalkes of heme are onely dry, and have subtil substance, whereby they are easily set on fire, by the match or sparkles of fire. Neither is the whole composition poysonable, as *aqua fortis*, or *aqua regis* are, whose ingredients, severally used, are not venomous, for it may be ministred in milke to kill wormes in dogs or strong children; yea, the German souldiers will drink it before they fight; and it is good to be applied to scalded heads. As for the bullet, it is in like manner harmelesse.

The nature of these wounds.

*6. De scloporor. vulner. c. 4. & c. de belbr. 107. men. vulnerib. c. 13.*

The Gun-powder is not poysonable.

The bullet is  
not poysona-  
ble.

for the powder made of it is good against maligne ulcers, and if it be beat out into a plate, it will stay the increase of tumors in the beginning: Besides this, bullets have lyen long in the bodies of some persons, not procuring any harme.

The second proposition: Such wounds are never without contusion in the flesh, seldome without tearing of tendons and nerves, and often cause fractures in the bones, by reason of the violence and blunt hard substance of the bullets: This proposition needeth no confirmation: for these effects offer themselves to the eye in these wounds.

Bullets may be  
poysoned.

The third proposition: A bullet may be so made, that it may cause a poysoned wound: it is the opinion of *Quercetan, Tractat. de his vulneribus, c. 1*. And it may be made good by three reasons: First, weapons made of Steele, the hardest of all metalls, may be made poysoned: much more then bullets made of lead or tinne, soft and porous metals. That Steele weapons may be poysoned, these Authors witness: *Homer 1. Odyss. Theophrast. lib. 9. de hist. plant. c. 15. de Scythis idem affirmat Plin. lib. 12. cap. 53. de Dalmatis & Lacis Aeginet. lib. 6. cap. 88. & generaliter de Barbaris Dioscorid. lib. 6. cap. 20.* Secondly, experience teacheth us that metals may sundry wayes be altered by mingling some things with them, or quenching of them in some liquors: so Brasse is made of Copper, Lead may be hardned; and Tinne may be caused to leave his crackling, and Copper be made white by addition of Arsenicke, and iron may be hardned, if it be quenched in vinegar, and the juyce of the Rettish, or Smiths water: It will by the contrary be made soft, if it be quenched in the juyce of the Hemlocke, and common Mallowes, if a little Soape be added. The third reason is this: poysonable spirits and oyles drawne from minerals, may be mingled with metalls, so that they may participate of their venositie: Wherefore, if bullets imbibe such, if they stay long in the body, doubtlesse they may cause a poysoned wound; for the heate which the powder causeth in the bullet, is not able to separate them: such is the oyle of  $\Phi$  sublimat rectified from Arsenicke: And although this be true, yet it is strange that any man should thinke every wound made by gun-shot to be poysonable; seeing experience teacheth that they may, yea, and are cured by meanes which have nothing effectuall against poyson, as shall be declared anon. Besides this, they are not accompanied with such fearefull symptomes as venomous wounds are.

The

The differences of these wounds are taken from the diversity of the similiary parts which they offend; for either they make a solution of unity in the fleshy parts, or in both the fleshy and spermatick parts: The spermatick parts are either soft or hard: The soft are nerves, tendons, ligaments and membranes: The hard are two, Cartilages and bones: The nerves, tendons and ligaments are contused and torne, the membranes are divided and bruised. If the bones be affected, we are to consider what a manner of fracture is caused by these wounds. Then according to *Avicen sen: 5. 4. tractat. 2. c. 1.* there are three kinds of fractures; *Transversalis*, when a bone is transversly broken, as it happeneth in fractures of the armes and legges: *Fissualis*, when a bone is broken according to the longitude of it, as appeareth in chinkes of the scull; and *Frustalis*, when a bone is broken into small peeces or shivers. Now it is manifest that the third kind of fracture is most commonly seen, when a bone is fractured of a gun-shot; seeing the instrument causing the fracture is blunt, and very forcible.

As for the signes of these wounds; they are taken first from the figure: for these wounds are alwayes orbicular: Secondly, from the colour, for the part is either of a livid colour, or of a blew colour mingled with greene, or of a violet colour; sometimes the wound is black, and the adjacent parts livid. Thirdly from the feeling of the blow: for when one is wounded hee feeleth as he thinketh a stone, or a piece of some heavy and blunt instrument entering into the part. Fourthly, from little blood issuing out: for the part being contused, the brims quickly afterward so swell very often, that blood is stayed from flowing. Fifthly, from the heat of the part; which happeneth by reason of the quick and vehement passing of the bullet, or grievous contusion of the parts wounded. Sixthly, from the adjuncts, as if burning appeare: this is discerned, if pustules doe appeare, if a scorching heat, drinesse, wrinkling, hardnesse of the skin, and burning of the cloathes doe offer themselves to the sight; burning is caused if the peece be discharged not farre from the wounded party. These are the signes of wounds made by gun-shot, if the bullet be not poysoned.

If the bullet be poysoned, these signes will appeare. First, an ugly colour will appeare, as if it tendeth to mortification. Secondly, horrible paine, and pricking. Thirdly, great inflammation. Fourthly, a heavinesse of the whole body. Fifthly, a sharpe fever.



Sixthly, fainting. Seventhly, raving, and especially if no evident cause can be given for these accidents. Eighthly, the bullet it self will shew the poyson; for if you put the bullet into a sublimatory vessel, and put a strong fire under it, a black and stinking smoak will rise from the metal, and the upper part of it will be of a blackish or livid colour. If you cannot have the opportunity to do this, then cut the bullet asunder; if it be poysoned, it will be of a violet colour.

The symptoms of these wounds.

The symptoms of ordinary wounds made by gun-shot are these; contusion, pain, inflammation, convulsion, heat, palse, if the instruments appointed for motion be torn, the natural colour of the part altered, and sometimes a gangreen, and a mortification if the wound be great, and in or neer to a joynt. If the bullet be poysoned, all these signes and symptoms will appear; but sooner and more vehement, than if it were not. But because I have discoursed of most of these symptoms in the general doctrine of wounds, I will remit you to the Lecture, wherein they are handled; of a gangreen and a sideration, because they are symptoms which may ensue after all sorts of solution of unity, I will handle them when I have spoken of fractures and luxations in their proper place.

Lecture 6.

The prognosticks.

As for the prognosticks receive these, First, if a fleshy part be only wounded, and the constitution of the party be laudable, and the aire favourable, the wound may be cured without any great difficulty. Secondly, if the spermatick parts be violently torn or broken, if the temperature of the party be not laudable, but *Cacochemical*, if the aire be hot and moyst, which falleth out when the south-winde bloweth, and if signes of poyson do appear, it is to be feared that a gangreen and mortification will ensue. Thirdly, these wounds yield a stinking *sanies* if the parts be much torn, and much humour be sent to the wounded part which quenbeth the natural heat. Fourthly, these wounds are harder to be cured, than those which are made by other weapons, by reason of the contusion which still doth accompany them. Fifthly, these wounds come more slowly to suppuration than others do; partly because the naturall heat is much abated, and partly because the spirits are much dissipated by reason of the great contusion.

The indications of curing

It is now time to come to the curation of these wounds. The first intention of curing is to remove from the wound all extraneous.

ous.

ous bodies, as the bullets, pieces of garments, paper, pieces of wood, or metals, contused flesh, clotted blood, thivers of bones, and such like: But seeing I have shewed in the third Lecture concerning this subject, which I now have in hand, how extraneous bodies are to be taken out of wounds, let me desire you to have recourse thither.

The second intention is to apply convenient medicaments to the part affect.d. *Jouberius* commendeth this Topick, R. *axungia* *suill. depurat. vel butyri recentis* ℥viiij, *precipitati loti*, at in tenuem pulverem redacti ℥j *capbura in aq. vite soluta* ℥ij. exquisite misceantur. If in stead of the *axungia* you take *arcæus* his liniment, the medicament will be more effectual: yet the medicament seemeth to be proper, for *axungia* and butter are suppurative and *precipitat.* doth further suppuration causing little or no pain, and the camphore doth help penetration, and resisteth putrefaction.

*Ambrose parry* commendeth *oleum catulorum* or the oyl of whelps, *Lib. 10. in* *cujus hæc est descriptio.* R. *ol. lil. lb. ij. catulos caninos duos vivos, cog.* *hæc simul quoad caro ab ossibus abscedat, mox injiciatur vermium terre-* *strium in vino mundatorum lb. j. qui eousque elixentur quoad ar. f. cti om-* *nem succum in oleo deposuerint: Tandem fiat colatura olei, cui admisce* *terebinthina Veneria ℥vi. aqua vite ℥ij. verum si partes nervosæ aut ar-* *ticuli vulnerentur plus terebinthina quam olei usurpandum est, quia partes* *istæ majorem quam carnosæ desiccationem requirunt.* *principio.*

In the dressing of these wounds seven cautions are to be had. Cautions to be observed in dressing.

First, wee may use moderately, colcined vitrioll dissolved in *aqua vite* if the Southwinde blow, and you fear putrifaction; for although it be not suppurative, yet it resisteth putrifaction.

Secondly, we are to shun escharotical medicaments, for three causes. First, because they procure pain, inflammation, fevers, a gangreen, and such fearful symptoms. Secondly, because they hinder suppuration. Thirdly, because the eschare doth keep in putrid vapours, which may pass from the lesser to the greater vessels, and so to the principal parts, and so cause a fever.

Thirdly, the tents at the first are to be made greater and longer, that the wound may be sufficiently dilated.

Fourthly, if the contusion be memorable, and possess much of the adjacent parts, they are to be scarified to discharge the part of congealed blood, which is apt to putrifie.

Fifthly,

Fifthly, if there be any burning, such medicaments are to be used as are good against burning, such is this; R. *ol. lil. albor. & lini an. ʒij. infrigidantis Galeni. ʒi ʒ. ol. laurin. ʒʒ. fol. semperviv. major. plantag. & cost. interior. sambuci. an. man. j. pingued. ran. ʒʒ. Bulliant omnia lento igne ad succorum consumptionem ac coletur medicamentum, cui adde flor. aris ʒj.*

Sixthly, cooling and astringent medicaments are not to be used after the first dressing, because cooling medicaments quench the natural heat, and hinder suppuration: and astringent medicaments keep in putrid vapours, which may bring a gangreen. Wherefore medicaments anodine, emollient, and suppurative are convenient: as this; R. *mic. pan. trit. ʒiiij. lact. recent. lb. j. flor. chamemel. & melilot. an. pug. j. farin. bord. & fabar. an. ʒj. coq. omnia ad Cataplasmatiss consistentiam: tum adde vitellos ovorum ij. ol. viol. & ros. an. ʒi ʒ.*

Seventhly, it is sufficient to dress the wound once in the space of 24. houres. If much quittour flow, or if the party be feverish and feel great pain, it is to be dressed every twelfth hour; when little quittour issueth, it is sufficient to dress it once a day. We may best use these Topicks use to these wounds the oyl of linseed, lillies, eggs, Saint Johns woort, elders, earth-worms, and camomill, with yolks of eggs and some saffron, until the wound come to digestion, which will be the fourth or fifth day. Then use absterfivive medicaments, as Paracelsus his mundificative, or *mundificativum de apio*: The wound mundified incarnat, and last of all skin it with Epulo-tical medicaments, proceed thus, if the wound hath only offended the fleshy parts.

If the soft spermatick parts be wounded and torn, this medicament is effectual: R. *terebinthinae Venetae, ol. terebinthin. & hyperic. an. ʒij. turbit. flavi ʒʒ. rutiae, euphorb. & calcis viva, an. ʒj. mls.* If the hard spermatick parts, as the cartilages and bones be shivered: R. *prædict. composit. terebinth. o. hyperici & terebinthinae ʒj. pul. cephal. ʒi ʒ. applicetur medicamentum calesacium.* This medicament, will further suppuration, and procure the scaling of the bone, if it must be so, and will save that which is found from cariosity.

How a poysoned wound is to be cured.

If you perceive by the signes set down by me, that the bullet hath been poysoned, and so have caused a poysoned wound, the brims are deeply to be scarified, ventoses to be applyed, and mithridate and triacle inwardly to be ministred in *Carduus*, strawberry,  
or

or black cherry water, taking of mithridate and triacle an.  $\text{ʒ}\text{ss}$ . aquarum prædictar.  $\text{ʒ}\text{ij}$ . Let the wound be dressed with this *Aegyptiacum* magistral. R̄ decoct. lupinor. ac lentium an. lb. j.  $\beta$  aceti lb. i. salis communis, aluminis an.  $\text{ʒ}\text{j}$  virid. eris  $\text{ʒ}\text{ʒ}$  mellis lb.  $\beta$ . cœq. omnia ad mellis spissitudinem, tum adde tberiacā.  $\text{ʒ}\text{ʒ}$ . Apply this medicament, either upon the tents, or by way of injection, as you shall think fit. This medicament is good in putrid ulcers: Use this medicament until all fearful symptoms cease: Then proceed with those medicaments, which I have prescribed for such wounds. In poysoned wounds you are neither to purge, nor to use phlebotomy, until the force of the poyson be abated: But in ordinary wounds made by gun-shot, you are to open a vein if the party be plethorick, and to use purgations if the party wounded be cacochymical.

## LECT. XVI.

*Of the means to avert humours from the wounded head.*

**A**T the last I am come to the last point whereof I intended to discourse concerning wounds; which is the curation of the woundes of particular members, which require any special consideration differing from the canons of wounds in general set down by me hitherto. These wounds are either of the ventricles, or extremities, or limms. The ventricles are three, the head, the brest, and the lower belly. Now wounds of the head either cause solution of unity in the very seat of the brain, or in other parts appointed to be organs of the senses. As for the wounds which are inflicted into the seat of the brain, which is called the hayry Scalp, they shall be dispatched in setting down three points. The first point shall be spent in discoursing of these things which are common to most of these wounds. The second shall set down the particular explication of these wounds. The third shall shew what symptoms ensue after fractures of the skull.

The things which are common to most of these wounds are in number four. First, the aversion of the humour from the wounded part. Secondly, the general prognosticks. Thirdly, the description of fit Topicks, which are to be applyed to assuage pain, and stay any inflammation. Fourthly, shall be set down the manner of rowling.

Things common to wounds of the seat of the brain.

Of averſion.

Averſion of the matter which either hath already brought ſymptomes, or is like to procure, is performed by three means, to wit, by blood letting, purging, and the right ordering of the fix things not natural.

Phlebotomy  
universal.

Phlebotomy is either univerſal or particular. The univerſal is performed by opening of a vein. Of this kinde of phlebotomy theſe things may be demanded. Firſt, whether a vein is to be opened, and blood drawn. Secondly, how much blood is to be drawn. Thirdly, which veins are to be opened.

When a vein  
is to be opened.

As concerning the firſt demand, blood ought to be drawn in three caſes. Firſt, if a competent quantity of blood did not flow out of the wound, when firſt it was inflicted. Secondly, if it be a great wound, and the party be ſtrong. Thirdly, if a great inflammation hath invaded the part, or a fever hath ſeiſed upon the party.

How much  
blood is to be  
taken.

As concerning the quantity, blood is drawn either ſo much at one time as is requiſit, or at divers times. If you go about to draw ſo much blood at one time as is requiſit, you are to ſtop the vein. Firſt, when the pulſe appeared ſmaller, and ſlower. Secondly, when a faint ſweat doth iſſue out at the forehead. Thirdly, when the colour of the face is changed, and the lips grow pale. Fourthly, when a pain of the heart doth draw on, with yawning, and a deſire to vomit, or to go to ſtool. If you are to draw blood fundry times for this ſame grief, you muſt continue the doing of this, untill all ill ſymptomes, as inflammation and fever ceaſe. See *Parey lib. 9. cap. 14. Fallop. in Hipoc. de Vulner. Capitis cap. 26.*

The veins  
which are to  
be opened.

As concerning the veines which are to be opened, you are to take thoſe of this ſame ſide, and thoſe muſt be either the *Baſſica*, the Liver vein, or the median if blood do much abound: But if the plenitude be not great, then it will ſuffice to open the *Cephalica*, or the veines neer to the wounded part, as the vein of the forehead, the veines of the temples, and thoſe which are under the tongue. See *Parey* in the place before cited.

Phlebotomy  
particular.

A particular detraction of blood is when we take blood from the part affected. This is performed by ſcarifying the brims of the wound, applying of ventofes, or by laying to the leeches. *idem ibid.* If the party be timorous, and loath to admit any kinde of bleeding, then you may uſe ſtrong frictions of the whole body, with courſe linnen cloths, or of other parts of the body, the head excepted: for theſe will diſcuſſe the ſuperfluous matter, and turn it into a *balſtus*

or

or stime. For superfluities must increase, the wounded party omitting the accustomed exercises.

As for purging, it is procured three manner of wayes : First, Of purging. by cathartical medicaments given by the mouth. Secondly, by clysters. Thirdly, by suppositories. And as concerning solutive medicaments which are ministred by the mouth, these points may be asked. First, whether purging is so to be cured. Secondly, when such medicaments are to be exhibited. Thirdly, of what hidden faculty they must be of. Fourthly, of what force they must be.

As for the first demand, a purgative medicament is to be ministred in three cases. First, if the party have the headache or lumpishness. Secondly, if a tumour or inflammation appear. See Fallop. In which caees purgative medicaments are to be given. in Hippoc. de Vulner. cap. c. 27. Thirdly, if the body be cacochymical, so that there be strength, matter prepared, and the body open and passable.

As concerning the time which was the second demand, Purgative medicaments are to be ministred in the beginning. First, lest strength decrease. Secondly, lest the fever increase. Thirdly, to hinder the humours stirred from ascending to the head. This Hippocrates adviseth in sharp diseases, 4. Aphor: 10: When they are to be given

As for the third demand, those medicaments which purge cholera, seem most fit in wounds of the head : Because the symptomes which ensue after these wounds, as inflammations and fevers, seem to be the effects of yellow cholera. What faculty these medicaments ought to have.

As for the fourth demand, we are to shun strong and eradica- tive medicaments chiefly in the beginning, lest that by too strong a commotion of the humours, a pain, a fever, and inflammation be procured. See Parrey lib. 9. cap. 14. Wherefore we must use gentle medicaments, and which do not increase heat. Such are the infusion or decoction of the myrobalans mingled with *Electuarium lenitivum*, or *de succo rosarum*, aut *diaprunum solutivum*. The dose must not be great, you may minister also the infusion of rheubarb, and myrobalans, with the syrup of roses solutive with agarick. The Myrobalans strengthen the stomach & head, as also the veins. See Fallop. in Hippoc. de Vulner. cap. c. 27. *Arcæus lib. 1. c. 4. doth prescribe such a form. R̄ Syrup. ros. solut. ℥ij. aq. plantag. ℥iij. utere ut ars præscribit.* He is of the opinion that no other purgative medicament is to be ministred, and that procuring evacuation by clysters or suppositories will suffice : But you need not to fear



to give medicaments which I have set down.

The ordering  
of things not  
natural.

Having delivered so much as may seem sufficient to clear the doubts which may arise concerning bleeding and purging : now am I to shew you how those things which are called not natural, are to be ordered ; for the observation of this point doth greatly further curation.

Of the aire.

First then as concerning the Aire, it ought to be temperat, and thick, according to Fallop. in Hippoc. de Vulner. cap. c. 25. For a hot and thin aire doth eliquat and melt the humours, and so maketh them more apt for fluxion. A cold aire is hurtful for the brain, the bones, the sinews, and the *spinalis medulla* or marrow of the back-bone. If then the aire prove cold, when you dress the patient, hold in a convenient distance a chafing-dish with coales above the head, to hinder the impression of the cold aire. See Farrey lib. 9. cap. 14. Then apply the medicaments being made only luke warm. If the aire be very hot, then the room is to be cooled by hanging it with sheets and moystening them with cold spring-water, or you may garnish windows with medow sweet, gaule burnt, borrag, violets, prim-roses, cowslips.

An observation

One thing is to be noted, that wounds of the head are sooner and more safely cured in the winter than in the summer : and so concoct the humours the better. Whereas by the contrary, in the summer time the humours are apt to be made thin, fuliginous vapours are raised, and inflammation doth invade.

As for meat and drink, Wine is not to be granted before fourteen dayes be expired ; for within this space all symptomes usually cease.

Wine.

In hot regions where no Beer or Ale is, Barley water is to be prescribed. If the wounded party bee of a queasie stomach, or weak, or aged, sugar may be added, or *oxysaccharum*, or the syrup of Violets, or of red roses simple, or of the juyce of limons or citrons. Small beer and ale will suffice in those countries, where they may be had.

Drink.

Meat.

If there be a fracture, neither flesh nor fish are to be permitted the first seven dayes. First, because the wounded party must keep his bed ; and so being deprived of wonted exercise, cannot so well concoct or digest the food. Secondly, to avoid fluxion of humours to the affected part. Vide Fallop. ib. & Paræus lib. 9. c. 14. Let the wounded party eat Panodoes, ptisans ; use not almonds, because they procure the head-ach by filling the head with vapours ; stewed

ed

ed prunes, resins of the sun, mallows, *asparagus*, spinach, succory endive, are good boyled. Lettice although it be not good for the head, yet it may be granted, because it hindreth the ascending of vapours to the head. After meales it is good to take some of such things as hinder the mounting up of hot humours, by shutting up and strengthening the mouth of the stomach: as the old conserve of red roses, the marmalad of quinces, or quinces preserved, *saccharum violatum*, *borraginatum*, *buglossatum*, pears stewed or baked; coriander and anise seeds, with one covering of sugar, are good to be eaten with quinces and pears. If flesh be permitted, then the flesh of these creatures following is to be eaten, chickens, young pigeons, veal, mutton, kids, leverets, mountain fowls and birds, as partridges, pheasants, turtle-doves, black-birds, thrushes, larkes, and such like. If the wounded party eat of these boyled, then you may boyl with them spinach, lettice, purselaine, forel, borrage, buglosse, endive and succory; but if they will feed upon them roasted, then make sippets unto them of verjuyce, the juyce of oranges, limons, citrons, pomegranats, or forel with sugar. If the party will needs eat fish, then let him have trouts, pickrels, smelts, whiting-maps.

As for sleep let it be taken in the night time, and not by day, unless an inflammation hath possessed the brain or the meninges. The signes of this you shall have delivered in its own proper place; for seeing according to *Hippoc.* 2. *Epidem.* blood ruleth in the spring, and in the morning, in this case it will not be amiss to sleep from three a clock in the morning, til nine a clock in the forenoone: for so the blood shal be stayed, and kept from any extraordinary motion, which other wayes would ascend to the head, and increase the inflammation.

If too much watching be troublesome, which doth corrupt the temperature of the body, procure crudity, and cause heaviness and pain of the head, and make the wounds dry and maligne, then the head, the temples, the ears and nostrils are to be embrocated with such medicaments as cool and moisten, according to *Galen.* 13. *Method.* such are *unguentum papaleum*, *rosarum*, oyle of poppies, henbane, mandrake, oyle of roses beaten together, taking two parts of the oyle, and one of the vinegar. Inwardly you may give the emulsion of the white poppy seeds in barley water, sweeting it with *saccharum violatum*, *buglossatum*, or *borraginatum*: you may give also an ounce and a half of the syrup of the white poppy, in two ounces of lettice water. *lib. 10. cap. 14.* This is to be done foure houres at-



ter meat, to procure sleep; for sleep furthereth concoction, repair-  
eth the losse of the triple substance caused by watching, asswageth  
pain, refresheth the weary, mitigateth anger and grief, and resto-  
reth reason trouble d.

How the lau-  
danum is to be  
ministr'd.

To this end you may minister also a small dose of *Laudanum a-  
nodium*, but this must be done discreetly and warily. First, because  
the *opium* (if the dose be often iterate) may cause a stupidity or le-  
thargy. Secondly, because the spices which are added to correct  
the narcotical simples in the *laudanum*, by eliquating the humours  
may offend the head.

The room.

The room wherein the wounded party lyeth, must be somewhat  
dark; for too bright a light doth dissipat the spirits, increase pain,  
and the symptomes, and strengthneth the fever. Let his lodging  
also be farr from places wherein there are immoderate ringings of  
bells, noyse of carts and coaches, and all sorts of smiths.

Labour and  
quietness.

Rest and quietness is most convenient, for immoderate exercise  
doth move and agitate the spirits, weakeneth the body, and trou-  
bleth the wounded party: Wherefore soft walking will serve the  
turn.

Perturbations  
of the minde.

Perturbations of the minde are altogether to be abandoned, for  
the contraction and dissipation of the spirits cause great alterations  
in the body.

Venery.

Venery above all other things is to be shunned in wounds of the  
head, chiefly if there be a fracture; & that not only while the wounds  
are in curing, but also long after they are cured: for great store of  
spirits are contained in a small quantity of the seed, the greatest  
part wherof floweth from the brain: Hence therefore all faculties  
but chiefly the animal is resolved and weakned. *Parrey* in the place  
before quoted doth affirm, that he hath seen death to have ensued  
in small wounds of the head, even when they have been cured, by  
reason of venery.

Of the excre-  
ments.

As for the excretion of the excrements, the body must still be  
kept soluble, lest, if these should be retained, corrupt and noysome  
vapours should ascend to the head: Wherefore if nature be dull and  
slow, evacuation must be procured by suppositories and clysters. If  
cathartical or purging medicament must be given by the mouth,  
such as I have set down in the beginning of this Lecture, are to be  
ministr'd, whither I remit you.

## LECT. XVII.

Of the rest of the points common to most wounds of the head.

THE second generall point concerning wounds of the head shall be dispatched by setting downe the generall prognosticks of them, which are these that here ensue.

1. *Nulla capitis vulnera quantumvis exigua*: No wounds of the head although they seeme small are to be slighted and neglected; for often times it falleth out, that when a wound is received without a fracture in the head, a man may dye, if fearefull symptoms or accidents appeare: as a convulsion, a palsey of one arme or leg, a fever, raving, vomiting, faltring of the tongue, *Valeriol. lib. 3. observ. 1. Largius tom. 1. ep. 10.*

2. Wounds of the head often become more easie or hard to be cured by reason of the countries or climats.

This doth happen either because the aire is hurtfull by it is elementary quality onely, as when it is cold and moyst, as in *Florence* and *Bononia*, according to *Amat. Lusitan. cent. 6. curat. 100. Quercet. de Vulnerib. sclopet. cap. 3.* and in *Parise*, according to *Parrey lib. 10. cap. 8.* Or this doth happen when the aire doth offend by a maligne quality, as is observed in *Gallia Narbonensis*, and those parts of *Italy*, which lye nere to the *Mediterran sea*, by reason of maligne vapours raised out of the sea, and dispersed through the aire.

Why divers climats alter the curation of such wounds?

3. Wounds of the head received by persons who have the Pox, Leprosie, Dropsie, the cough of the Lungs, a Hectick fever, a Consumption, or ill habit of body, are hardest to be cured; partly because the blood is not fit for unition, being corrupt, as in the pox and leprosie; partly because there is not a sufficient store of it, as in a Hectick, and Extenuation of the body.

4. Wounds of the head in children prove sometimes rebellious; partly because they are of a hot and moist constitution, which is most apt to admit putrefaction; partly because the habit of their body is thin, and so ministreth occasion to the breathing out of the spirits.

5. In deadly wounds of the head, the parties live longer in the Winter, than in the Summer: for in it unnaturall heat is not so easilly raised as in the Summer.

6. 6. If in wounds of the head a swelling suddenly doth vanish away, it is an ill signe, unlesse some evacuation hath gone before, or discussive medicaments have bin applied.
7. 7. A fever which invadeth while suppuration is procured, that is, before the seventh day, is lesse dangerous than that which invadeth after the seventh day: for about that time all accidents use to cease.
8. 8. If a fever in these wounds doe appeare the eleven or fourteenth day, with a cold and grooving, it is dangerous, because it is to be feared lest some putrifaction hath possessed the braine, the meninges, or the skull, which a pale or yellowish colour of the wound, or like to water, wherein raw-flesh hath bene washed, will discover.
9. 9. Wounds contused are more slowly cured, than those which are incised, because they require greater suppuration.
10. 10. Symptomes doe sooner appeare in the Summer, than in the Winter; for in the Summer we looke for them the seventh or fourteenth day; and the reason is, because in the Summer the humors admit sooner putrifaction, the unnaturall heat being more readily stirred up: *Vide Hippocrat. 1. Aphor. 15.*
11. 11. It is an ill signe if the flesh of the brimmes looke livid, for that is a signe of the decay of naturall heat: See *Hippoc. sect. 7. aphor. 2.*
12. If in wounds of the head reason faile, if speech cease, if sight be lost, if the party labour to tumble out of the bed, when he is not able to move the parts of the body, if he have a continuall fever, if his tongue be blacke and dry, if the brimmes of the wound be blackish or drye, if he have an apoplexie, palsey, with an involuntary excretion of his excrements, or an absolute suppression of excrements and urine, a phrensie, or convulsion, then you may pronounce death to attend at the doore.
13. 13. Wounds of the fore-part of the head are more dangerous, than those of the hinder part. First, because greater store of brain is contained in the part. Secondly, because the containing parts are thinner there. Thirdly, because the meninges have sinuosities or cels in the fore-part, but not in the backe-part: wherefore this inequality cannot but endanger the membranes which cover the braine to be offended, if the wound passe thorow the skull, or if the trepan be to be applied. Fourthly, because if wounds of these parts

parts be deadly, he who hath a deadly wound in the fore-part of the head, dieth sooner than he who hath a deadly wound in the hinder-part. Fifthly, because more noxious matter may be gathered in the fore-part, which may offend the braine, than in the hinder part, by reason of the multiplicity of the cells. Sixthly, because the fore-part hath more sutures than the hinder part. See Fallop. in Hippocrat. de vulner. capitis, cap. 7. & 8.

14. Wounds of the temples are very dangerous. First, because the motion of the joynt of the lower iaw, while we speake, eat or drinke, doth hinder union. Secondly, because the passage of hearing is in the temples: now the instruments of the senses are very sensible. Thirdly, because vessels of moment, as the branches of the jugular veines, and saporall arts are distributed there. Fourthly, because the temporall muscle is placed in the temple, whose offence is not to be neglected. See Fallop. in Hippoc. de cap. vulnerib. c. 9.

15. A wound in a suture is dangerous: First, because the skull is there parted, and so more apt to opening than one solid bone. Secondly, because in the suture there is a ligament, by the which the meninges are tyed to the *pericranium*: wherefore a wound being inflicted there, an inflammation may easily be communicated to the meninges. Vide Fallop. in Hippoc. de cap. vulner. c. 12.

16. Blacknesse in the parts neere to the wound, a convulsion, palsey, losse of appetite, much watching, and the coldnesse of the extremities of the body, portend an evill event.

17. In these wounds, if the brims tumisie not a little, it is an ill signe, according to Hippoc. 5. aphor. 66. If the tumifaction be soft, it sheweth concoction; but if it be hard, crudity, *secundum eundem* 5. aphor. 67.

18. Flesh is easily regenerate in all wounds of the head if you except those wherein there is a fracture of the skull a little above the eye-browes: Three reasons may be yeelded for this: First, because in those places there is a cavity between the two tables of the skull, which passeth to the five like bones of the nose, full of aire, by the which the generation of flesh is hindered, for if you cause him, who hath a wound with a fracture, there to breathe strongly, his mouth and nostrils being shut, the breath which commeth out at the wound will blow forth a reasonable candle held to it. Secondly, because the thicknesse of the bone will not suffer so much bloody juyce to breath out, as is sufficient for the generation of flesh.

Thirdly,

Thirdly, because there is a great affluxion of excrements to the part, which otherwise would be discharged by the eyes and nose, which hinder the deliccation of the wound, and so cicatrization. *Vid. Par. lib. 10. cap. 12.*

19. In wounds of the head you may hope well, if the patient hath no fever, if hee be in his right minde, if he finde himselfe well when he taketh any thing, if he sleepe well, and have his body soluble, if the wound looke with a fresh and lively colour, if it yieldeth laudable quittour, and if in fractures the *dura mater* hath its motion free, and be not discoloured.

20. In wounds of the head with a fracture, we must not thinke that danger is past before that an hundred dayes be expired.

21. The *callus*, whereby the parts of the skull are united, although it be sooner induced in young, than in old persons, yet most commonly it is procured in the space of forty or fifty dayes.

To picke for  
asswaging  
Pain and hin-  
dering inflan-  
mation.

The third common point to be observed in wounds of the head, I affirmed to be the appointing of Topicks fit for the asswaging of paine, and the removing and hindering of an inflammation. Sundry Authors have set downe sundry descriptions of such medicaments, which if one should gather together and set downe, a reasonable booke might be compiled.

Topicks which  
asswage Pain.

To avoid tediousnesse, and not to leave you altogether unfurnished without the description of any such effectuall medicament, I will set downe the receipts of such medicaments which will answer your expectation, and ease the patient.

The first shall be this: *Rx farin. bord. ℥iiij. poscæ ℥vj. cog. ad cataplasmatís consistentiam: tunc addantur ol. ros. ℥ij. fiat at cataplasma s. a. Si desit poscæ, substituenda in illius locum aceti & vinum rubeum, sumantur partes duæ vini & una aceti: Acetum rosaceum aut sambucinum prestantius est vulgari.* This medicament of Hippocrates, Fallopius extollet above all other, in *lectionib. in Hippoc. de capitis vulnerib. c. 39.* Let this medicament be used untill the seventh or fourteenth day, as you shall perceive cause; Then apply other medicaments, whereof I will speake, when I come to discourse of the curation of particular wounds of the head.

2. The second shall be this: *Rx farin. bord. & fabar. an. ℥ij. aceti ros. ℥vj. cog. ista ad cataplasmatís consistentiam: tum addantur ol. ros. ℥ij.* This cataplasme doth coole, repell, drie, asswage paine, mitigate the inflammation, and hindreth the affluxion of blood or hot humors.

The third shall be this: *Rx medulla panis albi ℥iij lactis recentis ℥vj. coq. ista ad cataplasmatis consistentiam, tandem adde unguenti popul. ℥ij. croci pul<sup>i</sup> ℥ij.* This cataplasme is effectually, if the inflammation and paine be great, if the party be of a dry and hot complexion, or be any way feverish. These cataplasmes are to be applyed above the medicaments wherewith the wound is drest, the hairy scalpe having been shaven for a reasonable compasse about the sore or wound.

The last generall point concerning all wounds of the head, set downe by me, was of drelling up of the head after the application of the medicaments. In the drelling two things are to be observed; the covering of the head, and the rowling: As for the covering, a cap must be made of a soft linnen-cloth, batted with fine Chirurgeons tow, but not quilted; and it must be of that bignesse, that it may compasse the whole head: it must not be too thicke, too heavy, or too hard; because the head requireth light, soft, and easie applications; yea, Topickees which are applyed to wounds of the head must not be stubborne, as firme emplasters, nor too viscos, because the first will cause paine, and the second will not easily be taken off.

Of drelling of the head.

As for the rowling, it differeth from the rowling of other parts because the head is somewhat sphericall or round.

Of the Rowlers, these doubts may be proposed: First, of what they ought to be made. Secondly, of what breadth & length they ought to be. Thirdly, of what figure they ought to be: And lastly, what mediocrity of constriction is to be used in the application of them.

Doubts concerning the rowlers.

As for the first, to wit, the matter whereof the rowlers are to be made; it ought to be of flax, and not of wooll, because it would be too hot, and cause itching, which inconveniencies would trouble the patient. The linnen cloth whereof the rowlers are to be made, must not be too new, for then it would be somewhat too rough; nor too old, for then it would be subject to tearing: neither ought it to be too thicke, for then it would be heavy and boisterous, nor too thin, for then it would be too weak.

1.

As for the second doubt, the rowlers ought to be three inches in breadth, and of a fadome and an halfe in length, or of such a length as is sufficient to compasse the whole scalp after manifold circumvolutions and rowlings; for the rowler must keepe on the locall medicaments, and make some constriction of the head.

2.

3. As for the figure of the rowlers, they must have two ends, that when they meet, they may by naturall linking be strengthened, and kept from slipping.

4. As for the meane of constriction to be used in applying the rowlers (which was the last doubt :) The rowler ought not to be too loose; for then it could neither keepe to the medicaments, nor any way binde the head: Neither ought it to be too strait, for then these inconveniences might follow: First, the pulsation of the arteries would be intercepted. Secondly, fuliginous exhalations could not breath thorow the sutures. Thirdly, the blood would be driven from the wounded part to the menings and the braine, from the outward to the inward parts: from whence would ensue paine, inflammation, a fever, apostemation, a convulsion, palsey, apoplexie, and last of all death. Neither wonder at this; for *Galen. lib. de fasciis*, relateth that one by too strait deligation of the head, lost both his eyes; howsoever, great skill and circumspection is required to dresse the wounds of the head artificially.

The inconveniences which follow after strait rowling.

## LECT. XVIII.

*Of the wounds of the parts placed above the skull.*

**H**AVING set down those points which concern all wounds of the head in general, I must now according to my intention descend to the handling of every particular wound of the same.

The divers kindes of woundes of the head.

Wounds of the head they either offend the parts containing, or the parts contained also. The parts containing are either common or proper. The common parts are these, the *cuticula*, the *cutis*, and the *panniculus carnosus*. The proper containing parts are these; The *muscles*, the *pericranium*, and the *cranium*. The parts above the *cranium* are subject to these offences, a contusion, a wound, and a contusion with a wound.

Of a contusion.

A contusion is caused by a heaive and obtuse, or a blunt instrument, as a cudgel, or by a fall from an high place, the head alighting upon some blunt body: It is discovered by the tumour without a wound, and often a blackness or blueness: If the blood, by the violence of the contusion, be powred out between the skin and the subjacent parts, it is called *Eccymosis*.

If a contusion without effusion of blood be presented unto you, The curacion  
shave the haire, and apply this Medicament : *Rx albumen ovi unius,* of a contusion.  
*ol. myrt. & pulv. myrtin. an. ʒʒ. misc.* This medicament is to be  
used until the part com: to its own temperature and confirmation.  
Dress the partle twice a day : See *Arceas, lib. 1. cap. 1.*

So you see that repellinꝝ and astringive medicaments are in this  
case first to be applyed : For first, by these means veines and arte-  
ries are straitned and closed up. Secondly, the defluxion is hindred.  
Thirdly, the part it self is strengthened. You may use also this  
medicament of *Ambrose parrey, lib. 12. cap. 4. Rx album. ovar. nuro*  
*iiij, ol. myrtin. & ros. an. ʒi. bol. Armen. ʒʒ. sanguin. dracon. ʒii ʒ nuc.*  
*cupres. gall. alum. usti. an. ʒii, aceti rosac. 9. satis ut paratur linimen-*  
*tum.* If after the pain is gone, and the flux of humours ceased,  
a tumour remain, use discussive meanes, such is this : *Rx emplast. de*  
*mucilag. ʒij. oxycroc. & melilot. an. ʒj. ol. chamemel. & anethin. an. ʒii.*  
*fiat ex his ceratum. s. a.*

If by the application of these medicaments the tumour vanish  
not away, because the effusion of blood under the *cutis musculoſa*  
hath caused a separation of the upper parts from the *cranium*, which  
you shall discern by the fluctuation of the tumor, and a fix paine  
in the part : first incision is to be made ; Then if the scull be found,  
you shall finish the cure by moderate compression, and the appli-  
cation of medicaments which dry and mundifie; for moist medi-  
caments are not to bee applied to bones, because they cause cario-  
sity : use then such a medicament as this is ; *Rx Syrup. e ros. rub. sic-*  
*cat. & de absinthio an. ʒj. terebinthin. ʒi ʒ. irid. aloes, myrrh. mastich.*  
*& farina bord. an. ʒʒ. Misc. ex. pres. art.* If the skull be not found,  
which you shall perceive partly by the sight, for it will appeare  
yellowish, livid or blacke, partly by the probe, or finger, for you  
shall finde it rugged and uneven, whereas it should be smooth and  
slippery : First, you are to smooth it with the raspatory : then to  
procure a thin scale apply this excellent powder following. *Rx rad.*  
*irid. gentian. aristol. rot. dictamni farina bord. an. ʒʒ, aloes hep. sang.*  
*drac. myrrh. mastich. sarcocoll. ar. ʒij. fiat ex omnib. pulv. s. a.*

In great contusions sometimes Gangrenes ensue, by reason of  
the extinction of the naturall heat, which you shall conjecture if  
the part grow hard, and become to be of a livid or black colour ;  
then thus you must goe to work : First, the part is to be scarified.  
Secondly, cupping-glasses, or hornes, are to be applied. Thirdly,  
such fomentations and topicks are to be applied, as are prescribed



for a Gangrene, whereof I mean to discourse in a particularity, when I have made an end of Fractures and Luxations; for it is a symptome, which most commonly accompanieth solutions of unity of all sorts. It shall suffice to have spoken so much concerning a contusion of the parts placed above the skull, now it followeth that we discourse of wounds of the same parts.

Of wounds of the parts placed above the skull.

Wounds then in the parts above the skull, are two sorts: for in some of them the skull is not laid bare, and in some of them it is bared. You shall know that the skull is not bared, partly by the finger, if the wound be large enough; partly by the probe, if no hard substance can be felt, and if the probe slip and slide, meeting with the *pericranium*. As for such wounds, the observations which I set down in the point concerning the general curacion of wounds, will suffice for the curing of these.

Wounds of the temporall muscle.

Neverthelesse, the wounds in the temporall muscle, require a special consideration, by reason of the fearefull symptomes, which ensue sometimes after it is wound. The temporall muscle then may be wounded three manner of wayes: First, by a puncture: Secondly, by being divided transversely: And thirdly, by being wounded according to the length.

Of a puncture, and a transverse wound of the temporall muscle.

