

John Cranford,

M. D.





Dr. BOERHAAVE'S
Academical Lectures
ON THE
Theory of PHYSIC.

BEING

A Genuine Translation of his

I N S T I T U T E S

A N D

Explanatory COMMENT,

Collated and adjusted to each other, as they were
dictated to his STUDENTS at the Univerfity
of *Leyden*.

V O L. VI.

Containing the SIGNS of Health, Conftitutions,
and Difcafes; with the Methods of preferving
Health, preventing Diftempers, procuring Lon-
gevity, and of removing prefent Difcafes.

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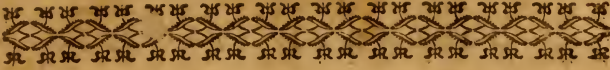
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Of



Of the Symptoms of DISEASES.

§. 801. **T**HAT preternatural *Appearance*¹ in a diseased Body, which flows from the Distemper as its Cause, yet so as to be distinguishable from the Disease itself, and from its proximate Cause, is termed a Symptom of the Disease; but if it proceeds from the Cause itself of the Disorder, it is at the same time termed a Symptom of the *Cause*²; but if again the Appearance proceeds from some other antecedent Symptom as its Cause, it is called a symptomatic Symptom, or a Symptom of a *Symptom*³. But such an Appearance as happens in the Course of a Disease from a different Cause or Origin, distinct from the Disease *itself*⁴, its Cause or Symptoms, may be more properly denominated a supervening or incidental *Syptom*⁵.

¹ This is one Part of the Disease considered by itself; and it is from an Assemblage of such Symptoms, that the whole Disease is composed; as for Example, Heat in an ardent Fever, or an impeded Inspiration in a Pleurisy, are Symptoms of the Disease.

² That is, an Effect of the Cause so far as the Cause is distinct from the Disease; as for Example, a Flux of Blood from the Nose in an ar-

2 *The Symptoms of Diseases.* §. 801.

dent Fever, the Cause of which is a too violent Attrition and Impulse of the Blood.

³ Let us instance, for Example, a Tumor of the parotid Gland, produced by an Extravasation of Blood, which is itself produced from a Symptom of the Cause. When the Blood is accumulated in the Lungs from an impeded Respiration in a Pleurisy, that Accumulation is a Symptom of a Symptom, so that the disease does not so much arise from another Disease, as from one Symptom produced by another.

⁴ This is a thing of the utmost Consequence to be understood. Three Physicians treat the very same Disease, as for Example, a Pleurisy, in three different Patients, after very different Methods. The *Galenical* Physician bleeds either till the Patient faints, or until the Pain is abated; and his Patient, when cured, will be in a languishing Condition for Years, before he recovers his Strength. The *Helmontian* Physician is utterly against bleeding, and therefore the Patient suffers from all those Symptoms, which naturally follow from an Inflammation left to itself. But a third Physician bleeds the Patient, only as much as is sufficient to prevent a Suppuration, and he recovers his Strength entirely in about a Fortnights Time. From hence arises that vast Difference observable in the practical Observations of Physicians.

⁵ Such are properly termed accidental Symptoms, as do not arise from the Disease itself, but from some Alteration of Air or Error in the Patient, or his Attendants, &c. Thus a Peripneumony, after drinking any cold Liquor in an ardent Fever, is an Effect not of the disease, but of the Error committed; or if a pleuritic Patient drinks Wine, there will be a Train of other Symptoms following from the drinking of that Liquor.

§. 802. From hence it follows, that these primary Symptoms do, in reality, again become Distempers themselves, very different from each other in Number, Variety, and Effects; yet are they commodiously reduced, according to the Doctrine of the *Ancients*¹, to Actions injured, and Vices of the Retenta or Excreta, or *Qualities*² of the Body changed. We shall therefore consider each of these, together with their *Causes*³:

¹ The Ancients esteem it necessary for a Physician first to determine the Name of the Disease, afterwards its Cause, whether in the Aliments, Medicines, &c. and lastly, to consider the Signs and Symptoms with which it invaded the Patient. Certain it is, that if young Physicians would oblige themselves to a vigorous and critical Examination of Diseases in this manner, (as if the Cases which they write, were to be continually subjected to new Examinations) the Benefit of this Diligence would be considerable, as well to Posterity, as to themselves for the future part of their Lives. Besides this, the Excretions are to be regarded, as to the Time, and certain Quantity of the *Santorian* Perspiration, Sweat and Saliva, with the Colour, Smell, &c. of the Fæces:

² *Aristotle* defines a Quality to be that mode of Existence in Bodies, which determines them to be called what they are. By the Qualities of our own Bodies, we understand every thing capable of being observed in them by the Organs of Sense. We are therefore to observe, whether the Fæces are of a white, livid or other Colour, or whether they are of an uncommon putrid Smell; which is a bad Omen in all Diseases.