If the puncture be deep, or the transverse wound in like manner, it is a dangerous wound, and so to be accounted by the Chirurgeon at the first, lest his security bring unto him discredit, and fruitlesse repentance at the last: for such wounds bring vomiting, a convulsion, and deep slumbering, according to *Fallop. in Hippoc. de cap. vulnerib. c. 9.* The temporall muscle being cut athwart, it loses its proper action, which is to move, and lift up the lower jaw; and then the opposite temporall muscle, being sound and whole, using its strength, the wounded muscle not being able to use any resistance, it draweth the lower jaw to it; whereby the mouth, and all parts of the face, are drawn awry, and suffer a convulsion towards the sound part, the other being resolved and falling; for as often as the muscles of one kinde are equall in number, bignesse, & strength on each side, the resolution of the one part causeth the convulsion of the other. Besides this, when we eat or speak, this muscle is in perpetuall motion: whereby it commeth to passe, that being once cut, it hardly will admit union. and the scaly future; *sutura squamosa*, which is the joyning of the *ossa petrosa*, or stony bones, so called\* from their hardnesse. If therefore there be a puncture in this muscle, let not the Chirurgeon be too hasty to dilate it by incision,

\* Maketh the wound dangerous.

for

for the reason above specified; but let the haire be shaved, and the wound dressed with the oyle of *Hypericum*, and the oyle of Earth-wormes mingled together, with some spirit of wine, all being made warm. Take two parts of the oyle of *Hypericum*, and one of *Oleum lumbricorum*. If the temporall muscle be transversly cut, then the brimmes are to be brought together, by using sitchings in the skin. Afterward dresse either with the medicament prescribed in a puncture, or with *Arceus* liniment melted: Above these wounds apply *Paracelsus* his sitchick emplaster, or *diachylon magnum*, brought to the consistence of a cerat, by dissolving of either of both in some good and approved artificiall vulnerary balsame. Although the wounded party be like to die, yet according to *Celsus* his counsell, the miserable patient is not to be altogether left comfortlesse: for it is better to try a doubtfull medicament, then none at all: you may avoid scandall to the profession, and free your selves from discredit, by acquainting his friends, or whom it most concerneth, with the danger wherein he lieth.

If the temporall muscle be wounded according to the length, then when you are called, you are to perform two offices: First, if the hemorrhage be of moment, then you are to stay the bleeding, and then you are to unite the brims by ordinary sitching. If the bleeding will not be stayed by the application of ordinary meanes, (whereof I have set down some choyce in a proper place) then you are to passe a needle through the musculous flesh into the wound, and from thence to the outward part of the wound, compassing the great vessels with the double threed in the needle: Between the threed and the vessels you are to put a little dossill of lint, to shun the cutting asunder of the parts compassed with the threed, and to avoid pain. This being done, cast a decent knot upon the threed. Before you sow the wound, first cleanse the wound from the grumous or clotted blood, and all extraneous bodies, and then sow it, lest the part wounded be cooled by the aire, and a convulsion doe ensue: when you have dressed the party, let his head be raised somewhat high with a pillow.

It followeth now that I speak of the wounds of the parts above the skull, wherein the skull is detected, or laid bare. In these wounds the skull is either not hurt, or hurt. If the skull be not hurt, the wound may be cured two manner of wayes, wayes: to wit, by agglutination, or by incarnation: If you mean to cure the wound by agglutination, thus goe to worke: First, sitch the wound.

Of a wound according to the length.

The manner of curing of wounds of the parts above the skull, wherein the skull is laid bare.

wound.

wound according to Art: then apply pledgets moistned in the white of an egge. The next day anoint the brimmes of the wound with *Arceus* his liniment, or some good Balsam: warmed in a spoon, use neither teents nor pledgets, for these hinder consolidation. If the wound yeeld much quittour, dresse it twice a day, untill the quittour abate; continue this manner of dressing untill the wound be agglutinate, which will fall out sometimes the fourth, sometimes the sixth day. See *Arceus*, lib. 1. cap. 1. If you intend to cure such a wound by incarnation, or filling of the solution of unity by ingendring new flesh: First, besprinkle the bone with the Cephalick powder set down by me before, page 107. Secondly, apply dry pledgets: Thirdly, fill up the wound with some sarcoticall unguent, as *Aureum Basilicum*, or *Arceus* his liniment. It is farre better to cure such wounds by agglutination, than by incarnation; for the scarre will be lesse, and the cure will be finished in a shorter time.

What is to be done if the skull be hurt.

If the skull be hurt, it falleth out three manner of wayes: First, if it be made extraordinarily dry by reason of the aire, which will fall out, if the skull lye bare two houres. Secondly, if the upper portion of the *cranium* be divided from the lower, and cleave to the *cutis musculoſa*: Thirdly, if both the Tables of the skull be cut, and cleave to the *cutis musculoſa*, not separate altogether from the parts adjacent. If the skull hath become dry superficially onely, which you shall perceive if it bleed not, being scraped with a raspatory; this upper superficies is to be removed with the raspatory, that blood may come from the sound bone: then the wound is to be stitched, and the curation to be performed by agglutination. If only a portion of the *cranium*, separate from the rest, sticke to the *cutis musculoſa*, it is to be taken away, and the wound to be cured either by agglutination, or concarnation, as you shall see cause. If a portion of the whole *cranium* be divided from the rest, so that the *Dura mater* doth offer it selfe to the view, and sticke to the *cutis musculoſa*, that portion is not to be separated from the *cutis musculoſa*, lest the brain be deprived of its cover: but to be reduced into its place, and there kept, by bringing together the brims of the *cutis musculoſa* with so many deep and strong stiches as shall suffice.

A History.

I cured a Warrenner of Master *Hollends* of the Verdry, thirty two yeeres agoe, of such a wound, by these meanes within a few dayes. Bones of the head will suffer union being separate, as well as bones of other parts of the body.

At

At the last I am come to the third kind of wounds, which happen to parts placed above the *cranium*, which is a wound with a contusion. Of this sort of wounds there be two kinds; For either they are ordinary, or extraordinary. These I call ordinary, which are not accompanied with strange symptomes: Such wounds thus you shall dresse. First, you shall wash and foment the wound with the spirit of Wine, having drawne into it selfe the tincture of myrrhe, and frankincense: Then if the wound bee great, stitch it with needles: If it be not great, a dry stick will serve. Dresse the wound either with *Arceas* his liniment, or some good artificiall vulnerary balsam warmed. If the wound be deep, a tent must be kept in the depending part untill it yeild laudable quittour, and then it is to be taken out: Then an emplaster is to be applyed: *Emplastrum de gratia dei* will serve the turne.

Of the curing  
of a wound  
with a contu-  
sion in parts a-  
bove the feult.

An extraordinary wound is such a one as is accompanied with strange, and unaccustomed symptomes: such are a fever, an inflammation of the whole head, neck, and shoulders; as also the brest: the brims of the wound swell much, and are of a livid colour. The wound casteth forth a virulent, sharp, black, and stinking sanies. The party feeleth a great and pricking paine: Such accidents commonly ensue after the bitings of men or beasts, which inpresse a malignity into the wound.

In such a case two things are to be done: First of all the malignity is to be drawne out. This is performed by scarifying deeply the brims of the wound, and then applying either leeches or cupping glasses. Then the wound is to bee washed and fomented with this medicament: *Rx Theriac. Androm. ℥ij. Mithridat. ℥j. aq. card. benediēt. ℥ij. aq. vit. ℥j. misc. ex art.* let medicaments be applyed hot. With all the medicaments wherewith you dresse such wounds, mingle still some triacle and mithridate, untill all the afore specified symptomes cease, and the wound yeild a laudable quittour: Then finish the cure with ordinary medicaments.

The intentions  
curative of a  
contused  
wound with a  
malignity.

Secondly, in such wounds you are to strengthen the principall parts, (that they may be the more able to repell all maligne vapours) with cordiall medicaments. Take this as a paterne: *Rx Theriac. androm. ℥ij. Mithridat. ℥j. conserv. ros. rub. & bugloss. an. ℥ss. aq. exalidis minoris ℥ij. Misc. ut fiat potio.* In ministring the internall medicaments you must have a care of the age and strength of the patient. You must not forget to apply to the region of the heart.

heart cordiall epithemes. Let this be an example : R aq. ros. rub. & nenusaris an. ℥iv. acet. scyllit. ℥j. coral. rub. sant. alb. & rub. ros. rub. pulverizat. an. ℥i β. flor. cordial. pul. <sup>orum</sup> pug. ij. croci ℥j. Mithridat. & Theriac. an. ℥j. misc. Apply double cloaths wet in this medicament to the region of the heart.

## LECT. XIX.

*Of the generall points to be observed in wounds of the Scull.*

**I**N my last Lecture I delivered unto you the method of curing such wounds as may happen in those parts which are placed and lye above the Scull; now I am to shew how solutions of unity in the *cranium* or the Scull it selfe are to be handled. A solution of unity in the scull is by all practicers called a fracture by a peculiar denomination.

The points to be handled in a fracture. In this businesse according to my accustomed manner of proceeding, I will first set downe the things which are common either to all or most fractures, and then those things which are to be performed in every fracture in speciall. The things common are two, to wit, the signes of a fracture, and the presages.

Of the signes. As for the signes, they are either found out by the sense, or conjectured by reason.

1. From the sense. The sense (if the fracture be not presented to the view at the first) doth find out a fracture by two instruments, to wit, the finger, if the wound be large enough, and a probe. If then you perceive either by your finger or a probe an inequality, depression or ruggednesse in the scull, you may suspect that there is a fracture. Ruggednesse may deceive you if the sutures of the wounded party doe vary from the ordinary, as if the sagitall future doe reach to the *Ossa cribriformia* or five-like bones of the nose. Some idiots imagine the sculls of women in this point to differ from the sculls of men, but their imagination is erroneous: for this event is rare in either of both. That the future may deceive one, *Hippocrat. Sect. 6. de vulnerib. capitis*, acknowledgeth in these words: The future may deceive, being rougher than the rest of the bone. So that it is not manifest whether there is in that place a future, or the point of the weapon, unlesse this be left somewhat large.

2. From reason. As for the signes which are found out by reason, or ratioll  
con-

conjecture, they are taken from foure things: to wit, First, from the efficient causes. Secondly, from the manner of wounding. Thirdly from the wounded person. And last of all from the symptoms.

To the efficient cause are referred, first the party who hath inflicted the wound. So that if he be strong, and in his fury did inflict the wound, it is likely that there is a fracture, if the wound hath reached to the skull. Secondly, the instrument is to be referred to the efficient cause, whose keenness and weight are to be considered. Thirdly, a fall upon a hard body from a high place. Fourthly, a strong dashing of the head against a hard body.

As for the manner of wounding, it is to be considered whether it was done violently, or moderatly: For if the wound was inflicted violently, it is probable that a fracture was procured; but if it was done with deliberation and moderation, there is lesse feare of a fracture. As for the signes taken from the wounded party, you are diligently to consider; First, whether he received the wound being bare headed. Secondly, whether the skull be thin and weake, as it is in children, and so apt to receive a fracture. As for those signes which are taken from the symptoms, they are of two sorts: for they are taken either from the symptoms conjunct, or those which after ensue.

The symptoms conjunct are these: 1. A ringing of the eares after that the wound is received: 2. Falling after the blow: 3. Swooning for a time: 4. Slumbering after the wound is received: 5. A dazling of the eyes: 6. A giddinesse: 7. An issuing of blood from the nose, eares, eyes, or mouth. 8. Vomiting, peruse *Hippoc. lib. de vulner. cap. ac Fallop. in eundem c. 18. Paræum lib. 9. c. 2.*

The signes which are fetched from the after following are these: 1. A constant paine of the wounded part, so that the patient often offereth to touch it with his hand: 2. A vomiting of choler with a fever: 3. A convulsion: 4. A palsie of one of the armes and legs: 5. Raving: 6. A faltring in the speech: 7. Deafnesse: 8. The empairing of the memory: 9. Dulnesse of the understanding: 10. Weake judgement. *Coiter. lib. observ. Anatomici. & Chirurgicar. Fallop. in Hipp. de vuln. cap. 45.* 11. An apoplexy, *Par. lib. 9. ch. 8.*

Those signes which are taken from the crashing which *Hippoc. De Corc. pranot* affirmeth the patient to feele, if he chew paper strongly with both the sides of the gums, and from holding of a pack-thread strongly

between the teeth, if after girking of it the party wounded feele paine in the part: as also those signes which are taken from the moyfture of emplatters, applyed to the wounded part shaved, are all uncertaine. See Fallop. in Hippoc. lib. de vuln. cap. c. 23. But if the hayre be cut afunder, and stick up in the wound, the scull of a necessity must be hurt; for they could not be cut afunder without the resistance of the scull. See Hipp. in his former booke, and Fallop. upon him, cap. 18. & Parrey lib. 9. c. 8.

The prognosticks in fractures.

It is sufficient to have spoken so much of the signes of fractures of the scull, now I will deliver unto you the prognosticks, by the which you shall be instructed to foretell the event which is like to ensue after a fracture procured in the scull.

1. 1. If one hath received a fracture in the scull, pronounce not all danger past before 100. dayes be expired; for many such wounded persons by experience have beene found to have dyed about this time, when as all things might have been thought to be secure. See Parrey lib. 9. c. 13. & Fallop. in Hipp. de vulner. cap. c. 48.
2. 2. Every wound of the head accompanied with a fracture is dangerous, although no fearefull symptome doth at the first for many dayes appeare and discover it selfe: for the strength of the party, the cleanness of the body, an exquisit dyet, and the wholesomenesse, and temperatnesse of the climat, are able to stay for a long time the appearing of ill accidents.
3. 3. If a fever ensue, after a fracture; if the head become very hot, if it hath been subject to distillations, if the party hath often been troubled with an *Erysipelas*, pronounce danger: if the brims of the wounds in the second dressing grow flat and doe not swell, there is yet more danger: But if the scull at the very beginning of the cure appeare blackish, and the patient having a cacochymicall body cannot sleep, death is like to ensue. See Fallop. in Hipp. de vuln. cap. c. 24.
4. 4. When the reason is weake, the memory is impaired, the tongue faltereth, the eyes grow dimme, the eares become deafe, if the party either cannot move himselfe, or falleth still from the head of the bed, when a continuall fever with raving holdeth the patient; if either the tongue grow black, or clefts or pustules appeare upon it; if the wound grow dry, and yeeld no quittour, or becometh of a livid colour; if the excrements be suppressed; if a convulsion, palsey or apoplexie doe ensue; if the wounded party often faint and have a weake pulse; (if I say) all these symptomes, or most of them

them doe appeare, you may boldly prognosticate that death will ensue. These symptoms if they shew themselves even quickly after that the wound is received, they shew that the substance of the braine it selfe is hurt: But if they appeare about the fourteenth day or after, they proceed from the inflammation of the braine, and a phlegmone of the same, by reason of the pourcing of putrified blood upon it. See *Parrey lib. 9. c. 12.*

5. If one who hath received a fracture of the skull be altogether voyd of a fever, if he digest his meat well, if he sleepe well, if the excrements be discharged, no wayes offending in colour, quantity, time, other qualities, and the manner of discharging: If the wound appeare of a fresh and lively colour, if it yeeld laudable quittour, if the lips of it swell a little, and be somewhat soft, if the motion of the *dura mater* be regular, you may hope well of the recovery of the patient, *Parrey lib. 9. c. 13.*

6. If the skull be fractured, the parts above must suffer a solution of continuity, onely this exception is to be admitted, if that kind of fracture fall out which is called *resonitus* or *contraffura*, a counterleft, which seldome happeneth, whereof I will speake when I shall deliver the manner of curing particular fractures. *Vide eund. lib. 9. c. 10.*

7. If much quittour appeare upon the *cranium* fractured, if pustules appeare upon the tongue, by reason of a sharp *sanies* falling upon it, having been sent downe from the braine through the holes of the pallat of the mouth, there is small hope of recovery, especially if these accidents continue, and cease not. *id ibid.* for these doe shew that the braine it selfe is ill affected.

8. If the flesh about the skull fractured doe appeare of a leady colour, it is an ill signe, according to *Hippoc. 7. aph. 2.* for it is an argument that the naturall heat of the part is extinguished, by reason of a maligne humour, which hath caused a putrefaction of it, or that it is quenched by a vehement inflammation or phlegmony: If it hath not fallen out by reason of the greatnesse of the contusion, if it become of a leady colour by reason of the contusion, it is not so dangerous, for it may be removed by suppurative medicaments.

9. If in like manner the flesh about the skull fractured be of a black colour, become dry, and afford not quittour according to the amplitude or largenesse of the wound, it promisseth no good: for it is a signe of the mortification of the part.



10.

10. The nowle bone, and the *Os petrosum*, or stony, or hard bone, behind the eares, are lesse subject to injuries, and so if they bee wounded or fractured, the danger is the lesse: First, because the nowle bone doth onely containe the *cerebellum*, which is not so noble as the braine. Secondly, because lesse store of braine is contained in those places, than in other parts of the scull. Thirdly, because the bones in these parts are thicker. Fourthly, because they are more firmly covered, for the skin in them is thicker, the flesh more plentifull, the chords more in number, and the ligaments strong to strengthen the bones.

11.

11. The callous flesh by the which the portions of the scull separate, are joyned together and united, doth require the space of 40. or 50. dayes for the strengthning and hardning of it. Yea the age and temperament of the wounded party have great force in hastening and staying the confirmation of the same. See *Parr. lib. 9. c. 13.*

12.

12. Why some escape of grievous wounds, and some dye of light wounds, it falleth out by reason of the differences of parts wounded; for some are more sensible than others. Secondly, by reason of the diversities of bodies: for some are strong, some weak. Thirdly, by reason of the diversities of the symptomes: for in some wounds, the symptomes are more mild, in some more fierce and fearefull. See examples in *Hippocrates lib. 7. Epidem. peruse Bernhardus Suevus*, in his *Treatise de Vulneribus cap. 2.* Where you may read sundry examples of those who died of very small hurts, and of sundry who escaped of grievous wounds.

13.

13. The progression or order of the symptomes afore mentioned is this: First, paine is caused by reason of the solution of unity. After paine follow watching, losse of appetite, weaknesse: Paine causeth affluxion of humours: affluxion of humours causeth inflammation: Inflammation procureth a fever, sometimes a convulsion, sometimes a gangrene, and last of all a mortification, if prevention bee not used.

14.

14. Wounds with a fracture of the *synciput*, or bone of the forehead are more dangerous than those of the *occiput*, or nowle bone. Six reasons may be yeelded for the confirmation of this presage. First, because the bones of the fore-head are thinner than those of the *occiput*, and weaker, and so may be more easily contused or fractured. Secondly, because most braine is there contained. Thirdly, because in the bone of the forehead there are sundry vaultings,

vaultings, so that the braine may easily be wounded, if it passe through both the tables of the scull. Fourthly, because the skin in this part is thinner than in other parts of the hairy scalp: so that the bones and the meninges may the more easily be hurt. Fifthly, because there are many and large veines in the forehead, so that the greater hemorrhage may there be procured. Sixthly, because in the forepart of the head there are two sutures, *Coronalis*, and *Sagittalis*: So that the scull may there easily be fractured, and the *dura mater* hurt, which sendeth filaments through the sutures to make the *pericranium*.

15. Next to these the parietall or *Ossa temporum* are most dangerous. First, because these bones are thin and weake. Secondly, because there are remarkable veines, arteries, and nerves. Thirdly, because the *pericranium* doth clip the temporall muscle, and the muscle it selfe hath in the middle a tendon of exquisit sense. So that the wounds in the sides of the head may by consent offend the meninges, braine, and sinewes springing from thence.

16. Wounds without or with a fracture in the sutures, are most dangerous. First, because the bones are not solid there, but divided, and so least able to resist injuries. Secondly, because quit-tour bred there may easily fall upon the meninges. Thirdly, because in the sutures the *dura mater* may promptly be offended, which sendeth filaments through them, for the framing of the *pericranium*.

You see that I have taken some paines in setting downe the predictions in fractures of the scull, to make you circumspect in your proceedings, that you may escape fines: Of what moment certaine predictions are, I will acquaint you with *Hippocrates* his words, *lib. 2. prorrhetic*, I advise you that you cary your selves wisely in every point of the art, and in presaging part also, and that you call to mind, that if the event fall out according to the prediction, you shall bee had in admiration with the patient; but if you doe erre, you shall be both despised, and accounted fooles. Wherefore I command that you use discretion in these predictions.

## LECT. XX.

Of the Section of the bayrie Scalp, and opening of the Skull.

**H**AVING discoursed of the two generall points to be observed in wounds accompanied with a fracture of the Skull, which were the signes and prognosticks; hereafter I am to shew how every sort of such wounds in particular is to be handled according to Art. Now the primary difference of fractures of the skull, is taken from the subjects, which are the wounded parties. These are either children which have not passed the seventh year of their age, or those of mature and ripe age.

Fractures in children.  
How a fracture without a wound is to be cured.

Fractures then of the *Cranium* in children, are either without a wound, or they are accompanied with a wound. If they be both without a wound, and a fearfull symptome, thus you shall goe about to cure them. If then the *Cranium* be depressed, and blood expressed out of the veines, doth wave up and down under the skin when it is compressed, (which sometime falleth out in hard labour when the Midwife doth deale roughly with the woman that is to be delivered) first of all the haire is to be shaven off: then a triple or fourfold soft linnen cloth, well moistned in the oyle of Roses, mingled with the whites of egges beaten, and a little vinegar is to be applied to the part: which must not be removed before 24. hours be expired. In the Summer time apply this medicament cold, but in the Winter time warme; for by this mean the afflux of humours will be stayed, and a part of those which have flowed already to the part discussed. After this untill the eleventh day, this Cataplasme is to be applied warme: *R. ros. rub. baccharum myrti an. ℥ij. farin. bord. & fabar. an. ℥j. absynthii & beton. an. ℥ss. semen. cumin. ℥ij. pulv. zandis pu. vis coq. omnia in vini rub. astringentis ℥xij. ad Cataplesmatis consistentiam, tandem uddantur ol. ros. acchamæmelin. an. ℥j. mellis ℥ij. ut poratur cataplasma ex A. P.* It must be applied warm, and fresh, morning and evening. It must be applied large enough, that it may cover somewhat of the parts adjacent. In the application let this moderation be used: Apply not too little of it, lest it grow too dry; nor too much, lest it offend the affected part with the weight. From the eleventh to the twentieth day, apply *diapalma* softened with

with some oyle of Lilies, taking  $\text{iii} \frac{1}{2}$ . of the emplaster, and one of the oyle. From the twentieth day untill the curation bee performed, apply the stickt emplaster relented in the oyle of camomill, taking the afore specified quantity of the emplaster and oyle.

*Cesar Armitius in lib. Hippoc. de vulner. cap. & Arceas lib. 1. cap. 5.* do advise us to dresse childrens heads in this case, after this manner: for the first dressing they wil have this medicament to be used, *Rx. farin. bord. & fabar. an.  $\text{z} \frac{1}{2}$ . pulv. baccar. myrti  $\text{z} \frac{1}{2}$ . aceti  $\text{z} \frac{1}{2}$ . coq. at cataplasmat. consistent. non adde albumen ovi unius una cum vitello conquassata. ol. ros. & myrtin. an  $\text{z} \frac{1}{2}$ . misc.* Afterward they will have to be applied a cerot made of wax, honey, *lapis hematites*, cumin seeds, wormwood, the pumick stone and bran beat to powder. But in stead of this you may use *Diachylon magnum* relented in the oyle of Lilies: These medicaments are to be applied as the former.

If there be a wound with a fracture, but no tearfull symptome, *Arceas* will have no shiver, or part of the *cranium* to be taken, if the portions of it cleave together; but onely the fracture to be anointed with his liniment warmed, and applied by three or foure feathers stripped untill you come within an inch of the poynts of them, and tied together with a threed. If fearfull symptomes, as a convulsion, a fever, vomiting of choler, or a palsey, &c. do appear, which shew an offence to be communicate to the brain by the *cranium*, then it is requisite that the skull be opened. *Vide Lang. ep. 5. tom. 1. & Fallop in Hippoc. de vuln. cap. c. 47.*

How a wound with a fracture in children is to be cured.

The skull being opened, children are no other wayes to be dressed than men are. How they are to be dressed, I will shew hereafter; it shall suffice then to have spoken so much concerning the curation of fractures in the skulls of children.

Now I will declare unto you how these are to be cured in persons of ripe age. In handling of this matter, I will set down two points. The first shall contain those things which are common to every kind of fracture. The second shall deliver those things which are proper to every sort of fracture. Those things which are common are two: The first is the Section of the soft parts placed above the skull. The second is the opening of the skull.

How fractures in persons of ripe age are to be cured.

As for the first, it is an artificial separation of the soft parts above the skull, that we may come to dresse the skull fractured, to prevent the coming of ill accidents, or to remove ill symptomes present. Of this Section these things may be demanded. 1. Whether

Of the section of the soft parts above the skull.

ther

ther it ought to be done. 2. Why it is to be done. 3. In what parts it is to be made. 4. Of what form it ought to be. 5. What is to be done after Section.

Why section is to be made. As for the first, three reasons may induce us to administer it sometimes. 1. The authority of Hippoc. in lib. de vulnerib. c. and of all other rationall Physicians and Chirurgeons. Secondly, necessity it selfe: for if either blood or quittour descend to the meninges, or brain, inevitable death will ensue, if way be not made for the expurgation of them, by making incision in the soft parts, and opening of the skull it self. The third reason is daily experience, which sheweth by the death of sundry, who by reason of the omission of these operations, end their lives, that they are to be administered.

The causes moving.

The causes which admonish us, that section is to be administered, are two. First, that the *cranium* may be discovered, if dangerous symptomes doe appeare, that the Chirurgeon may see whether it be hurt or no. Secondly, that way may be made to remove such things as offend the meninges and brain, as blood or quittour settling upon them, and pressing them down, as also pieces of the instruments wounding, or portions of the skull wounding or pricking these parts.

The places of Section.

As concerning the places wherein section is to be administered safely, receive this proposition: Section may be made in all parts of the hairy scalp, if you except the futures and the temporall muscle.

Why section is not to be made in the futures.

For first, section is not to be made in the futures; because those filaments by which the meninges are tied to the *pericranium*, are of an exquisite sense, and being torn, may be inflamed, and communicate the inflammation to the meninges and brain. See Hippoc. de vulner. cap. & Fallop. upon him, cap. 19.

Why section is not to be administered in the temporall muscle.

Secondly, section is not to be made in the temporall muscle, but chiefly a transverse incision.

First, because a resolution of that side of the head, which is wounded is caused, and a convulsion of the other side. By the which an *gly* distortion of the parts of the face is caused. The cause of this symptome is this, Whensoever one of the two brotherly muscles, appointed for sundry motions of the same part, is transversely wounded, that which is wounded, must suffer a resolution, and that which is not cut a convulsion.

Secondly, we must be wary in incising the temporall muscle transversely; because it is still in motion when wee talke, drink or eat.

Thirdly

Thirdly, because the *Sutura squamosa*, or the scaly future lieth under it; but it wanteth not danger to make incision in the future, as hath been said.

Fourthly, seeing many veines, arteries, and nerves, are spread through it, it being transversely cut, many grievous symptomes must ensue, as a great hemorrhage, pain, an inflammation, a fever, a convulsion of the inanition, the vessels appointed for the containing of the vitall and animall spirits; to wit, the veines, arteries, and sinewes being transversely cut asunder. *Vide Par. lib. 9. c. 19. Fallop. in Hippoc. de vulner. cap. c. 38.* As for the form of section, it is either straight, triangular, or crosse wayes.

One thing here is to be observed, that we make no tranverse incision a little above the eye-lids, lest the frontall muscle being transversely cut asunder, a palsey of the eye-lid doe ensue, the muscle not being able to elevate or lift it up, whereof the incision in these places must be either straight or oblique, not transverse. See *Fallop. in Hippoc. lib. de vulner. cap. c. 23.*

Why transverse incision is not to be made a little above the eye-lids.

Now this remaineth, wherewith you are to be acquainted, that I shew unto you what is to be done after that incision of the soft part is performed.

What is to be done after that incision is made.

First of all; the *pericranium* is to be separated from the *cranium*, either with the nailes or the splater: you are to begin the separation from the points of the incision.

If the *pericranium* be not separate, it will procure great paine, an inflammation, yea, and a fever, if it be torn either with a Raspatory or Trepan. See *Par. lib. 9. cap. 4. Fallop. in Hippoc. de vulner. cap. c. 38.*

Why the *pericranium* is to be separated from the *cranium*.

Secondly, the brims of the incision are to be kept asunder by doffs and pledgets of lint, armed either with a medicament apt to stay bleeding, if it offer to flow plentifully, or onely with the white of an egge beaten, according to *Arceas, lib. 1. cap. 4.* or with both the white and the yolk to assuage pain, according to *Fallop. in Hippoc. de vulner. cap. c. 29.* if there be no feare of any remarkable effusion of blood. The wound so dressed, must not be dealt withall, untill forty and twenty houres be expired.

Having delivered unto you those points which are considerable in making incision, to come to fracture; now I must set downe those things which are to be noted, when the skull is to be opened artificially with fit instruments, that you may come to remove such things as may offend the meninges and the brain. Of this operati-

Of the opening of the skull.

on these things may be asked: First, why it is to be opened: Secondly, when it is to be opened: Thirdly, what quantity of it is to be taken away when it is to be opened: Fourthly, with what instruments it is to be taken away.

Why it is to be opened.

As for the first, the *cranium* is to be opened in five cases: First, that pieces of the weapon may be taken away: Secondly, that a portion of the skull may be removed, which is altogether separate, or offendeth the meninges, if it cleave to the rest: Thirdly, that a part of the skull depressed, which beareth down the meninges, and causeth a stupidity, may be either reduced to its own place, or wholly taken away: Fourthly, that either coagulate blood, or quittour may be removed, which have fallen upon the membranes, by reason of a breach of some vessell. Fifthly, that way may be made to apply convenient medicaments to the fracture. See *Fallop. in Hippoc. vuln. cap. c. 31. and Par. lib. 9. c. 4.*

When it is to be opened.

As concerning the second, it is good to open it before the fourth day. *Fallop. ibid. c. 34. and Arcæus lib. 1. c. 4. and Parr. lib. 9. c. 4.* Yea, it may with good successe be opened after the seventh day, both in Summer and Winter season, if grievous symptomes urge not. If therefore any one of you be called to one who hath a fracture in the *cranium* on the fourth day, (if ill symptomes will permit) you may deferre the opening untill the seventh day bee past; yea, the ninth: for on the fourth day the putrefaction of the humours be-ginneth, as also the insult of nature against the disease, and so it is not good to hinder the motion of nature: But if for reasonable causes you feare lest delay will breed danger, you are presently to open the skull, even on the Criticall day.

What quantity is to be taken away.

As concerning the quantity which is to be taken away, either the whole fractured bone is to be taken away, or onely a part of it. The whole bone is to be taken away: First, if the fracture be in an upper part, as the crown of the head, where no depending vent may be made to discharge the blood or quittour from the meninges. Secondly, in a fissure, or sedes, if it be not wide enough, the whole bone that you see is to be removed, at the least to the second table. Thirdly, all the shivered bones which cleave not together, are to be taken away. Fourthly, so much of the skull is to be taken away, as covering the *duramater* becometh black, that way may be made for the application of convenient medicaments.

When the skull is not to be opened in the depending part

In fractures wherein it will be sufficient to take away onely a portion of the fractured skull, to make way for the discharging either

ther of blood or quittour, or removing of other hurtfull things, let it be done in the depending part; which rule notwithstanding is to be omitted in two cases.

First, if you perceive that the meninges are like to bee inflamed: for then they should more readily swell above the *cranium* in a depending part:

Secondly, if the brain appeare, the membranes being wounded, we must shew opening in the depending part; for according to *Galen, 6. method.* seeing the brain is of a soft and fluid substance, it would easily fall down to the depending part. *Vide Fallop. in Hippoc. de vuln. cap. c. 35.*

The chiefe Instruments with the which wee open the skull, are these: The Raspatories, the Levatories, the Gemlets called *terrebellula*, the Trepan, and the Head-saw. Of the sundry sorts of Raspatories, you may see choice in *Parr. lib. 9. c. 4.*

When you will use the Raspatories, you must observe some things before the application, some things in the application, and some things after the application of them. Before you use them, first, you must place the patient in a good posture. Secondly, his head being first lapped in foulded clothes, is to bee stayed, and kept immoveable. Thirdly, the eares are to be stopped with cotton, or wooll, that the noyse offend not the instruments of hearing. Fourthly, the brims of the wound are to be covered with pieces of linnen cloth; first to keep them from the instruments; secondly, to defend them from the Aire, which otherwise would coole them.

In the using of the Raspatories: First, we must begin with the broadest, and then the lesse broad, and lastly the narrowest. Secondly, they are often to be moistned with the oyle of Roses; first, that they may scrape the more lightly; secondly, that they heat not the *cranium*: If blood trouble the worke, use vinegar and water. After you have used the Raspatories, use these same topicks, which are used after the application of the *Trepan*.

Raspatories are to be used in fissures, or chinkes, and in a sedes, when the print of the weapon is narrow. The second instrument is the Gemlet, or *Terrebellum*: Coopers use the like instrument to raise up the staves of vessels, the poynt of it must be scrued. This hath a twofold use; first, it serveth to take out the bone cut by the *Trepan*, whereas it is not safe to cut the whole bone through, as in the bones of the forehead. Secondly, it serveth for reducing a

1.  
2.  
Of the instruments wherewith the scull is opened.

The use of the Raspatories.

In what cases a Raspatory is to be used.  
The use of *Terrebellum*.



depressed part of the skull into its own place, by first making a small hole in the *cranium* with the pin of the Trepan, and then screwing it in.

**Levatories.** As concerning Levatories, you may see divers formes in *Parrey*, *lib. 9. c. 5. & 6.* When you use them, have a care that you lift up equally every part of the bone, for if any part bee depressed, it may hurt the meninges.

**Of the use of the head-saw.** As for the Head-saw, first it may be used when there is a depression or a fracture on one side of the bone; for one side being by a straight line divided by it, both there will be way made to the taking away of the bone, and the discharging of quittour, or blood, with small losse of substance of the *cranium*. Secondly, it will serve to cut asunder the distance of the *cranium*, left after application of the Trepan in divers part.

**The Trepan.** The last instrument: It remaineth now, then, that I speak of the Trepan: Concerning it, these things may be demanded: First, to what end it is to be applied. Secondly, in what places it is to be applied. Thirdly, what is to be observed in the application of it. Fourthly, what is to be done after the application of it.

**Where the trepan is to be applied.** As for the first, the application of the Trepan hath a three-fold use: First, it serveth for the raising up of a bone depressing the meninges and brain. Secondly, it serveth for removing of all things which doe hurt the membranes and the brain, whether they be quittour, blood, splints of the *cranium*, or pieces of the weapon. Thirdly, it maketh way for the application of fit topicks. As for the places it must not be applied: First, upon the fracture, for this will increase the evill, chiefly if the fractured portions be severed. Secondly, it is not to be applied upon a suture, because the nervous fibres, and the veines and arteries, by the which the *dura mater* is annexed to the *pericranium*, and giveth it nourishment, should be torn: from whence would arise pain, inflammation, and flux of blood; which might be communicate to the membranes, and brain it selfe. Thirdly, neither is it to be applied to the places a little above the eye-browes; for the wound ever afterward would remain unskinned. Fourthly, it is not to be applied to the Temples, first, by reason of the temporall muscle: secondly, by reason of the *Sutura squamosa*. Fifthly, it is not to be applied to the lower parts of the skull, if the meninges be wounded, lest the brain fall out through the hole. Sixthly, it is not to be applied to the synciput of children, which are not above seven yeares old, seing it is dangerous.

gerous even in these who are of ripe age, unlesse great necessity urge.

In the application of the Trepan, these things are to be observed: First, that you take out the pinne, when you are come to the second table. Secondly, it is to be moistned with oyle, that it may cut the better. Thirdly, the print of the Trepan is to be moistned now and then with cold water, lest the skull be heated by the rubbing of the Trepan. Fourthly, seeing it is impossible to cut all the parts equally, the skull being of a sphericall figure, you are to remove the blood, that you may perceive which part is most deeply cut, that you lean more to the other. Fifthly, when the part cut by the Trepan beginneth to shake, it is the safest way to lift it up with the Levatory. Sixthly, if any ragged pieces appeare, which may hurt the meninges, you are to take them away by *Scalper Lenticulatus*, and the mallet of lead. After that the Trepan is applied above the *dura mater*, apply a peece of Tafety or Satin, of a white or crimson colour, moistned in *mel rosatum*, and *oleum rosatum*, until the seventh day; afterward use the oyle of roses, and the oyle of *Hypericum* mixed; let the *cranium* be anointed with *Arceas* liniment melted; fill up the hole with dosils and pledgets, laying above such topicks as heretofore I have set down.

If in the application of the Trepan, any remarkable bleeding ensue, some vessell being cut, which did cleave to the second table, then apply this medicament of *Galen. 6. method. R aloes zij, thuris, mastiches, an. ʒj. ex istis pulverizatis, pilis leporinis, & ov. album, fiat linimentum, quod applicetur.* The skull will scale, according to *Arceas, lib. 1. cap. 4.* within the space of four and twenty or five and twenty dayes, if his liniment be applied to the bone. But according to *Parrey*, not before 40. or 50. dayes; but in truth no certain day can be appointed. *Hieron. Fabric. ab aq. pendent. part. 2. lib. 2. de vulner. cap. 18.* counselleth first to apply the oyle of Roses to turn the matter, which falleth upon the *dura mater* into quittour; for *Galen, lib. 2. xxiij. c. 2.* affirmeth, that we ought to use oyle of Roses, when we mean both to repell and suppurate. It will bee the more suppurative if it be *oleum rosaccum completum*. Hee adviseth to mingle some Rosin with the oyle of Roses; for in Digestives, according to *Galen, lib. 5. Symp. cap. 19.* there ought to bee an Emplasticke faculty, which the oyle of Roses hath not of it selfe, but of the Rosin. In the first dressings, and in the Summer time, more oyle of Roses, and lesse Rosin is to be used; but afterwards

Things to be observed in the application of the Trepan.

Lib 9. cap. 20.

when

when we mean to dry and mundifi; as also in the Winter, more rosin and lesse oyle is to be taken. When the wound is dressed, embrocate the parts adjacent of the head with the oyle of roses warmed, as also the neck, chiefly where the jugular veines are, partly to assuage paine, if any be, partly, to contemperate the heat of the blood.

## LECT. XXI.

Of the curation of Fractures appearing in the wounded part.

Hitherto I have dispatched those points which frequently are common to all sorts of fractures, which doe happen to those who are of ripe age: now it resteth that I shew unto you how all sorts of fractures in such persons are to be cured.

The differences of fractures in persons of ripe age.

Now a fracture in these persons is two-fold: for it is either in the same part which hath suffered solution of unity, or in another part. If it be in the same part, it is either simple, compounded, or complicate.

A simple fracture.

A simple fracture is, when one onely kinde of fracture happeneth: Of this there are three sorts; *Rima*, a chink or cleft, *Contusio*, a contusion of the skull; and *Sedes*, a sitter, when the print of the wounding instrument is left in the skull.

Of a *Rima*, or chink.

*Rima*, or *fissura*, a chink or a cleft, is two-fold; for it is either *conspicua*, easily to be discerned by the sight; or *inconspicua*, either hardly to be discerned by the sight, or not at all; which is called *Capillaris*, a haire-like chink. Now a conspicuous chink passeth through either one or both the tables of the skull. If it passe not deeper than to the spongious part between the two tables, the chink it selfe is so farre to be dilated. If the cleft passe through both the tables, then the chink is either to be dilated through both the tables of the skull, even to the *dura mater*, or through the first table at the least, making way through the second table also, leaving a competent aperition for the discharging of clotted blood, or quittour, for the depending part of the head, through the second table. Now the depending part is not to be taken from the situation of the parts of the body, but from the position or posture of the same.

You

You must deale after this same manner with *rima inconspicua*, or *Capillaris*, or an obscure chink. But it is not an easie matter to find it out. If therefore you cannot discern it either with the eyes, or the helpe of a multiplying glasse, cause the patient to hold in his breath, and to stretch his brest. If this being done, either a thin humor, or a bloody *sanies* doe issue out, it is an excellent signe: if this doth not appeare, then apply to the part most suspicious Inke, made thin with a little vinegar, to make it pierce. The next dressing, dry the skull with a wet ragge or sponge, and if you see any print of the inke to remaine in the skull, follow the buinesse untill you come to the uttermost of the impression of the inke, although you must discover the *dura mater*. Now chinkes must not be dilated by the trepan, but the raspatories, for we ought not to take away more of the skull than necessity urgeth. Peruse *Parr. lib. 9. c. 4.* and *Fallop. com. in lib. Hippoc. de vulnerib. cap. 6. 3.* When the *rima* is dilated, dresse the wound, as you doe after the application of the trepan, whereof I spake sufficiently in my former Lecture.

*Sedes*, or a fitter, is a fracture caused by a sharpe instrument, which leaveth the print of it in the skull: if it passe thorow both tables, and no splints of the bone pricke the meninges, and sufficient way be made by the weapon for the discharging of the quittour, no further apertion is to be made; but the wound is to be dressed, as I prescribed, after the application of the trepan. But if either splints of the bones doe offend the *dura mater*, or the passage be too narrow for the discharging of the quittour, a further apertion of the skull is to be made by such instruments as shall seeme most fit for this operation. If the *sedes* passe not further than the first table, the *cranium* is to be smoothed with the raspatories, lest the quittour settling in the *sedes* cause a deeper cariosity. Then the wound is to be dressed by *Arcaus* his liniment relented in a spoone. It falleth out many times if the constitution of the wounded party bee good, that the *Cranium* doth cast no scale.

The third kind of a simple fracture called *Contusio*, a contusion of the skull, resteth to be spoken of.

A Contusion is a solution of continuity in the *Cranium*, when as by the violence of an externall instrument, the small portions of it are brought neerer together than nature hath placed them, yet have returned to their owne positure after that this compression is caused.

Of *rima inconspicua*, or *capillaris*.