4 *The Symptoms of Diseases.* §. 803.

³ The Symptomatology, or Doctrine of Symptoms in Diseases, has been treated of by *Sennertus* but with too great Subtlety, so that he has made the doctrine more obscure and difficult, which I shall therefore in this Place endeavour to obviate.

§. 803. The first Class therefore of these Symptoms is ranged according to the Series, or Order of the Actions themselves, which are either diminished, abolished, increased or *depraved*¹; and hence, according to the Method in which we examine those Actions in Health, we are to describe, first the Symptoms of the Appetite respecting the Food and Drink. Here then we meet with a *Disorexia*², or diminished Appetite to Food; *Anorexia*, or loss of Appetite; a Nausea and *Aversion*³ to Food, to which add, living without Food; *Bulimy*, a voracious, canine or Ox-like Appetite; a *Malacia* or *Pica*⁴, in which the Appetite is vitiated, and desires such things as are not capable of being converted into Nourishment, and which are not at all fit to enter into the Stomach.

The Causes of these Symptoms are generally found to be a viscid unactive *Pblegm*⁵, clogging the membranes, an Absence of the Bile, a Suppression of the *saline*⁶ Parts of the Humours, a Relaxation or a *Palsy*⁷ of the Fibres; a foul Matter from a *Putrefaction*⁸ of what was contained in the Stomach, a watery *Disposition*⁹ of the Blood, Corpulency or Fatness and Idleness; from *Acrimony*¹⁰, either *acid*¹¹
saline

§. 803. *The Symptoms of Diseases.* 5

*saline*¹², *bilious*¹³, or *atribiliary*¹⁴, conveyed to the Stomach and Intestines *Worms*¹⁵; such as have their Bowels with very strong Fibres, and continually *moving*¹⁶; an acrid Humour predominating and not to be *obtunded*¹⁷, but by taking something unusual into the Stomach, an Alteration in the Course or Circulation of the Blood, and a depraved Fancy or Imagination, especially in Women with Child.

¹ Every Action in the human Body results from its particular Causes which produce that Action, and no other, and in its particular degree; but when the Causes of those Actions are depraved, the consequent Appearances or Effects must of Necessity be altered.

² This Disorder afflicts those who have their Stomach lined with an inactive Mucus, or who have a Deficiency of the Bile, which escaping into the stomach when empty, would excite the Appetite. In this Case therefore Bitters are to be administered, or saline Medicines moderately used.

³ *Hippocrates* tells us, that nothing is worse in any Disease than a loss of Appetite, joined with an Aversion or Abhorrence to Food.

⁴ Thus we call those unusual or vitiated Appetites to Substances which cannot be digested, as we frequently observe in Women with Child, and in Girls troubled with the green Sickness. Thus I saw a Girl, who destroyed herself by eating scarlet Silk.

⁵ Which Phlegm so loads the nervous Papillæ of the Stomach, that they are hardly affected by the Saliva, Relicks of the Food, or Attrition of the Rugæ. This thick Phlegm is accumulated by degrees without a Fever.

6 *The Symptoms of Diseases.* § 803.

⁶ It often happens in a Relaxation of the Stomach from hard drinking, or from an Abuse of warm watery Liquors; and in this Case Bitters will be proper, inasmuch as they sharpen the Bile, attenuate the Phlegm, and strengthen the Fibres.

⁷ From hence, both an Anorexia and Lientery may follow, according as the muscular Strength, either of the Stomach or Intestines, is destroyed; and this frequently follows after too great a Distension of the Stomach by over-eating at a Feast, &c.

⁸ A certain Nobleman after an Anorexia fell into an Aversion of Food, so that he had a Nausea even at the name of Aliment; and in the mean time his Breath was extremely foetid. Upon opening his Body, his Liver was found putrid. The same consequences may follow from a putrid or rancid oil; for the most voracious Appetite may be soon allayed by drinking a drop or two of the stinking Whale Oil.

⁹ For then both Thirst and Hunger are destroyed, because the Body neither requires Water nor Food.

¹⁰ A Dram of Sal Ammoniacum destroys the Appetite, but a muriatic Salt with the Juice of Lemons will in an Hour's time create a sharp Appetite.