2.  
Of the fracture called *Sedes*.

3.  
Of a contusion.

This

This kind of fracture is espied in the beginning, or in progresse of time. In the beginning it is found out by the alteration of the colour of the scull: The colour of a lively bone is of a whitish colour, mingled with a lively ruddinesse; but if it be mortified, it will be whitish without any rednesse: if it be *carious* or rotten, it will be of livid or blackish colour. If therefore such a kind of fracture happen, the pleasant ruddinesse of the scull will be gone, and white patches will appeare in it, such as are seene in the nailes of some persons fingers. In progresse of time, if it be left untouched, it will become of a livid or blackish colour, being *carious*: In this kind of fracture you are to take so much of the *cranium* as is mortified by the contusion with the raspatories, and then to heale the wound by incarnation. So much then of the three sorts of simple fractures.

Of a compound fracture.

A compound fracture is when some further inconvenience is annexed to the solution of unity in the scull, as the losse of substance, or removing of some part of it from its owne place.

The differences of it.

Of this there are three sorts, *Depressio*, a depression, *Concameratio*, a vaulting and *Excisio*, or an absolute division of some part of the *cranium* from the rest.

A depression.

A Depression is, when as the scull is beaten down; in this kind of fracture, shivers of the scull are quite separat from the hole sometimes; Againe, sometimes they cleave to the hole in one part, and are separate from the other. Those which are altogether separate, you shall remove with levatories: If the fractured part cleave to the hole in one side, and that you cannot elevate it with a levatory, then you are to apply the Trepan as neere to the fractured part as you can, that as little as may be of the *cranium* be taken away: Afterward either reduce the depressed part to its own place, or altogether remove it, as you shall think most expedient. In performing these actions, you are to use great caution, that the meninges be not hurt by the sharpe splints of the bones fractured.

Of *Concameratio*.

*Concameratio* or vaulting is, when as the scull by a sharpe pointed weapon with force being pierced, and with might being pulled out, is pulled upwards, leaving an empty space or vacuity beneath. If this kind of fracture goe no further than through the first table, you are to smooth the scull, and to heale the wound according to the method set downe before. But if it passe through the second table, you must open the scull in the most depending part with the trepan, to make way for the discharging of the quantity:

tour: for *sanies* must of a necessity be lodged in the lower vacuity, or void space, if the weapon it selfe hath not made sufficient way: If any ruggednesse prick the *dura mater*, you are to remove the whole fracture compassing it with a large head of a Trepan, and then to cure the wound as hath been taught.

*Exciso* is, when the part of the scull wounded is altogether separate from the hole; if the fragment cut away, stick to the *Cutis musculoſa*, and the wound goe no deeper than the first table: it is to be separated from the *cutis musculoſa*, and the *cranium* is to be smoothed with a raspatory: But if both the tables of the scull cleave to the *cutis musculoſa*, they are not to be taken away, but to be reduced to their owne place, the wound having first beene cleansed with wine or spirit of wine warmed. Then the *cutis musculoſa* is to be fastened to the rest, with so many stiches of foure twists of silke or threed drawne through with a rowling needle. See an example of this in *Parrey lib. 9. c. 7.* Now time admonisheth me to speak somewhat of a complicat fracture of the scull.

A complicat fracture is, when either sundry fractures of one sort doe concurre, or more of divers kinds. Many fractures of the same sort may happen, as sundry chinkes. So many chinkes as are perceived by the eyes are to be dilated with the raspatories. In like manner sundry fractures of divers kinds may meet, as a chink with a depression. In such complicate fractures you are to proceed no other wayes, than have beene shewed in solitary fractures; for a chink is ever to be dilated if it bee conspicuous, and the part of the scull depressed must either be wholly taken away, if the asperities of the second table prick the *dura mater*, or if they doe not, it is to be reduced to its owne place, if it be not wholly separate from the sound parts of the *cranium*. According to these canons curative you may proceed in all fractures of the scull in what part soever they happen, if you except the sutures, and that part of the scull which lyeth under the temporall muscle.

A suture may suffer a solution of unity three manner of wayes: by Separation, Depression, and Collision. Of a depression I have spoken sufficiently already.

A Dissolution of a suture is, when as those parts of the *cranium* which are united by the suture gape being separate by some external violence; if this separation be large, the nervous fibres, which make the ligament by the which the *dura mater* is tyed to the *pericranium*, must be torne, although this appeare not to the sight:

from whence often ariseth inflammation, and danger of death.

Of a Collision.

A Collision is a contusion of the brims of the suture, and of the ligament which passeth through it, caused of a violent compression of the brims of the suture. In these cases if fearfull accidents, as a fever, vomiting, or a convulsion, &c. doe perswade you that the scull must be opened, then you are to apply the Trepan on either or both sides of the suture: for if you should set it upon the suture, horrible symptomes first would appeare, and at last death ensue.

How a fracture under the temporall muscle is to be handled.

If a fracture under the temporall muscle be accompanied with a wound, this wound is either a puncture or a transverse, or an incision, according to the length: If it be a puncture, or transverse, it must prove dangerous as hath beene shewed. If the wound be inflicted long waies, it is to be dilated by dosils or sponges: If the fracture be a chink, it is to be dilated by the raspatories. But if it bee a great fracture, wherein the asperities doe prick the meninges, or the depression of the scull doth beare downe them by its weight, then a triangular incision is to be made a little above the fractures shunning the temporall muscle, and the Trepan to be applied, then the shivers which are altogether separate from the sound scull, are to be taken away, and the rest which are not separate to be reduced to their own posture.

After this, as often as you dresse the wounded person, you are to cause him to bend downe his head, to stop his mouth, and nose, and to labour to breath strongly, that the *sanies* may be expelled out of the wound. When this is done, you must make injection of a mundifying decoction with a Syringe to wash out all impurities, which otherwise would lodge there. See a memorable example of this in *Parrey lib. 9. cap. 19.* He adviseth to keepe a leaden pipe in the wound, but seeing this by reason of the hardnesse must cause paine, and is not fit for the dilation of the section, a sponge compressed is farre better: for first it is soft: secondly, it sucketh into it selfe the impurities: thirdly, it dilateth powerfully the wound, and keepeth it open untill all the shivers of the *cranium* cast.

## LECT. XXII.

Of Fractures in other than in the place wounded, and those which happen when the *Cutis Musculosa* is not wounded.

**I**N my last Lecture I discoursed of Fractures which may fall out in the parts wounded: now I am to shew how fractures in other parts than those which are wounded are to be handled, when they fall out.

Now Fractures which fall out in the *cranium* in another part than that which is subjacent to the *Cutis musculosa* wounded, are either in a part of the *cranium* adjacent to the solution of unity of soft parts of the skull wounded, or in a part somewhat distant or remote.

If a fracture fall out to be not in the part wounded, you shall find it out by these seven signes. First, the wound of the *Cutis musculosa*, which covereth the fracture, will not admit curation in that part which is neere the fracture, whereas in the other parts it will admit cicatrization. Secondly, out of the part neere to the wound, you shall perceive a thin and ichorous matter to flow. Thirdly, more copious matter will flow out of the wound, than the bignesse of the wound can seeme to afford. Fourthly, the flesh which groweth neere to that part is spongy, and loose, not firme. Fifthly, now and then the party wounded will be feverish. Sixthly, if you thrust your probe betweene the *cranium* and the *cutis*, you shall find the *cutis* separate from the *cranium*. Seventhly, some tumour and softnesse will appear in the cutaneous part, which is placed above the fracture.

Signes of a fracture in the skull, not in the wound, but in a part adjacent.

A fracture in a remote part, or much distant from the wounded part, is called *Resenius*, or *Contra fissura*, a counter-cleft. This falleth out, when the *cranium* is strooken upon one part, and fractured in another: This happeneth either in the self-same bone, or in divers bones: if in the self-same bone, it may fall out two manner of wayes; to wit, either laterally, as when the right side of *Os frontis* is beaten, and the left side cleft, or contrariwise; or Perpendicularly from the upper to the lower part, as when not the upper table which received the blow, but the lower is fractured: If a counter-cleft hap-

Of *Contra fissura*.



pen to be in divers bones, this may fall out two manner of wayes: First, if the right side be beaten, and the left fractured, as if the right parietall receive the blow, and the left be cleft, or contrariwise. Secondly, this may happen, if the forepart be strucken, and the hinder part cleft, as if the *os frontis* be beaten, and the *os occipitis* be cleft, and contrariwise. This kind of fracture which happeneth in the *cranium* in a part opposit to the solution of unity, do. h chance to those, who either have no sutures at all, or such as are very obscure and very close; for in such persons the aire may be caried more compact, and with greater violence from the part contused, or wounded, to the opposit part: for when the aire which is within the skull is strongly moved by a blow, and on every side is driven by the force of the blow, it is entirely caried and wholly through the substance of the braine to the opposit part; where it meeting with the skull, which by reason of its firmenesse cannot yeeld, causeth a fracture in the skull; even as two men in a violent race meeting together are by this violent meeting beaten back. This is often scene in a glasse, which being knocked in one side is cleft in the opposite part.

How a counter-cleft is caused.

The diversities of sutures.

That the sutures are not uniforme, these Authors beare witness: *Vesal. li. 1. c. 6. de human. corp. fabrica. Syll. comment. in lib. Galen. de ossib. Columb. li. 1. c. 5. Par. li. 4. c. 3. Hippoc. lib. de vuln. cap. & Fallop. in eund. c. 5. & in lib. Galen. de ossib. c. 13.* That sutures againe are either hardly scene, being obliterate and worne out, or not at all, these Authors do affirme. *Arist. de histor. animal. li. 3. c. 7. Cels. lib. 8. c. 1. Aley. Benedict. anatom. li. 4. c. 7. Vesal. li. 1. c. 6. and Hippoc. and Fallop. in the place before specified.*

Whether a counter-cleft may happen.

And although *Paul. Æginet. li. 6. c. 90.* and *Guido* with others more, deny that a *Resonitus* or *contrassura* can happen; yet these authors against which it were temerity to except, do affirme that it may happen. *Cel. li. 8. c. 4. Nicol. Florent. Sermon. 7. Summa. 2. tractat. 4. c. 1. Valeriola append. loc. commun. c. 5. Hippoc. lib. de vulnerib. cap. Fallop. commentar. in eundem. c. 14. Parr. lib. 9. c. 8.* Although it be a hard matter to finde out this kind of fracture, yet you shall goe about to find it out by these meanes. First, if signes of a fracture doe appeare as a fever, vomiting of choler, and such like, and no chink appeare in the wounded part, then you are to take a view of the opposite part: If a tumor or softnesse doe appeare in any part of it; then you may be assured that the fracture is in the skull, subjacent to that part. Secondly, if no tumor or softnesse appeare

in the opposite part, stave the head and apply this emplaster following, *Rx picis naval. & cer. an. ℥iij. terebinthin. ℥i, mastich. & irid. pulverizat. an. ℥ii. fiat emplastr. s. a.* Draw this emplaster upon leather and apply it to the opposite part, and let it lye 24. houres. If after you have taken it away, the *cutis musculoſa* appeare in any place more moyſt, ſoft and ſwelled than the reſt of it is, it is likely that there the fracture is. Thirdly, if the grieved perſon doe often touch with his hand the part oppolite to that, wherein the ſolution of unity is, not thinking upon any hurt done to it, you may ſuſpect that the fracture is where he toucheth. If the ſecond table bee fractured, the firſt remaining whole, then you muſt apply the trepan, partly that you come to take away ſplints, which doe prick the *dura mater*, partly to make way for the diſcharging of coagulat blood, and the *ſanies*. If any patient having ſuch a fracture doe die, the Chirurgeon is not much to be blamed: for a Chirurgeon may be excuſed, if the patient dye, in foure caſes. Firſt, if the *cranium* by a violent contuſion bee depreſſed, and the ſkull preſently returne to its owne place. Secondly, if the chinke be only capillar, and hard to be ſeene. Thirdly, when the ſecond table of the ſkull is broken, the firſt remaining whole. Fourthly, when a fracture happeneth in the part oppoſite to that which is wounded. In theſe caſes the Chirurgeon may be excuſed, ſeeing the moſt ſkilfull Artiſt may be deceived in theſe caſes. If you find out a *contraſſura*, if it bee but a meere *rima* or chinke, after you have made incilion through the ſoft parts lying above the *cranium*, dilate the chinke with the raſpatories, that way may be made for the diſcharging of the coagulat blood and *ſanies*: for theſe will be gathered out of all doubt in all chinkeſ.

I have ſhewed how fractures in a wound happening in perſons of ripe age are to be cured: now I am to ſhew you how fractures in the ſkull art to be cured, when as the ſoft parts above the *cranium* are not wounded, yet the *cranium* offended. If therefore by a contuſion the ſkull be fractured, the *cutis musculoſa* not being divided, you are to aſke of the party offended whether he hath vomited choler, whether he loſt his ſight, whether he could not ſpeake, whether blood did iſſue out of his noſtrils, and eares, whether he ſeemed to be in a trance, whether he perceived a giddineſſe after the blow. Theſe ſymptomes doe ſhew that there is a fracture. And although no accidents doe diſcover themſelves, yet you muſt not be ſecure, but aſke whether the patient in former times hath not

How fractures without diviſion of the *cutis musculoſa* are to be cured.

had

How these fractures are to be cured.

had the head-ach, for then there is less danger, or whether hee was struck with a heavy weapon, by the hand of a strong man enraged, or whether hee felt a noyse in the braine when hee was stricken. If these signes appeare, you must suspend your prognosticks towards the best event. In this case so you are to goe on. If no fearefull symptomes after the blow received doe continue; then shave that part of the head where the blow was received: Then apply a medicament which asswageth paine, dryeth and is astringent: These intentions a *cataplasme* furthereth made of barley meale, vinegar and water in the Summer, but vinegar and wine in the winter, having added the powder of red roses, *myrtill* berries and *mastick*, and some oyle of roses, when the *cataplasme* is brought to a consistence: Secondly, you must minister a medicament which doth purge choler, as this: *Rx caricostin. & elect. de succo ros. an. ʒij. syrup. de cithor. cum. rbab. ʒi. aq. endiv. ʒii. Misc. ut. paretur potio.* Thirdly, the cephalick veine of the same side is to be opened, or cupping glasses with scarrification, or the leeches to be applied. Fourthly, the oyle of sweet almonds is to bee dropped into the eares, that the quittour which is gathered there may be discharged. In like manner the passages of the nose are to be moistned with this same oyle. About the fourth day you are to use gargarismes made of the decoction of barley, red rose leaves, cowslip flowers, betony flowers, eye-bright, stechas, and some rew: With the decoction you are to mingle *Mel rosatum*, and *Oxymel simplex*. About the seventh day you are to use discutient medicaments, as *diachylon ireatum*, or *emplastrum de betonica*, made soft in the summer with the oyle of roses, and in the winter with the oyle of dill. If having used these meanes, fearefull symptomes doe appeare after the seventh day, you must not deferre the incision of the *cutis musculoſe*, and the opening of the scull: for then it is not to be doubted but that blood and quittour are fallen upon the *dura mater*.

In what cases the scull is to be opened.

Although the soft parts above the skull be not divided, yet in three cases you must make incision, and open the skull. First, if clotted blood or quittour be lodged between the *cranium* and the *dura mater*, which you shall perceive if blood did issue out of the eares or nostrils, after the blow was received, if he be sleepey, stupid, or have a heavinesse of the head. Secondly, these things are to be done when splints of the skull doe prick the meninges, which the pain in the part doth discover. Thirdly, when a depression of the skull remaining, doth beare down the meninges, and causeth a stupidity,

pidity, and a pricking paine when the party doth blow his nose.

## LECT. XXIII.

*Of wounds of the Menings and the Brain.*

**H**AVING delivered unto you in my last Lectures, the method of curing those Wounds which may befall the externall parts containing of the Head; now I intend to shew you, how wounds in the internall containing parts, and the contained parts are to be cured.

The internall parts containing, are two; the two Menings, or Membranes, which compasse and environ the brain, called by the *Arabians dura & pia mater*: in wounds of the *dura mater*, there is alwayes a vehement paine. Five inconveniences may happen to the *dura mater*, to wit, a wound, pain, inflammation, apostemation, and discoloration.

If you perceive that there is an immoderate flux of blood, the membrane being wounded: then immediatly you must make way to come to the membrane, if the wounding instrument hath not made way enough; and *Galens powder set down 6. Method. Mendend.* made of aloe, frankincense, mastick, the white of an egge, and the haire of a Hare is to be applied.

If in a puncture of the *dura mater*, or after unskillfull dressing, drowinesse and sleepeinesse seize upon the wounded party, death shortly will ensue. See *Dodon. observ. Medic. cap. 3.* Now seeing great pain followeth the *dura mater* being wounded, you must with all expedition goe about to asswage it.

In this case first Narcoticall medicaments have no place: for so both the membrane it selfe, and the whole body would become stupified; secondly, unctious medicaments which mollifie, are not to be used; because these wil cause the membranes to become dull, to swell, and last of all to putrifie. Wherefore the oyle of roses warm is to be powred upon the membrane, untill the pain be mitigated, and quittour appear in the wound. Then *mel rosatum*, or *syrupus è ros. rub. fiat.* are to be mingled with the oyle of roses, in equall quantity,

Of a wound in the *dura mater.*

Prognostick.

Topicks fit for the *dura mater* wounded.

ty,

ty, untill the wound be perfectly digested. Last of all, the *dura mater* is to be mundified and dried with fit medicaments. Such are *mel rosatum*, *syrupus e ros. rub. siccat*, *syrupus myrtinus*, or *sanativus* alone, having no oyle mingled with them. And although the *pia mater* by reason of its softnesse, may be united and agglutinated; yet the *dura mater*, because it is hard, nervous and thin, will not admit agglutination: for in agglutination the brims of the wounded part must be brought and kept together, which is performed by rowling and sitchings, which in this case cannot be used. Wherefore it must be cured by incarnation, or procuring of flesh to unite the parts dis-joined.

Of an inflammation of the *dura mater*.

An inflammation is a red tumour of the *dura mater* with a distention of the vessels of the same, so great sometimes, that it filleteth the hole of the *cranium*, and groweth about it. This accident is dangerous.

How it is to be cured.

Wherefore, first of all, phlebotomy is to be administered, and a slender diet appointed: then the part is to be fomented with the decoction of the marst-mallow, linseed, & fenugreek, adding ground-sell, and violet leaves, as also other herbs which are to be applied to a phlegmone, if occasion shall require. This being done, the oyle of roses, myrtils, or quinces is to be applied. If you prevaile not by the application of these meanes, but that you perceive that the tumour rather increaseth than diminisheth, then you are to dilate the hole of the skull, by taking away more of it.

Of the apostemation of the *dura mater*.

If quittour be contained within the *dura mater*, which you shall perceive by the extraordinary whitnesse of some part of it, as in pustules of the skin, then you are warily to open it, that you in no wayes touch the brain. Then you are to apply drying and absterfise medicaments, as *mel rosatum*, & *syrupus e rosis siccis*. Vide Fallop. Comment. in lib. Hippoc. de vulnerib. cap. c. 43. & Paræum lib. 9. c. 21.

Of the discolouring of the *dura mater*.

Discolouring or blacknesse may proceed from five causes, viz. From the violence of the contusion; From the coagulate blood; From the coldnesse of the aire; By the application of unproper medicaments; Last of all, from putrefaction.

The causes of it.

If the blacknesse proceed from the violence of the contusion, it seldome continueth above foure dayes. In this case use *oleum rosaceum*, and *mel rosatum*; or the oyle of egges, with a little *aqua vita*, and some of the *pulvis cephalicus*, with a few graines of the powder of saffron.

If congealed blood hath caused a blacknesse, then apply this medicament: *Rx aq. vit. ℥ij pulv. gran. tinctorum ℥ij. croci ℥. mellis ros. ℥ ij β. sarcocoll. ʒ. 3. leniter bulliant omnia: colatura utimini donec evanuerit nigredo.*

The curacion  
of it.

If unproper medicaments have caused the blacknesse of *dura mater*, then it is to be cured by the application of such medicaments as are in faculty contrary to those which have been applied; so if humid, unctuous, or fatty medicaments have been used, you are to change these, and to apply those which are drying, as the Cephalick powders mingled with *mel rosatum*, *oleum rosatum*, or both mingled together. If sharp medicaments have been applied, in stead of these, milde and lenient medicaments are to be used, as the oyle of *hypericum*, or of earth-wormes, with a little saffron: for it is certain that moist medicaments may cause blacknesse by increasing filth; and sharp medicaments by their immoderate heat, may cause this same.

If blackness proceed from putrefaction, which you may discern by the strong sent of the *sanies* flowing from the wounded part, then use these medicaments which follow: *Rx aq. vite ℥j β. syrup. absynth. & mel. ros. an. ℥ij. unguent. Ægypti. ℥j β. sarcocoll. mirrh. aloes an. ℥j. vini albi potent. ℥j β. bulliant omnia leniter, colentur, ac serventur ad usum. It. Rx aq. plantag. ℥j. unguent. Ægyptiac. ℥j β. & precipitati ℥j. Misc. applicetur istud medicamentum calefactum post agitationem.* If by these means the putrefaction cease not, but persevere, and the tumour increase and grow above the hole of the skull being immovable, black, and dry; If the eyes of the patient appeare of a fiery colour, bunch out, and bee still moving; if the party still tosseth and tumbleth himselfe in his bed, and rave, the sick person will die, and the sooner if these symptoms continue constant and uniform. This must of a necessity ensue, both by reason of the extinction of the naturall heat, and likewise the gangrene of a noble part. *Vide Fallop. loc. cit. c. 41. & Par. lib. 9. c. 21.*

The *pia mater* is very thin, and cleaveth so fast to the brain, that it cannot be wounded unlessse the brain also be offended. Wherefore such wounds for the most part are deadly; for the brain being laid open unto the aire, easily is corrupted, by reason of the externall cold, which extinguisheth the weak heat of the brain, and by reason of the moisture which both falleth upon the brain, and is gathered in the substance of the brain it self, by reason of its weakness.

Of wounds of  
the *pia mater*.

The curacion  
of them.

First then, if any memorable flux of blood happen by reason of the multitude of veins which are in the *pia mater*, it is to be staied with *Galens* medicament set downe by him, 5. *Method. cap. 4.* whereof I have spoken heretofore. Then the part is to be cured with medicament warming and drying, which I have set down in the curacion of the *dura mater* wounded.

Now wounds which happen in the parts contained in the head, are to be handled: These are two, *Cerebrum* and *Cerebellum*. To the brain these griefes may happen; a wound, apostemation, putrefaction, sideration, a concussion, a *fungus*, and a tumour by reason of flatuosity.

Now as concerning wounds of the *cerebrum*, or brain, these five points may be demanded: First, which are the signes of the braine wounded. Secondly, what symptomes doe ensue. Thirdly, whether wounds of the brain be curable or no. Fourthly, how they are to be dressed. Fifthly, what symptomes usually remaine after that a wound of the brain is cured. Of these I will speak in order.

Signes of the  
brain wounded.

As concerning the first, the signes of the braine wounded, are these which follow: First, a fever, and vomiting of choler, *Hippoc. aphor. lib. 6. 50.* saith, If any have the brain wounded, they must have a fever, and vomiting of choler. The same he repeateth, *Coac. prænol. 500. & 507.* This same *Celsus* delivereth in most eloquent words, *lib. 8. cap. 4.* Secondly, losse of speech, *Hippoc. sect. 7. Aphor. 58.* They who have suffered a vehement concussion of the braine, immediately become dumb. Thirdly, a fall and slumbering, *Coac. prænol. 499.* Fourthly, senselesnes, dimnesse of the sight, giddinesse, 2. *Prorrhet. & lib. de vulner. cap. Fernel. lib. 7. patbol. c. 8.* hath these words: If the substance of the brain be hurt, the reason becommeth weak, and all symptomes increase, and oftentimes a portion of the braine commeth out, not without danger of life. Fifthly, you shall pronounce the brain to be wounded, if the meninges being divided, a substance like to fat come out; which notwithstanding doth neither swim above the water, neither doth melt with the fire, as fat doth. See *Parrey lib. 9. cap. 22.* Sixthly, if the brain bee hurt, the quittour will bee thicke, round, and like a narrow substance.

Symptomes  
which follow  
after a wound  
of the brain.

As concerning the symptomes which ensue, the brain being wounded, these are they; Foaming at the mouth, darknesse of the sight, giddinesse, a convulsion, a fever, vomiting of choler, stupidity, losse

losse of reason, deafnesse, dumnesse, a palsey, a lethargy, and last of all, an apoplexy.

As for the third demand, All wounds of the brain are dangerous at the least, and that for these reasons: The first is the nobleness of the part, and the necessary use of the functions of it. The second is the motion of the brain; but a wounded part requireth rest if it be to be cured. *Hippoc. lib. de ulcerib. circa principium.* The third is the humidity of the brain; but the curation of ulcers and wounds is performed by exsiccation, according to *Galen, lib. 4. method. medend. cap. 5.* The fourth is the coldness of the brain, which engendreth many excrements, and the more when a wound happeneth which weakeneth the part. The fifth is the consent of the sinewes which spring from thence. The sixth, because remedies passe not readily to the brain wounded. Three causes may be alledged, why some persons escape sometimes, having received great wounds in the brain. The first is, the wholesome and strong constitution of the body. The second is, the artificiall dressing of the wound. For as sundry recover of great wounds, if they be dressed according to Art; so many die of small wounds, if they be negligently or ignorantly dressed. Thirdly, such strange events are to be ascribed to the providence and mercy of the almighty God, who of his infinite goodness by his secret judgement prolongeth the lives of some, as hee shortneth the dayes of others.

Although all wounds of the brain be dangerous, for the reasons which I have alledged; yet great and dangerous wounds have been cured. That this assertion is true, I will prove by the testimonies and experiments of famous Writers both ancient and modern. Amongst the Ancients *Galen* shall be the Ring-leader: He then writing upon the eighteenth Aphorisme of the sixth book of *Hippocrates*, affirmeth that hee saw one healed, who had received a remarkable wound in the brain, in *Smyrna* of *Ionia*, while his master *Pelops* was alive; he affirmeth indeed this to be very rare, *l. 10. de usu part.* Hee maketh mention in like manner, of a young man, who recovered when hee had received a wound in one of the fore ventricles of the brain. *Paulus Aeginet. lib. 6. c. 88.* affirmeth, that sundry have escaped death, and have recovered their health, when they have been wounded in some principall part, above all expectation. *Christophorus à Vega, comme t in Aphor. 15. lib. 6. Hippocratis*, hath these words; Wounds of the brain, if they reach to the ventricles, they are not cured; but we have seen many others cured,

Prognosticks.  
Why the  
wounds of the  
brain are dan-  
gerous.

Prog. 2:  
That great  
wounds of the  
brain have  
been cured.



which passed to the substance of the brain, and out of which some portion of the brain came out. *Horat. Eugenius, lib. 9. Epist. 2.* writeth thus; We saw once the whole substance of the brain wounded, and the ventricles cut asunder, and that a portion of the brain came out of the wound as soon as it was made, and that notwithstanding the party was cured. The cause of this event was the strength of the body. *Gemma lib. 1. cap. 6. Cosmoc.* saith, It greatly concerneth Physitians to note, that even weak persons sometimes escape of grievous diseases, wherein the signes threaten imminent danger. So lately an ordinary person was by our help healed, when as a shiver of the skull passed through the meninges, and some of the substance of the brain came out. *Ioan. Andreas à cruce, lib. 1. Chirurg. cap. 14.* a Venetian, affirmeth, that he cured sundry, whose braines were wounded, and nameth sundry witnesses. *Fallop. cap. 45. de curatione vulnerum cap.* hath these words: A great portion of the brain may come out, and yet life remaine: Wherefore forsake not the wounded persons; for I my self have made triall of strange things. *Carpus tractatu de fractura cranii,* affirmeth, that he saw six persons who recovered, when as a notable quantity of the braine came out of the wounds, and that they onely deny such good events, who have seen but a little. *Brasavola in comment. ad Aphor. 18. lib. 6. Hippocratis,* affirmeth, that he saw two who escaped after that their brain was wounded. *Nicol. Massa, tom. 2. Epist. 11.* hath these words: I take God to witnesse, and many yet alive can witnesse, that I have cured sundry by convenient medicaments and Art, whose skuls, membranes, and braines have been wounded, and immediatly he nameth sundry. *Theodoricus lib. 2. cap. 2. Chirurgiæ,* affirmeth boldly, that hee was as sure that wounds of the membranes, the substance of the brain and ventricles may bee cured, as he was of death. *Voloher. Coit. lib. observ. anatom. & Chirurgicar.* bringeth sundry instances that wounds of the brain may be cured. The like hath *Iacotius comment. ad Aphor. 3. lib. 1. sect. 3. coac. Hippocrat.* *Peruse* also *Arceas lib. 1. cap. 6.* who doth alledge foure examples of this truth: And *Ambrose Parrey, lib. 9. cap. 22.* alledgeth some. And *Gulielmus Fabricius observ. Chirurg. cent. 1. observ. 13.* doth set down four. The testimonies and experiences of so many famous Authors, may perswade any man, not contentious, that wounds of the braine sometimes have been, and yet may be cured, or else none will.

Topicks for  
wounds of the  
brain.

Seeing I have laboured to perswade you, that the wounds dividing the substance of the brain it selfe, may be cured; I thinke my selfe

selfe bound to acquaint you with the meanes, by the which so dan-  
 gerous a curation is performed; which was the fourth point which  
 I set down to be discuffed concerning wounds of the brain. *Ioan.*  
*Andreas à cruce Chirurg. lib. 1. c. 14.* Until the fourteenth day be past,  
 he will have the oyle of Turpentine, and the spirit of Wine to be  
 applied: then he will have the wound to be filled with this li-  
 quor following: *Rx vini montan. ℥xx. succi beton. ℥iiij. succi cala-*  
*mintb. ℥ij. myrrh. oliban. aloes, sang. dracon. centaur. minor. semin. hype-*  
*ric. an. ℥j. contundend. contusis macerentur omnia in vase prole occluso:*  
*tum lento at clars igne exhalet tertia pars, ac coletur decoctum cui admisce*  
*spir. vini. ℥vj. ol. terebinthin. ℥iiij.* Reponatur medicamentum in vase vi-  
 treo probe obturato. Above this liquor apply pulvis cephalicus, and co-  
 ver all with some fit emplaster. *Cort. lib. observ. anatomic. & Chi-*  
*rurg.* counselleth to foment the brain with a convenient decoction:  
 such an one is this which is made of Betony, Calamint, St. Johns  
 wort, Camomil, Dilil, Eye-bright, &c. boiled in red astringent wine.  
 The wound he will have to be dressed either with the naturall, or  
 some good artificiall Balsame, whereof I have spoken sufficiently  
 before. *Fallop. comment. in Hippoc. de vulner. cap. c. 45.* will have the  
 oyle of Roses mingled with the oyle of Turpentine, to be powred  
 into the wound; and that not without cause, for the oyle of Ro-  
 ses is anodine, and the oyle of Turpentine warmeth and drieth.  
 This medicament he will have to be applied untill the seventh day  
 be expired; about which time most commonly appeareth a seque-  
 stration of the corrupt portion of the brain from the sound. If the  
 substance of the brain, it being wounded, seem to be of livid co-  
 lour, and a stinking sanies flow from the wound, then those medi-  
 caments which are dry and warm, are to be applied, such is this  
 which followeth: *Rx mel ros. & ol. ros. an. ℥j. aq. vit. ℥ij. misc.* When  
 the wound yeeldeth a laudable quittour, then the oyle of Roses is  
 to be omitted, and onely *mel rosat. or Syrupus myrtinus, or Syrupus*  
*ros. rub. siccatis,* mingled with *aqua vitæ,* are to be used. As it is an  
 evill signe if the substance of the brain be of a livid colour; so if the  
 portion which must be separate, represent a whitish hailstone, and  
 have not a very stinking smell, sheweth that nature is strong. *Hie-*  
*ron. Fabric. ab aq. pend. part. 2. Chirurg. oper. lib. 2. c. 20.* delivereth this  
 medicament, as an experiment of his owne: *Rx farin. Milii ℥β. ol.*  
*Hispani ℥j. Mitbridar. ℥vj. balsami nigri nalis ℥iiij. aq. vit. ℥v. ol. de*  
*cbal. cantbo ℥i β. misc.* This is undoubtedly a good local medicament,  
 because the ingredients powerly dry and resist putrefaction.

This medicament I dare commend unto you : *Rx balsami nigri, vernicis alb. & ol. hypericon. rubicundi facti ex multiplici infusione florum hyperici an. ꝞꝞ misce.* This topick will warme, drie, resist putrefaction, and hinder the entring of the ayre.

Of the symptoms which remaine after that a wound of the braine is cured.

Now the fifth point concerning wounds of the braine is to bee touched, which is to shew what symptoms remaine most commonly after that a wound of the braine is cured. These then are they ; the faltring in speech, and a palsey in the armes. *Ioan. Andr. à cruce Chirurg. lib. 1. c. 14.* Deafnesse. *Par. lib. 9. c. 22.* Decay of memory, stupidity, and a weake judgement. *Coiter lib. observ. anatom. & Chirurg. Et Fallop. lib. prædict. cap. 45.* *Brassavol. ad aph. 18. lib. 6. aphor. Hippoc.* The yellow Jaundise. *Arc lib. 1 c. 6.*

2. Of an absesse of the braine.

The second inconvenience which doth happen unto the braine is an apoplethion. That this may happen, these under written Authors doe affirme ; *Valeriol. lib. 3. observ. 8.* *Coiter. in observ. anatom. & chirurgicis.* *Fernel. de lue vener. c. 7. Par. lib. 9. c. 8.* And although most Authors doe pronounce this event to be desperate ; yet *Arceus lib. 1. cap. 6.* relateth of one, upon whose head a stone of a cubit in breadth and length, and in thickness twelve inches, but in weight foure and twenty lb. fell from the ingine, as it was hoisted up to the building of a tower in *Valuerda*, and brused, depressed and shivered the skull : when this patient had lyen desperate seven dayes, the eighth day three apostumes brake out, and within the space of foure moneths the party was perfectly cured, and afterward was married, for then he was but a young man.

2. 4. Of putrefaction and fideration.

Of a concussion of the braine.

Putrefaction and fideration are deadly symptoms, which are not discerned but by opening of the skull, and that for the most part when the party is dead.

The first accident which happeneth to the braine, is a concussion or a commotion of the braine : If it be vehement, it is alwayes dangerous, and sometimes deadly : If the commotion be violent ; the party becommeth speechlesse according to *Hippocrat. lib. 7. aphor. 58.* where he saith ; They who have suffered a strong concussion of the braine, must of a necessity become dumbe : read *Galen* in his commentary upon this Aphorisme. It is no other way to be dressed than a fracture, when the *cutis muscosa* is whole. *Guilielm. Fabric. obs. chirurg. cent. 1. observ. 7.* in this case anointed the whole scalp with the oyle of roses and myrtills mingled together : opened a veine in the armes, and did inject sharpe clysters. After that a concussion is cured, sometimes impediment of speech, and forgetfulness,

ness, may remaine during the residue of life, as witnesseth *Parey li. 9. c. 22.* He will have blood to be drawne plentifully out of the *cephalica vena*, according to the strength of the wounded party, to assuage the symptomes present, & to prevent the coming of more grievous. The head he wil have to be shaved: then he advileth to apply a cataplasme made of things cold & moist, as a cataplasme of barley flower, oyle of Roses & Oxymel. Those medicaments which are very astringent, as *unguentum de bola, &c.* are not to be applyed, because they hinder the breathing of the fuliginous vapors thorow the sutures, and other places of the skull; and so they are so farre from hindring of an inflammation, as that they increase it, if it hath seized upon the part already, & bringeth one, if there be none: sharp clysters he will have too injected to draw sharpe vapors from the head, and to hinder the ascent of them to the same, and the veine of the forehead, and those which are under the tongue, to be opened after the second day, if blood abound. He adviseth that strong frictions be used downwards, and that cupping-glasses be applyed to the shoulders. He will have the cooling and moistning astringent medicaments to be applyed untill the fourth day be past: then discutient medicaments to be used; of the which medicaments I have set downe sundry formes oftentimes heretofore. If you apply discutient fomentations, then see that you heat not the head too much, lest you cause paine and inflammation.

The fifth inconvenience which may happen after that there is a solution of unity in the braine, is a *Fungus*, or the mushrome of the braine. 5. 6.  
Of a fungus.

This is a tumor sometimes hard, without blood, and of small sense; sometimes soft, of an exquisite sense, and of an ill smell, beneath narrow, and above broad, a kind of a malignant wart growing of the glutinous and thicke humors which are halfe rotten, congealed in the part, partly by reason of the aire, partly by reason of the coldness of the skull, the scull being opened, and the braine wounded; even as mushromes grow upon trees by a juyce which doth sweat thorow the barke. *Galen lib. 1. de loc. affectis*, doth make mention of this symptome; & *lib. 3. Epidem.* saith, that those excrescences which grow in wounds, and are called *fungi*, are caused by the thicknesse of the humor issuing from the affected parts.

Although it fall off of it selfe sometimes, which *Cotter. lib. ob'e v.* The curation  
ena or of a Fungus.

*anatom. & chirurg.* affirmeth that he saw the flesh growing under it; depriving it of nourishment, yet if it increase, as it often doth, even to the bignesse of an hens egge in one night, as happened to *Guiliel. Fabric.* as hee witnesseth, *Observ. chirurg. cent. 1. obseru. 15.* you must goe about to remove it with medicaments, which strongly dry, and mildly fret; such are the powder of Savin, Ocre, Hermodactils burned, the juyce of Purfelaine; the powder of the yellow Turbith, warily applied, surpasseth all these. If it grow above the *cranium* about the bignesse of an hen-egge, then with a strong ligature you are to bind it, to procure the fall of it; then that which remaineth is to be consumed with the meanes above specified. Beware that you use no strong catherticall meanes. See *Par. lib. 9. c. 19. Guilielm. Fabricius* cured the *Fungus*, which happened to his patient, with in the space of fourteene dayes, with a fomentation, and a powder. The description of the fomentation is this: *Rx flor. & folior. beton. salu. chamomil. melilot. anethi, ros. fol. major. rorismar. an. man. 1. semin. anis. & fenugr. an. ʒi. coq. ista lento igne in aq. font. & vini rub. astringent. an lb. 4. ad consumptionem lb. iij, deinde colesur decoctum.* The description of the powder is this: *Rx rad. cariophyllat. angel. calam. aromat. an. ʒʒ, rad. aristol. rotund. irid. gua jaci, an. ʒij, salu. rorismar. major. an. ʒj. fiat ex omnibus pulvis.*

7.  
A tumor from  
flatuosity.

The seventh and last accident which doth happen when the brain is offended, and the skull fractured, is a flatuous tumor. Of it *Guilielm. Fabricius* in the place afore-named so discourseth: A tumor may be caused like to a *fungus* of flatuosity. If the weake heat of the braine goe about to concoct the matter in and about the wound, it doth raise up flatuositie, and seeing it can breath out thorow the *pia mater*, it doth puffed it up; for, I observed (saith he) that in all those in whose wounds a *fungus* grew, that the *pia mater* was whole, and only the *dura mater* torne; for when the *dura mater* is divided, nature out of hand goeth about to engender flesh upon the *pia mater*, to defend it from the aire: wherefore, if superfluous humors and flatuositie gather about the wound, they lift up the *pia mater* and this flesh, so that a tumor like to a *fungus* is caused: so he.

The curation.  
Of the causes  
of the symp-  
tomes of  
wounds of the  
head.

If you demand how it is to be cured: I answer that the fomentation and powder set downe by him to cure a *fungus* will serve.

Now to impose an end to my discourse, concerning wounds of the hairy scalpe, seeing I have made mention of sundry symptomes which

which ensue upon them; I will set downe the causes of the chiefest of them, and so conclude.

Of these, the first is a fall; this hath two causes: The first is the violence of the instruments which doe wound: The second is the privation of the faculty of moving, with the which the instruments of moving ought to be endowcd.

The second symptome is *vertigo*, or giddinesse: this proceedeth of the circulation, or circumvolution of the animall spirits; so when the clouds are driven, the Sun & Moon seeme to move swiftly.

The third is dimnesse of sight: the cause of this is the dissipation of the animall spirits.

The fourth is slumbering: the cause of this also is the dissipation of the animal spirits; but it must be both greater, and more durable than in a dimnesse.

The fifth is vomiting: this is caused by the communion of vessels; for the braine being troubled, the affection is communicate by the nerves of the sixth conjugation, which proceeding from the braine, are disperfed thorow the whole body of the stomack, So the offence being communicate to the stomack, it is drawne inward and pursed, and turned upwards: from this inversion of the stomack, first those things which are contained in the capacity of it are rejected by vomiting; than those humors which are drawne from the liver and the *cystis fellis*; and seeing choler is most light, it offereth it selfe first, and is first expelled.

The sixth is a fever; this is caused by an inflammation, which hath seized upon the wounded part: This being communicate unto the heart by the connexion of the arteries, it is sent from thence to the whole body by the same vessels.

The seventh is *torpor*, or stupidity; this is caused of ill vapors, which by reason of putrefaction, or some other ill quality, assault the braine, and dissipate the animall spirits.

The eighth is a convulsion: this is caused of corrupt vapors, which nip the beginning of the sinewes, which either a putrid or maligne matter hath sent out: in this case the neck, and the whole *spinalis medulla*, is to be anointed with a convenient medicament, such as is this: R rut. marrub. rorismar. ebuli, salviae, herbae paralytis an. man.  $\beta$ , rad. irid. cyper. bassar. lauri an.  $\mathfrak{z}$ j. flor. chamemel. meliloti & hyperi an. pug. i. Macerentur haec per noctem in vini potentis lib. vi. deinde coq. cum ol. lilil. albor. lunbricor. & terebinthir. ex ung. anser. & human. an.  $\mathfrak{z}$ ij. ad consumptionem vini igne lento. postea instituatur colatura, cui adde terebinthinæ venetæ  $\mathfrak{z}$ ij, aq. vit.  $\mathfrak{z}$ j. cera flavæ  $\mathfrak{z}$ ij.

9.

The ninth is a palsey, this happeneth, when as by a matter kept in the part offended, the braine and the beginning of the sinewes are so affected, that all motion is taken away.

## LECT. XXIV.

Of the curation of wounds of the face.

HAVING delivered unto you, with what diligence I could, the curation of the hairy scalpe. Now I am to shew you how wounds happening in the parts, which are not so garnished with haire are to be cured. These are two, to wit, the face, and the instruments of the senses: By the face, I meane the skin, membranes, muscles, and vessels of the fore and laterall parts of the head.

Of wounds of the face

And although that might suffice for the curing of the wounds of the face, which I delivered in the documents concerning the curing of simple wounds: yet because the face hath two prerogatives above all other, which are not more principall than it selfe; it will not be amisse to speake somewhat of the wounds of it in particular.

The Prerogatives of the face.

For the face, first of all, is the seat of comelineffe and beauty. Secondly, it is the surest marke by the which one is discerned from another. Seeing then the face doth afford unto the beholders of it such contentments, you ought to have a speciall care that you leave no soule cicatrix after the curation of the wounds of it, if you be called to cure them.

The differences of wounds of the face.

Wounds of the face are two-fold; for in them either the soft parts onely are wounded, or the bones also. If the soft parts onely be wounded, then they are wounded either according to the length, and the rectitude of the *fibræ* of the muscles and skin, or they are wounded transversly.

The curation of a wound according to the longitude.

If the wound of the face be according to the longitude, the brimmes of it are to be brought together by a convenient ligature, and glutinative medicaments, refraining from stitching with needles; for when we use needles, new solutions of unity are procured, and so new scarres, and the threed doth transversly cut the skin, and causeth an ill favoured cicatrix, if it be not speedily taken away; besides paine is caused.

As

As for rowling, the rowler must not be broad, but narrow, and with two ends, that by sundry circumvolutions, it may the better bring the brims of the wound together.

As for glutinative medicaments, or dry stitching, as they are termed, I will commend unto you two.

The first is an emplaster, the description of it is this: *Rx colophon. pic. naval. & cera an. ℥ij, terebinth. ℥i β, mastich. tur. farin. volat. calc. vivæ an. ℥ij, fiat emplastrum secundum artem.*

The second is a powder, and it is this: *Rx thur. mastich bol. Armen. sang. dracon. colophon. calc. viv. alum. far. volat. an. ℥β, fiat ex omnibus pulvis subtilis.* This powder is to be mingled with the white of an egge, untill it be brought to the consistence of honey, and so to be applied.

One thing is to be noted, that the hemme of the cloth, upon which these medicaments are spread, be applied towards the brims, and the revealed portion to the places distant from the brims. If the soft parts be transversly incised, and the wound be long, the brims must gape being farre distant asunder. In this case you must use stitching with needles to bring them close together.

In stitching you are to observe these foure cautions: The first, that they be as thin as may be: The second is, that the thread be rather of flax than silke, but smooth, and waxed, that it cut not: The third is, that the needles be as small as may be, and either of silver or of steele distempered, which you may doe by holding of them in the flame of a candle: The fourth is, that when the brims of the wound do abide together, and the swelling and inflammation of the brims are gone, we remove these stitches, and apply the dry stitches, which will fall out the third or fourth day: This you are to doe to prevent ill favoured scarres. If the transverse wound be not long, convenient rowling and dry stitching will serve, for the bringing and keeping of the brims together.

When you goe about to cure such wounds, apply not powders; for when the brims are brought together, some small distance must of a necessity be left, which must be filled with flesh: If you then apply powders which are both actually, and in faculty drying, the incarnation will be hindered, the powders drying both too much and too soone: and so the scarre will be unequal, being lower than the rest of the skin.

Wherefore for the agglutination of such wounds, apply medicaments which in consistence are soft and moyst; but in faculty

Of rowling.

Of dry stitching.

1.

2.

Nota:

Cautions to be used in stitching.

Why powders are not to be used.

What medicaments are fit for the agglutination of such wounds.



drying, for by application of such medicaments, nature hath time equally to agglutinate the brims, and the cicatrix will be more faire: which is that you ought to aime at in the curing of wounds of the face.

Such are *Arceus* his liniment: The Spanish balsame, the oyle of *hypericum*, having some turpentine or vernice mingled with it, and the naturall black balsame. In the winter time use the stiftick emplaster, but in the summer *Diapalma*, or *emplastrum de minio*. If they be too hard, malax them with some of the oyle of *hypericum*. Procure skinning after agglutination, with *Unguentum de iutia, de cerussa, aut de bolo armeno, or ceratum griseum*.

Mans greafe procureth a faire scarre.

When the skinning is almost induced, anoynt the part with mans greafe: for it procureth by a peculiar faculty a faire scarre. See *Aq; pend. part. 2. lib. 2. c. 21.*

How wounds of the face with offence of the bones are to be cured.

Now if a wound be received in the face, wherein both the soft parts and the bones are incised; we must in this case have a greater care of the security of the wounded person, than of the beauty of the face. In this case no kind of stitching hath place, if the wound be large, and the offence of the bone great. For the bone must bee smoothed with raspatories, and the wound be kept open while the bone scale, and the part be incarnate, even as hath beene taught in wounds of the hairy scalpe, wherein there is a fracture of the scull, I will repeate nothing, because I am unwilling to lose any time.

If any enorme wound fall out, whereby there is a solution of unity in the jaw bones, as happened to *Arceus* in one, whose upper jaw fell upon the chin: In this case all parts are to be reduced to their owne posture, so that bones answer to bones, and the soft parts answer the soft; then the parts are to be kept in their naturall position, with all manner of stitching, and convenient deligation. Read the Authour in his first book cap. 7. I have acquainted you with the methodicall manner of dressing such wounds heretofore; so that now in this case I will be silent.

So much I have thought good to deliver unto you, concerning the curation of wounds of the face in generall. Now it remaineth that I briefly discourse of the wounds of the eye-browes, and eye-lids, and lips, before I handle the wounds which cause solution of unity in the instruments of the senses.

Of wounds of the eye-browes.

*Vulnus supercilii*, a wound of the eye-brow is either caused by a simple incision onely, or by incision with the losse of some of the sub-

substance of the part. If it be by simple incision onely, it is either according to the longitude or latitude of the *fibræ* or transverse.

If the wound be caused by simple incision according to the length, without losse of substance, you may use the cephalick powders, and such as are astringent and drying, having no sharpnesse to hasten the union, and procure skinning; for in this case you need not to feare an ugly scarre, for the part is decked and covered with haire.

A wound by simple incision according to the length.

If the wound of the eye-browes be transverse without losse of substance, then you must have care that such a wound be exactly agglutinate: and that the brims of the conjunction exquisitly answer one another: for if these cautions be neglected, the wounded party shall not be able to lift up the eye-lid, unlesse he use the aid of his fingers, & the eye shall still remain shut. In this case then, you must take deep stiches, and so many as shall seem fit. The brims having been thus joyned together, procure agglutination with such medicaments as are able to reunite the parts severed.

The curacion of a transverse wound of the eye-brow.

If a wound of the eye-brow have caused a losse of substance, then you must not hasten the consolidation of such a wound: for if you doe, the scarre will become so hard, that the muscle shall pull up too much the eye-lids, and so the whole eye shall not be covered. In this case then you are to use such sarcoticall medicaments as are soft in consistence, as artificiall balsame, of which I have spoken sufficiently before.

The curacion of a wound of the brow with losse of substance.

If this inconvenience happen, that by reason of the hard cicatrix, the eye-lid cannot wholly be pulled down to cover the eye; then you are to divide the cicatrix by a semicircular, or halfe-moone-like incision, according to the orbicular proceeding of the *Fibræ* of the Muscle of the eye, which pulleth downe the *palpebra*.

What is to be done if the upper eye-lid cannot be drawn down.

Neither need you feare to make such a halfe-moon-like incision, although it come neere to a transverse incision; for this muscle lyeth within the orbit of the eye, neere to the muscles which move the eye, and so it cannot be hurt by such an incision: for the incision must not reach to the internall tunicle of the eye-lid; but onely divide the cicatrix and the round muscle, which motion is not taken away by such a half-moon incision.

*Spiigelius lib. 4. cap. 5.* will have two muscles to shut each eye-lid, and to be of a semicircular figure: The one is seated in the upper eye-lid, and draweth it down, and is called the bigger: The second

The Muscles which move the eye-lids.

and.

and lesser is seated in the lower eye-lid, and pulleth it onely upward. The upper eye-lid is drawn up by the muscle which proceedeth from the upper part of the *frons*, or forehead, neer to the temporal muscle, where the hairy scalp endeth. It goeth directly down, and is inserted into the eye-brow. This muscle then being transversely cut asunder, the eye-lid can hardly be pulled up, unlesse it be artificially united.

The curacion of the wounds of the eye-lids  
 Wounds of the eye-lids are either straight or transverse: Those are straight which reach from one corner of the eye to the other: because this is the position of the *Fibra* of the semicircular muscles of the eye, although they may seem transverse, if you behold onely the figure of the face. Transverse I call those which reach straight down from the eye-brow, or *supercilium*, towards the cavity of the eye. These wounds either divide the outward skin and muscles onely, or they cause a solution of unity in the internall membrane of the eye also.

Curacion of the wounds in the eye lids when in the externall parts onely are wounded.  
 If the wound hath onely divided the externall skin, and the semicircular muscle: you may use stitching, but then the needle and thread must be very small, and the thread well waxed. Agglutination is to be procured by insperion of sarcoticall and drying powders, as *Bolus Orientalis*, *terra sigillata*, *sanguis Draconis*, *sarcocolla*, &c. Thus you may mix them:  $\mathcal{R}$  *bol. Oriens.* & *terra sigillat.* an.  $\mathfrak{z}$ ij. *sang. Dracon.* *sarcocoll.* an.  $\mathfrak{z}$ j. *fiat ex omnibus pulvis subtilis.*

Above the powders apply a piece of a soft linnen cloth, that it hurt not the eye by its hardnesse, moistned with the white of an egge, which both hindereth inflammation, and stayeth the powder. Above this apply bowlters, moistned with Plantain water, and red Wine mingled together. Last of all, rowle up the eye.

Fatty medicaments are to be shunned.  
 If occasion move you to apply to the adjacent parts the oyle of Roses, or any other, then you are to have a care, that no part of the oyle fall into the eye; for oyles doe hurt the eyes, and cause inflammation.

What is to be done when the internall membrane of the eye-lid is wounded.  
 If the wound cause a solution of unity in the internal membrane of the eye-lid, which immediatly doth cover the eye, you are to stitch this. For if the thread should touch the body of the eye, it would offend it, and procure an inflammation. In this case then, a dry stitch is most convenient.

The curacion of the wounds of the lips.  
 Wounds of the lips either cut asunder only the skin of the muscularious

culous parts, or the membrane also which internally covereth the mouth. If the skin and the musculous parts be onely cut asunder, then ordinary stitching will serve the turne, and the application of such medicaments as unite wounds inflicted into other parts of the body.

If the whole substance of the lip be separate, and gape, then you are to dresse such a wound as a hare-lip is, when as the brims are made raw.

How wounds of the lips are to be cured when they are quite cut through.

First then, you are to pierce both the brims of the wound with a needle, or a pin, having on each side a thin and small piece of lead: Through both these pieces of lead, the needle or pin must passe, then the threed is to be twisted about both the ends of the needle or pin.

Last of all, the point of the needle, or pin, is to be nipt off, that it hurt not, with a pair of small steel nippers well hardened. The leads suffer not the needle, or pin, to break through the brims of the wound: you must take this stich somewhat deep, and about the middle of the wound, that the brims may be the more surely kept together. Two ordinary stiches more will serve, one above the needle, or pin, the other below.

The pin you may take out the fourth, fifth, or sixth day, as you shal see the parts united. If you have children in hand, it is not amiss to joyn to these the dry stich, because they are unruly, and by their crying cause often the stiches to break.

When the pin is to be taken out.

The medicaments Topically which procure consolidation in these wounds, are these: The black naturall balsame, and not the yellow; In Winter you may use it alone, but in the Summer tempered with a little of the yolk of an egge. The oyle of *Hypericum*, or the Spanish oyle, mingled either with some *Cyprian Turpentine*, or the white joyners vernice, are excellent. When all parts are agglutinate, then you are to remove all the rest of the stiches, and to procure a comely cicatrix by anointing the parts, wherein there was solution of unity, with mans greafe (as hath been said) if the wounded parties be Girles or Women: In Boyes & Men, because one may have, the other hath haire to cover the deformity of the cicatrix, you need not to be so scrupulous.

The Topicks.

## LECT. XXV.

*Of the curation of wounds which happen to the Instruments  
of the Senses.*

**I**T is time now to come to those Wounds which offend the Instruments of the Senses; and seeing the sense of Seeing, of all other is most admirable and noble, the wounds of the eye which is the instrument of it, must first be handled: for it doth apprehend more excellent objects, more in number, and of a greater variety, with a greater celerity, than any of the rest of the senses doth, and in a farther distance. It is necessary for all living creatures to espy and prevent dangers and enemies. Besides this, the eternall felicity of reasonable creatures shall proceed from the intuitive knowledge of the sacred Trinity.

As concerning wounds of the eye, two points offer themselves to be discussed. First, the difficulty of the curation of such wounds. Secondly, the curation it selfe.

The causes of the difficulty of the curation of wounds of the eye.

Five things make the wounds of the eye of a hard curation. 1. Is the excellency of the part it selfe. 2. is the exquisite sense of it. 3. The consent which it hath with the brain: which you may easily gather; if either you respect the optick nerve, or the motory, or the muscles of the eye, which have many twigges of nerves communicate from the first, second, third, and eighth paire of nerves. Fourthly, the flux of humors, which promptly doth fall into the eye after it is wounded. Fifthly, the continuall motion of the arteries.

In the curation of these wounds, two poynts are to be delivered. First, the differences of them. Secondly, the artificiall dressing of them.

The differences of the wounds of the eye.

Generall observations in curing wounds of the eye.

As for the differences of them, wounds of the eye are either Superhciall or Deep. Superficiall I terme such as passe not through the *Cornea*: But deep, such as passe through the *Cornea*.

In the curation of wounds of the eye, these two points are to be observed in generall: First, that you abstain from all oyles, and fat things, for they inflame the eye, and cause pain. Secondly, that  
when

when one eye only is wounded, you rowl up them both; First, that the sound eye may be kept from motion: Secondly, that darknesse may every way be procured; for light doth offend all sore eyes: Thirdly, that the cure may be more easie; for when one eye moveth, the other of a necessity must move, and so the wounded eye being moved at the motion of the sound eye uncovered, the curation will be hindered: for motion causeth inflammation, and protracteth healing. The third is, that the head lye somewhat high, not bending forwards: let the pillow be of Turkey leather, filled with chaffe.

To cure a superficiall wound of the eye, three intentions are required: First, to prevent all inflammation, and flux of humours into the eye. Secondly, to mitigate paine. Thirdly, to unite the parts separate.

The intention of curing a superficiall wound.

To asswage pain, and repell the afflux of humours, use these things following: *Ovi candidum, aq. spermatis ranarum, ros. plantag. portulac. pulvialis nivis, mucilago semin. cydon. psyllii, Tragacanth. papaver. hyosyam. decoct. nuc. cupressi, gallarum, balauft. malicor. vinum granator. lac muliebre, sanguis turturum & pullor. c. lumbar. ex venis sub a'is elicitus.* Of these you may have sundry compositions unto your selves, as need shall require.

In this case it will suffice to apply these medicaments above the eye-lid, the eye being shut, unlesse quittour abound, and the eye run much: for the skin of the eye-lid, the muscle and the internal membrane, are thin; so that the medicament may easily penetrate. Besides, some will passe between the eye-lids. If the former accidents happen, wash the eye with rain or plantain water, wherein a little Alum, or white Vitrioll hath been dissolved: Then apply bowlsters made of old fine linnen cloth, because it is softest, moistned in some of the waters, wherein some of *sief album sive opio* hath been dissolved. If pain urge, use that which hath *opium* in it.

Where the topicks are to be applied.

To the Fore-head, Temples, and Cheekes, apply some anodine and astringent Cataplasme: such is this which followeth; *Rx pulp. pomor. sub cinerib. coct. or. ʒij. flor. cass. extract. ʒvj. mucag. semin. psyl. alb. & cydon. an. ʒβ. far. bord. cribrat. bol. armen. sang. dracon. an. ʒj. Misc. ut paratur cataplasma.*

Repelling means.

One thing is to be noted, that if both the eye-lid, and the conjunctiva tunica of the eye be wounded, that you have a care that they grow not together; which happeneth if it be not prevented: You shall

Nota.

shall hinder this inconvenience, if in tender persons you keep them asunder with some leafe gold, but in other bodies either with leafe gold, or tin foyle.

Of deep wounds of the eye.

If the wound be deep, then either the weapon passeth through the broad and long chink about the ends of the bones, of the *orbita*, through which the nerves come into the brain, or it goeth not so farre.

1. Wherein the brain is wounded.

If the weapon passe into the brain, then the wound is mortall, because by reason of the dissipation of the spirits, motion and respiration are abolished. Neverthelesse, he is to be drest, and the Chirurgion is blamelesse, because he neither can see the wound, nor apply any Topicall medicament to the brain, unlesse he take out the eye, which no wise man will attempt, nor can be suffered, in whom the sense of feeling remaineth.

A History.

An example of this I saw in *Chester*, in a young Gentleman, whose fir name was *Fletcher*, who in a duel being so wounded in the left eye, dyed about the fourteenth day after he received the wound. He continued well nine dayes, and the tenth day went to a play. The eleventh day the left nostrill began to run as if it had been a Still, so that every night and day it wet a pillow: and so it continued untill he ended this life.

2. Of a wound not so deep.

If the wound be not so deep, then either the aqueous humour onely issueth out, or the others, as the crystalline and vitreous also.

Of a wound wherein the aqueous humour cometh out.

If the aqueous humour come out onely, then it commeth out wholly, or in part. If all of it come out, then the sight will be lost. If a small quantity onely come out, it may be repaired, and chiefly in children, by reason of their moisture, and so the sight remain. This wound is cured as a superficiall wound.

Of a wound wherein the other humours come out.

If the other humours, as the vitreous and the crystalline, come out, then the sight must of a necessity be lost. In the curation of this wound you are to use sarcoticall powders, but beaten very small, and past through a fine searce, such are *tutia* prepared, *calaminaris* quenched in white wine, *terra sigillata*, *sanguis draconis*, *asustum*, *sarcocolla*, *sandaracha Græcorum*, &c. When the eye is healed, you may cause an artificiall glasse-eye to be set in place of the naturall, to avoid deformity.

What is to be done if portion of the weapon stick in the wound.

It falleth out sometimes that part of the wounding instrument sticketh in the eye. If a portion of the wounding instrument doth stick so fast, that it cannot be pulled out without the effusion of all

all the humours of the eye, and the procuring of great inflammation, and that doth not prick the eye-lids, then it is best to suffer it to remain, and to dresse the wound with anodine medicaments, untill the seventh day be past, and then to use agglutinate means. But if the piece cause pain, and a continuall weeping, and hurt the eye-lids, it is to be taken out, and dressed as deep wounds of the eye. See an example in *Fabric. ab aq. pendent. Chirurg. operat. part. 2. lib. 2. c. 27.*

Next to the curation of wounds of the Eye, I will shew how wounds of the Eare, which is the instrument of hearing, are to be cured.

The Eare is either wholly cut off from the Temple of the head, or but in part divided. If it be totally cut off, first of all, it is to be skinned with strong Epulotick medicaments, as the Cephalick powder, *Vnguentum de bolo, de minio*, and such like. Then the deformity is to be covered either by wearing a long lock, or a cap under the hat having a side latch. If it be divided but in a part, if the separation be but small, a dry sitch onely will serve; but if it be large, a small needle, and fine thread must be used, that the parts separate may be proportionally brought and kept together. Then strong desiccative topicks are to be used, because the part it selfe is for the greatest part cartilaginous.

Wounds of the Eare.

In your sitching you are to observe two things: First, that the needle onely bring together the parts of the skin, on each side of the eare within and without, without wounding the cartilage: for if this be done, an inflammation and gangrene may ensue, as witnesseth *Fabric. ab aq. pend. oper. Chirurg. part. 2. li. 2. c. 33. & Par. lib. 9. c. 22.*

Things to be observed in sitching.

Secondly, you must observe, that if the wound reach to the first cavity of the eare, called *Meatus auditorius*, the passage of hearing, you still keep a sponge tent in it, partly that no spongy flesh grow in it, which might stop it, and so hinder the hearing; partly that no quittour fall into it, which might exulcerate the parts internall, and corrupt the *Tympanum*, and so procure inevitable deafness. So much then concerning the curation of wounds which may be inflicted to the eares.

Why the hole of the eare is to be stopped.

Now I will briefly touch onely the curation of wounds with the which the Nose (the instrument of smelling) may be violat.

Wounds then of the Nose may onely cause a solution of unity in the soft parts, or in the hard parts also.

Of the curation of wounds of the nose.



The differences.

If a wound happen in the soft parts of the nose, a dry stitch will suffice: In these wounds we must, to the uttermost of our endeavour, labour to procure a faire cicatrix, or scarre: seing the nose is the most eminent part of the face, and but a small scar will easily be discerned in it: wherefore you are to procure a faire cicatrix with some medicament astringent and drying, but soft in consistence: such is *unguentum album capburatum*, if it bee faithfully dispensed.

How wounds of the hard parts of the nose are to be cured

1. In the upper part.

If the hard parts be wounded, then this must fall out either in the upper part, and then the bone must be violated; or in the lower part, and then the cartilage must be hurt.

Wherefore if a wound be inflicted in the upper part of the nose, wherein the bone is cut, then there is a wound and a fracture. In curing of such a wound, two indications offer themselves: for first, the bones must orderly be set; then the consolidation of the wound is to be procured.

How the bones are to be placed.

In placing handsomly the bones, you must put into the nose a fit piece of wood, lapped with soft linnen cloth, which must easily goe in to bear up the bones: Then outwardly, you are to set the bones in their best posture, with your other hand. This being done, you must put a pipe into the nose of some light substance, as of the branches of the elder, the pith being taken out, or made of a thin plate of silver: for the present necessity you may use a Goose quill, or a Swans quill, or a quill made of a Reed, such as Weavers use. These quills or pipes must not be exquisitly round, but somewhat sharp above, and flat below, to preserve the naturall figuration of the Nose.

Observations in applying the quills.

When you use these, you must observe two things: First, that they be tied to the night-cap on each side, that they drop not out: Secondly, that you put them not too farre up, lest they cause sneezing, which much hindereth the consolidation of such wounds.

The uses of pipes.

These pipes afford a four-fold use: First, they keep the bones in their best position: Secondly, they give way to breathing: Thirdly, they discharge the excrements of the brain: fourthly, they make way for the sending of the quittour from the wound. These pipes must be lapped in some soft linnen cloth, to hinder the sinking of the consolidating medicaments into the wound.

The bringing of the parts together.

The bones being thus set according to Art, you must labour to bring the soft brims of the wound together, either by a dry stitch,

or with a small needle and threed, according as the occasion shall be offered unto you.

This being done, apply a desiccative medicament to the wound, The topicks as *Sanguis Draconis*, and bole beat to a fine powder, and mingled with the white of an egge beaten: let the consistence be like to it of honey.

If such a wound be transverse, first, you must apply to each side The cure of a transverse wound. of the nostrils a fine little bowlliter of soft linnen cloth, moistned in red astringent wine, and wrung out: then you must stay these bowlliters with a rowler, having a hole in the middle to give way to breathing, and to receive the tip of the nose. This rowler must be fowed to the back part of the head.

You must have a care of one thing, that it be no straiter then is A Note. necessary, for the keeping of the nose from falling; for if it bee too strait, it will procure a polt-foot-like nose fleering upwards. Hard to the *septum* of the nose apply another very narrow rowler, which bring about to the neck, as you did the other.

If the lower part of the nose be deeply wounded, then the cartilage must suffer solution of unity; which if it come to passe, then the cartilage is onely divided, or quite cut off. If it be onely divided, then union is to be procured, a pipe to be used, drying medicaments to be applied, and the like rowling to be used as I set down in the curation of a wound in the upper part of the nose, wherein the bone is incised. If the cartilage be wholly cut off, then a new nose is to be framed of the skin of the arm. Of this *Taliacotius* hath written at large, and I will touch this practice in my *ΠΡΟΔΕΤΙΚΗ*, which I made the third part of Chirurgery.

To make an end of this Lecture, I must shew you briefly how How wounds of the tongue are to be cured. wounds of the tongue (the instrument of tasting) are to be cured.

If a portion of the tongue be altogether cut off, the losse is irreparable: for being once deprived of life, being separate from the rest of the living particles, it cannot by any create power be restored. Our Saviour restored *Malctus* his eare cut off by St. Peter; but we know that he was both God and Man, the Lord of life, able to give it, or to take it from any, according to his good pleasure. If the part separate cleave to the sound part, although it be but by a fleshy threed, so that it doth totter hither and thither, yet beware that you cut it not off, seeing the losse of speech, (the mean of mutuall conference) will so ensue.

Such a wound is hardly cured; partly, because we can neither use Prognosticks. dry.

dry stitching nor rowling; -partly because ordinary Topickes, as Balsame and Emplasters, cannot be employed.

The manner of stitching.

In this case you are to use stitching with needle and threed. But first of all, the tongue is to be pulled out, being holden by the hand, it having been lapped with a linnen cloth, or by hollow and rugged forcipes armed with cloth. Then so many and so deep stiches are to be taken, as shall seem expedient to keep the parts united. Neither let us be too scrupulous with *Celsus*, lib. 5. c. 26. who thinketh that the leise flesh the needle pierceth, the inflammation or pain will be the leise; rather let us bind sure, that we may still find sure. We may easily conjecture how the wounded partie will be disheartened if the stiches should break. The wound being surely stitched; we must first cut off the threed hard by the knot, lest the ends of the threed, being intangled between the teeth, should cause a renting of that which you did sow.

Medicaments.

Secondly, we must use astringent means, such as are plantane water, wherein the syrup of Myrtills, or dry red Roses, with some Alum, have been dissolved. A decoction of the vulnerary herbs, with the syrup of quinces: *Saccharum rosatum* holden still in the mouth, &c. As for his diet, he must be fed with liquid things, Almond-milk, yolkes of egges dissolved in broths, gellies, barley-creame, thin oat-meale-gruell, and thin panadoes.

The dyet.

## LECT. XXVI.

*Of the Wounds of the vessels of the Throat.*

The sundry kindes of wounds of the neck.

**H**AVING dispatched wounds which may happen to the Head, I must now fall to those wounds which may offend the Neck. Now these wounds cause solution of continuity either in the common parts of the body, or in the parts proper. The parts common are the *cutis* and *membrana carnosae*. The parts proper are the vessels & the other parts. The vessels are three, the jugular veines, the soporall arteries, and the recurrent nerves. The other parts are the *Larynx* or wind-pipe, and the *Gula*, or the mouth of the stomach, and the *Spinalis medulla*: Of these I wil discourse in order, as they are set down. Those wounds which happen to the common parts, the skin, and the *membrana carnosae*, require no particular tractation; for they

Wounds of the common parts.

they are cured by joyning together the parts dis-joynd, and by application of agglutinative topickes. Seeing these parts are loose and flabby, you may stich these parts although there be some losse of substance. The rest of the wounds which befall the other parts of the neck, require a speciall consideration.

First then to come to the wounds of the vessels: If the internal jugular veins, and for all arteries, be deeply & largely wounded, the wounded party can hardly escape. First, because the wounded party doth flux to death most comonly before any Chirurgeon can come to stay the bleeding. Secondly, because no strait ligature can be applied to these wounds, because it might choak or strangle the wounded party. *Cels. lib. 5. c. 26.* saith, *Periculosa sunt vulnere ubi-  
cunque venie majores sunt*: Those wounds are dangerous wherefoever great veines are. *Hippoc. Prorb. lib. 2.* affirmeth those wounds to be deadly, whereas the thick, that is the great and large veines, are wounded in the neck and groynes. Of the danger of these wounds, *Forrest. obs. Chirurg. lib. 6. c. 4.* thus warneth us: The jugular veines receiving a great wound, hardly and very seldome are cured, because they deprive a man of the vitall spirit, by reason of the large effusion of blood; and because these wounds will not admit such rowling for the staying of bleeding as is necessary. *Guliel. Fabric. cent. 4. obs. 2.* maketh this manifest by an example: When a certain Emperick went about the cutting out of a *struma* in the neck of a Genevian maid, which had inclosed the jugular vein, and the recurrent nerve, so great a flux of blood ensued, that the maid died in the very operation. The like chance happened to one Mr. *Blackwell*, who going about the like operation in a young Gentlewoman, then lying in *Alderman-Berry*, had no better successe. Master Doctor *Gwin* and I were then present. Let these and the like examples procure warinesse when you goe about to deale with tumours in the laterall parts of the *Inguhum*, or throat.

In such wounds, a wound of the artery is more dangerous than of the vein. First, because the blood of the artery is more fluxible and more spirituons: Secondly, because the coats of the artery are hard, and are in continuall motion.

You shall know an arterie to be wounded by these signes: First, the arteriall blood gusheth out forcibly and leaping, when the arterie is dilated, but in the constriction the blood is drawne backe. Secondly, the arteriall blood is thinner; but the venall thicker. Thirdly, the arteriall blood is of a bright red colour; but the venall

Of the wounds  
of the vessels.

Why the  
wound of an ar-  
tery is more  
dangerous than  
of a vein.

Signes of an ar-  
tery wounded.  
*Auic. 4. c. 4.*  
*tract. 2. c. 16.*

venall is blacker. Fourthly, the arteriall blood is much hotter than the venall. Fifthly, the arteriall blood when it issueth out is more full of spirits than the venall.

The curation of such wounds As for the curation of such wounds, the first scope is to stay the flux of blood, which is the store-house of the vitall spirit: the second is, to agglutinate the wound.

How bleeding is stayed The bleeding is stayed two manner of wayes; by medicaments and by deligation: The medicaments are either restrictive or escharoticall.

Restrictive meanes. This restrictive medicament may serve in stead of all others: *R̄ ibur. ʒij, aloes, sanguinis draconis, telarum aranearum, que in molis plene sunt farina volatilis, hypoeystidis, mastiches, sarcocollæ, terræ umbre, pulveris volatilis fungorum an. ʒj. fiat ex omnibus pulvis subtilis.*

Escharoticall meanes. The escharoticall meanes, are either medicaments which procure a crust, or an actuall cauterie. This medicament which followeth, shall serve for all other escharoticall meanes, *R̄ pulv. prædict. ʒij, calc. vivæ ʒj, arsenic. sublimat. & auripigmenti an. ʒʒ, fiat pulv. s. a.*

The manner of application. These powders, according to *Galen. lib. 5. method. c. 4.* must be mingled with the whites of egges, so that the medicament bee of the consistence of honey: Then the haïres of a Hare are to be added; you must fill the wound with dosils armed with these medicaments, and apply large pledgets above the dosils, and about the wound, armed in like manner, with the same.

Seeing you cannot use strait rowling about the neck for feare of choaking, you are to have in readinesse three or foure servants to keepe to the wound the medicaments, that they fall not off, by their turnes; these medicaments must lye to the wound three dayes: then when you goe about to remove them, when you are come to the lowermost dosils in the wound, if they stick, you are not to remove them, lest a fresh flux bee caused; onely the rest of the wound is to be filled up with fresh stuffe.

The actuall cauterie.

As for the actuall cauterie, it must be red and glowing hot; for then it procureth a crust most speedily, & that the thicker. This being done, we are with all expedition to procure incarnation, lest the crust fall before flesh be engendred, and so the breach become greater, and the flux of blood larger. If you labour to engender flesh above an artery, you are to use sarcoticall powders, which strongly dry.

When

When the flesh is engendred, if you by applying your finger feele a strong beating, you are to feare lest an *aneurisma* ensue: when you have performed all these directions, it will not bee amisse, above and round about the wound, to apply this cataplasme: *Rx fol. solani, hyoscyami, mandragor. contus. an. man. 1. far. bord. & pulv. malicor. an. q. s. ut paretur cataplasma sine ulla coctione.*

A signe of an aneurisme like to ensue.

If these meanes will not prevaile, then you are to binde the vessell which bleedeth: First then, you are to lift up the vessels from the subjacent and adjacent parts with a small silver hooke; then you are to binde them above, and under the wound strongly, and to cut them asunder betweenc the deligations: This is the surest way, seeing there are innumerable *anastomoses* of the vessels in the body of man, and so blood may easily flow from either side of the wound: wherefore it is necessary that they both be bound. Seeing these wounds are extreme dangerous, you cannot be too circumspect in curing of them: if therefore a learned Phylitian cannot be had, you must see that he use a convenient diet.

A cataplasme. Binding of the vessels.

His diet then must be slender, cooling, glutinous, and somewhat astringent, that no great store of blood be engendered, that it may be cooled, made thick, and so lesse apt to flow; wherefore flesh, egges, and strong drinkes are to bee shunned. The party may eat Lettice, Purslaine, Endive, Spinach, Sorrell, Barly-creame, Pompions boiled. As for fruit, he may eat Quinces, Medlars, Pomegranets, Prunes, Peares baked or stewed, Sloes stewed. As for flesh, he may eat calves and sheepes feet stewed, calves and sheepes heads boyled, and their braines with greene-sauce, made of the common Sorrell, and wood-sorrell, vinegar of Roses, and a little Sugar: Let the bread be course and leavened: Let the drinke be Spring-water, wherein steele hath been quenched, beverage of vinegar and water, the juyce of Pomgranets, Barly-water, the juleps of Roses and Violets, Spring-water and verjuyce. If the party be weake, let him, or her, feed upon mountaine birds, poched egges, Partridges. In Spring-water, wherein the bottome of a loafe hath beene boyled, dissolve the sirup of Succory, Purslaine, red Roses, myrtill, and such like: If wine be required, let it be deepe coloured and astringent: such are the red wines, whereof here they make their clarets and Allegant. The body must be kept soluble, and all perturbations of the minde, but chiefly vehement anger, are to be abandoned. If the party sleepe not well, it is to be procured by art: this medicament which followeth is very convenient and

The dyet.

fit: R̄ *diascor.* ℥j. *philon. Persici* ℥i, *symp. papav. albi* ℥vi, *aq. papav. errati* ℥iij. *Misc.* ut *paretur potio bibenda frigida hora ix. vespertina*; you may minister this potion every third night.

Wounds of the recurrent nerves.

The third vessell which is to be found in the laterall parts of the *jugulum*, or throat, which is remarkable, is the *recurrent nerve*, so called, because it commeth downe from the sixth paire of sinewes, and returneth upwards towards the muscles of the larynx, using in the left part the trunk of the *aorta*, and on the right side, the *axillar artery*, as pulleyes. If one of the recurrent nerves be cut a-sunder, the voice becommeth hoarse, but if both be divided, the speech is taken away; and seeing they greatly further the speech, if they be whole, and hinder it, if they suffer solution of unity, they are called not onely *nervi recurrentes*, *recursvi*, and *reversivi*, but *vocales* also.

A balsame consolidative.

To consolidate these, and the wounds of the veines and arteries, this balsame of *Ambrose Parrey* set downe, li. 10. c. 29. is excellent: R̄ *ol. hyperic. simpl.* ℥iij, *gum. elemni* ℥iij, *terebimb.* Venet. ℥b. *β. liquescent ista simul ac coentur.* *Cum frigere incipiunt, adde boli Armen. sang. dracon. an.* ℥j. *irid. Florent. aloes, mirrb. mastieb. pulverizat. an.* ℥j, *aq. vite* ℥ij. *Misc. ex. l. a.* Apply the Balsame warme. Above the Balsame apply the *diapalma* malaxed in oyle of *Roses* to hinder all inflammation.

## LECT. XXVII.

Of the Wounds of the other parts of the necke.

HAVING delivered unto you, in my former Lecture, the method of curing the wounds which may happen to the vessels seated in the laterall parts of the necke; I am to shew you how wounds, which cause a solution of unity in other parts of the same, are to be cured. Now these members are seated either in the forepart of the necke, or in the backe-part: In the forepart the *trachea arteria*, or wind-pipe is placed; but in the backe-part the *gula*, or the mouth of the stomach, and *spina dorsi*, or *spinalis medulla*, the marrow or pith of the back-bone.

Signes of the wind-pipe wounded.

If the *aspera arteria*, or wind-pipe, be wounded thorow: First, the breath will come out at the wound. Secondly, blood will issue out

out at the mouth. Thirdly, the speech will be hindered. Fourthly, coughing will trouble the wounded party.

The wind-pipe hath three parts: First, the uppermost part of it, The portions called *Larynx*: The second *Caudex*, or the stumpe: The third, the of it. branches spread thorowout the substance of the lungs.

Wounds of the *Larynx*, although they be not mortall of them- Prognosticks. selves, yet by accident they may become such: First, by reason of the necessary use, for it doth receive, and breathe out the aire. Secondly, by reason of the fearefull symptomes or accidents which accompany such wounds; for this part is neare to the jugular veins and saporall arteries: so that it can hardly be wounded, unlesse these parts be wounded also. It hath also sundry branches of the recurrent nerves, and besides sundry muscles; so that a great flux of blood, paine, inflammation, purring or drawing together, and at last strangling may ensue. Thirdly, because this part can hardly be cured; for medicaments cannot easily bee applied or kept to the part. 1.

Wounds of the *Caudex fistula*, or of the stumpe or pipe, although they are not so dangerous as those of the *larynx*, for the reasons before alleaged; yet they are not without danger, for it is framed of a double substance; for the rings called *annuli* are cartilaginous: but the substance which tyeth these together, is membranous. Now a cartilage cut asunder, doth not admit union, according to Hippoc. aph. li. 6. aph. 19. who saith, When the bone is cut, or a cartilage, or a nerve, it neither groweth againe, nor is united; understand this by a middle of the like substance. He repeateth this same, lib. 7. aphor. 28. Galen subscribeth to this Aphorisme, 5. method. med. c. 7. Three causes may be alleaged for this: First, because a cartilage is a part dry, without blood, and hard. Secondly, because the cold aire doth continually passe thorow the stumpe. Thirdly, because it is seldome at rest, but still in motion. You may adde another reason, because the aire doth not freely passe and repasse by it, chiefly if the wound be deep and large. Of these wounds thus writeth *Vidus Vidius de curat. morb. membrat. li. 8. c. 6.* Wounds which passe thorow the wind-pipe, most commonly cause speedy death, by reason of the blood which issuing out of the jugular veins, falleth upon the lungs, and hindereth breathing: And *Forest. observ. chirurg. lib. 6. observ. 4.* thus writeth of them: Large wounds of the *aspera arteria*, chiefly those which divide the cartilaginous substance of it, seldome are cured; for this part is hard, 2.



and without blood: besides this, the wounded party doth draw breath by the wound, which hindreth consolidation.

The curacion  
of the wounds  
of the *trachea*  
*arteria.*

As for the curacion of such wounds: if the wound bee transverse, then the wounded party must bend downe his head: If the wound be straight, according to the length of the pipe, then the party is to hold up his head, that the brims of the wound may be brought together: then the wound is to bee stitched as firmly and artificially as you can: Pins in this case are best, as also in curing a hare-lip, for all kindes of threed will easily rot. This being done, agglutinative medicaments are to be used. *Arceus* liniment is good, and the naturall black balsame: Above apply *diachylon simplex* mixt with oyle of Myrtills or Quinces. In your dressing, you must have a care that neither blood nor quittour fall upon the wind-pipe, lest it procure choaking; but that they be outwardly discharged in the depending part. If after dressing, the party breath with difficulty, and there is danger of suffocation, because the cavity of the *larynx*, or *fistula*, is filled with blood, or quittour, or both; or because it is straitned by reason of a great inflammation: then the wound is to be dilated, and a silver pipe, a little bended towards the point, that it hurt not, to be kept in it, untill the wounded party be able to breath freely; then let it bee taken out. In this wound gargarismes are good: Take this as a paterne: *R* bord. mundat, cocbl. iij. flor. ros. rub. pug. 1 sumach. flor. granat. an. ʒij. passul. major. exacinat. jurub. an. ʒβ. glycirrbiz. ʒj. Bulliant. ista. s. c. in lib. iij. aq. font. ad consumpt. medietat. ac coletur decoct. cui admisce mell. ros. & Syrup. myrtin. an. ʒij: utatur gargarismate calefacto. It moistneth the mouth, asswageth paine, agglutinateth the parts, and causeth the party to breath freely.

Wounds of the  
mouth of the  
stomack.  
The signes.

Wounds of the *gula*, *oesophagus*, or mouth of the stomach doe follow. That the mouth of the stomach is wounded, you shall know by these signes: First, if the wound be deepe, the meat and drinke will come out of the wound. Secondly, the difficulty of swallowing. Thirdly, the hicket and vomiting of choler, fainting, a faint pulse, cold sweats, coldnesse of the hands and feet, according to *Fernel. lib. 7. tabul. cap. 8.* Fourthly, the vomiting of meat and drinke according to *Celsus, lib. 5. c. 26.*

The differen-  
ces of these  
wounds.

As concerning the variety of these wounds, receive these kindes of them: First, either the whole *gula* is cut asunder, or it is onely cut in part. Secondly, if it be cut but in part, then it is wounded neer to the stomach, or farre from it. Thirdly, it is wounded, either straitly or obliquely.

Con-

Concerning wounds of the *gula*, receive these prognosticks. The Prognosticks. First, all wounds of the *gula* are dangerous: First, because they cause difficulty of breathing: Secondly, because it can hardly be wounded unlessse the wind-pipe, the jugular veines, the soporall arteries, and the recurrent nerves be wounded also. Thirdly, these wounds which are but small, strait, and remote from the mouth of the stomach, are lesse dangerous. Fourthly, wounds great, transverse, and neere to the mouth of the stomach, admit no curation according to *Guido tract. 3. doct. 1. c. 1.* First, because the passing of the meat and drink doth hinder the consolidation. Secondly, because the place is still moist. Thirdly, because its office, which is to carry meat and drink to the stomach, is most necessary for the sustentation of the life of man. Fourthly, because an inflammation may easily be communicate to the upper orifice of the stomach, which is very nervous, which the Grecians call *καρδια* the heart, and whose pains are called *καρδιακῆς* or *καρδιορῆς*. Fifthly, if it be wholly cut asunder, the curation is impossible, for one part shrinketh upwards, and the other down-wards. As for the curation of these wounds; The first intention is by stitching, to bring the brims of the wound together: yet care must be had, that an orifice be left in the depending part, to be kept open with a tent, that the quittour may be discharged, and that meat stick not there, which might cause inflammation. Then such medicaments are to be applyed as I set downe; for the curation of the wounds of the wind-pipe.

The curation of these wounds.

In these wounds a speciall regard must be had of the dyet: Seeing then the wounded party can hardly swallow, his food must be liquid, and it must nourish much. Such are goats and asses milke, wherein *Saccharum rosatum* or *violatum* are dissolved, broths made of flesh wherein the yolkes of egges are dissolved, almond milk, and the emulsion of the great cold seeds drawn with chicken broth, &c.

The dyet.

If the party cannot swallow at all, then nutritive clysters are to be ministred: for the liver by the Mesaraicall veines may draw nourishment to it selfe, to feed it selfe and the rest of the body. But first of all the excrements are to be driven out of the guts by a purging clyster. Receive this as an example: *Rx elect. lenit. ℥i β. mellis rosati ℥ii. sacchari rubri ℥iij. decocti. communis pro clysterib. ℥x. Misc. ut paratur clyster.* Then inject clysters made of such things as have been set down for the dyet. Minister halfe a pound at a time, that the party may keepe it the longer: Into these nutritive clysters no oyle

Nutritive clysters.

oyle must enter, because it will too much lubrifie the guts; nor salt or sugar, because they will procure too speedy expulsion of the clyster.

Of wounds of the back-bone.

Now I am come to the wounds of the *Spina dorsæ*, the back bone seated in the back part of the body: If the wound passe not to the *Spinalis medulla*, then it either divideth the muscles, and then the wound is to be dressed, as those which happen in fleshy parts: If the bone be hurt also, then it is to be dressed as wounds of the head wherein is a fracture, of the which I have discoursed heretofore at large.

The divers kinds of them.

If the *Spinalis medulla*, or the marrow of the back bone be wounded, then it is either wholly cut asunder, or but in part only: If it be wholly cut asunder, then the whole body is deprived of moving and feeling, and by consequence breathing it selfe must be hindered, and so death must ensue. If it be not wholly cut asunder, but wounded onely, then a fearefull convulsion must of a necessity ensue, and so for the most part death.

The signes.

*Celsus* li. 5. c. 26. hath these signes: A paltie or convulsion followeth, feeling is lost, and after a while the party cannot retaine seed, urine, or excrements of the belly, yea, a totall suppression of the excrements sometimes will ensue. The same signes hath *Fernelius* li. 7. paralog. c. 8. If the *spinalis medulla* (saith he) be wounded, the inferiour parts become paralytick, their feeling, moving, and functions are lost; so that the excrements, urine and seed, now and then come from the party against the will. If the convulsion happen to the armes, then it is likely that the sinewes which spring from the fifth, sixth, and seventh *vertebræ* of the neck are wounded; if the legges suffer these accidents, then the sinewes of the *vertebræ* of the loynes, and *os sacrum* are offended.

Prognosticks.

As for the prognosticks; seeing the *spinalis medulla* is of the same nature whereof the braine is, *Gal.* li. 3. de temperamen. c. 3. and neer unto the braine, *lib.* 3. al. facult. and is derived from the braine, *lib.* 16. de usu part. c. 2. and resembleth a compact braine, *lib.* 1. de mot. muscul. c. 1. and seemeth to be as it were another braine under the head and neck, *li.* 12. de us. part. c. 11. & 15.

Why these wounds are dangerous.

The wounds of it are no lesse dangerous than those of the brain. First, because it hath its originall from the braine. Secondly, by reason of its composition, because 'tis covered with the *dura* and *pia mater*. Thirdly, by reason of the nerves which spring from it. Fourthly, by reason of the consent which it hath with the braine

braine. Fifthly, by reason of its action and use, because it doth communicate moving and feeling to the parts. Sixthly, by reason of the situation of it: for it lyeth deep in the body, so that the force of the topicks can hardly reach to it. Seventhly, by reason of the symptoms; for it being wounded, a pallsie, convulsion, and privation of moving and feeling doe ensue.

*Forest. lib. 6. chirurg. observ. c. 6. de his ita pronunciat*: If the *spinalis medulla* be wounded about the beginning of it, death of a necessity must ensue, because a convulsion of the whole body will follow; but if it be wounded in the lower parts, the wound is not alwayes deadly, unlessse the wound be a large one, or it bee a puncture, although a convulsion doth alwayes ensue; so that it is not so dangerous as that which is received about the beginning; and *Fallop. de vulnerib. capitis cap. 2.* hath these words: Wounds of the *spinalis medulla* are accounted deadly by *Hippocrates* in *Coac. Praenot.* yet I have seene them sometimes cured; but if the wound happen to be in the upper part, death and a convulsion of the lower parts must ensue.

Howsoever, seeing the wounded party must bee dressed, thus you shall goe to worke: you are to powre into the wound such things as affwage paine, stay convulsions, and which procure digestion without biting and sharpnesse: Such are unctuous and fat topicks, as this medicament is: *Rx ol. hyper. & de luteis ovor. an. ℥i. terebinthin. ℥β. iberiac. Andromachi. ℥ij. Miscantur.* Secondly, you must anoynt the whole back-bone with such a medicament. *Rx ol. vulpin. hirundinum & lumbricor. an. ℥i. ol. mastichini, & de castor. an. ℥β. Misc.* Thirdly, you must embrocate the whole scalp with this or the like medicament: *Rx ol. chamemel. ℥i. ol. lumbricorum ℥β. Misc.* These meanes are to be applied warme.

How a wound of the *spinalis medulla* is to be dressed.

## LECT. XXVIII.

## Of Wounds of the Breast.

Differences of  
wounds of the  
breast.

Signes of a pe-  
netrating  
wound.

Signes of the  
heart wounded.  
*see Cels. li. 5. c.*  
*26. Forrest. lib.*  
*6. observ. Chir.*  
*obs. 47.*

*Fernel. lib. 7.*  
*Patol. c. 8.*

Signes of the  
Lungs wound-  
ed, read.

*Fernel. Patol.*  
*l. 7. c. 8. Ronde-*  
*let. de dignosc.*  
*morb. c. 21.*

*Cels. li. 5. c. 28.*  
Signes of the  
Midriff wound-  
ed.

Signes of a  
vesseil wound-  
ed.

**W**ounds of the Breast are either not penetrating to the cavity of the breast, or else they doe penetrate. Those that penetrate, are either without offence done to any part contained therein, or some part or parts are wounded.

You shall know the wound to penetrate by these signes: If the patient shut his mouth and nose, the breath will breake through with a noyse, so that it will move and dissipate the light of a candle set neere to the wound; and the patient will be troubled with the difficulty of breathing. If the parts contained be wounded, you shall know which of them is wounded by the proper symptomes, with the which the patient is troubled, as followeth.

If the heart be wounded, much blood gusheth out, a trembling possesseth all the members of the body, the pulse will be small and weak, the colour of the face will become very pale, a cold sweat, and frequent swooning will assault the wounded party; and when the limbs grow cold, death is at the doore.

If the Lungs be wounded, it will bee discerned by these signes: The blood which cometh out of the wound is yellowish and froathy, a cough ensueth, the patient hath difficulty of breathing, and a pain in the wounded side, which before he had not; hee lyeth at greater ease when he lyeth on the wounded side; but being turned on the contrary side, these easments are abated.

When the Midriff is wounded, these accidents follow: The party is troubled with a heaviness of that part; he is taken with a raving by reason of the branches of the Nerves of the sixth conjugation of the brain, which are spread through the body of it, difficulty of breathing, a cough, a sharp pain, and Fever will trouble the party wounded; yea, the stomach and guts sometimes by the vehemency of breathing, will be drawn up into the capacity of the chest thorow the wound, as once happened to *Ambrose Parrey*, as he confesseth *lib. 10. c. 30.*

That a vessell is wounded, and bloud powred forth into the capacity of the breast, you shall know by these symptomes: here will be a diffi-

difficulty of breathing: the fever will increase; he will vomit blood; afterward the blood putrifying the breath will stink; his appetite will be lost; he will have a desire to vomit; hee desireth to sit up, and often fainteth, noysome vapours assaulting the heart, being raised up from the putrified blood.

As for the prognosticks of wounds of the brest, receive these. The prognosticks.

First, wounds of the brest which either pierce not to the cavity, or if they be penetrant, and hurt neither vessell nor entrall, are not deadly, but may speedily and easily be cured, if a methodicall course be taken.

Secondly, if the great vessels whether they be veines or arteries be wounded, they cause death. See *Celsus lib. 5. c. 16.* and *Hippoc. prorrhetic. lib. 2.* because they spend a man by great effusion of blood, which can hardly be stayed for two reasons: First, because they lye deepe in the body, so that neither can they be bound, nor medicaments conveniently be applyed to them: Secondly, because the coats of them are membranous, and so cannot be healed by the first intention: yet if the arteries bee divided, the wound is the more dangerous. Wounds of the great vessels.

First, by reason of the blood contained in it; for it is more spirituous than that in the veines. Why an artery divided is more dangerous than a veine.

Secondly, by reason of the flowing of the blood; for seeing the blood of the arteries is more spirituous, and hotter, it doth leaping issue out, so that it can hardly be stayed.

Thirdly, because of the coats of the arteries; for they are harder than those of the veines, and sometimes become cartilaginous. 3.

Fourthly, by reason of the hard consolidation of the coats of the arteries; for they are still in the motion of dilatation and contraction; but consolidation doth require rest, as *Galen observeth, lib. 5. Method. c. 8.* 4.

Fifthly, by reason of an *Aneurisma*, which most commonly remaineth after that a wound is cured, wherein an artery hath beene divided.

As for wounds of the lungs, they are either superficially and small, or deep, wherein the substance of the lungs are wounded, and the great vessels divided: those may be cured; these are deadly for eight causes. Of wounds of the lungs.

1. Because they are in continuall motion.

2. Because the lungs are very moist, and so subject to inflammation and putrefaction.
3. Because the medicaments can hardly reach to the bottome of the wound.
4. Because the discharging of the quittour ( which is requisite for curation ) is both hard and dangerous ; hard, because it must be discharged by expectoration by the upper parts; dangerous, because this must be performed by coughing, by the which the wound is more torne.
5. Because a fearful flux of blood must ensue, the *vena arteriosa*, and the *arteria venosa* being wounded, and so many virall spirits must rush out together, with this spirituuous blood.
6. Because great plenty of blood must fall into the capacity of the breast, which first by its heaviness must presse downe the diaphragma, and cause difficulty of breathing; and afterward, being turned to quittour, acquireth a maligne quality, and so may procure a fever, raving, and a convulsion; yea in processe of time *Empyema*, and lest of all a *pibysis* and hectick fever, the acrimony of the quittour corroding the tender substance of the lungs: That *pibysis* doth ensue after an *empyema*, *Hippoc. lib. 5. apb. 15.* witnesseth.
7. Because the entring of fresh aire into the lungs, and the expulsion of fuliginous vapours from the heart are hindered.
8. Because the heart must of a necessity be affected by consent, for the lungs are instead of a pillow, and fanné to the heart, and hath its vessels from the heart, to wit, *vena arteriosa* from the right ventricle, and *arteria venosa* from the left.

Secondly. *Forest. obs. 4. lib. 6. in scbol.* hath these words. It is to be noted ( saith he ) that if the lungs be wounded in the fleshy part, wherein there is a remarkable branch of *arteria venalis*, then a man must of necessity dye, because he is choaked with blood: You shall know this by the plenty of black frothy blood.

3. Prognosticks.

Thirdly, that dangerous wounds of the lungs have been sometimes cured, read *Plater. lib. 3. observ. pag. 690.* *Horstius lib. 3. observ. Medicar. de morb. pector. observ. 11.* *Valeriol. lib. 4. observ. Medic. obs. 10.* *Arceas lib. 2. c. 1.* *Guilbel. Fabricius observ. Chirurg. cent. 3. observ. 36.* & cent. 1. *Epistol. epist. 52.* *Matthias Glandorpius in specul. Chirurgico observ. 24.* See sundry in *Sbenkius observ. Medic. lib. 2. de morb. pulmon.*

Of wounds of the heart.

As for wounds of the heart, either the *pericardium* only is wounded, or the substance of the heart also.

If the *Pericardium* be wounded, the wound of it selfe is not deadly, for it is but a ministeriall and ignoble part, and hath both few and small vessels and nerves, and it doth not cleave to the heart, but leaveth so much distance as giveth way to the pulsation of the heart, and is fit to containe the watrish humour; yet by accident it may become deadly, if it bee so great, that all the watrish humour floweth out: for this wanting, the hestick fever seizeth upon the wounded party; seeing it is appointed for the cooling and moystning of the heart. See examples in *Sbenkius li. 2. observ. Medicar. & Cardan. comment. ad apb. 18. lib. 6. aphor. Hippoc.*

Of wounds of the *pericardium*.

Secondly, if the substance of the heart be wounded, the wound is to be accounted deadly. See *Hippoc. li. 5. apb. 18. & Galen. in comment. Cels. lib. 5. c. 26. & Aristot. lib. 3. de part. animal. c. 4. Vitus Vidius tom. 2. oper. Medic. lib. 7. de curat. memb. c. 2.*

2.  
Of wounds in the substance of the heart.

First, because the heart is the beginning of life, and so it being spoyled, it can afford no helpe to the rest of the parts. See *Aristot. loc. citato*. Secondly, because it is the laboratory of the vitall spirit. Thirdly, because it is the shop of the vitall blood. Fourthly, because it is in continuall motion, which hindereth consolidation. Fifthly, because it is a hot intrall, and full of blood, and so very subject to inflammation. Sixthly, because it hath a substance compact, hard, and dry, which doth not easily admit consolidation. Seventhly, because copious blood doth issue out into the cavity of the breast, by the which a man is suffocate.

Thirdly, superficiali wounds of the heart doe not so soone kill, as the deep wounds.

Fourthly, wounds in the left ventricle sooner dispatch a man, than those in the right.

As for the wounds of the *Diaphragma*; The wounds of the midriff, but chiefly in the nervous center are deadly, according to *Hippoc. lib. 6. aphor. 18. & Galen. in Comment. & Cels. lib. 5. cap. 26.*

Wounds of the *Diaphragma*.

First, because it is membranous and in continuall motion.

Secondly, because the wounds of this part are very painfull, by reason of the remarkable branches of sinewes, which it receiveth from the lower *vertebræ* of the neck according to *Gal. lib. 13. de us. part. c. 5.*

Thirdly, because the *pericardium* is tyed to it; and although the fleshy circumference wounded may seeme to afford some hope of recovery; yet wounds in it are not without danger: First, because the principall parts must suffer also; the braine, by reason of the

nerves,



nerves, which are inserted in it; the heart by reason of vicinity, and the *arteria phrenica*.; the liver by reason of the contiguity, and *venae phrenicae*. Secondly, because the whole midriffe is in continuall motion. Thirdly, because breathing is hindered. Fourthly, because blood must issue out into the capacity of the brest, which may cause suffocation. Fifthly, because fearefull symptoms ensue, as the pulling up of the heart strings, paine of the *spina*, which reacheth to the shoulder, difficulty of breathing, for it will be slow, great, and with sighing; a troublesome cough, a fever, and raving, by reason of the affinity which it hath with the heart and braine. See *Cels. lib. 5. cap. 26. Fernel. li. 7. надолоу. c. 8. Forest. observ. Chirurg. lib. 6. observ. 47.*

Now to come to the curation of wounds of the brest, those which doe not penetrate require no speciall consideration, but are subject to the intentions which have been delivered for the curation of wounds in generall.

In curing of penetrating wounds, thus you must proceed.

First, you must lay the patient in his naked bed, his feet being stretched out at the length, and the orifice of the wound downward

The patient being thus placed, let him lie still untill the Chirurgion hath made ready such things as are to be applyed to the wound: in the meane time let the wounded party labour to further the discharging of the blood, without the vessels fallen into the cavity of the brest, by coughing, and holding in his breath.

When no more blood issueth out, then put into the wound a *flammula*, dipped in the white of an egge, so that the greatest part hang without the wound: for this neither causeth paine, nor letteth in the aire, and is sufficient for the discharging of any hurtfull moysture: Where as a tent may bee swallowed up by the wound, hindreth the flowing of the matter, grieveth the patient, and being continued causeth a *fistula*: whereas the *flammula* may bee continued till the fortieth day, the longest time required for ordinaty penetrating wounds.

In stead of a *flammula* you may use a silver pipe, such as is used when a *paracentesis* is administr'd; but it must have a stey on both the sides hollowed, to receive a threed of a reasonable length; left it be pulled into the capacity of the brest, in the diastole, nature labouring to shun vacuity: But when the wound doth afford but a small quantity of laudable quittour, it is to be taken out, and the consolidation of the wound to be procured. The wound and the

pipe

The curation  
of a penetra-  
ting wound of  
the brest.

1. Intention.

2. Intention.

The use of the  
silver pipe.

pipe are to be annoyed, either with *Arceus* liniment melted in a spoone, or with some artificiaall balsame warmed. Above, apply *Dia-chylon simplex*: While you dresse the wound, it is convenient, chiefly in the winter time, to hold a pan with hot coales above the wound, to hinder the expiration of the naturall heat, and the intermission of the cold aire.

One thing I would have you to observe, that both bloud and quittour which is lodged in the capacity of the brest, may bee discharged both by coughing and by urine. If it be discharged by coughing, first the matter is carried into the pleura, then into the substance of the lungs; afterward it is carried to the wind-pipe, and from thence mounting up to the mouth it is spet out. If it bee evacuate by urine, then it passeth first into the substance of the pleura, then into *vena sine pari*, neere to the *diaphragma*, where a branch of it doth passe by a straight course to the emulgents, and so to the kidneis, and bladder. See an example of this in *Fabricius ab aq. pend.* part. 2. lib. 2. c. 42.

One here may move a question, why it is so dangerous a matter if matter fall into the capacity of the brest, and so light if it fall into the capacity of the abdomen? Three reasons may be alledged for this.

First, because the matter which falleth into the cavity of the brest, is easily inflamed; partly because it is still moved by the parts of the brest; partly because it is lodged neere to most hot parts.

Secondly, because the brest doth require an ample and free capacity for inspiration and expiration, to coole and preserve the naturall heat of the heart.

Thirdly, because it is a hard matter to draw by any passage the matter from thence, unlesse it be in the depending part, even if you use a large and wide spring called by *Galen*, *pyulcus*.

These things being done, if indications of bleeding move you thereto, first open a veine in the contrary side, and then in the same side, as the strength of the party, and the symptomes shall require.

*Arceus* lib. 2. cap. 1. will have this vulnerary potion ministred afterward: *Rx* *rbab.* ʒʒ. *rub. tinct. mummiæ,* an. *ʒj.* *terra sigillat.* ʒʒ. *aq. scabios. bugloss.* & *succi granat.* an. ʒj.

After this he adviseth to prepare a decoction to procure ease breathing and ease, such is this: *Rx* *bord. mundat.* ʒiv. *passul. major. ex-acinat.* ʒiij. *rad. bugloss.* ʒiij. *liquirit. contus.* ʒij. *jujub. n. xx.* *pruna. n. xv.* *rad pistrosfle.*

*petrosle. contus. man. i. fiat decoct. in lb. xiv. aq. pluvial. ad consumpt. 3. part. Aromatizetur decoctum cinamo. ℥iij. ac. coletur. In colatura dissolve penid. ℥iij. syrup. ros. simpl. & de duabus radicib. sine aceto an. ℥ij. sacchari candi ℥iv. Quarta quaque bora capiat eger hujus decocti ℥vj.* This doth nourish, wherefore he is to take no other food for the space of three dayes, unlesse it be a ptisan, having the emulsion of the great cold seeds wherein the roots of fennill and parslly have been boyled.

*Li. 5. Meth. c. 8*

If any matter offer it selfe to be purged by expectoration, then *Galen* adviseth to further it by the exhibition of vineger and water warme; for it powerfully dissolveth clotted bloud. If the patient doth cough with difficulty, then minister unto him the syrup of colts foot, and liquirice, with *Syrupus acetosus*.

A vulnerary portion.

*Frambes. canon. & consultat. medicinal. lib. 8.* adviseth morning and evening to minister a vulnerary portion, made of the leaves and roots of comfrey, plantane, fanicle, buglosse, boyled in spring water and some vineger. In the decoction strained some *saccharum rosatum* is to be dissolved, and some good bole mingled.

Injections.

Hee willeth also that injections be made, of barley water, *mel rosatum* and sugar; as thus: *Rx ptisan. ℥iv. sacchar. rub. ℥ij. mellis rosat. ℥j. misc.* In your injections you must have a care of two things: First, that no bitter thing be put in them: for this would be unpleasant to the taste, and overthrow the appetite. Secondly, that all the injection come out, for if a part of it should be detained, it would putrifie and annoy. It is not amisse for foure or five dayes to lay upon the pipe or flammula a sponge, wet in *aqua vite*, and wrung, both to keepe out the aire, and to extract the quittour by its gentle heat.

Lint not to be used.

Use not pledgets of lint, left by breathing they be pulled into the cavity of the brest; from whence would ensue putrefaction, and death at last. According to the small quantity of quittour, or great which the wound yeeldeth, dresse it once or twice a day. And when the patient breatheth freely, findeth little paine, and no weight towards the midriffe, but small store of quittour, and that laudable, doth flow out of the wound, it is time to shut it up.

## LECT. XXIX.

Of the curation of a fistula of the breast following a wound thereof.

**I**F after you have diligently and carefully used the meanes set downe by mee, concerning the curation of wounds of the breast in my former Lecture, for the space of ten dayes, you see that the wound tendeth not to union, you may imagine that a *fistula* may ensue. That a *fistula* will ensue if it bee not prevented, you shall conjecture by these signes.

First, if that during the aforesaid time, you have used both inward and outward meanes, and yet the wound sendeth out a greater store of quittour, than it did before, it is a great signe, that the wound is growing towards a *fistula*, and that the patient is entring into a *pibysis* or consumption of the lunges. Signes of a  
*fistula*.

Secondly, if the wound send forth a thin bloody quittour, like to water wherein flesh hath been washed, the same is to be feared: for this is a signe that much coagulate blood is lodged within the breast, which must be turned to quittour, and be discharged partly by expectoration; partly at the wound; which will require a long time, during the which, the wound may become fistulate if it bee not well looked unto.

Thirdly, if the quittour which issueth out of the soare, stink vehemently, as the breath also, a *fistula* may be expected: for this sheweth that there is a great putrefaction in some parts, which are contained within the capacity of the breast, which is not easily overcome: first, because no bitter medicaments which chiefly resist putrefaction, as aloe, mirrhe, worme-wood, the lesser centory, *cardus benedictus*, &c. are to be injected, as hath been said: secondly, because wee cannot conveniently apply topicks to the parts affected: thirdly, because they cannot be kept to the wounded parts, by reason of the motion of the heart, lungs, midriffe, and ribs, in inspiration, and expiration: fourthly, because the body is like to fall into a consumption, so that is to be feared, lest a convenient supply cannot bee afforded by nature to repaire the solution of unity, which you have taken in hand to cure.

Fourthly,

Fourthly, if a watrish substance, although not bloody, doe still come out at the wound, (doe what you can) you are to feare lest a fistula ensue; for it is to be feared lest some spermatick parts, as membranes or fibres are wounded, which admit not union according to the first intention, or that there is some store of coagulate blood in the capacity, which will require no short time for suppuration and discharging. When you shall see these signes appear, then are you to summon your wits, and to goe about the prevention of a fistula. This case hath beene accounted very difficult, yea, desperate in great wounds of the brest, by most Chirurgeons both ancient and moderne. Neverthelesse, *Franciscus Arceus*, arose in our age, a Spanish Physitian, who by his wit and practice found out a way of curing, not onely wounds tending to fistulation, but such also as are *de facto* fistulat, and charitably hath assigned it in his Treatise of wounds, *lib. 2. cap. 2.*

Indications curative, according to *Arceus*.

The dyet.

To compass this, he useth three intentions: The first is a convenient diet: The second is internall physick: The third is externall application.

As for the diet, such a one he prescribeth, if the party be strong, for eight dayes and more, according to the toleration of the party wounded, he is to eat nothing but bread and resins: for he affirmeth that his pectorall decoctions doe nourish; from hence untill the thirtieth day he is to eat flesh to dinner, and to rest contented with bread and resins to supper; from the 30. to the 40. day, about which time fistulaes of the brest are for the most part cured, he permitteth flesh both at dinner and supper: If the party be very weake, he permitteth unto him, even from the beginning of the curation, to eat flesh both at dinner and supper; but it must afford a good juyce, and bee of easie concoction: such is the flesh of chickens, mountaine birds, kids, lambe, and rabbits. As for the internall physick, it is of two sorts, purging and pectorall.

How the body is to be purged.

For purgation of the body, he prescribeth these pills: *Rx pilul. aggregativar. & de agarico an. ʒʒ, diacid. gr. iij. fiat massula ex qua formentur pilul. v.* He is to swallow them about six a clock, and about ten a clock to sup some chickin-broth, and to dine about twelve a clock. This is a dose large enough for the strongest person: you may detract from it as much as the constitution and strength of the party shall move you. As for the pectorall medicaments, they are either meere pectorall, or healing also. Out of the description of his medicaments, one may conjecture that either he was not well versed in the composition of medicaments, or that he was negligent in setting downe them.

Where-

Wherefore I am to take some paines to set them down according to Art : his decoction meerly pectorall, thus you shall prepare : R polypod. quercin. ℥iiij. rad. enul. ℥iiij. byssop. capill. vener. recent. an. man. iij. liquirit. ℥ij. epithymi man. i. fol. sen. ℥iiij. passul. major. exacinat. ℥iiij. Decoq. ista in lib. xxiiij. aq. font. ad consumptionem lib. viij. ac coletur decoctum : quod clarificetur addit. saccari rubri in deco. & soluti, ac mel. despumat. an. ℥β. Let the patient drink halfe a pint warmed in the morning, and so much about foure a clock in the afternoon : At dinner let him drink a pint, and so much at supper. Let this decoction be used eight dayes, within which time laudable quittour is for the most part procured.

His healing decoction thus you shall make : R scob. guajac. ℥β. cort. ejusd. ℥vi. semin. cummi. ℥i β. glycyrrhiz. ℥il. passul. major. exacinat. ℥iiij. Decoq. ista in ℥. x. font. ac totidem lib. vini albi ad consumptionem lib. viij. ac coletur decoctum. Sumat eger mane lib. β. ac dormiat : sumat tantundem hora quarta pomeridiana. In prandio bibat lib. i. ac tantundem in cena. If the party be dry, and desire more drink, then powre upon the simples which remain after the first decoction, six pints of wine, and so much water, and boile away the halfe of the liquor : this will serve for quenching of the thirst : let the wounded party continue the taking of this decoction, untill the cure be finished. The Roome wherein he lieth, he will have still to be kept shut and warm, and he adviseth to lie in bed the first thirty dayes ; if the patient cannot endure to lie in bed so long, then let him sit up the warmest part of the day, and goe to bed again betimes : by lying in bed, the motion of the parts contained in the breast is moderated, and the wound is kept warm, which must be observed in all penetrating wounds of the breast.

If the party troubled with any such wound, be in a consumption, or pthylick, then he prescribed to him this decoction : R bord. munda. ℥iiij. passul. exacinat. ℥iiij. rad. bugloss. ℥iiij. glycyrrh. ℥ii. card. benedict. man. i. semen. cumin. ℥ij. jujubas numero 20. pruna numero. xv. rad. petrosel. man. i. coq. ista pari modo in lib. xx. aq. pluvial. ad consumptionem lib. viij. utatur hoc decocto ut precedente. Veram postquam decoctum est aromatizatum cinamom. ℥β. addantur penidior. ℥iiij. lyp. ros. rub. simplic. & de dualus radicitus sine aceto an. ℥iiij. sacchar. lib. β. Now and then, whether the body be costive or no, he adviseth to take a dose of the pills prescribed before.

As for the Topicks, he will onely have an emplaster laid to the sore, and to be wipted often every day by the patient himselfe, for

the hastning of the curation. This emplaster he setteth downe: *R. ceruss. litharg. an. ℥iiij. oliv. antiq. aceti fortiss. an. lib. 1. coq. omnia igne lento ad ad emplastri consistentiam.* These methodicall proceedings of *Arceus*, are not onely effectuall in preventing a Fistula, but in curing of it also, if it be present. He deserveth thankfull commemoration of posterity for the supplying of this defect, which often for want of Art and meanes, did fall out in the curation of dangerous penetrative wounds of the breast.

*Sennertus* his method.

*Sennert. part. 2. lib. 2. c. 18.* holdeth these Fistulations to be of hard curation, and that not without cause: For first, the parts of the breast, as the Muscles, Ribs, Lungs, and Heart, are in continuall motion. Secondly, because the quittour cannot be promptly discharged. Thirdly, because much quittour is gathered: And they are more hardly cured, if the orifice lye upward, and not in the depending part: Two means he appointeth for the curation of these; and because they are very rationally, they are not to be passed over in silence.

His Injection.

The Injection is this: *R. flor. ros. rub. summitat. hyper. equiseti, cariophyllat. rad. ireos an ℥j. veron. valerian. millefol. pilosel. eupat. sigil. Salomon. an. man. 1.* He adviseth to adde to these, the lesser centory, the root of *aristol.* and gentian, as also myrrhe and frankincense; but seeing the myrrhe and frankincense must be used in powder, and it is not fit to use any powders in the Injections which are appointed for the breast, because the internall parts are very tender; and because they, and the lesser centory are bitter, which by reason of their bitternesse may offend the taste, they are to be left out of the Injection. After a nights infusion, then you shall boyle the simples set down by me, in a gallon of faire spring or raine water to the halfe, that is, untill a pottle remaine. You shall first clarify every lb of this decoction with two ounces of honey, and so much suger, adding the white of an egge beat to water. Last of all, having strained it, you shall reserve it in a glasse vessell to your use.

His vulnerary porcion.

As for his vulnerary potion, he will have it made of these simples; Plantane, Agrimonie, Fluellin, Scabions, Hypericum, Betony, Lung-wort, Ground-ivie, Harts-tongue, Sage, Avens; you may adde the white Hoare-hound, Sanicle, and our Ladies Mantle. Of these you may frame unto your selves such a decoction: *R. Eupat. scabios. cariophyllat. sanicul. plantag. pulvenar. ling. cervin. Alchimil. tusflag. an. man. 1. rad. consol. major. & borrag. an. ℥i. coq. ista in lib. x.*

aq.

*aq. font. aut pluvial. ad medietat. consumptionem, ac coletur decoctum. Postea addit sacchar. ac mel. an. ℥iij. &c. albuminib. ovorum clarificetur decoctum atque iterum coletur. Capiat æger singulis diebus hora quinta matutina lib. ℥, calid. ac dormiat: capiat tantundem hora quarta pomeridiana.*  
 If you well consider the faculties of the simples, which enter into the injection, and the vulnerary potion, you must confess, that it must be a very obstinate griefe which refuseth to be cured, if these meanes be methodically used, and the sore be dressed according to Art.

All Authors almost, who have discoursed of wounds of the *Thorax* have made mention onely of wounds received in the fore-part of it; but have made no mention of wounds inflicted into the back, which pierce also into the cavity or hollownesse of it: whereas these are most dangerous by reason of the *spinalis medulla*, which is placed there, and the multitude of sinewes which proceed from thence. If such an event doe fall out, first you are to dresse the wound in the back, as I have set down in the six and twentieth Lecture. As for the wound of the breast, it is to be cured by injections, and vulnerary potions, set down by me in the six and twentieth Lecture.

Of penetrating wounds received in the back.

## LECT. XXX.

*Of the Wounds of the Abdomen, or lower belly, which penetrate, and yet without any hurt of the parts contained.*

**T**Hese wounds either pierce to the cavity through the muscles and the *peritoneum*, or else they doe not penetrate. If they pierce, then either some part starteth out of the wound, or else none doth. The parts which start out, are either the caule or the guts: if no part start out, then either some part contained is wounded, or none at all.

The differences of wounds of the belly.

You shall conjecture a wound to penetrate: First, if the probe, or a Wax Candle goe deep in straight wayes: in searching you must first see that the wound be not inflicted obliquely: for in this case you may thrust the probe a great way between the muscles, the wound notwithstanding not penetrating. Secondly, you must diligently search, that the passage of the wound bee not stopped

The signes of a wound penetrating.

I.



with any of the superjacent bodies, as the fat, the *membrana carnosae*, or the muscles.

2. Secondly, if the Injection be made with wine warmed, if the wound penetrate, the wine will be received within the cavity; but if it pierce not, it will return.

3. Thirdly, we may conjecture by the figure of the weapon, whether it penetrate or no; for if it grow broader from a rash point, and the wound be broad in the outer part, it is likely that the wound is penetrating.

4. Fourthly, if the caule, or one of the intestines start out of the wound, then no doubt is to be made of the penetration of the weapon.

1. As for the presages, receive these: First, a wound of the belly, not penetrating, is void of danger, unless it be extraordinarily large; for in such a wound many parts must suffer solution of the unity, the pain must be great, many spirits must be dissipated, and the party must be more subject to fainting.

2. Secondly, a wound received in the middle part of the belly, is more dangerous than that which is received in the sides: First, because in the middle it is more tendinous, and so the more sensible and subject to inflammation and pain: Secondly, because the intestines rowle towards the middle part.

3. Thirdly, all penetrating wounds are to be accounted dangerous: First, because they are most commonly large, but alwayes deep. Secondly, because the aire hurteth the guts. Thirdly, because quittour falleth into the capacity.

4. Fourthly, when in a wound of the belly, any of the remarkable parts contained are wounded, it is to be accounted a deadly wound most commonly. Of such wounds *Celsus* thus pronounceth; He cannot escape who is wounded in the basis of the brain, in the stomach, in gates of the liver, and to whom the middle of the lungs, the *jejunum*, the small gut, the kidneyes or bladder are wounded.

The curation  
of these  
wounds.

As for the curation of such wounds, First, a wound not penetrating, is cured without any difficulty, as wounds in other fleshy parts of the body.

The intentions  
of curing of a  
wound wherein  
some part start-  
eth out.

Secondly, if the wound be penetrating, and any part contained start out, four intentions are required. The first is, that the part be situate in its own place. The second is, that the wound be stitched. The third is, apply convenient medicaments. Fourthly, that a course be taken for the removing of ill symptomes.

If the gut start out, and you be presently called to it, then you are to thrust it in with hands and fingers. But if it hath long hung out, and by reason of the cold ayre bee filled with flatuosity, and swelled so that it cannot be reduced; first of all you are to use an incarmative fomentation to discusse the flatuosity, and then to try the reposition of it. The fomentation must be made of camomil, melilot, dil, penny royall; germander, tansey, lavender, wormwood, mynts, bay-berries, cumminseeds, fennill-seeds and anise-seeds, boyled in red astrigent wine, or milk, if such a chance fall out in the countrey. If after sufficient fomentation you cannot put in the gut, then you are to dilate the incision.

What is to be done if a gut start out.

If the caule come out, and by reason of the cold aire it be much cooled, which you shall discern by the unnaturall hardnesse of it, or if it be black or of a livid colour, then it is to be bound up neere to the warme and sound part, and the corrupt part must be cut away. Let the threed hang out at the wound, untill the corrupt part separate from the whole. Then draw the threed wholly out of the wound. If the caule be nothing altered, it will be sufficient to thrust it within the *Peritoneum* without binding. It is requisite that we use desigation, when we cut away any portion of the caule: otherwise much bloud would fall into the capacity of the abdomen: for the caule seemeth to be a texture of veines and arteries enterlaced with fae.

What is to be done if the caule come out.

The second scope is to stitch the wound. This kind of stitch is called *Gastrographia*. Before you stitch you must performe these three things. First, you must have a cleare light, that you may have a perfect view of the wound: Secondly, you must lay the patient upon the side opposit to the wound, that the guts trouble you not while you are a stitching: Thirdly, that you have your servant by you, to hold up the parts which you are to stitch.

How wounds of the belly are to be stitched. *Gastrographia.*

These things being provided goe about your businesse: of this kind of stitch there be three usuall sortes.

The differences of it.

The first is thus performed: first, the needle is thrust thorow the skin and the muscles, even to the *peritoneum*, not touching the *peritoneum* of that side: Then from within outwards the needle is to be thrust thorow the *peritoneum* and muscles of the opposite side. Then within the distance of an inch, the needle is to be thrust thorow the muscles of the same side, leaving the *peritoneum*. Afterwards from within outwards the needle is to be thrust thorow the *peritoneum* and the muscles. So you are to proceed untill some-

some-

sometimes piercing the *peritoneum*, and sometimes sparing it you have sufficiently united the parts disjoyned. Some, of foure stiches make one ligature, cutting the threed and tying the ends of it firmly together, and use as many ligatures as are sufficient.

2.

The second is done by stitching the muscles together, and the sides of the *peritoneum* together. In this sort of stich, first the needle is to be passed thorow the skin and the muscles to the *peritoneum*: Then the opposite side of the *peritoneum* is to be joyned to the side lying under the muscles pierced: this being done, the opposite muscles are to be pierced. This course is to be followed untill all the brims of the wound be decently united.

3.

The third differeth not from the stich which is used in other parts of the body: For the needle is to be thrust thorow two sides of the muscles, and so many of the *peritoneum* still untill sufficient stiches be taken. The first is accounted the best. After stitching you leave an orifice in the depending part to admit a tent, that the matter procured by suppuration may be discharged. This kind of stich is used, because the *peritoneum* being a membrane would not admit consolidation without the entercourse of flesh. And if it were left unconsolidat, an incurable tumor would be left in the outer parts, the guts insinuating themselves into the cavities of the muscles.

The use of the dry stich.

One thing is to be observed, that you second and strengthen this kind of stich, by a dry stich, and that very firme: for within a few dayes the threed will cut asunder the brims stitched, and the stiches will become loose, because the intestines continually doe but upon the abdomen, wherefore the dry stich is requisite, as it is in the curation of the double hare-lip.

The third intention.

The third intention was said to be the application of convenient topicks. Such are all choice vulnerary balsames, whereof I have spoken sufficiently before, and agglutinative emplasters; such are *diapalma* and *emplastrum de minio* newly made, and not too dry in the Summer season. In the Winter *emplastrum sticticum* is the best.

The description of *emplastrum sticticum* or sodicationis.

The description of it is thus set downe by *Crolius*: *Rx ol. lini & olivar. an. li. i. ol. laurin. lib. β. litharg. auri & argent. an lib. β. minii. Ziiij. coq. ista ad emplastri consistentiam, tum adde cera, colophon. an. lib. i Istis liquefact. injice gumm. sequentia in aceto soluta, atque ad justam consistentiam iterum reducta. opopan. Zii. galban. serapin. elemni. anemon. bdell. an. Ziiij. Istis incorporat. injice sequentia in alcohol. redacta. calaminar. Ziiij. aristol. long. & rotund. carab. magnet. lap. hematit. coral.*

rub.

rub. & albor. vitriol. albi, terre sigill. croci Mart. ceruss. antimon. an. ʒi. oliban. mirrb. aloes hepat. mummia, sanguinis dracon. an. ʒʒ. *Isis* probè commistis adde terebinthina ʒij. vernicis ʒi. capbur. ʒiiii. *paretur emplastrum ex quo formentur magdaleones manibus ol. hypericon. inunctis.* I have altered the doses of the simples, I confesse, art so requiring, and have set downe the artificiall composition. The faculties of it you may read in himselfe; for they belong not to the subject which we have in hand. *Fabricius ab. aq. pendent. chirurg. part. 2. lib. 2. c. 45.* adviseth us to use astringent powders, as this: R. *sang. dracon. bol. Armen. mastiches, baccar. myrti an. fiat ex omnibus pulvis.* If *sarcocol.* the root of comfrey and borax were added, the medicament would be the more effectuell. The last intention of curing of these wounds penetrating wherein no contained part is wounded, was said to be the shunning and hindring of evill symptomes. Now these symptomes are two: The paine of the parts adjacent being continuall, and the collection of quittour or blood in the hollownesse of the abdomen.

To avoid the first, *Galen. 6. method. c. 4.* adviseth us to embrocate al the parts from the arme-pits to the groynes with Sallet oyle warmed: But it were better to embrocate those parts with the oyle of camomil, roses, and white lilies if they be to be had: for so the inflammation would be prevented, paine would be eased, and the parts kept soft and plyable.

As for the second accident, blood and quittour may fall from the brims of the wound into the hollownesse of the belly, and may offend, not the guts only but all other parts contained also: for sometimes a tumour is caused, and sometimes the dropie is procured. You shall know that these things are contained in the hollownesse, first by the weight which is felt there, the paine, the tension of the part: Secondly, if you crush the belly, you shall perceive the matter to shift from place to place under your hãds. Seeing this matter cannot be sensibly emptied: because the wounds of the belly must not be kept open, for the reason set downe before when I spake of the stitching of these wounds, we must labour insensibly to dissipate it by medicaments, which rarifie the parts, dissipate and draw out the matter. Wherefore you may embrocate the groynes with the oyle of rue, dill, *euphorbium*, wax, *castoreum*, of tyles. Then you may apply *diachylum magnum cum gummis* softened with the oyle of *scorpions*, or *oxycroceum*, and *de mucilagibus* mixed together.

How paine is eased.

How quittour or blood collected in the cavity of the belly is dissipated.

## LECT. XXXI.

Of penetrating wounds of the belly where in some of the parts contained are wounded, and first of the wounds of the parts appointed for chylicification.

The differences of the parts wounded.

**N**OW the contained parts which are wounded, are either appointed for nutrition or procreation. If for nutrition, then they either procure chylicification or sanguification. Those which procure chylicification are the stomach, and the guts. The stomach hath two parts, the orifice, which is called *Oesophagus*, and the bottome which is called *Ventriculus*.

Differences of the wounds of the *Oesophagus*.

If the *Oesophagus* be wounded, then the wounds are either superficially and small, or else deepe and passing to the cavity of it: And both these are either straight, or transverse, and these either neere to the stomach, or somewhat remote from it.

The prognosticks.

Wounds small, straight, and which are somewhat remote from the bottome of the stomach, are lesse dangerous; But those which are great, transverse, and neere to the bottom, are deadly, and admit no consolidation. See *Guide tract. 3. doct. 1. c. 1.* for this these reasons may be given. First, because the passing of the meate and drinke doth hinder consolidation. Secondly, because it is continually bedewed with moysture descending still, either from the head or from the almonds. Thirdly, because its office is absolutely necessary for the preservation of life, that is, the carying of the meat and drink to the bottom of the stomach. This carying of the aliment is performed by impulsion and attraction. The externall membrane, which is fleshy, and hath transverse fibres, doth thrust it down; but the internall membrane, which hath straight fibres, doth attract the nourishment. Wherefore the fibres of both the membranes being cut asunder, the passing of the nourishment is stayed, and so the party defrauded of aliment. Fourthly, because the meat and drink must be discharged by vomiting, seeing it cannot passe to the bottome of the stomach. Fifthly, when the upper nervous part of the *Gurgula* is wounded, which is nervous and of exquisite sense, which the *Græcians* call *ragda*, death doth most commonly suddenly ensue.

The reasons of this.

*Celsus lib. 5. c. 26.* hath these signes of it wounded: *Ubi stomachus autem percussus est, &c.* But when the stomacke is wounded, the hicket and vomiting of choler doth ensue. If meat or drinke bee taken, it commeth up again speedily, the pulse groweth weake, thin sweats break out, and so the extremities of the body grow cold. *Fernel. lib. 7. patbol. cap. 8.* addeth fainting. Although I have set down the methodical curing of such a wound, *Lect. 27.* yet I thought good here to touch a few things necessary to be knowne. And indeed, *Nunquam satis dicitur, quod nunquam satis discitur.*

Wounds in the *Oesophagus* are more dangerous than those of the *Ventriculus*, for these reasons: First, because it is of a nervous and membranous substance, and so is not easily united. Secondly, because the pain is exceeding sharp, and so depriveth one of rest and sleep. Thirdly, because it hath a great consent with the brain, by reason of the nerves descending from the sixth conjugation, which are bestowed upon it. Fourthly, because topicks cannot conveniently be applied to such a wound; yea, if you minister vulnerary potions, either they return by vomiting, or slipping downe make no stay, or else they issue out at the wound. Fifthly, appetite is lost, and so the desire of meat and drink, without the which the life of man cannot long continue. Sixthly, because convulsions may ensue, which are deadly, according to *Hippoc. Aphor. sect. 5. 2.* Seventhly, because vomiting of choler doth ensue, according to *Celsus loco citato*, which may enlarge and teare the wound.

Now as concerning the wounds of the bottome of the stomach, they have the same differences which those of the orifice have, which after the prognostickes, and manner of curing of these wounds, receive these presages.

First, small and superficial wounds are easily cured; but penetrating wounds are accounted deadly by *Hippoc. aphor. 18. sect. 6.* & *Celsus lib. 6. c. 26.*

Now this word *Deadly* hath a threefold signification; for first, it signifieth that bringeth inevitable death; secondly, it signifieth that which most commonly bringeth death; thirdly, it signifieth that which is dangerous, and may bring. Now wounds in the bottome of the stomach penetrating, are not alwayes deadly in the first signification, although they be in the second and third signification.

The signes.

Why the wounds of the orifice are more dangerous than those of the bottom.

The differences of the wounds of the *ventriculus*.  
Presages.

1.

Deadly what.

Why wounds  
of the *ventri-  
culus* are hard-  
ly cured.

Secondly, penetrating wounds in the bottome of the stomach, are hard to be united: First, because it is of a membranous substance. Secondly, because meat and drinke keep asunder the brims of the wound. Thirdly, because the vulnerary potions slip out at the wound. Fourthly, because a convenient ligature to keep the brims of the wound together, cannot be applied. Fifthly, because the stomach is very sensible from whence ensue pain, afflux of humours, watching and inflammations. Sixthly, because body cannot be without the benefit which it affordeth to it, for it is the pot wherein the nourishment of the whole body is boyled.

2.  
Why these  
wounds are not  
so dangerous as  
the former.

The second presage: Penetrating wounds in the *Ventriculus*, are not so dangerous as those of this kinde in the *Oesophagus*. First, because the bottome is more fleshy. Secondly, because vulnerary potions & other medicaments may longer stay here. Thirdly, because the dignity of this is not so great; for the orifice is the seat of the appetite. Fourthly, because the bottome is not of such an exquisite sense as the orifice. That wounds in the bottome of the stomach may be cured, read *Crollius in præfat. Basil. Chyrnic. Shenkius*, and others. It were too tedious to set down their narrations.

Signes of the  
*ventriculus*  
wounded.

You shall know that the bottome of the stomach is wounded, first, if the wound be under the *Diaphragma*, or the *mucronata cartilago*: secondly, if the *chylus* come out at the wound either sincere, or mingled with the meat unaltered.

The curation  
of these  
wounds.

As for the curation of these wounds, you must not suffer the tent to enter into the wound of the stomach: it must onely keep open the parts lying above the stomach. Let it be armed with a digestive made of the oyle of *Hypericum*, turpentine, and the yolk of an egge; for this asswageth pain, procureth quittour, and is glutinative. The stomach outwardly is to be embrocated with the oyle of mints, myrtils, quinces, wormwood, and the oyle of roses; Let him drink the juice of pomegranats and quinces, or the syrups of them in the decoction of horse-taile, mouse-eare, and pervinckle or plantain-water sugred. To poore people you may prescribe posset drink, wherein these herbs have been boyled: Let the party drinke and eat very sparingly, for the wound will better unite when the stomach is somewhat empty and wrinkled together.

The curation  
of wounds of  
the guts.

If the guts bee wounded, then they are either the small or great guts. If the small be wounded, the *chylus* commeth out at the wound, the flankes swell and become hard, the hicket troubleth  
the

the patient; he vomiteth choler; he hath great gripings in his belly; oftentimes a cold sweat breaketh out, and the extreme parts grow cold. The differences and signs.

If the great guts bee wounded, the excrements come out at the wound. Now the wounds of the guts are either superficial, or they passe to the cavity. If they passe to the cavity, then they are either straight or transverse, and these either great or small. The presages.

This being noted, you may thus conjecture of the event: First, if the wound be but superficial, yet it is not altogether without danger; because all the externall parts of the *Abdomen* are divided. Secondly, great wounds of the guts, but chiefly if they bee transverse, for the most part prove deadly.

First, because they are of a membranous substance, which hath but little blood. Secondly, because the *Chylus* and excrements doe continually passe by them. Thirdly, because locall medicaments cannot conveniently be applied to them, partly because they lie deep in the body, partly because they continually change place. Fourthly, because the brims are kept asunder, they being distended by flatulosity, the *chylus* and the excrements. Fifthly, because their office is absolutely necessary for the preservation of the life of man; for either they distribute the *chylus*, which is performed by the small guts, or else they contain and discharge the excrements, which the great doe. But these are hindered the guts being wounded: Sixthly, because they are very sensible, and so pain, inflammations, fevers, and watching may ensue.

The third presage: wounds of the small guts are more dangerous than those of the great: First, because they are more sinewy and membranous than the great. Secondly, because they are of a more exquisite sense. Thirdly, because they are neerer to the stomach. Fourthly, because they have more mesaraicall veines. Fifthly, by reason of their excellent office; for they distribute the *chylus*, and more refine it, according to *Galen. 4. de us. part. c. 17.*

The fourth presage: Amongst these the wound of the *Jejunum*. Why the wound of the jejunum is so dangerous.  
First, because it hath more mesaraicall veines than the rest, which maketh it looke red. Secondly, because it may be soone inflamed, by reason of the plenty of blood. Thirdly, because it is next to the liver, and so soonest inflamed. Fourthly, because



it hath a tenderer substance than the rest. Fifthly, because it receiveth immediatly and in full force, the sharp choler from the gall: whereas the rest receive it but mediately, and the sharpnesse of it being much abated.

Why wounds in the great guts are more easily cured.

The fifth preface: The great guts are more apt to receive consolidation, than the small; partly because they are of a more fleshy substance, partly because they are not so sensible: And thirdly, the excrements contained in them are solider than the *chylus*, and so not so apt to flow to the wounded part, and so to keep the brims asunder.

The intentions of curing these wounds.

As for the curation of these wounds, they require foure intentions: The first is to stich the brims of the wound with the Glovers stich; if the gut be not without the wound, it must be drawn out gently: Let it be sowed with good flaxen threed not waxed; for then it will swell and not so soon cut the brims of the wound asunder.

1.

Secondly, to reduce the gut to its own place, but it must first be fomented with red astrigent wine warmed: secondly, agglutinary medicament is to bee applied to the wound, such is this; *Rx Mastich. sarcocoll. an. ʒj, borach. & myrrh. an. ʒβ. fiat s. a. pulvis, qui aspergatur.*

2.

3.

Thirdly, the externall parts of the belly are to be stiched, as I have taught in my former Lecture. Better it is to stich these parts, than to leave them open. First, because you cannot any more apply locall medicament to the wound, for the guts still shift. Secondly, because the aire will cause pain and griping. Thirdly, because the cold aire may breed flatuosity, which distending the guts, may break the stiches. Fourthly, because the naturall heat being kept in, the gut is sooner consolidat.

4.

The fourth intention is, you must have a care that the excrements hurt not the wound, they becoming hard by staying. To this purpose you must feed the patient with moistning meats, and minister emollient clysters, made of the decoction of a sheeps head and feet. In curing of these wounds, you must not omit the ministring of vulnerary potions.

## LECT. XXXII.

Of wounds of the parts appointed for sanguification and procreation.

OF all the parts appointed for sanguification, the liver is the chiefest and principall, being the prince of the lower region of the little world; first then I will speake of the wounds which may happen to it.

Wounds of the liver, they are either superficially lightly hurting the outer part, or they are deep and great, piercing even to the trunks of the *Vena porta*, and the *Vena cava*. *Celsus lib. 5. cap. 26.* setteth downe these signes. The differences.

These are the signes of the liver wounded, a great flux of blood in the right side, the sides all drawne towards the *spina*: the party delighteth to lye upon the belly; prickings and paine even to the neck, and to the side joyned to it: The shoulder-blade stretched, sometimes vomiting of cholera doth also happen. The signes.

*Peccetius lib. 2. cap. 8. Oper. Chirurgic.* addeth, after meat they feele a heavinesse in the side, they are unquiet, they have a sharp fever, sometimes they pisse a bloody urine: After some dayes also they discharge by the siege rotten blood, the face becommeth discoloured and wan.

What will befall, the liver being wounded, these aphorismes following will shew you. First, superficial wounds of the liver may admit curation: but great and deep wounds will not. *Hippoc. aph. 18. lib. 6.* hath these words: If the bladder, or the braine, or the heart, or the midriffe, or a small gut, or the stomach, or the liver be wounded, it is deadly. The prognosticks.

Sundry reasons may be alleaged for this. First, is the great flux of blood which followeth. Secondly, the dignity and necessity of it: for it is a principall part, and affordeth blood for the nutrition of the whole body. Thirdly, the inflammation which possesseth it being wounded; for it is a member hot and full of blood. The fourth is the difficulty of curation: for vulnerary potions leese much of their strength before they come to the liver. Why deepe wounds of the liver are deadly.

The

The Topicks cannot well be applyed it lying deepe, and the quittour cannot be well discharged, and so it may corrupt the substance of the liver, and so sanguification is hindred, from whence ensue the consumption of the body, or the dropisie.

Object.

If you object that good Authors have in their monuments set downe the examples of some who have been cured, who have received a deep wound in the liver;

Answer.

I answer that those examples are rare, and come neere to miracles, God his providence concurring with the extraordinary strong constitution of the body: wherefore let not these draw from you any bountifull promise of recovery.

2.

The second pefage: If cold sweats burst out of the forehead and neck, if the wounded party often faint, if the extremities grow cold, and the party become very weake, then death attendeth.

The curation.

Touching the curation, let it be dressed with astringent trochisces dissolved in plantaine water, adding thereto the syrups of dry roses, myrtills and pomgranats: for a doubtfull hope is better than a resolved despaire.

Wounds of the spleen.

The second part appointed for sanguification which may be wounded is the spleen: for according to *Aristot. lib. 3. de part. animalium*, it is a bastard liver. The wounds of it as of the liver are either superficially or deepe. Signes of spleene wounded deeply are these according to *Celsus li. 5. c. 26*. Black blood doth issue out of the left side, the side it selfe and the stomach become hard, great thirst ensueth, and the paine reacheth to the neck.

The differences and signes.

Concerning these wounds, receive these prognosticks. First, deep wounds of the spleen are for the most part deadly. *Celsus li. 5. c. 26*. affirmeth, that they who are so wounded hardly are ever cured: for this prognostick these reasons may be given: First, because a fearfull flux not onely of the venall, but of the arteriall blood also doth ensue. Secondly, it is a worthy and necessary part, it furthering sanguification, and being a second liver, if it performe not its duty.

The prognosticks.

Thirdly, because it being a part full of blood and hot, it may be easily inflamed. Fourthly, because it hath a great consent with the heart, by reason of the multitude of the arteries communicate with it: for noysome vapours may be sent to the heart, from the quittour and putrified blood.

The

The second preface: Although deepe wounds of the spleen be deadly, yet I am of the opinion that the spleen may be cut out of a man, or a woman, and live. The experiment of this exsection in a dogge, Master Gillam and I made in Doctor Bonbams house. First, incision was made in the left side, hard under the short ribbes, foure inches in length through all the containing parts of the abdomen: Then the spleen was drawne out: Thirdly, all the vessels by the which it was bound to the adjacent and contiguous parts we bound to prevent the immoderate flux of blood: Fourthly, we cut away the spleen neere to the substance of it. Fifthly, we stitched the parts of the abdomen, and left the healing of the parts to nature; all the wounded parts were in a short time healed. But about six weekes afterward the curre become mangie, the spleen belike not drawing unto it selfe the feculent blood. *Vitus Vidius de curat. memb. li. 10. c. 10.* thinketh this operation to be impossible with keeping of life, by reason of the immoderate flux of blood which must ensue. But the binding of the vessels doth remove this scruple, which I wonder he did not consider.

That the spleen may be cut out and yet life remaine.

The third preface: By reason of the spleene wounded the stomach, liver, and the whole body may become ill affected: so that the dropisie, scabbiness, melancholy, and such diseases may ensue.

The wounds of the spleene are cured as those of the liver: It falleth out in wounds of the liver and spleen, that much blood falleth into the cavity of the abdomen. But this blood is either discussed by the naturall heat, or else it causeth an aposteme in the groyne.

The curation.

The third part appointed for sanguification is the kidney: This may be wounded either superficially, or deeply; and so either where the *caruncula papillares* onely are, or to the *pelvis* also, and this last either without any hurt done unto the veine and artery emulgent, or they being wounded also.

Wounds of the kidneys.

The differences

If the kidneies be wounded to the *pelvis*, clots of blood will come with the urine: there will be a great paine in the part affected, and will reach to the groyne and testicle. See *Celsus lib. 5. c. 26.* *Fernel. lib. 7. Patholog. c. 8.*

Signes.

If the kidney be wounded through the back, then it is not like that the party can escape: for the wound must pierce the *Psoa*, and the nerves springing there from the *spinalis medulla* can hardly be free.

Prognosticks.

If

2. If the wound be inflicted by the side and pierce but onely to the *caruncule papillares*, it may be cured, and yet not without difficulty, because the muscles of the belly must be wounded, and the *peritoneum* also between the membranes of which it is lapped.

3. If the wound pierce to the *pelvis*, the wound most commonly falleth out to be deadly: First, because the draining of the serositie from the veins and arteries is absolutely necessary: otherwise if it be stayed in the body, it would hinder the union of the wound, and procure watrith powkes and the dropie. Secondly, because the substance of it hardly doth admit consolidation, partly by reason of the compactnesse of its substance, partly because it hath within it selfe the *caruncule papillares* and the *pelvis* which are spermaticke parts.

4. If the veine and artery emulgent bee wounded, there is small hope of recovery, because a fearefull flux of blood must ensue.

The curation. The curation is performed by sanative injections, vulnerary potions, and the ministring of the *trochisci de alkekengi cum opio*, or if the paine be not great, *sine opio* in new milke, having *saccharum rosatum* dissolved in it.

Wounds of the bladder. Their differences. The fourth part appointed for sanguification, which may be wounded, is the bladder. It may bee wounded first in the neck, where the sphyncter muscle is, which is fleshy: secondly, in the body of the bladder. If the wound be in the body of the bladder, then it happeneth either in the sides about the groines, where the ligaments of it are, or in the other membranous parts.

The signes. The signes of the bladder wounded are these, according to *Celsus*, lib. 5. cap. 26. and *Fernel*. lib. 7. *pathol.* c. 8. The urine cometh bloody and sparingly: if the body of the bladder be wounded, then the urine falling into the cavity of the *abdomen*, it will seeme to be *ascites*, and the paine will be communicate to the groins and stones in men.

Prefages. As for the prognosticks, receive these: First, wounds in the neck of the bladder, where it is fleshie, are curable. This needeth no confirmation, for we may see frequent experiment of this in those who are cut for the stone. Secondly, wounds in the laterall parts about the groine are curable also in those who are young, and of a good constitution of body. Thirdly, wounds in other parts of the body of the bladder, which are membranous, are incurable. See

Hippoc.

Hippoc. *Aphor.* 18. *sect.* 6. and *Galen* in his Commentary upon this place: He yeeldeth this reason, because the bladder is nervous, thin, and hath but little blood. Of this same opinion is *Aristotle lib. 3. histor. Animal. cap. 15.* who saith, that the bladder being cut, cannot unite, unlesse it be in the beginning of the neck.

*Celsus* lib. 5. c. 26. subscribeth to these, affirming, that they hardly can be healed whose bladder is wounded: For the confirmation of this opiniou, these reasons may be yeilded: First, because it is membranous: Secondly, because the wounds of it are very painfull, whence affluxion of humors, and an inflammation doe proceed: Thirdly, because it easily mortifieth: Fourthly, because it being the chamber-pot of the body, the urine contained in it, will not suffer the wound to consolidate, by reason of its acrimony nipping, by reason of the quantity distending, and by reason of its humidity relaxing. Fifthly, because fearfull symptomes ensue after such wounds, as fevers, watching, the hicket, dejection of appetite, convulsions & faintings. Sixthly, if in wounds of the bladder, a fever continue, if the wound become black, or of a livid colour; if the party cannot sleep, or it doe continually slumber, and if a convulsion doe happen, and the party become weaker and weaker, you may prognosticate that the party will die.

When you goe about to cure wounds of the bladder, minister vulnerary potions: This which followeth is excellent: *Rx cydon. incis. n<sup>o</sup> iiij. equiseti, sumach. baccar. myrt. an. ℥iiij. ros. rub. siccac. pug. ij. balaust. ℥ β. coq. ista in lib. 16. aq. font. aut pluvial. ad 3. partis consumptionem, ac coletur decoctum. In collatura dissolve syrup. è ros. rub. siccac. & mell. rosat. an. ℥vj. syrup. myrtini ℥iiij, gumi tragacanthi ℥ β. Nil capiat ager præter istud decoctum ante diem decimum si consent vires.* Although the party bee very dry, yet let him not drinke any water, for that would bring inevitable death.

As for the Topickes, anodine and agglutinative medicaments are best, as a digestive made of Cyprian Turpentine, the yolke of an egge, and some of the oyle of egges: you may use your artificiaall balsames brought to a reasonable thick consistence, with the white Joyners vernice, and Turpentine.

Now onely remaineth, of all the wounds in the parts of the *Abdomen* to speak of those which happen to the parts destinate for procreation.

Wounds of the matrix.

Those are the Matrix in Women, and the genitals in men. If the Matrix, then it is either wounded in the neck, or even into the capacity of it. If the wound pierce to the capacity, then blood will issue out at the privie part, and the pain will bee about the groines.

Signes.

The prognosticks.

*Celsus* esteemeth these wounds to bee of difficult curation: These Reasons may bee yeilded: First, it is thin and membranous, unlessse the Woman bee great with Childe. Secondly, because it is of an exquisite feeling; and so paine, a Fever and inflammation may insue. Thirdly, because it hath a notable consent with the principall parts of the body. Fourthly, because it is a moist place. Fifthly, because it is, as it were, the sink of the body to receive impurities, which is the cause that these wounds may become cancerous ulcers. Ordinary wounds, even of the body of the Matrix, are not to be accounted deadly, because Infants have bene by incision, taken out of the Matrix, the mother remaining alive. This kinde of delivery is called *Partus Cesareus*: And the whole Matrix hath bene taken out from the body, the party living long afterward. Peruse *Shenckius* of this matter, *lib. 4. observat. de veri affectibus*, where you may read of fundry examples. Dresse the Matrix as the Bladder.

Seeing the Genitals of man may be wholly taken away, and yet the party live, and that the wounds of these are not deadly, as appeareth in those who have been gelt, and have lost their prick, I think it superfluous to discourse of them, and the rather, because the dressing of them doth not differ from that which is used to other parts of the same nature.

LECT.

LECT. XXXIII.

Of wounds of the nervous parts.

**B**Y the nervous parts, here I understand three sorts of parts: to wit, Sinewes, Tendons, and Ligaments.

That a Sinew is wounded, you shall know first by the part: Signes of a first new wounded. If great and many sinewes be in the place wounded, or passe by it; the anatomy teacheth this. Secondly, you shall know this by the symptoms, for there wil ensue a pulsation, inflammation, convulsion, raving, if it be not cut asunder, and at last sometimes mortification.

The solutions of unity which happened unto sinewes, are foure; a Puncture, an Incision, a Contusion, and a Distortion. The differences of solution of unity in sinewes.

Of the wounds of sinewes receive these Prognostickes: Why wounds of the sinewes are dangerous. First, wounds of the sinewes are dangerous: First, because they are of an exquisite sense or feeling, both because the membrane, wherewith they are covered, proceedeth from the meninges, and that they are impregnant with plentie of animal spirits. Secondly, by reason of the consent which they have with the braine, and the *spinalis medulla*: For according to *Galen, lib. 12. de usu partium, c. 11.* the braine is the Well-spring, the *spinalis medulla* the River, and the Sinewes the Creekes. Thirdly, by reason of the fearfull signes, which follow after that a sinew is wounded, which are extreame paine, afflux of humors, a Gangrene, a sharp Fever, raving, and a Convulsion.

As for a puncture, it is either not conspicuous, not to be discerned by the sight, or it is conspicuous: The first is called *punctura caeca*; the second, *punctura aperta*: of the two, the *caeca* is the worst; for locall medicaments cannot so well be applied to the part wounded. The differences of a puncture and pre-fages.

Before I come to the curation of this particular solution of unity in sinewes, I will acquaint you with the generall indications The generall indications of curing of wounds in sinewy parts.



cations required in the curation of wounds of nervous parts in generall: First, blood is to be let. Secondly, the body is to be purged: See *Galen*, c. 2. lib. 6. *method. Æginet. lib. 4. c. 54* these prevent the affluxion of humors. Thirdly, the party must use a very slender diet. Fourthly, we must provide that the aire which the patient doth enjoy, be warm; for if the aire be cold, a convulsion might ensue, Peruse *Aphor. 15. sect. 5.* Wherefore when you dresse such wounds, you are to use warm cloathes and stupes, and the medicaments warmed.

The curing of  
a hidden puncture.  
The topicks.

Now to come to the curation of a puncture in particular: If it bee *punctura caeca*, these locall medicaments are apt. These medicaments must be hot, drying, of subtile parts, to digest dry putrefaction, and attract. See *Galen*, l. 6. *method. c. 2. & l. 3. secundum genera*: such are *ol. rutaceum, chamemelinum anethinum, costinum, liliorum alborum, vulpinum, de castorio, de euphorbio, lumbricorum hyperici cum gummis, de scorpionibus, terebintinae.* *Galen* adviseth to use Sallet oyle warmed, and applyed with wooll, old oyle is best. *Paræus*, lib. 9. c. 38. adviseth to adde to it *aqua vite*; for the thin and virulent humor, which issueth from the sinew, is spent and dried the more. *Galen. lib. 6. method. c. 2. & lib. 3. secundum genera*, commendeth a medicament made of *Euphorbium*, which is this: *Rx cer. part. 1. terebintln. pic. an. part. dimid. Euphorb. part. 12.* According to the tenderness or hardness of the body, more or lesse of the *Euphorbium* is to be used. You shall know your medicament to be proportionate to the griefe; First, if the party feele a pleasant heat, as is that of the Sunne in temperate weather: Secondly, if the part doth pleasantly itch. If the party feele no heat, then there can be no attraction; if it be immoderate, it will attract humors, and cause inflammation.

Incision.

If by the application of these medicaments, the paine and other symptomes cease not, then crosse incision of the skin is to be made, that the medicaments in their full force may be applied to the punctured nerve. When the puncture is either thus laid bare by incision, or at the first by the wounding instruments; it is not requisite to apply to it medicaments so hot and drying, and when it is hid, to shun inflammation: Wherefore your ordinary artificiall Balsames dropped in warme will serve; for by their unctuosity they smooth the part

part, by their heat they make attraction, and so mitigate paine by discharging the place of the sanies, and by their moillure they open the orifice, and keepe it open.

The incision of a nerve is either straight and direct, or transverse. If it be transverse, it is either quite cut asunder, or but in part.

The curing of an incision of a nerve.

A nerve quite divided is lesse dangerous, than that which is but onely cut in part, according to *Guid. Magn. Chir. tract. 4. doct. 1. c. 4.* See *Galen. l. 6. method. c. 2.* *Avicen. l. 3. c. 4.* *Fan. tract. 4. c. 1, 2, 3, 4, 5, 6, & 7.* The reason of this is, because a nerve being quite cut asunder, cannot send any harme to the braine.

Differences and prognosticks.

1.

A nerve quite cut a sunder cannot admit any consolidation, according to the first intention. See *Hippoc. Aph. 19. sect. 6.* where he saith, when the bone is wounded, or the cartilage, or a nerve, or the thin part of the cheeke, or the præputium, it doth grow againe or unite. He hath the like *Aphor. 28. lib. 7. Aristot. lib. 3. histor. animal.* subscribeth to him: for these parts are spermatick.

2.

As for the curation of such a wound, the Topicks which are used ought to dry with little mordication or biting, according to *Galen, lib. 6. method. c. 3. & li. 3. secundum genera, c. 2.* such are *unguentum de calce lota, & unguentum diapompholix.* If the whole nerve be cut asunder, no convulsion can ensue, because both the ends give way. This kind of wound is cured easily by narcoticall medicaments, whereof I have spoken heretofore sufficiently. In this kinde of wound the motion of the part into which the nerve is implanted to move is abolished. If the nerve be cut asunder but in part, first it is to be dressed with the medicaments before prescribed; but if the symptomes, as paine, &c. and a convulsion be like to ensue, the best course is to cut the sinew or tendon quite asunder, rather than by deferring of the incision to expose the party wounded to the danger of death. This being done, use anodine and desiccative medicaments. When you have thus dressed the wound above your pledgets, either *diapalma* or *diachylon simplex* in the summer malaxed with the oyle of Roses, Quinces, or Myrtills; for the tendernesse of the part will hardly admit the application of any firme emplaster. Last of all, you are to rowle up the part with *fascia expulsiva*, whereof I have spoken

The curation.

spoken

spoken in its proper place, partly to expresse the *sanies* which doth gather in the place, partly to stay the affluxion of new humors.

Of a contusion of a nerve. Now it is time to come to the contusion of a nerve. This may be either solitary, or with some solution of unity. If it be solitary, then you are to foment the part with Sallet-oyle hot, and to apply it with wooll. If the skin bee divided, then medicaments drying and uniting the parts are to bee used. Such is *emplastrum fodicationis* malaxed with the oyle of *hypericum*.

Of a distortion. Last of all, a distortion may happen to a nerve by a fall, extraordinary motion, or some other violent externall cause, which may hinder the motion of the part. In this case apply *emplastrum de mucilagibus*, or *diapalma*, having *gummi ammoniacum* added to it.

Of hardnesse. After contusions and distortion of sinewes, a hardnesse often remaineth, which causeth a numnesse of the part. This proceedeth from the setting of grosse humors in the place. In this case you are to use medicaments which soften and digest, as the oyle of white Lilies, Goose-grease with *bdellium*; but the oyle of sheeps and neats feet impregnat with the mucilage of the marsh-mallow, Linseed and Fenugreeke, exceedeth all other medicaments. Let the part be embrocate with this medicament warmed; and let *emplastrum magnum cum gummi* malaxed with *storax liquidab* be applyed. Now it remaineth that I speake somewhat of accidents which usually fall out when a nerve is wounded.

Of an inflammation. The first of these is an inflammation: you must meete with this by applying medicaments, which are cooling and drying; for these both abate the inflammation, and correct putrefaction, such are Beane-meale, Barley-flowre, the meale of Vetches, Ciche-peafe, or Millet boyled with sufficient store of Oxy-mell, untill they be brought to the consistence of a pultice. But before you apply this medicament to the member, embrocate it with oyle of Elders, having mingled with it a little Rose-vineger.

Of paine. The second symptome is Paine: Here you must use liberall phlebotomie, purging, and a spare dyet. If the party cannot admit bleeding, then use ventoses with scarrification, leeches,

leeches, vesicatories in the the opposite parts; for a locall medicament, use a cataplasme made of Beane-flowre, Mallowes, Grounsell, Violet-leaves boyled in milke, and having *unguentum populeum* mingled with the cataplasme, when it is taken from the fire.

The third symptome which may trouble both you and the patient is a convulsion: Of this accident *Hippocrat. aphor. 2. sect. 5.* so pronounceth: If a convulsion ensue upon a wound, it is deadly. But this must happen after too great effusion of bloud, as he explaineth himselfe in the next Aphorisme; for if a convulsion fall out by reason, by repletion, it is cured by bringing the body low, by using the generall curative meanes in that measure as the circumstances shall shew. If a convulsion happen, then you must embrocate all the *spinalis medulla* from the head to the coccyx, with Sallet-oyle warmed, and afterwards applying rowles of wooll, or a sheepes skin, newly killed, to the part: Then the member wounded is also to be dressed; so if the wound be in the hand, you must begin to foment in the arme-pits, by the which the nerves march, and then to proceed to the *vertebrae* of the neck and breast with oyle and wooll. But if the foot bee wounded, then you must begin the fomentation at the *vertebrae* of the loynes, and *os sacrum*, and so to proceed to the ends of the toes. It is not amisse to hold the whole member in warme oyle, as in a bath, if it may conveniently be done. So much then of wounds of a sinew.

If a tendon be wounded, you shall perceive it by these two signes: The first is, if the wound be neare to the joynt, for the tendons are the endings of the muscles, and the ends of muscles ever end either at the joynts, or neare to them. The second is, if the wound be received in parts which are not fleshie: such are the backs of the hands and feet. As for the curation of these wounds, the indications set downe in the curation of the wounds of a sinew will serve.

If a ligament be wounded, seeing they are not so sensible as those of the nerves and tendons, they procure not so fearefull accidents: only drying medicaments, and not too hot, are here to be used to consume the sanies, lest the ligament rot. Stronger

Of a convulsion.

Of wounds of a tendon.

Of wounds of the ligaments.

er medicaments may here bee used, because a tendon is not so sensible; in this case use oyle of mastick, the naturall balsame, artificiall balsames, and drying and contoliding powders; above apply *emplastrum fodicationis*. In curing all these wounds which happen to the nervous parts, take heed that you use not a fomentation: for that moistneth and increaseth putrefaction.

An observation

This one thing let me insinuate unto you, that if one be offered to you, who hath the great tendon, inserted into the heele wounded, that you suffer him not to walke before it bee perfectly united and skinned, for otherwise it will breake open againe.

### LECT. XXXIIII.

#### *Of wounds of the Joints.*

A Joint is the setting together of bones for the performing of free motion according to *Galen. lib. de ossib. in principio*.

Now wounds of the joynts are made either by a puncture or incision; and these are either in the sipper compassing parts, or else they pierce to the cavity of the joynt. The solution of unity in the joint is apparent to the eye: wherefore it is needlesse to set downe any signes.

As for the prognosticks receive these: All wounds of the joints are dangerous: First, because they are of an exquisite sense, by reason of the nerves, tendons, and membranes: wherefore sharp paines doe ensue, which procure affluxion of humours, from whence spring inflammations, fevers, watching, loathing of food, thirst, convulsions, gangrenes, weaknesse, and sometimes death. Secondly, as all wounds of the joints are grievous, so great wounds piercing to the cavity are most dangerous, yea most commonly deadly, if they be inflicted into great joints, and the *aqua articularis*, the joynt water issue out. Of this water, see *Cels. li. 5. c. 26. Par. li. 9. c. 39. Lang. li. 1.*

es.

ep. in præf. & li. eod. ep. 3. Plat. tom. 2. prax. fol: 782. & 933. & 737. After that this naturall humour is let out, then ſucceedeth the iſſuing of an excrementious humour. *Ceſſus* affirmeth it either to be a thin and whitish ichor, or to be a thick glutinous and whitish humour, like to white honey, which he calleth *meliceria*. This terme by him *lib. eod. 5. cap. 28.* is taken for a kind of ulcer. *Pareus* ſaith that this excrement is ſometimes thick and white, and ſometimes thin. *Langius* likeneth it to whey. *Platerus* averreth it to be a watrish ichor. This diverſity doth proceed from the diverſity of the temperature of the bodies of wounded perſons: It is cold and moiſt, and is cauſed of the elementary juyce, which is ſent to nourish the joint: but it is corrupted by the weakneſſe and diſtemperature of the joint wounded.

A queſtion may here be moved, why a greater quantity of quittour doth flow out of a joynted wound, than out of an other part, if the quantities of the wounds be equall. Queſt.

Many reaſons may be alleaged for this: Firſt, the paine which followeth after a wound in the joint, is ſo grievous, that it maketh a greater attraction of humours: Secondly, the joynts are of a ſubſtance without fleſh and blood, and of temperature cold, ſo that they cannot concoct the ſuperfluous humours which doe flow thither, and turne them to a laudable quittour: Thirdly, by reaſon of their weakneſſe they cannot ſo forcibly repell the humours flowing, as other fleſhy members can, by reaſon of their heat: Fourthly, their ſituation furthereth the admiſſion of ſuperfluous humours much, they being ſeated in a dependant part. Anſw.

As for the curation, if it be a puncture, it is to be dreſſed as the puncture of a nerve or tendon: Shunne cold, relaxing, moyſtning and unctuous topicks, unleſſe paine enforce you to uſe anodine meanes. Cold doth nip wounds, hardneth the ſkin, hindereth ſuppuratation, extinguiſheth the naturall heat, cauſeth blackneſſe, bringeth aguith fits, and convulſions. The curation of a puncture.

*Pe- rufe Hippoc. aphor. 20. Sect. 5.* If the wound be procured by incision, then either the brims are reaſonable neere one to another, or elſe they gape much being much ſeparate. If they be farre aſunder, The curation of a wound of a joint cauſed by incision.

sunder, then you must use stitching first of all to bring the brims together; you must onely stich the skin in persons of ripe age, but in children you may the subjacent parts; for in such they will admit union.

Stitching.

*Galen 2. de fractur.* affirmeth that all parts of the body delight to be covered with the skin, which Nature hath provided for an universall cover. If this may be affirmed of any, it may be most justly pronounced of the joints, for they have but small store of naturall heat, which may bee extinguished, if the cold aire bee suffered to pierce unto them, which is hindered by bringing the brims of the wound by stitching. When the wound is stitched, there must be left a small orifice in the depending part to admit a tent, that the quittour may be discharged.

Locall medicaments.

This being done, if the wound pierce not to the cavity of the joint, dresse the wound with some good artificiall balsame having mingled with it a drying and healing powder; such is this: *Rx ibur. sang. dracon. myrrb. aloes hepat. mastich. an. ʒij. rad. symphyt. centaur. major. borac. sarcocoll. an. ʒj. fiat pulvis, capiat balsami ʒj. & pulv. ʒiβ.* Above apply *emplastrum fodicationis* or this cataplasme: *Rx fursur. macri, far. bord. & fabar. an. ʒij. stor. chamel. & melilot. an. pug. ij. lixivii communis lib. i. acet. sambucin. ʒiv. coq. ista ad cataplasmatiss consistentiam, tum addatur ung. popul. ol. ros. & myrtill. an. ʒj.* This is excellent to prevent paine, or to assuage it if it bee present. All the applications must be actually hot: for actuall heat doth concoct and discasse excrementitious humours in the joints, and strengtheneth them. If the wound pierce to the cavity of the joint, the medicament must bee very drying: first, because the bones and ligaments whereof the joints are framed, are of their owne nature very dry, and so require dry medicaments: secondly, because they have not feeling, and so may suffer very strong medicaments: thirdly, because plenty of thin quittour is gathered in wounds of the joints, a very drying medicament is required.

Use then greater quantity of the former powder with the balsame, or mingle it with *Arceus* his liniment, and above apply the former medicaments.

Let

Let mee give you notice of one thing, that in curing a wound of the joint you have a speciall care of the position of the member, for a perverse posture increaseth symptomes, and bringeth distortion, numnesse, and contraction sundry times, after that the wound is cured. Wherefore if the upper part of the shoulder be wounded, a large bowster must be put in the armpit, and the arme caried in a scarfe to beare up the lower part of the arme, that the brims of the wound may the more aptly consolidate. If the lower part of the arme be wounded, you must cary it in a posture meane, between extension and contraction. And when the lips of the wound begin to unite, you must cause the patient to use a moderate motion of the arme, lest it prove lesse plyable to motion, after that the wound is cured. If the joint of the elbow be wounded it must be so placed that it be neither too much contracted, nor too much extended.

The posture of the member.

The German Chirurgeons here are very scrupulous in wounds of the *musculus biceps*, which they call *die mauss*, or the mouse, for the likenesse it hath with a mouse, for it hath a small tendinous beginning and ending, but a thick fleshy belly. They esteeme the wounds of this muscle, which with the *brachieus* doth bend the elbow, to bee deadly: thus I would have you to distinguish. It may be wounded both in the beginning or head and tayle, and in the belly also. Wounds in the beginning and insertion of it are most dangerous, because these parts are tendinous, and so of an exquisite feeling, it is double in the beginning. If a wound bee inflicted in the belly of this muscle, it is lesse dangerous, because it is fleshy, yet a great flux of blood may ensue, because it hath remarkable veines and arteries, and great paine, because it hath not small twigges of the nerve. If the wrefts or joints of the fingers be wounded, they must bee kept halfe shut, moving a ball in the palme of the hand: for if they be kept still extended they may prove unable to gripe when they are healed.

Wounds in the *musculus biceps*

If the articulation of the hip bee wounded, the thigh bone must be kept in its cavity, which may bee done by laying the



patient on his back, and applying fit bowllsters and rowlers. If the knee be wounded, it muſt be kept extended, if the party will not have the member contracted after the wound is healed. When the joynts of the Toes are wounded, they are to bee kept in their naturall poſture, not bending of them inwardly or outwardly. To conclude the method of curing of wounds in the joynts, if they paſſe to the cavity, although they bee cured, yet the member will remain ſtiſſe.

What things  
make wounds  
great.

Seeing wounds are accounted great for foure reſpects: Firſt, by reaſon of the greatneſſe of the ſolution of unity. Secondly, by reaſon of the excellency of the part. Thirdly, by reaſon of the ill conſtitution of the party wounded. Fourthly, by reaſon of the grievous ſymptomes. In the firſt and two laſt reſpects, wounds of the joynts may prove great.

What make  
them deadly.

And ſeeing wounds may foure manner of wayes cauſe death. Firſt, if the office of the part be neceſſary, as that of the Lungs. Secondly, if the part bee excellent, as the braine. Thirdly, if the flux of blood cannot be ſtayed, as are the wounds of the Liver, and the great veſſels. Fourthly, if evil ſymptomes doe follow, as appeareth in wounds of the bladder. Wounds in the joynts moſt commonly prove deadly for the fourth cauſe.

Of vulnerary  
potions.

Before I put an end to this Treatiſe of wounds, wherein I have perſiſted the longer, becauſe it is an object whereabout Chirurgions are moſt frequently buſied, I will ſpeake ſomewhat of vulnerary potions, becauſe I have often made mention of them, and have ſet down the deſcription of ſome in the curation of ſome dangerous and great wounds.

Of their qua-  
lities.

As for their qualities they are drying, familiar to the naturall heat, and radicall moiſture, and by a ſecret faculty they correct malignity.

The operations of them are theſe, they do purifie the blood, cleaning it from all impurities, and excrementitious humours, they cleanſe wounds and ulcers alſo, they agglutinate broken bones, and unite ſinewes, they haſten the ſcaling of bones, they procure the expulſion of ſtrange bodies in wounds; they diſſolve knotted blood; they dry up ſuperfluous humidity, and withſtand putrefaction.

Let

Let no man wonder that they have such admirable effects Wee know that their meats and drinks, yea medicaments which are hurtfull in some diseases, and at some times, as in a burning fever to drink wine, or to minister hot or obstructing medicaments: Shall wee not then thinke that Nature hath provided meanes helpfull and profitable in griefes, unlesse wee will take her to be rather a Stepmother than a loving Mother?

But seeing GOD, by his providence did fore-see, that man would fall and become mortall, and that diseases (the meanes to bring man to his end) would increase; of his owne goodnesse, he from the beginning created meanes to second Nature against diseases, and to deferre death by prolonging life by use of such things as are familiar to Nature, and contrary to the griefe: such are vulnerary potions in wounds.

The chiefest of the simples are these: Scabions, Sanicle, Bugle, Mouse-ear, Burnet, Madder, Tansey, Comfrey, Vervene, Bistort, Tormentill, Peruinkle, Centory the greater, Borrage, Hore-hound, Adders-tongue, Betony, Valeriane, our Ladies Mantle, Avens, *Carduus benedictus*, the cordiall Flowers, Speedwell, Agrimony, the capillar Herbs, Prunella, Osmund, Clarey, Gentian, Herniaria, *Scordium*, Cats-mint, Cinquefoyle, Mead-sweet, Colts-foot, St. Johns woor, Plantane, Knot-grasse, Sheepheards purse, Yarrow, buds of Briars and the Oke, Pyrola, Lunaria, &c. Amongst these some are hot, and some temperate.

Those which are hot are not to be used untill the seventh day be past, when symptomes most commonly cease, and concoction appeareth: For they would heat and attenuate the blood, and cause defluxions. These Simples you may use two manner of wayes: First, in decoctions: Secondly, in Infusions, using Wine, Ale, or Beere, as shall be thought fittest.

Let this be a patterne of a Decoction: R *Sanicul. bugul. scab. beton. nepeta. an. man. s. rad. centaur. majoris, symphyti, borrag. an. ʒ. s. passul. major. exacinat. ʒij. liquirit. ʒvj. semen. hyper. & card. benedict. an. ʒiij. flor. cord. pug. ij. Coq. ista in aq. font. lb. viij. ad medias, ac coletur decoctum: Aromatizetur decoct. cina-*  
mon.

*mon. ℥v. Illique addantur mel. ros. & Syrup. myrtin. an. ℥i β. vini  
albi ℥β. β. Dos. ℥iv. mane, & tantundem hora quarta pomeridiana.*

Some of the afore-named Simples may bee boyled in the  
patients broths. Thus you may frame to your selves  
decoctions fit for the constitution of the party,  
the time of the grief, the part wounded,  
and the time of the year.

---

**FINIS.**

---

A  
TREATISE  
OF ALL THE  
MUSCLES  
Of the whole  
BODY.

By ALEXANDER READ, Doctor  
of Physicke, a Fellow of the Colledge of  
Physicians of the famous City *London*, and a  
brother of the worshipfull Company of Barbour-  
Chirurgians of same City.



LONDON,  
Printed by E.G. for *Richard Thrall*, and are to be sold  
at his shop at the Crosse-keys at *Pauls-gate*. 1650.

A  
TREATISE  
OF ALL THE  
MUSCLES  
OF THE  
BODY.

By ALEXANDER READ, Doctor  
of Physick, a Fellow of the College of  
Physicians of the famous City of London, and a  
Member of the Royal Society of London.  
Gentleman of the City.



LONDON  
Printed by J. Sturges, at the Sign of the Sun in St. Dunstons Church-yard, in the County of Middlesex.

R  
A  
con  
set  
be  
thi  
set  
to  
sha  
be  
Wh



TO THE  
RIGHT HONOURABLE

JOHN Earle of *Bridgewater*,

One of His Majesties Privy Councell, and  
President of the Marches of Wales:

*Alexander Read*, D. M. wisheth increase of  
true honour, and all other felicity.



*Seeing, according to the laudable and anniversary custome used in the Barbour-Chirurgians Hall, I am publikely this yeere, about Shrovetide, to read of some part of the Anatomy; and that I was moved by the worshipfull of the Company, to discourse of the muscles of the body of man; I thought it fit to set down the doctrine of them as briefly and plainly as may be: partly to enable those who are Masters of the Anatomy this yeere, and are to shew them to the Spectators, as I shall set down their beginnings, bellies, and insertions: partly to make my auditors the more ready to apprehend what I shall deliver of them when I am come to read, if they will be pleased to peruse this short Treatise the mean while. Which if they doe, they shall not think their labour lost:*

## The Epistle Dedicatory.

For they shall see that in a small compasse presented to the eye, which the most learned and skilfull writers and dissectsors have set down, but in more ample Volumes: and they shall undoubtedly take pleasure in labouring to know the instruments of locall motion, so various in the body of man. These my labours in a hard and intricate businesse, I thought good to dedicate to your Honour, both because you take delight in such studies, and because I am willing to leave to posterity some signification of a thankfull minde, which I ever entertained toward your Honour, who have ever used me respectfully and courtecously, sithence it pleased your Honour first to take notice of me, one of the lowest ranke amongst the learned. This fruit of my mind, although perhaps not so pleasant as maybe found with others, you will I hope accept of, considering rather the mind of the giver, then the gift it selfe. In London, Decemb. 18. 1636.

---

A

are e  
The  
many  
don.  
and t  
brain  
ther i  
cle.  
stance  
into a  
and b  
ded o  
fibræ,  
certai  
waies  
not th  
all stra



# A TREATISE of all the Muscles of the Body.

## CAP. I.

### *The description of a Muscle.*

**A** Muscle is a dissimilary part, framed of its proper membrane, a fibrous flesh, a tendon, veines, arteries, and nerves, appointed by nature to be the instrument of free motion. *The parts* then are either common or proper. *The common* are three: The veine, the artery, and the nerve. *The proper* so many; the fibrous flesh, the membrane, and the tendon. The *veines* afford nourishment, the *arteries* life, and the *nerves* motion. These spring either from the brain, or from the *spinalis medulla*. It is implanted either in the beginning or about the middle of the muscle. *The nerve* as soon as it hath entered into the substance of the muscle, like unto a shrub, it is dispersed into a number of twigs, which at the last end in it, and become inconspicuous. *The fibrous* flesh is extended onely according to the straight position of the *fibre*, whereas the flesh of the other parts hath no certaine position. *The fibres* of every muscle are alwaies strait: wherefore the muscles of the belly have not their denomination from their *fibres*, for they are all straight; but from position and situation: so that

The description of a muscle.

The parts constitutive.

Veines.  
Arteries.  
Nerves.

The flesh.

The fibres.



## A description of a Muscle.

The fibres  
spring from  
the nerves, ac-  
cording to *Galen*.  
The mem-  
brane.

The tendon.

Which muscles  
have tendons.

How it spring-  
geth from the  
bone.  
It is the prin-  
cipall part of a  
muscle.

From whence  
it hath its mo-  
tive faculty.

Its material  
cause.

the muscle called *masseter* is accounted double, seeing it hath two sorts of *fibres*, one lying upon another. Every muscle hath a proper *membrane*: It is so more properly named then a coat: for veins and arteries are properly said to have coats. The membrane doth either spring from the tendon, or is framed by nature in the very first conformation of the parts. The last proper part of the muscle is the *tendon*. It is a similiary body, framed of the seed, of a sinewy-like substance, onely (for it hath a peculiar substance differing from a sinew) white with a kind of brightnesse, thick, hard, and smooth, extending according to the length of the muscle. *It is ten times bigger then a nerve: It beginneth* at the head of the muscle, passeth through the belly of it, and endeth in the taile, as manifestly appeareth in the foot of a cock. *All muscles* which are appointed for the moving of bones, have tendons; but those which move other parts, as the tongue, lips, bladder, and the *anus*, seldome have. *It is said* to spring from the bone; this is to be understood by reason of its insertion, but not production. *It is the principall part of the muscle*, and not the fibrous flesh; first, because it onely hath strength to lift up the bones: 2. because it onely is fit to contract it selfe, whereas the loose and soft flesh is neither able to lift up the bones, nor to contract it selfe: 3. because there is not such a part in all the rest of the body. *It hath its motory faculty* from the nerve by influence, as the loadstone draweth the Iron, and the cramp-fish doth benumme the hand of the fisherman by the pole. *It is framed* by nature of the seed in the first conformation, and not of the nerve and ligament mingled together: 1. Because a nerve being somewhat soft will not admit commixtion with the ligament being hard. 2. Be-  
cause

cau  
enc  
fibr  
of  
4. E  
pos  
and  
hav  
the  
ger  
time  
men  
are  
thes  
thre  
is th  
mus  
the  
part  
mon  
parts  
in th  
to be  
tary,  
is der  
in m  
as suc  
be de  
ganic  
to *Ga*  
part;  
divid  
motio  
action

cause the nerve is not carried to the tendon, but doth end into conspicuous threds. 3. Ligaments are insensible, but tendons are of exquisite sense; as appeareth of the great paine which ensueth if they be pricked. 4. Because the ligaments of the bones have the composition of membranes; for they are made of straight and transverse fibres, as a web; whereas the tendons have onely straight fibres. The tendon beginneth at the belly of the muscle, for there it is bigger and stronger than in the head or taile: *The tendons* are sometimes round, as in the *musculus biceps*; sometimes membranous, as in the muscles of the belly. These are the parts constitutive of a muscle. *It hath besides these parts* derived from the position; and those are three: The head, the belly, and the taile. The head is the beginning; this is the part unto the which the muscle is contracted: the belly is the thickest part; the taile is the ending of it; and it is inserted into the part which is moved. It is called *Tendo*, and commonly *Tendo*. The substance of the tendon in all these parts is uniform: *The use of the muscle* was set down in the last part of the description, in that it was said to be the instrument of free motion, and not voluntary, because beasts have muscles, unto whom will is denied, because it presupposeth reason. *A muscle in motion* performeth that which a lever doth, when as such a heavy weight is to be lifted up, which cannot be done with the hands onely: Seeing in every organically part there are four kinds of parts (according to *Galen*, 1. de us. part. c. 8.) *The tendon* is the principall part; which is sometimes together united, sometimes divided. *The nerve* is that part without the which the motion cannot be performed. *The flesh* bettereth the action. *The rest* of the parts help and further it.

I s beginning;

The figure of tendons.

The parts from the position.

The use of a muscle.

The divers parts of a muscle.

## CAP. II.

## Of the differences and action of Muscles.

From whence  
the differences  
of muscles are  
taken.

The greatest  
and smallest  
muscle.

The causes of  
the unity and  
plurality of  
muscles.

**T**He differences of muscles are taken from sundry things: first, *From their substance*, so some are fleshy, as sundry of the tongue and *larinx*: some are membranous, as the *constrictores* of the nose: and some are partly fleshy and partly nervous, as the *temporall*. 2. *From the quantity*: the greatest of all is the first of those which extend the breast, for it doth ascend from the end of *os sacrum* to the first *vetebra* of the *thorax*. The least of all is the *internall* muscle of the *eare*: the rest are of a mean bignesse, and come neere either to the biggest or the least. From the quantity the muscles are called either long, broad, or thick. 3. *From the situation*: frō hence some are called *externall*, some *internal*, some *oblique*, some *straight*, some *transverse*. 4. *From the Figure*: as *deltoides*. 5. *From their beginning*: so some proceed from bones, some from *cartilages*, as those of the *larinx*, some from *tendons*, as the *lumbricales*. 6. *From the variety of parts*: so some are called *bicipites*, having two heads. 7. *From their composition*, so some are single, some double; because some have more heads, some more *tailes*. The unity of the *membrane* and *belly*, which wrappeth the muscle, causeth the unity of it, and the plurality of the *membranes* and *bellies*, the plurality of the muscles. 8. *From their action*: *Four* differences of muscles are taken from hence: for first, some are hence called *fraterni*, or *congeneres*, brotherly; some *antagonistica*, adversaries. 2. Some onely move themselves, as the *sphinters*; some other parts, as the rest. 3. Some have

have one onely action, as the greatest part of the muscles; some have divers actions, as the *masseter* and *trapezius*. The fourth difference is taken from the variety of the action; so some are called *flexores*, some *extensores*, some *rotatores*, some *supinatores*.

As for the proper action of a muscle, it is nothing else but the contraction of it towards its beginning. Now two things ensue after this contraction: for first, the part into which the muscle is inserted, must be apt to move: secondly, it must be drawn towards the beginning of the muscle. The diversity of the action proceedeth from the diversity of the situation of the muscles: so a straight muscle hath a straight motion; a transverse, a transverse motion; an oblique, an oblique motion; & that which compassieth a part, hath an orbicular motion, as the sphincters. Now of the motion of the muscles there are four differences. 1. The contraction. 2. The perseverance of the contraction. 3. The relaxation of the contraction. And 4. the perseverance of the relaxation. This perseverance is called *motus tonicus*, when as the member is still kept in the same posture: which is performed by that faculty which governeth the body. The efficient cause then of the action is the soule, moved by its appetite. It useth three instruments: the braine, the nerve, the muscle: the braine receiveth the charge, the nerve carrieth it to the muscle, and the muscle doth performe the action. So that a muscle from the action may thus be described: A muscle is an organicall part of the body, appointed for the free contraction of it selfe towards its beginning, for the moving of the part into the which it is inserted.

The proper action of a muscle.

The cause of the diversity of the action.

The differences of the motion of the muscles.

Motus tonicus.

The efficient cause of the motion.

A description of a muscle from its action.

## CAP. III.

## Of the muscles of the Eye-lids.

**E**Ach eye-lid hath four muscles: the first is *frontalis*, to lift it up: the second is *orbicularis major*, or the larger round muscle under the frontall: the other two are called *Ciliares*, or of the eye-lids. In each of them there is one to shut the eye-lids. The motion of the upper is manifest, but of the lower obscure. In breadth they exceed not the breadth of the cartilage. To shew the *frontall*, you must divide the skin of the forehead where the haire beginneth, untill you come to the eye-brow. *Orbicularis major* lieth under the frontall, and appeareth when the skin of the eye-brow is removed. The *Ciliares* compasse the eye-lids orbicularly.

The *occipital*, or nowle muscles meet with the frontals, or those of the forehead in the upper part. The *occipitals* begin on each side of the nowle, and marching upwards by a broad and membranous tendon to the eares, meet with the frontals. If these be very fleshy, they are able to draw back the whole skin of the head.

## CAP. IV.

## Of the Muscles of the Eye.

The straight  
muscles.

**T**Hese are in number six; foure straight, and two oblique. The first of the straight is called *attollens*, or *superbus*; that which pulleth up the eye. The second is *deprimens* or *humilis*, that which draweth  
down

down the eye. The third is *adducens* or *bibitorius*, that which pulleth the eye to the nose. The fourth is called *abducens* or *indignatorius*, that which pulleth it from the nose.

All these spring from the cavity of the bone, making the orbit of the eye about the hole of the opticke nerve, and being compassed with much fat, passing under the *conjunctiva*, end by a broad but thin *aponeurosis*, in the *cornea* or horny membrane, where it beginneth to be cleare.

Their beginning and insertion of them.

The *oblique* muscles are called *circumagentes*, winders about, and *amatorii*, or love-makers; and are in number two: the first is *obliquus major*, seu *superior*, the uppermost and largest. This beginneth within the orbit of the eye, by the hole of the opticke nerve, and passing to the upper part of the great corner of the eye, endeth in a small tendon, which passeth through a transvers cartilage there placed, as a cord through a pully, and is inserted into the upper side of the *corner*. The second is *obliquus minor*, or *inferior*, the lowermost and smallest. This springeth from the lower and almost outer part of the orbit, about the chinke which doth unite the bones of the upper jaw bone, neere to the glandule, and passeth obliquely to the outer corner of the eye, and in the upper meeteth with the tendon of the other oblique muscle. This bringeth the apple of the eye to the nose, as the other draweth it from it.

The oblique muscles.

Before you shew the muscles of the eye, cut off the fat with the cissars: then shew first the *obliquus major*, then the *obliquus minor*, and last of all the foure straight muscles. Neverthelesse let the *obliquus major* remaine last when all the rest are taken away, and you may shew the tendon of it passing through the pulley the more plainly.

How these muscles are to be shewed.

## CAP. V.

## Of the muscles of the Nose.

The raising up  
of muscles.

**T**He nose hath six muscles, whereof there be *erectores*, or raisers upwards, two; one on each side of the nose. They begin where the hole is under the glandule, and so cleaving to the bone, are outwardly inserted and carried to the *Pinna*, or sides of the nose.

The stretching  
muscles.

There are two also called *dilatatores*, or openers, on each side one, which dilate the nofethrils, not raising up the nose. They are like to the leafe of the myrtle tree. They have their beginning from the bone of the upper jaw, neere to the sides of the nose, and being placed about the cartilage, end in the top of the nose called *pirula*, the tip.

The pullers  
together.

There be also two *constrictores*, pullers together of the nofethrils: These are small and membranous, hid under the membrane which covereth the inside of the nose. They have their beginning where the bone of the nose endeth, and are implanted in the inner side,

## CHAP. VI.

## Of the Muscles of the Lips.

The common  
muscles.

**T**He muscles of the lips are either common to the cheeks and lips, or proper onely to the lips. The common are two: the first is *zygomaticus*, or *detrahens quadratus*: this is a thin muscle resembling a membrane, enterlaced with fleshy fibres. This hath its beginning

ginnung from the *vertebra* of the neck in the outer side, the shoulder-blade, the cannell bone, and the breast-bone, and mounting up by oblique fibres to the face, is implanted in the chin, where the two lips are joyned: this muscle doth draw the cheeks downward. The second is called *buccinator*, or *bucco*: this lieth under the former, in the upper part of it. It doth make up that part of the cheek which is blown up when a Trumpet is sounded. This springing from the brims of the upper jawbone circularly, doth end in the brims of the lower jawbone. It is wholly membranous, and interlaced with divers fibres, and is so covered with the membrane which covereth inwardly the mouth, that it hardly can be severed from it. When this muscle is contracted, it is turned inwards, and so it turneth in the meat which hath escaped the teeth; and so when the meat is chewed it is kept inwardly by the tongue, and outwardly by this muscle, that it escape not from the teeth.

Now the *muscles proper* to the lips are four paire: The proper muscles.  
 First, *par attollens*, which beareth up the upper lip. This springeth from the first bone of the upper jaw, where the apple of the cheeke is; there it is broad and fleshy: from thence marching obliquely to the forepart, it is inserted into both the sides of the lips neere to the nose. The second is *deprimens*, which pulleth down the lower lip. It springeth from the sides of the chin, where two small bunchings are: there it is fleshy; from thence marching obliquely, it is inserted into the middle of the lip: it is everywhere broad. The third paire is *abducens*, or drawing the lips to the sides. It ariseth fleshy and round from the hollownesse which is under the *maxilla*, and being lapped with much fat, it is inserted into those places  
 where



*Of the Muscles of the lower jaw.*

where both the lips are joyned together. The fourth is *corrugans*, or *constringens*, that paire which purseth the lips together. It is called also *osculatorium*, or the kissing paire, which draweth the lips together when we kisse. This paire is framed of a fungous fleshy substance, having orbicular fibres, as the *sphincter* hath. The ends of both the lips are made up of these; which appeare red if we be in health, but pale if we be sickly.

CAP. VII.

*Of the Muscles of the lower jaw.*

**T**He lower jaw is moved upwards, downwards, towards the right side, toward the left side, and towards the back-part. To procure these motions, five paire of muscles are appointed: The first is called the *temporal*. This doth spring from all the hollownesse of the bones of the Tempils, by a broad, fleshy, and semicircular beginning, and by degrees becoming narrower, and being carried under the yoke bone, it is inserted into the processe of the lower jaw-bone by a strong tendon. This tendon is dispersed through the whole muscle. The *fibræ* passe from the center to the circumference. *This muscle is covered in its upper part with the pericranium; but in the lower part it is bare, and rested upon the bare cranium. Wherefore if this muscle be wounded, fearfull symptoms ensue, partly because the tendon passeth through the whole muscle: partly because it is covered with the pericranium. This muscle forcibly pulleth up the lower jaw, and so shutteth the mouth, and springeth from os frontis, os syncipitis, temporum, and the*

Why the wounds of the temporall muscle is dangerous,

Of the Muscles of the lower jaw.

the *sphenoides*. The second *paire* is called *deprimens*, *digastricum*, or *biventre*, because it hath two bellies, between which a tendon lieth: this doth pull down the jaw, and so openeth the mouth. It hath its beginning from the processe of the veines of the Tempils, called *Styloidei*, where it is nervous and broad; and afterward becomming fleshy, small, and ronnd, it passeth downward, and is inserted into the inner forepart of the jaw-bone, which is under the chin, and somewhat rough. The third is called *masserer*, because it serveth for chewing by moving the jaw, to the right and to the left side: from its situation it may be called

*laterale*. This hath two beginnings: one is nervous, springing from the sutures where the first bone of the jaw is joyned to the fourth. This beginning is large and strong: the other beginning is fleshy, proceeding from the *os jugale*, and so marcheth towards the chin, and is implanded into the whole largeness of the lower jaw strongly. The fibres of this muscle, by reason of the two beginnings crosse one another; so that these muscles doe not onely move the jaw laterally, but backward and forwards also.

The fourth *paire* is called *pterigoideum externum*, *aliforme externum*, or *pterigoideum abducens*. This being in its beginning strong, and partly nervous, and partly fleshy, doth spring partly from the upper externall sides of the wing-like processes, partly from the rough and sharp line of *os cuneiforme*: then marching by straight fibres, it becommeth greater. It is inserted by a strong tendon into the internall laterall part of the jaw, which is under the tendon of the temporall muscle. This moveth the jaw forward, which appeareth when the lower teeth are placed above the upper.

The

*Of the Muscles of the Eares.*

The fifth paire is termed *maxillam adducens*, or *pterygoideum internum*. This draweth the jaw towards the head, backward. This in the beginning being thick and nervous, doth spring from the inner cavity of the wing like procesles; then becommeth fleshy, large, and thick, marching by a straight passage; it is inserted into the lower jaw by a nervous, broad, and strong tendon, in the inner and hinder part of the jaw, about the cavity where the nerve entreth, where some asperities are found.

CAP. VIII.

*Of the Muscles of the eares.*

The outer  
muscles, foure  
paire.

**T**He eare is moved, though obscurely, four manner of waies: *viz.* upwards, downwards, forward, and backward. The muscles which move the eare are either outward or inward. *In the outside* there are foure paire. The first paire is called *attollens*: this is nothing but a portion of the frontall muscle, which is carried above the temporall muscle, and is inserted into the upper part of the eare: It is thin and membranous in the beginning, about the ending of the frontall muscle, and becomming narrower, it goeth down to be inserted into the upper part of the eare. The second is *deprimens*, or puller down: This springing from the *musculus cutaneus* above the *parotides*, broad, fleshy, and sometimes fibrous; and afterward becomming narrower, is inserted by its tendon into the root of the cartilage of the eare. The third is *adducens ad interiora*, whereby the eare is drawn forward: This is but a particle of the *musculus quadratus*, which pulleth down the cheeks. This ascending with

its

its fibres, is implanted in the root of the eare. The fourth is *abducens ab posteriora*: this hath it beginning in the back part of the head, from tunicles of the muscles of the nowle, above the *processus mammillaris*: bein there but narrow, it is carried downwards transversly, and is inserted into the eare behind. In the *inner part* of the eare there are two found out by *Aqua pendente*, and *Iulius Casserius*. The first is called *externus*: it is small, springing from the skin and membrane which cover the passage of the eare; then becomming fleshy, it marcheth by a short tendon to the outer part of the *tympanum*, and is inserted about the center of it, where within the *malleus* or hammer is tied to it. The second is called *internus*: this is small, and placed within the *os petrosum*. It hath its beginning in the *basis* of the wedge-bone, then becomming somewhat fleshy, and after the midst of it narrower; it is divided into two small tendons, whereof the one is inserted into the upper proesse of the *malleus*, and the other into the neck of it.

The inward  
muscles.

## CAP. IX.

## Of the Muscles of the Tongue.

**T**He tongue hath foure paire of muscles, by the which it is moved, according to all the differences of moving by a wonderfull volubility. The first is *geneoglossum*: this pulleth the tongue without the teeth and lips. It springeth from the ruggednesse which is seen in the middle of the lower jaw, in the lower part of it, and is inserted into the root of the tongue. The second is *Myloglossum*; this helpeth the former. This springeth from the inner part of

C

the



*Of the Muscles of the bone of the Tongue.*

the lower jaw, where the farthest grinding teeth are, about the root of the tongue it is inserted into the ligament, by the which the tongue is tied to the throat. The third is called *Hypsiloglossum*, or *retrahens*. This rising from the middle and upper part of the bone of the tongue fleshy, marching alongst the tongue it is inserted into the middle of it. This draweth the tongue inward when it is contracted. The fourth is called *Ceratoglossum*, or *Styloglossum*: by this it is drawn towards the sides. It ariseth from the *styloides processus* of the bone of the tongue, by a fleshy, small and sharp point; then becomming broader, it is inserted into the sides of the tongue.

C A P. X.

*Of the Muscles of the bone of the tongue.*

**T**His bone is moved upward, downwards, forward, backward, and toward the sides, as the tongue is; because it is the foundation of the tongue: and the muscles of it serve for the motions of the tongue and of the *larynx* also, when as the *larynx* and tongue are lifted up, and let down when we swallow. To performe the former actions, it hath foure paire of muscles. The first is called *Sternohyoideum*: this springing from the upper, but inner part of the *sternum*, and marching by the winde-pipe, is inserted into the root of the *hyoides*. The second is opposite to this, and is called *genihyoideum*: this springing from the inner part of the chin, fleshy, broad, and short, is inserted into the root of the bone, where a cavity is to receive it. The third is *Coracohyoideum*: It riseth at the first small and long, but fleshy about the neck,  
and

and the crowes-bill-like proceſſe of the *ſcapula*, and paſſing under the *levator* of the ſhoulder-blade, called *musculus patientia*, it is inſerted into the points of the *hyoides*: it hath two bellies, and is very long. The fourth is *ſtyloceratohyoidæum*: This riſeth from the root of the *proceſſus ſtyloides*, and endeth in the points of the *hyoides*.

## CAP. XI.

## Of the muscles of the Larynx.

**T**He muscles of the *larynx* are either common The common muscles. or proper. The proper muscles. The common are foure: two called *bronchii*, and as many called *hyothyroidæi*. The *hyothyroides* doth liſt up the *larynx*. This ſpringeth from the whole *baſis* almoſt of the bone of the tongue, and is implanted into the externall part of the *thyroides*, or buckler-like cartilage. *Bronchius* pulleth down the *larynx*. This ſpringing from the inner part of the *ſternum*, mounteth up to the *baſis* of the *thyroides*, by the pipes of the *trachea arteria*. This muſcle with its fellow raiſeth up the length of the wind-pipe in beaſts and fowles, which have a long necke. The proper muscles are in number five: The firſt is *Cricothyroides anticus*: this dilateth it. This ſpringeth from the fore and externall part of the ring-like cartilage, and is inſerted into the lateral parts of the *Thyroides*. The ſecond is *Cricothyroides lateralis*. It purſeth together the *thyroides*. It ſpringeth from the lateral part of the *cricoides*, and is inſerted into the externall laterall parts of the *thyroides*. The third is *Cricoarytenoides poſticus*: this openeth the ewar-like cartilage. This paſſeth from the back part of the *cricoides*

## Of the Muscles of the uvula and the Throat.

*coides* to the *arytenoides*. The fourth is *Thyroarytenoides*, or *glottideus*: this helpeth the former, and springing from the inner and fore part of the *thyroides* is inserted into the laterall parts of *arytenoides*. The fifth is *Arytenoides*: this is a round muscle, compressing the ewar-like cartilage.

## CAP. XII.

## Of the Muscles of the uvula and throat.

**T**He *uvula* hath two muscles to hold it up: for it is pulled down by the weight of the meat as it passeth by it. The first is *Peristaphylinus externus*: this springeth from the upper jaw, a little below the furthest grinder, and is inserted into the side of the *uvula*. The second is *Peristaphylinus internus*: this proceedeth from the lower part of the internall wing of the *pterygoides* processe, and is inserted into the *uvula* in like manner.

The *throat*, or the beginning of the *oesophagus* called *pharynx* hath seven muscles, to wit, three paires, and one without a paire. Of the paires, the first is *sphenopharingeus*: this springeth from the sharp point of the *sphenooides*, neere to the *styloides* processe; and passing downward, is inserted into the laterall parts of the throat, to pull up the mouth of the stomacke. The second is *Cephalopharingeus*. It springeth from that part where the head is joynd to the neck, and marching down it is spread about the *pharynx*, and seemeth to make the membrane of it. The third is *stylopharingeus*: This springeth from the *styloides* processe, is laterally inserted into the *pharynx* to dilate it. That which hath no match is called *oesophagus*:

*gens* : this springeth from one side of the *thyroides*, and circularly compassing the hinder part of the *pharynx*, it is tyed to both the sides of the *thyroides*, to contract the mouth of the stomach, as the *sphincter* doth the *anus*.

## CAP. XIII.

## Of the Muscles of the Head.

**T**He muscles of the head are either common or proper. *The common* are those which together with the neck move the head : these are the muscles which move the neck. *The proper* are those which onely move the head, when the necke remaineth immoveable: these are in number 14. or 7. paire. First, two *mastoidei* bend the head forward. These beginning in the upper part of the *sternum*, and the middle of the cannel bone, are inserted into the proceſſe called *masteides*, obliquely. These are placed in the forepart : behind 12. or 6. paire are placed. The first is *splenius*, or *triangularis* : this proceeding from the sixt *vertebra* of the breast, and marching to the third *vertebra* of the neck, is inserted into the *occiput*. The second, *Complexus*, or *trigeminus*. This springing from the transverse procesſes of the same *vertebra*, is inserted into the *occiput*. The third, *recti majores*, two : these springing from the edge of the second spondill, are inserted into the *occiput*. The fourth, *recti minores*, two : these lie under the former, proceeding from the backe part of the first spondill, end into the *occiput*. The fifth, *obliqui majores* : these springing from the *spina* of the second *vertebra*, reach to the transverse procesſe of the first *vertebra*.



*Of the Muscles of the Necke.*

*vertebra.* The sixth, *obliqui minores*, under these proceeding from the same beginning, are carried to the *occiput*. The oblique muscles turne about the head: the other muscles extend it.

C H A P. XIV.

*Of the Muscles of the Necke.*

**T**He neck hath eight muscles, four on each side: for it is extended by two paire; *Semispinatum*, and *transversarium*. *Semispinatum*: this proceeding from the *spine* of the upper seven *vertebrae* of the breast, and five of the *vertebrae* of the neck, it is inserted into the edge of the second *vertebra* of the necke. *Transversarium*: This rising from the transverse processes of the six upper *vertebrae* of the back, is inserted outwardly into all the processes of the *vertebrae* of the neck. It is bended by four muscles, two on each side: to wit, first *longus*; this being placed under the *oesophagus*, doth spring from the third *vertebra* of the back, and mounting up, it is tied to all the *vertebrae*, and endeth in the fore-process of the first *vertebra*. The third is *par spinatum, triangulare, scalenum*. It proceeding from the first rib, is inserted into all the transverse fibres of the neck, by oblique fibres internally. It is perforate to make way for the veines, arteries, and nerves which passe to the arme.

C A P. XV.

*Of the muscles of the Breast.*

The dilate s.

**F**irst of all, these dilate it. *v. Subclavius*: This ariseth fleshy from the inner part of the *clavicula*, which

is inserted into the first rib, neere to the *sternum*.  
 The second is *serratus major*: this doth arise from the  
 inside of the shoulder-blade, and the two upper ribs,  
 and is inserted into the lower five true ribs, and two  
 upper short ribs. The third is *serratus posticus supe-*  
*rior*: this lying under the *rhomboides*, springeth from  
 the edges of the three lower *vertebrae* of the necke,  
 and from the edge of the first *vertebra* of the backe  
 nervous, and is inserted into the three upper ribs.  
 The fourth is, *serratus posticus inferior*: this ariseth  
 from the edge of the three lower *vertebrae* of the back,  
 and of the first *vertebra* of the loynes, and is inserted  
 into three or foure lower short ribs. 5. *The eleven ex-*  
*ternall intercostall*, which performe the office but of  
 one muscle. These spring from the lower part of the  
 upper rib, and are inserted into the upper part of the  
 lower rib obliquely, and forward.

These that follow contract the breast. First, the *tri-*  
*angularis*: this arising from the inward and lower  
 part of the *sternum*, is inserted into the cartilages of  
 the two upper ribs. This as a pillow receiveth the  
 upper part of the heart. The second is *sacrolumbus*;  
 this arising from the *os sacrum*, and the sharp proces-  
 ses of the *vertebrae* of the loynes, endeth in the upper  
 ribs about their beginnings, bestowing upon each  
 rib a tendinous latch. Thirdly, *The eleven internall*  
*intercostals*, which are as one muscle. These passe ob-  
 liquely from the lower to the upper rib, filling the  
 distance: their fibres are opposite to those of the ex-  
 ternall, representing a Saint *Andrews* crosse. These  
 serve for violent breathing, being seconded by the  
 oblique muscles of the belly.

*Diaphragma*, or *septum transversum*, is the instru-  
 ment of free motion: the head of it is in the center, but  
 the

2

3

The contract-  
ers.

1

2

3

## Of the Muscles of the Loynes.

the taile in the circumference of the lower short ribs. For from the fourth short ribbe to the last, cleaving to the brims of them, it passeth by double or triple fleshy and tendinous productions to the twelfth *vertebra* of the backe, and from thence to the third *vertebra* of the loines.

## CHAP. XVI.

## Of the Muscles of the loynes.

**T**HE backe doth not move for want of muscles, and by reason of the ribs between the neck and loines, whilest the outward parts are moved. Onely the last spondill of the backe is moveable; for it doth not receive, but is received both above and under: but seeing it is annexed to the loines, the motion is rather to be ascribed to the loines than to the back. *The loines* are bended by two muscles called *flexores*; there is one on each side. They spring from the hinder part of the edge or brim of the flank bone, and inner laterall part of the *os sacrum*, and march by the transverse processes of the *vertebrae* of the loins, fleshy to the last rib.

They are extended by foure muscles, whereof there are two in each side. These are so wrapped together, according to the length of the *spina*, that they may seeme either to be as many paires of muscles as are spondils, or one onely paire giving tendons to the *vertebrae*. The first is *semispinatus*: this springeth by a nervous beginning from all the *spinae* of the *vertebrae* of the loines and *os sacrum*, and ends in the transverse processes of the *vertebrae* of the loines, and all those of the breast. The second is *sacer*: this ariseth by

Of the Muscles of the Abdomen.

21

by a sharpe and fleshy beginning from the hinder part of *os sacrum*, and is inserted into the roots of the *spina* of the spondils of the back. If these foure muscles conspire together, they keepe the *spina* immoveable: but if those of the one side doe onely move, it is drawne to one side.

C A P. XVII.

Of the Muscles of the abdomen.

IT hath ten muscles; five on each side. The first is *obliquus descendens*: this being parted into seven or eight fleshy portions, whereof the three greatest are fingerlike inserted into the *ferratus major*, it springeth from the lower side of the sixth, seventh, eighth, and ninth lower true ribs: then going downe obliquely, it cleaveth to the bended part of the outside of the *os ilium*, and to the edge of *os pubis*: then it endeth by a broad tendon in the *linea alba*. Wherefore it hath its beginning both above and be'ow, but ending in *linea alba*. The second is *obliquus ascendens*: this ariseth from the sharpe point of *os pubis*, and from the top of the whole bending of *os Istinum*, and cleaving to the foure lowermost short ribs, by a double tendon clipping the straight muscle, it endeth in the *linea alba*. The fibres of this being opposite to those of the former, represent a Saint *Andrewes* crosse. The third is *rectus*: this ariseth from the lower part of the *sternum*, about the *cartilago xyphoides*, fleshy; or rather from the cartilaginous ending of the ribs: and marching alongst the belly, it is inserted into the brim of the *os pubis*, by a thicke and nervous tendon. It hath three interfections, which some accompt se-

D

verall

*Of the Muscles of the Abdomen.*

verall muscles ; two are above the navell, and one even with the navell. If the fourth be found, it is placed under the navell. These intersections first strengthen the muscle, as knots doe reeds. Secondly, they further the extension of it in violent motions: so Tailors, to cause a cloth stockin to stretch and fit close, cut the cloth bias. The fourth is the *pyramidall*: this is placed above the lower part of the *musculus rectus*. It springeth from the *os pubis*. Most commonly there is found one in each side. Sometimes they are so united that they seeme one broad muscle; sometimes they are altogether wanting, and then the ending of this is fleshy, whereas otherwise it is tendinous. These strengthen the ends of the *musculi recti*. The fifth is the *transversus*: this arising from the transverse processes of the *vertebrae* of the loines, below it is tied to the arch of the hanch-bone, but above to the inner part of the short ribs; and passing from thence to the *cartilago xyphoides* under the straight muscle, it endeth by a broad tendon in *linea alba*. This *linea alba* beginning at the *cartilago ensiformis*, passeth directly by the navell to the joining of the *os pubis*. It is framed of the membranous tendons of all the muscles of the belly, the straight excepted. But seeing the tendons of the muscles of the right side are so firmly united to the left, that no signe of separation can be discerned, it is not seen but betweene the two straight muscles. The muscles have their denomination from their situation, and the texture of their tendons. While the body is at rest, these strengthen the parts subjacent, and increase their heat; in action, first, they further the excretion of the excrements: secondly, they help the delivery of the infant in labour: thirdly, they further strong breathing:

breathing: fourthly, they bend the *spina* in violent exercifes.

## CAP. XVIII.

## Of the muscles of the Genitals.

**P***enis*, or the pricke of man, hath foure muscles, two on each side. The first is *erector* or *director*: this ariseth from the inner knob of the hanch-bone, and being tied by the side to the ligament of the prick, it reacheth to the middle of it. The second is *accelerator*: this ariseth from the internall knob of *ischium*, below the laterall ligament of the pricke, and from the *sphincter* of the *anus*, and being placed with his fellow under the *urethra*, passeth to the middle of the yard.

The *clitoris*, or little pricke in women, hath four muscles. The two uppermost being round, they arise from the internall knob of the *ischium*, and being placed by the laterall ligaments, cause the erection of it. The two lower are broad and smooth, and proceeding from the *sphincter* of the *anus*, are inserted into the brims of the *cunus*.

The *stones* have two muscles to pull them up: they are called *cremastoires* from *κρεμαστω* to hold up. In health they keep the stones wrinkled, whereas in sickness they are flabby and hang downe. They are thought to spring from the fore and inner brim of the *os ilium*: but they seeme rather to be the endings of the oblique ascending muscles neere to the *os pubis*; which compassing without the productions of the *peritoneum*, passe with the spermatick vessels towards the stone. The *Cremasters* in women are shorter than

*Of the Muscles of the bladder and anus.*

in men, and are placed above the production of the *peritoneum* : through this production the round ligament of the *matrix* passeth, which in women is compassed with a fleshy substance, which resembleth the *cremaster* in men.

CHAP. XIX.

*Of the Muscles of the bladder and anus.*

**T**He bladder hath but one muscle, called *sphincter*, it doth compass round the necke of the bladder. Above it compasseth the *prostates*, and is seated under them also. The fibres are orbicular. If one side be taken with the palsie, an involuntary excretion of the urine doth not alwaies follow, because a nerve is implanted into each side of the necke of the bladder. In women it reacheth to the hole by the which the urine passeth, and it seemeth to forme it.

The *anus* hath three muscles. The first is *sphincter* : this is fleshy, and without the straight gut two inches broad. The fibres are orbicular. It doth not spring from any adjacent bone, but is onely inserted into the *coccyx*. The second and third are called *levator* ; they are placed within the gut, and are large and fleshy. They are tyed to the sides of the gut, and reach to the *sphincter* : they possesse the distance betweene the *ischium* and the *os sacrum*.

## CAP. XX.

## Of the Muscles of the Shoulder-blade.

**T**He shoulder-blade is moved forward, backward, upward and downward. It hath foure proper muscles. The first is called *trapezions*, or *cucullaris* : this hath its beginning from the lower part of the nower bone towards the eare, fleshy : but from the posterior processes of the *vertebra* of the neck, and the eight upper *vertebra* of the breast, it springeth membranous and broad, and is inserted into the *basis* of the *scapula*. The second is *levator*, or *patientie musculus* : this hath its beginning from the transverse processes of the first, second, third, and fourth *vertebra* of the necke, which beginnings being united, are inserted into the upper corner of the shoulder-blade. The third is *ferratus minor anticus* : this springeth from the four upper ribs before they become cartilaginous : cleaving to these be foure fleshy portions representing the teeth of a saw, and are inserted by a broad tendon neere to the anchor-like processe of the *scapula*. The fourth is *rhomboides* : this is placed immediately under the *cucullaris*. This springeth fleshy from the hinder processes or *spina* of three of the *vertebra* of the necke, and so many of the breast; and is inserted by as broad a fleshy ending, as the beginning was into the *basis* of the shoulder-blade. The fifth is *ferratus major* : this hath its beginning from the eight upper ribs before they become gristly. The beginnings are fleshy portions like to the teeth of a saw, by the which it is inserted into the like portions of the oblique descending muscle. Then it marcheth fleshy by the ribs upwards



## Of the Muscles of the Arme.

wards at the sides of the breast, and is implanted by a large fleshy end into the whole inner *basis* of the *scapula*. It moveth the shoulder-blade forward and downward. The beginning must be in the breast where the fleshy portions are; because there the nerves are inserted: and that part is steady, which the *scapula* is not.

## CAP. XXI.

## Of the Muscles of the Arme.

THE arme hath five motions: for it moveth backward, forward, upward, downward, and circularly. It is moved upward by two ereectors, *deltoides* and *supraspinatus*. First, *deltoides* springeth from the middle of the cannell bone, the top of the shoulder, and the whole *spina* of the *scapula*, and is inserted into the middle of the shoulder bone. The second is *supraspinatus*, or *superscapularis superior*: this placed in the cavity above the *spina* of the shoulder-blade, and passing under the upper part of the *scapula*, is inserted into the necke of the shoulder-bone, which it compasseth with a broad tendon. It is pulled downe by *latissimus*, and *rotundus major*. *Latissimus*, so called from its largeness; for with its mate it covereth the whole backe. It is called *aniscalptor* or *terfor*, for without these this office could not be performed. This springs by a broad membranous beginning from the hinder processes of the *vertebræ* of the breast, beginning at the sixth, and reaching to the middle of the *os sacrum*, and upper part of the *os ilium*: then passing upwards, when it is come to that part of the backe where the ribs bend it, becommeth fleshy, and passeth by

Depressors.

1.

by the lower corner of the *scapula*: where becomming narrow it is inserted under the upper end of the shoulder bone by a short broad tendon between the *musculus pectoralis* and the *rotundus detrahens*. *Rotundus major*, or more properly *teres major*, because it is long without edges: this springeth from the whole *costa* of the *scapula*, and is inserted into the shoulder bone a little below the neck of it.

It is drawn forward by *pectoralis* and *coracoideus*. Movers forward.  
*Pectoralis*, it beginneth from the seventh, sixth, and fifth true ribs, the *sternum*, and above the halfe of the cannell bone, and by a sharpe tendon it is inserted into the shoulder bone, between the *deltoides* and the *biceps*. 1  
*Coracoideus*, it beginneth at the *coracoideus apophysis*, and endeth about the middle of the shoulder bone. 2.

It is moved backward by three *infraspinatus*, or *subscapularis*, or *immersus*, and *rotundus minor*: Pullers backward.  
*Infraspinatus* or *subscapularis*, it possesseth the whole cavity of the *scapula*. It springeth from the *basis* of it fleshy, and so continuing, passeth forward; but becomming still narrower to the neck of the *scapula*, at the last it getteth a broad tendon by the which it is inserted into one of the ligaments of the arme. 2  
*Rotundus minor*, or *superescapularis inferior*: this arising from the *basis* of the *scapula* by a fleshy beginning, marcheth forward, and becomming narrower is inserted into the fourth ligament of the arme, by a broad and short tendon.

One thing is to be noted, that the tendon of *musculus latissimus*, together with the tendon of *musculus temporalis*, cause that cavity which is seen in the cavity of the arm-pit: for the tendon of the *latissimus* frameth the inside, but that of the *temporalis* the outside of the cavity. Nota.

## CAP. XXII.

## Of the Muscles of the ulna.

Benders of the  
ulna.

I.

The elbow hath two bones, *ulna* and *radius*. The *ulna* serveth for flexion and extension; but the *radius* for pronation and supination. The *ulna* is bended by two, to wit, *biceps*, and *brachius internus*. *Biceps* hath two beginnings from the shoulder blade. The first is that which is outward, tendinous and round; it springeth from the upper brimme of the hollownesse of the *scapula*, and marcheth under the ligaments of the joynt, above the top of the shoulder by the chink in the bone made for that purpose, where it is wrapped by a ligament which riseth from the hollownesse. The second head is broader than the first, framed partly of a tendon, and partly of flesh: it springeth from the anchor-like processe of the shoulder-blade; then descending by the inner part of the top of the *scapula*, it meeteth with the former; below the head of the shoulder bone it becommeth a strong fleshy muscle: afterward ending in a thicke, round, and strong tendon, it is inserted into the long knob under the upper end of the *radius*. This is that tendon which causeth great pain if it be pricked in phlebotomy. *Brachius internus* lying under the *biceps*, rising from the middle of the shoulder bone, unto which it cleaveth firmly: it is inserted both into the *ulna* and *radius* where they meet.

Extenders.

I.

The *ulna* is extended by foure muscles, *longus*, *brevis*, *brachius externus*, and *cubitalis*. *Longus* ariseth from the lower brimme of the *scapula* neere to the necke, where it hath a peculiar hollownesse; and endeth

deth in the knob of the elbow. *Brevis* rising from the hinder part of the necke of the shoulder bone, endeth in like manner in the *olecranon*; both these make but one strong tendon. *Brachialis externus* is placed under these two: it is placed upon the outside of the shoulder bone: it is confounded with the other two, and endeth where they doe. But this seemeth to *Spigelius* (*de human. corp. fabrica lib. 4. c. 15.*) to be but a fleshy portion arising about the middle of the shoulder, and no peculiar muscle. *Cubitalis* or *anconeus*: it is placed in the hinder part of the bending of the elbow, which is called *ἀγκών*, and answereth to the *musculus popliteus*: this ariseth from the lower & hinder part of the shoulder bone, and placed betweene the *ulna* and the *radius*, it endeth by a nervous tendon in the laterall part of the elbow an inch below the *olecranon*. The extending muscles have straight fibres.

C A P. XXIII.

Of the muscles of the Radius.

**T**He *radius* hath two sorts of muscles: for some are called *pronatores*, or pullers downe: some *supinatores*, or raisers up. The *pronatores* are two in number: the first is, *pronator superior rotundus*: this springeth from the root of the inner knob of the shoulder bone, and from the inner side of the *ulna*, where it is joynd to the arme-bone, and endeth obliquely about the middle of the *radius* by a membranous tendon. The second is *pronator inferior quadratus*: this is altogether fleshy. This springeth from the lower and inner part of the *ulna* two inches broad; then marching obliquely above the ligament which joy-  
E
neth

The pronator.

1.

2

neth the *radius* to the *ulna*, it endeth in the inside of the *radius*. The ending is as broad as the beginning; wherefore it is called *quadratus*, or foure square.

Supinators.

1

The *supinators* are in like manner two. The first is *supinator longus*; so called, because of all the muscles which march by the *ulna*, it hath the longest belly. This springeth fleshy from the edges of the inner knob of the *ulna*, and marching obliquely under the *radius*, is implanted by a membranous tendon into the upper part of the lower *appendix* of the *radius*, bending somewhat to the inner side. The second is *supinator brevis*: this springeth from the outward part of the ligament of the lower end of the arme-bone, and from the hinder processe of the *ulna*, being without membranous, and within fleshy, it is inserted into the middle of the *radius*.

2

## CAP. XXIV.

## Of the muscles of the Wrest.

Benders:

1.

**T**He wrest is bended by two muscles in the inside. The first is *cubiteus internus*: this doth arise by a fleshy and a nervous beginning from the sharpe inner knob of the shoulder-bone; then passing fleshy by the length of the *ulna*, it doth end by a tendon, partly nervous and partly fleshy, in the fourth bone of the first ranke in the wrest. The second is *brachiaeus internus*: this arising from the same place, and passing alongst the *radius*, is inserted in that bone of the backe of the hande which doth hold up the fore-finger.

2

Extenders:

1.

Two externall muscles stretch out the *carpus*. The first is *radiaeus externus*, sive *bicornis*: this ariseth from the sharpe edge of the outer knob of the shoulder-bone

bone in the upper part of it, by a broad beginning : then becomming fleshy, it passeth to the middle of the *radius*, where it becommeth a strong tendon, which presently is divided into two tendons more broad than thicke. Both these passe a little asunder by the *radius* under the ligament, whereof one is inserted into the bone which stayeth the first finger, and the other into the bone which staieth the middle finger. The second is *cubitus externus* : this hath its beginning from the root of the externall knob of the shoulder bone, in the upper end of it : when it is come to the wrest it becommeth a strong round tendon, and is inserted into the upper part of that bone which stayeth the little finger, not farre from the wrest.

2.

C A P. XXV.

Of the Muscles of the palme of the hand.

**T**His is thought to have two muscles. The first is *palmaris* : this ariseth from the inner knob of the shoulder bone round and nervous ; and placed under all the muscles, it mounteth over the *ligamentum annulare*. Then it is dilated into a broad membrane, which cleaveth firmly to the skin of the palm of the hand, for firme apprehension, and quicknesse in feeling, and endeth about the first joints of the fingers. The second is *caro quaedam quadrata*, or a foure square fleshy substance : this springeth from the *membrana carnosa* under *mons lunæ*, where the eighth bone of the wrest is placed. From thence it is carryed under the *musculus palmaris*, to the middle of the palme of the hand, and is inserted into the outside of that tendon which carrieth the little finger from the rest. This represen-

teth two or three muscles, and serveth for the hollowing of the palme of the hand, to forme *Diogenes* his cup by, bringing the fleshy eminence under the little finger to the tenar.

---

 CHAP. XXVI.

## Of the Muscles of the Four fingers.

 Benders of the  
four fingers.

1.

2

Extenders.

**T**He fingers are bended, extended, & moved laterally. Now the muscles which perform these motions, either belong to the four fingers, or to the thumb. The fingers are bended by two muscles. The first is *sublimis*: this springeth from the inside of the inner knob of the shoulder bone, and about the wrest it produceth four tendons, which end about the second joynts of the fingers. These are hollow to give way by a chinke to the tendons of the *profundus*. The second is *profundus*: this ariseth from the upper parts of the *ulna* and *radius* under the joynt, and being separate into four tendons, they are implanted into the third joynts of the fingers, under the *ligamentum annulare*, by the tendons of the *musculus sublimis*, under which they lye. The toes are extended by three muscles: whereof one is common, and two proper. The common is *extensor magnus*: this arising from the outer knob of the arme bone, about the wrest is divided into foure tendons, which end in the lowermost joynts of the fingers. The proper are two: the first is *indicator*, because it belongeth to the fore finger. It ariseth from the outward and middle part of the *ulna*, and by a double tendon it endeth in the second joynt of the fore finger: but one of the tendons becommeth one with the tendon of the *extensor magnus*. The second is *auricularis*, because it belongeth

longeth to the little finger. It ariseth from the upper part of the *radius*, and marching between the *ulna* and the *radius*, it is inserted outwardly by a double tendon into the little finger.

The fingers are laterally moved two manner of waies : for either they are brought to the thumb, or they are carried from it. These motions are performed by two sorts of muscles, called *interossei* and *lumbricales*. The *interossei*, so called because they are placed between the bones of the *metacarpium* : they are fleshy and round, and spring from the bones unto the which they are tyed : they passe straight alongst these bones : these when they are come to the roots of the fingers, they passe into tendons which cleave to the sides of the fingers, and end in the second joynt by their tendon. Sixe are placed betweene the three distances, betweene the bones of the *metacarpium*, so that there are two betweene each distance : whereof one doth passe to the lower, one to the upper part of the tendon. The middle and ring finger receive two tendons, but the fore and little finger but one. The *lumbricales* are in number foure : these arise in the distances of the tendons by the wrest, and meet with the *interossei* about the first joynt of every finger. The first is inserted into the ring finger, the second and third to the middle finger, but the fourth to the fore-finger : these are not one with the tendons of the *interossei*.

Besides these muscles, the fore finger and the little finger have one *musculus abducens*. That of the fore finger springeth from the middle of the *ulna* : then neere the wrest it is parted into two tendons, which passe under the ligament. The upper is implanted at the root of the fore finger ; but the lower into the root

Movers laterally.

Interossei.

Abducing muscles two.



## Of the Muscles of the Thumb.

root of the middle finger. That of the little finger, called *hypothenar*, is placed in the palme of the hand, under the little finger. It is short and strong: it springeth fleshy from the fourth bone of the *metacarpium*, and is implanted by a small nervous tendon into the outside of the first bone of the little finger.

## CAP. XXVII.

## Of the Muscles of the Thumb.

Extenders.

1

**T**he thumb is extended by two muscles. The first is that which is called *longior*: this ariseth fleshy from the outer and higher seat of the *ulna*, where the rough line is; and the membranous, which tieth together the *ulna* and *radius*: from thence it is carried obliquely to the *radius*, and before it come to the *appendix* of it, it becommeth a round tendon, which passing under the annular ligament, marcheth according to the length of that side which is next to the fore finger, and is inserted into the third bone of it.

2.

The second is *brevior*: this extendeth the second and third joynt of the thumb. It ariseth from the same line fleshy: it passeth obliquely above the *radius*. By one tendon it is implanted to the root of the first joynt of the thumb; by the other becomming membranous it cleaveth fast to the second and third bone of the thumb.

Benders.

1

It is bended by one muscle, which springing from the inner part of the *ulna*, is implanted into the first and second joynt of the thumb. This being fleshy, which *Spigelius de hum. corp. fabric. l. 4. c. 19.* divideth into 5, muscles, together with the *abducent* of the thumb,

*Monticulus lunæ*makes up *monticulus lunæ*.

It

It is laterally moved by two muscles. The first is called *thenar*, or *abducens*: this springeth from the inner part of the bone of the wrist which stayeth the thumb, by a nervous beginning: then becoming fleshy, it is inserted into the first joynt of the thumbe by a membranous tendon: this draweth it from the fore finger. The second is *antithenar*, or *adducens*: this is seated outwardly, in the distance betweene the thumbe and fore finger. This doth arise from the outer and hinder side of that bone which stayeth the first finger, and being fleshy is inserted into the whole inner side of the first joynt of the thumb: this draweth the thumb to the fore finger.

Movers laterally.

1.

2

CAP. XXVIII.

Of the Muscles of the Thigh.

**T**He thigh is bended forwards by three muscles. The first is *psaos* or *psa* and *lumbaris*: this lieth in the inner part of the *abdomen*, upon the *vertebrae* of the loines. It ariseth from the transverse processes of the two lowermost spondils of the backe, and marching by the inside of *os ilium*, it is insered into the lesser *rotator*. The second is *thiacus internus*: this springing from the inside of *os ilium*, and being joynd to the *psaos* by his tendon, it endeth before betweene the greater and lesser *rotator*. The third is *pectineus*: this arising from the upper part of the *os pubis*, is implanted a little below the necke of the thigh bone.

Benders forward.

1

2

It is bended backward by the three *glutii*, which make up the buttockes. The first is the outer-most and the greatest: it springeth from the *coccyx*, from the edge of *os sacrum*, and from the half of the bending of

os

2. *os ilii* and is inserted foure inches below the great *rotator*. The second is the middlemost: this springeth from the outer part of *os ilii*, and is inserted into the outer side of the greater *rotator*. The third is the lowermost: this springeth a little lower, from the outer part of *os ilii*, and is implanted into the upper part of the greater *rotator*. It is drawne to the inside by the *musculus triceps*: this is the biggest of all the muscles of the body, and hath three beginnings, which end in one musculous tendon. The first head doth proceed from the upper part of the share bone, and lying by the *pectineus* is inserted into the middle of the thigh bone. The second springing from [the middle of the same bone, being lesser, is inserted a little below the necke of the thigh bone. The third arising from the lower part of the same bone, being of all the lowermost and biggest, reacheth to the end of the thigh bone by a very strong tendon. These are inserted into the hinder line which is in the bone. *Spigelius de hum. corp. fabric. l. 4. c. 22.* addeth another, which he termeth *lividus*: this proceedeth from the fore part of *os pubis*, where the cartilage is which joyneth the two bones by a broad and fleshy substance. As it descendeth obliquely it becommeth a large tendon, but short: and marching downe by the inner part of the thigh, it is inserted into the middle of the thigh bone.
1. It is turned towards the outside by foure small muscles called *quadrigemini*. They are placed above the articulation of the thigh one by another. The first is called by others *Iliacus externus*, and from the figure *pyriformis*; it is longer than the rest: it ariseth from the lower and outer part of the *os sacrum*. The second ariseth from the knob of *os ischii*. The third ariseth from the same part. These are inserted into the hollownesse
- Drawers to the inside.  
 1
- Turners toward the outside.  
 1  
 2  
 3

lowness of the greater *rotator*. The fourth is called *quadrigenus quadratus*, more fleshy and broader than the rest: it lieth two inches distant from the third: it ariseth from the inner part of the knob of the *ischium*, and is implanted into the outward part of the great *rotator*. It is rowled obliquely by two muscles called *obturatores*. The first is *obturator externus*, this rowleth it outward: this ariseth from the inner circumference of the *os pubis*, and is inserted into the cavity of the great *rotator*. The second is *obturator internus*: this ariseth from the externall circumference of the hole of the *os pubis*, and returning by the necke of the thigh-bone as by a pully, it endeth in the cavity of the great *rotator*, under the fourth *quadrigenus*.

Rowlers obliquely.

1

2

CAP XXIX.

Of the muscles of the Legge.

THE shanke hath thirteene muscles whereof foure doe bend it. The first is *seminervosus*: this beginneth at the knob of the *ischium*, and endeth in the inner side of the *tibia*, towards the backe side. The second is *semimembranosus*; it proceedeth from the same knob, partly nervous, and partly membranous; but it marcheth by a broad tendon to the inner and hinder part of the *tibia*. The third is *biceps*: this ariseth from the same knob of the *ischium*, and being carried by the outside of the *tibia* in man, about the middle of the thigh it becommeth fleshy, and by one tendon it is inserted into the outside of the *tibia*. That this tendon may be the more safely carried, the thigh-bone is griped and covered with a smooth and slippery ligament. The fourth is *posticus gracilis*: this ariseth from the

Benders.

1

2

3

Extenders.

1

line where the share bone and hip bone are joynd together, and marching downe in the inner side of the thigh, it is inserted into the inside of the *tibia*. In fat persons this seemeth to be a stiffe sinew, when they stride much. The shanke is extended by five muscles.

2

The first is *membranosus*: this proceeding from the upper part of the edge of the *ischium*, doth compasse both the thigh and the legge: wherefore it is called *fascia lata*, because it covereth all the muscles of the thigh and legge, reaching to the foot. If it be nipt by sharpe humours, great paine is caused. The second is *longus*: this ariseth from the upper and forepart of the edge of the bending of the *os ilium*, and passing by the inside of the thigh obliquely, it endeth in the inside of the legge: and because it is thought to bring in the legge, that it may be laid upon the other, some call it *sutorius*, the shoemakers muscle: but it may be more truely called *sartorius*, the tailers muscle, for when they sow upon their stalls they sit crosse-legged.

3

The third is *rectus gracilis*: this springing from the lower brim of the *os ilium*, and passing straight alongst the length of the thigh, endeth in the *patella* by a broad tendon.

4

The fourth is *vastus duplex*: these are placed at the sides of the *gracilis*, whereof the one is called *externus*: this springeth from the root of the greater *trochanter*, it endeth a little below the *patella* outwardly. The other is called *internus*: this ariseth from the root of the lesser *trochanter*, and endeth in the inside

5

of the legge, a little below the *rotula*. The fifth is *crureus*: this lieth under the two *vasti*, it springeth from the forepart of the *os femoris*, betweene the two *trochanters*, it endeth in the *rotula*. These foure muscles, the *rectus gracilis*, the two *vasti*, and the *crureus*, meeting about the knee become one strong tendon, which

6

covereth

covereth the *patella*. One thing is to be noted, that the muscles which extend the legge are stronger than those which draw it in, that the weight of the body may be the better upholden when we stand. To these we may adde that muscle which is called *popliteus*, or *suppopliteus*, which moveth the legge obliquely: this lyeth in the hollow of the hamme, above the head of the *solaus*: it springeth from the outer knob of the thigh bone, and is inserted in the upper and hinder part of the leg, which it clippeth firmly.

7

C A P. XXX.

Of the Muscles of the Instep.

**T**He instep is bended when it is drawn upwards. Benders.  
 To performe this motion it hath two: the first is 1  
*tibialis anterior*: this ariseth from the upper *epiphysis*  
 of the *tibia*, neere to the *fibula*, and cleaving unto the  
 whole *os tibiae*, about the middle of it it becommeth a  
 tendon, which passing under the annular ligament of  
 the instep, is divided in two tendons, whereof the one  
 is inserted into the first of those bones which are cal-  
 led *innominata*, without a proper name: the other is  
 inserted into the bone set before the thumbe. 2  
 The second is *peroneus anterior*: this ariseth from the outer  
 and middle part of the small focill, and being carried  
 through the chink of the outer ankle, it is inserted into  
 the bone of the instep, which stayeth the little toe: it  
 hath two heads and two tendons. The foot is exten-  
 ded when it is drawne backwards. To performe this  
 motion it hath two muscles. The first is *gemellus ex-* Extenders.  
*ternus*, or *gastrocnemius externus*: this muscle hath 1.  
 two heads, that have seed bones not farre from their

## Of the Muscles of the Instep.

beginnings. The first head is under the hamme, from the inner part of the end of the thigh-bone, where it is fleshy and broad. It marching down by the backe and inner part of the *tibia*, when it is come to the middle of it, it becommeth tendinous, and is joyned with the tendon of *gemellus internus*. The other head likewise ariseth under the hamme, but from the outer part of the end of the thigh-bone. It passing down by the outward and backe part of the leg, becommeth tendinous a little above the tendon of the former: then being joyned to the former, they become one strong, broad, and sinewy tendon, which is inserted into the heele. The second is *gemellus internus*, or *gastrocnemius internus*: this lieth under the former, and is of a livid colour. It springeth from the *appendix* of the lesser focill by a strong nervous substance. It doth become thicker, but when it hath passed the middle of the *tibia* it becommeth narrower, and tendinous: and a little above the heele it is so united to the tendon of the former *gemellus*, that both seem to be but one, and is inserted into the heele. By this tendon butchers hang up the beasts killed. The instep is moved obliquely by two. The first is *tibialis posticus adducens pedem*, or *nauticus*, because sailers use it much when they goe up by the ropes. It springeth both from the greater and lesser focill, and from the ligament which tyeth these together: it being tied to this tendon, lyeth amongst the hinder muscles, and neere to the inner ankle it becommeth tendinous: then passing by it, it goeth to the soal of the foot, and is inserted into the lower part of the bone which is next to the *cubiforme*. The second is *peroneus vel fibuleus posticus*: this ariseth from the upper but hinder part of the small focill, by a nervous and strong beginning, and cleaving

Movers obliquely.

1.

2.

cleaving to the outside of the perone it passeth downe round and fleshy ; the outer part is of a livid colour, but the inner of a red. When it is come to the middle of the focill it becommeth tendinous, which behinde under the outward ankle obliquely marching, is inserted under the soale of the foot into the bone set before the great toe. To these may be added that muscle which is called *plantaris*, because it covereth the whole sole of the foot. It lyeth under the *gemellus externus*, and springing from the outer part of the end of the thigh-bone, under the ham, by a round fleshy beginning ; then passing within the leg, betweene the two *gemelli*, and from thence to the sole of the foot, it covereth all the toes about the first joynt and is inserted into all the toes. It answers *palmaris*.

Plantaris muscle.

C A P. XXXI.

Of the Muscles of the Toes.

**T**He toes are extended by two : the first is *longus*: Extenders.  
 it doth arise by a nervous and sharpe beginning 1  
 from the fore *appendix* of the great focill, and cleaving  
 to the ligament which uniteth the two focils, it goeth  
 downe to the foot. First, it passeth under the transvers  
 ligament ; then it being divided into foure tendons,  
 they are inserted into the third and second joynt of  
 the foure toes to extend them. The second is *brevis*: 2  
 this lyeth under the former ; this hath its beginning  
 from the transvers ligament, fleshy and broad, and  
 by its foure tendons it is inserted into the first  
 joynts of the foure toes. The benders of the toes are Benders.  
 in



## Of the Muscles of the Toes.

1

in like manner two. The first is *longus*, or *perforans*: it lieth under the *gemellus internus*, and ariseth from the hinder part of the *tibia*, under the hamme by a long and a fleshy beginning, and passing according to the length of the *tibia* unto the which it cleaveth, when it hath the middle of it, it becommeth tendinous: then under the inner ankle, and the ligament which reacheth from the lower *appendix* of the *tibia*, it goeth by a hollownesse of the heele to the soal of the foot: where being divided into foure tendons, it passeth through the holes of the *flexor brevis*, and is inserted into the third and last joint of the foure fingers. The

2.

second is *brevis*, or *perforatus*: this springeth from the inner part of the heele bone, and when it hath passed the middle of the foot, it is parted into foure round tendons, which are inserted into the second joynts of the foure toes, being perforate to give way to the tendons of the former muscle to passe to the third joynt.

Lumbricales, 4

Thirdly, *lumbricales*, foure: these spring from the tendons of the *perforans* small and round, and are inserted by a small tendon into the side of the first joynt, which they help to bend. The fleshy substance which filleth up the cavity of the first joynts of the four fingers, seemeth much to further the action of these muscles: for springing by two sharpe beginnings from the lower part of the heele bone, it is inserted into the beginnings of the foure *lumbricales*.

The interossei.

The *interossei* are placed between the bones of the instep. These *interossei*, so called because they are placed between the bones, in the foot are ten in number, whereas there are but eight in the hand, because the instep hath one bone more than the wrest. Each of them doth spring from the side of the bone of the instep where it is placed, and all marching according to

to the length of the bone fleshy, they are inserted into the roots of the fingers by short tendons, and somewhat broad. If the inner be drawn together, the finger is brought in; but if the outer be moved, the finger is carried from the rest. Betweene the foure distances between the bones there are eight such muscles, at the outside of the thumb one, and one other at the outside of the little finger. Besides these you may observe a small transverse muscle, which passeth from the thumbe over the first joynts of the fingers to the little finger. It seemeth to have a twofold use: first, to tye together the bones of the first joynts of the toes. Secondly, to save their tendons from harm when we tread upon hard things.

The great toe hath peculiar muscles. The first is *extensor*: this springeth by a fleshy beginning from the outside of the great focill, where it parteth from the *fibula*. It cleaveth fast to the ligament, which ties the *tibia* to the *fibula*, and marching alongst the upper part of the foot, it is inserted into the whole upper part of the thumbe. The second is *flexor*: this springeth from the back part of the *fibula*, about the middle of it fleshy and pointed: then becomming thicker, about the inner ankle it becommeth tendinous, and is inserted into the last joynt of the thumb. Before it come to the second joynt it hath a larger seed-like bone than the joynts of the rest of the fingers have. The third is *abducens pollicem*, which draweth the great toe from the rest, to the inner part of the foot. It springeth nervous from the ligament which tieth together the heele bone, and the *talus*; it cleaveth to the bone set before the thumb, and is inserted by a round tendon into the outside of the first joynt of the great toe. The last is *abductor minimi digiti*: this being placed in the

The transverse muscle.  
The invention of this is ascribed to *Cassorius* by *Barolinus* l. 4. c. 14.

Extenders of the great toe.

1

2

3

4

outside

outside of the foot it proceedeth from the outer part of the heele-bone, where the knob is nervous: but becoming fleshy, and being tied to the bone of the *metatarsus*, which stayeth the little toe, it is inserted by a round tendon into the outside of the first joynt of the little toe.



The number of the Muscles of each part.

<b>T</b> He eye-lid hath	4	The stones have	1
The occipals on each side	1	The bladder hath	1
Each eye hath	6	The anus hath	3
The nose hath	6	These are in number	81
These are in number	17	The shoulder-blade hath	5
Both the lips have	10	The shoulder hath	8
The lower jaw hath	10	The ulna hath	6
The ear hath	10	The radius hath	4
The tongue hath	8	The wrest hath	4
The bone of the tongue hath	8	The palm of the hand hath	2
The larynx hath	10	The four fingers hath	19
The uvula hath	2	The thumb hath	5
The pharynx hath	7	These are in number	53
These are in number	65	The thigh hath	11
The head hath	14	The shank hath	13
The neck hath	8	The instep hath	7
The breast hath	30	The toes have	23
The loines have	6	These are in number	54
The abdomen hath	10	The totall sum of all the	
The prick hath	4	Muscles of the body of	
The clitoris hath	4	man	270



An Enumeration of all the Muscles of the whole Body.

Each eye hath one frontall to lift it up: the first is called orbicularis major, under the frontall; and two called ciliares, one in each eye lid to shut it. The muscles of the eye-lids, 4 in each.

The occipitals which meet these are two, one on each side.

As for the eare, in the outside there are four paire: first, parattollens, lifting it up. Secondly, pardeprensens, pulling it down. Thirdly, paradducens, which moveth it forward. Fourthly, parabducens, which pulleth it backward. In the inside there are two, externus, the externall; and internus, the internall. The muscles of the eares 10.

The eye hath six muscles, four straight, and two oblique.

The muscles of the eye 6.

The first of the straight is called attollens, or superbus.

The second is depressens, or humilis.

3 Adducens, or bibitorius. 4. Abducens, or indignatorius.

The oblique are two:

1. Obliquus major, seu superior. 2. Obliquus minor, seu inferior.

The nose hath six muscles.

The muscles of the nose 6.

Erectores, or pullers upward, two. Dilatores, or openers.

Constrictores, or pullers together, two; one in each side.

The lips have two common muscles, and four proper:

The muscles of the lips, 10.

Of the common, the first is called zygomaticus, the second buccus.

Each lip hath four proper.

1. Attollens, which beareth up the upper lip.

2. Deprensens, which beareth the lower lip downwards.

3. Orbicularis, or sphincter, which maketh up the fungous substance of the lips.

4. Abducens, or drawing aside.

The lower jaw is moved upwards by three muscles: the temporalis, the pterigoideus internus, and the masseter. The muscles of the lower jaw, 10.

It is pulled down by digastricus, and musculus latus.

It is pulled forward by pterigoideus externus.

The tongue hath eight muscles, four on each side.

The muscles of the tongue 8.

1. Genioglossus, which draweth it forwards.

2. Miloglossus, it helpeth the thrusting of it out.

3. Basiglossus, or hypsiglossus, by the which it is pulled backward.

An Enumeration of all the Muscles.

4. *Styloglossus*, or *ceratoglossus*, by the which it is moved to the sides.
- The muscles of the bone of the tongue 4.
- The *os hyoides* hath four muscles on each side.
1. *Sternohyoides.*
  2. *Geniohyoides.*
  3. *Coracoideus.*
  4. *Styloceratoideus.*
- The *larynx* hath four common muscles, and five proper.
- The muscles of the larynx 9.
- Of the common there are,
1. Two *thyroidei*, which pull up the *larynx*.
  2. Two *Bronchii*, which pull it down.
- Of the proper,
1. *Cricothyroideus anticus.*
  2. *Cricothyroides lateralis.*
  3. *Cricothyroideus posticus.*
  4. *Thyroarytenoides, sive glottæus.*
  5. *Arytenoides.*
- The muscles of the pharynx 7.
- The *pharynx*, or beginning of *œsophagus* hath seven muscles, three paires, and one without a match:
- Of the paires, 1. *Sphenopharyngeus.* 2. *Cephalopharyngeus.* 3. *Staphylopharyngeus.*
- That which hath no match is called *œsophagus.*
- The *gargareon* hath two muscles:
1. *Pteryostaphilinus externus*, this holdeth it up.
  2. *Pteryostaphilinus internus*, this doth the same.
- The muscles of the head.
- The *head* hath two sorts of muscles: for some are common, and some are proper: the common, which together with the neck move the head; and these are the muscles of the neck.
- Proper muscles 14.
- The proper are those which only move the head, when the neck remaineth immoveable: and these are in number fourteen. It is pulled forward by the two *mastoidæi*: these are placed before. These bend it forward. Behind twelve are placed.
1. *Splenius, vel triangularis.*
  2. *Complexus, vel trigeminus.*
  3. *Recti majores*, two.
  4. *Recti minores*, two: these stretch out the head.
  5. *Obliqui majores, sive superiores*, two.
  6. *Obliqui minores, sive inferiores*, two: these winde the head about.
- The muscles of the neck 8.
- The *neck* hath four on each side.
- It is bended by two paires. 1. *Par longum.* 2. *Par spinatum, triangulare, scalenum.*
- It is extended by two paires,
1. *Semispinatum.* 2. *Transversarium.*

An Enumeration of all the Muscles.

Seeing 64 muscles serve for one side of the head and necke, there must be 128 for both the sides.

The trunk of the body hath 46 muscles for one side.

As for the breast, first, these dilate it:

1. *Subclavius*.
2. *Serratus major*.
3. *Serratus posticus superior*.
4. *Serratus posticus inferior*.
5. *Intercostales externi*: fifteen in number, which are as one muscle.

The muscles of the breast.

The breast is contracted by fifteen in number.

1. *Sacrolumbus*.
2. *Semispinatus*, or *triangularis*.
3. The internal intercostals, in number thirteen.

*Diaphragma*.

Double this number, and you shall have 32.

The loynes are bended by the *triangulares*, one on each side.

They are extended by four, two on each side.

1. *Semispinatus*.
2. *Sacer*: two of them on each side.

The *Abdomen* hath five on each side.

1. *Obliquus ascendens*,
2. *Obliquus descendens*,
3. *Rectus*.
4. *Transversalis*.
5. *Pyramidalis*.

The muscles of the loines.

The muscles of the belly 10.

The *stones* have two *cremasti* to elevate them.

The *prick* hath two on each side.

1. *Erector*, or *collateralis*.
2. *Accelerator*, or *interior*.

The *bladder* hath one, the *sphincter*.

The *anus* hath three muscles: one to purse it in, called *sphincter*, and two to pull it up, called *levator*.

The muscles of the stones 2.

The muscles of the prick 2.

The muscles of the bladder 1.

The muscles of the anus 3.

Double this number, and you shall have 92.

The *arme* hath 44 muscles.

The *shoulder-blade* hath five muscles on each side.

1. *Trapezius*, for sundry motions.
2. The proper *levator*, or *lifter* up.
3. *Rhomboides*, which draweth it backwards.
4. *Serratus minor anticus*, drawing it forwards.
5. *Serratus major*.

The muscles of the arme.

The muscles of the shoulder-blade, five on each side.

The *brachium* or *shoulder* hath eight.

1. *Deltoides*.
2. *Supraspinatus*: moving it upward.
3. *Latissimus*.
4. *Rotundus major*: drawing it downwards.
5. *Pectoralis*.
6. *Coracoideus*: pulling it forward.
7. *Rotundus minor*.
8. *Immersus*, or *infraspinatus*: pulling it backwards.

The muscles of the shoulder 8.

The *elbow* hath ten muscles.

An Enumeration of all the Muscles.

The muscles  
of the ulna 6.

The ulna hath six.

- 1 *Biceps*. 2 *Brachii internus*. These bend it.  
3 *Longus*. 4 *Brevis*. 5 *Brachii externus*. 6 *Angonaeus*. These extend it.

The radius hath foure.

The muscles  
of the radius  
4.

- 1 *Pronator rotundus superior*. 2 *Pronator inferior quadratus*.  
3 *Supinator longus*. 4 *Supinator brevis*.

The muscles of  
the wrist 4.

The carpus, or wrist hath four muscles.

- 1 *Cubitus internus*. 2 *Brachii internus*. These bend it.  
3 *Radius externus, sive bicornis*. 4 *Cubitus externus*. These extend it.

The muscles of  
the fingers, 18  
in each hand.

The fingers have eighteen muscles.

- 1 *Sublimis*. 2 *Profundus*. By these they are bended.  
3 *Communis extensor magnus*. 4 *Proper to the forefinger or indicator*. 5 *Proper to the little finger, or auricularis*. These extend the fingers.

6 *Interossei*. 7 *Lumbricales* 4. These partly part them, partly draw them together.

- 8 *Abductor digiti parvi*. 9 *Adductor indicis, sive indicator*.

The thumb hath six muscles.

The muscles  
of the thumb  
6.

- 1 *Longus*. 2 *Brevis*. These extend it.  
3 One it hath to bend it. 4 *Tenar* bendeth it forwards. 5 *Antithenar* bendeth it backwards.

Double the number of 42 the number of the muscles of one arm, and you shall find 84 muscles of them both.

The thigh hath ten muscles.

The muscles of  
thigh 10.

- 1 *Psoas*. 2 *Iliacus*. 3 *Pectineus*. These bend it forward.  
4 *Glutius maximus*. 5 *Glutius medius*. 6 *Glutius minimus*. These bend it backward.

7 *Quadriceps*, or *quadrigemi*, 4 small muscles. These bend the thigh outward.

8 *Triceps*: this bendeth it inwards.

9 *Obturator internus*: this rowleth it outwards.

10 *Obturator externus*, this rowleth it inwards.

Double the number 10 and you shall have 20 muscles for both thighs.

The muscles  
of the legge.  
Of the tibia 11.

The legge hath 42 muscles.

The tibia hath 11.

- 1 *Semimembranosus*. 2 *Semimembranosus*. 3 *Gracilis internus, seu posticus*. 4 *Biceps*. These bend it.

An Enumeration of all the Muscles.

5 Membranosus, seu fascia lata. 6 Sutorius, sive longus. 7 Vastus  
exterius. 8 Vastus internus. 9 Rectus gracilis. 10 Cruentus.

These extend it,

11 Suppopleureus, or popliteus, this moveth it obliquely.

The instep hath eight muscles.

1 Tibialis anterior. 2 Peroneus anterior. These bend it.

The muscles of  
the feet 9.

3 Gemelli duo, or the twins. 4 Plantaris. 5 Soleus. These ex-  
tend it.

6 Tibialis posticus: 7 Peroneus posticus: 8 Plantaris: These move  
it obliquely.

The toes have eighteen muscles.

1 Longus. 2 Brevis: These bend them.

The muscles of  
the toes 13.

3 Sublimis. 4 Profundus. these extend them.

5 Interossei eight, these bring them together and sever them.

6 Lumbricales foure. 7 Caro musculosa, or the musculous  
flesh. 8 Transversalis. 9 The drawer in of the little toe. these  
draw them together.

The great toe hath foure muscles.

1 Extensor, or extender.

2 Flexor, the bender.

3 Adducens, that which draweth it to the rest.

The muscles  
of the great  
toe 4.

4 Abductor minimi digiti, that which draws the little finger  
from the rest.

Double the number of 42. expressing the number of the mus-  
cles serving for one legge, and you shall have the number of 84.  
which is the number of the muscles of both the legges.

---

The





## The Explication of some Appellations of the *Muscles* of some other parts of the body.

- A**nciroides, *anchor-like.*  
Ancon, *the bending of the elbow.*  
Acromium, *the upper part of the shoulder blade.*  
Arytenoidæus, *because it beginneth and endeth in the ewar-like cartilage.*  
Bronchus, *the lower part of the wind-pipe.*  
Biceps, *because it hath two heads.*  
Ceratoglossus, *because it ariseth from the points of the bone of the tongue, and is inserted into the tongue.*  
Coracohyoidæus, *because it springeth from the processe of the shoulder-blade, like the crows bill, and is inserted into the bone of the tongue.*  
Cephalopharingæus, *because it beginneth where the head is joynd to the necke by the first vertebra, and is inserted into the pharynx.*  
Crycothyroidæus, *because it springeth from the ring-like cartilage, and is inserted into the thyroides.*  
Crycoarytenoidæus, *because it beginneth at the ring-like, and endeth at the ewar-like cartilage.*  
Corone is the proces of the lower jaw.  
Coracoides, *like the crows bill.*  
Cremaster, *it holds up the stone.*  
Deltoides, *because it is like to the greeke letter Δ.*  
Geneoglossus, *because it hath its beginning from the chinne, and is inserted into the bone of the tongue.*  
Gluteus, *because it maketh up the buttockes.*  
Gastrocnemius, *because it maketh up the calfe of the legge.*  
Hypsiloglossus, *because it hath its beginning from the bone of the tongue, and is inserted into the tongue.*  
Hyothiroidæus, *because it springeth from the bone of the tongue, and is inserted into the bucklar-like cartilage.*  
Larynx is the beginning of the wind-pipe, derived from λαρυγγίζειν which is to shout with an open mouth. It is framed of foure cartilages:  
the

## An Explication of the Termes.

*the first is Thyroides, bucklar-like: the second and third is Arytenoides, ewar-like: the fourth is Cricoides, ring-like.*

*Myloglossus, because it hath its beginning at the root of the grinders of the lower jaw, and is inserted into the tongue.*

*Mastoidæus, because it is inserted into the *sdugge*. like proceſſe of the *tempill*.*

*Masteeter, because it serves for eating.*

*Pharynx is the throat. Ploa, because it is clipped in embracing.*

*Rhomboides, because it is like the mathematicall figure called rhombus, having foure lines, but not the foure sides equall.*

*Sternohyoidæus, because it hath its beginning from the sternum, and is inserted into the bone of the tongue.*

*Styloceratohyoidæus, because it springeth from the bodkin-like proceſſe, and is inserted into the point of the bone of the tongue.*

*Sphænopharingæus, because it springeth from the wedge bone, and is inserted into the pharynx.*

*Stylopharingæus, because it beginneth at the bodkin-like proceſſe, and is inserted into the pharynx.*

*Styloides, because it representeth the pin of a table-booke, or a needle.*

*Sternohyoidæus, because it beginneth at the sternum, and is inserted into the bone of the tongue.*

*Spinatus, which is placed by the sharp brimme of a bone.*

*Sigmoides, which is like to the greeke C.*

*Sphænoides, the wedge-like bone.*

*Sphincter, the drawer together.*

*Thyroaritenoidæus, because it beginneth at the bucklar-like cartilage, and endeth in the ewar-like.*

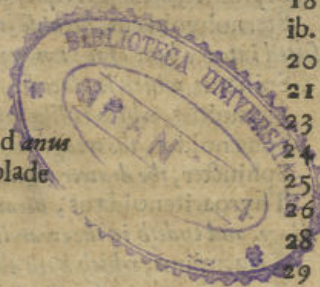
*Trigeminus, which hath three beginnings.*

*Trapezius, because it hath foure sides bounded with unequal lines: for the Geometers so call such a figure.*



The Contents.

1. The description of a muscle	page 1
2. Of the differences and actions of muscles	4
3. Of the muscles of the eye-lids	6
4. Of the muscles of the eye	ib.
5. Of the muscles of the nose	8
6. Of the muscles of the lips	ib.
7. Of the muscles of the lower jaw	10
8. Of the muscles of the eares	12
9. Of the muscles of the tongue	13
10. Of the muscles of the bone of the tongue	14
11. Of the muscles of the <i>larynx</i>	15
12. Of the muscles of the <i>uvula</i> and throat	16
13. Of the muscles of the head	17
14. Of the muscles of the neck	18
15. Of the muscles of the breast	ib.
16. Of the muscles of the loynes	20
17. Of the muscles of the <i>abdomen</i>	21
18. Of the muscles of the genitals	23
19. Of the muscles of the bladder and <i>anus</i>	24
20. Of the muscles of the shoulde blade	25
21. Of the muscles of the arme	26
22. Of the muscles of the <i>ulna</i>	28
23. Of the muscles of the <i>radius</i>	29
24. Of the muscles of the wrest	30
25. Of the muscles of the palme of the hand	31
26. Of the muscles of the four fingers	32
27. Of the muscles of the thumbe	34
28. Of the muscles of the thigh	35
29. Of the muscles of the legge	37
30. Of the muscles of the instep	37
31. Of the muscles of the toes	41



FINIS.