¹¹ Acids increase the Appetite and render People hungry.

¹² When Salts abound in the Bile, Saliva and pancreatic Juice, Hunger is always increased; and hence the most voracious Animals have a saline Liquor found in their Stomachs; such a Liquor has been found by the Members of the Academy *de Cimento*, in the Stomach of the Ostrich, Falcon, Swan, &c.

¹³ *Vesalius* opened the Stomach of a most voracious Robber, and found the biliary Duct inserted

§. 803. *The Symptoms of Diseases.* 7

serted into the Stomach; and *Galen* assures us, that People who are subject to have the Bile ascend into the Stomach, are always extremely voracious.

¹⁴ An atrabiliary Humour in the Stomach renders People almost insatiable.

¹⁵ More especially when these worms are large, and creep in great Numbers towards the Stomach, where they intercept the Aliment. People who are troubled with the round Worms, are usually extremely voracious.

¹⁶ Hence the antient *Greeks* denominate some People calkenterous, as if they had brazen Viscera. And *Hippocrates* says, that the Food ought to be proportioned to the Motion or Exercise; Farmers Men who labour hard in the Summer-time, do then eat as much Food again as they do in the Winter. If you would weaken the Stomachs of these Men, you ought to give them sugar and Water.

¹⁷ In this Case, the Patient eats as much of the Mortar off the Walls, or Scales of Iron from the Smith's Forge as they can lay hold of; and in the mean time these very Substances are powerful Remedies, sought after by Nature to relieve the present Disorders of the Patient, as they effectually abate Hunger. They who have a strong Appetite or Inclination after improper Food, are seldom cured by restraint, but there are numerous Instances of their recovering by indulging their Appetite. There was a certain rich Gentleman of *Amsterdam*, who fell into a Prostration or Loss of Appetite, in which the Physicians could do him no service, so that he lived miserable in the midst of his Wealth; but at length he had a strong Inclination to eat Herrings, of which he devoured some hundreds in a little time, and was afterwards cured. Poultry which live only upon Grain, ge-

8 *The Symptoms of Diseases.* §. 804.

nerate an Acidity in the Organs of Digestion, which occasions them to search for small Stones, which if they are deprived from, they pine and die with Sickness. This is not difficult to account for, since the Stomachs of Children and weak Girls are troubled with a corroding Acid, which makes them desirous to eat any thing which is absorbing or capable of obtunding Acidity, such as Lime, Chalk, Ashes, &c. nor is Chalk in these Cases prejudicial, so long as the injurious Acid offends; and in general a Pica or vitiated Appetite usually arises from some unknown Humour of the Body, which can be cured only by the particular thing after which the Patient has so strong a desire. Even *Hippocrates* of old has advised Physicians to follow these Appetites after uncommon sorts of Food, and which are opposite to the nature of the Disease.

§. 804. An insatiable desire after Drink, or *extreme thirst*¹, usually arises from too great *Dryness*², from an impervious *Spissitude*³ of the Humours, or from too great *Heat*⁴; from Acrimony, either muriatic, ammonical or *alkaline*⁵; or lastly, from an aromatic or adust oily Acrimony, or from some *Poisons*⁶.

¹ The Causes of too great Thirst destroy the Body, unless a sufficient Quantity of Drink be taken; Thirst is therefore a faithful Keeper to the Body, as long as the Senses are as they ought to be, and therefore this Call of Nature ought to be regarded and satisfied.

² Namely, because Dryness denotes an Imperviousness and inflammatory Disposition of the Humours.

Nor

§. 806. *The Symptoms of Diseases.* 9

³ Nor will Thirst cease till the Humours are sufficiently diluted.

⁴ For Heat dissipates all the thinner Humours throughout the Body, so that the Remainder must consequently be left inspissated in the Vessels. Fire burns all things, but is extinguished itself by Water; but a Patient does not require so much Water to be given him as would extinguish a Fire; for Heat or Fire of 600 degrees burns, but a Heat in the Humours a little more than a hundred, is sufficient to destroy the Body.

⁵ This is the Cause of Thirst in a Dropsy, when the stagnant Serum or Water begins to putrefy, when at the same time the more fluid Parts of the Humours are drawn off from the Blood-vessels into the Cells and smaller Vessels.

⁶ Some Poisons are capable of exciting Thirst in a surprizing manner; thus the small Serpent which bit the *Israelites*, occasioned an insatiable Thirst, though it made but a very small Wound. In this Disorder, as much fresh Water is to be used, as is sufficient to dilute the Poison; otherwise it will be the same thing as drinking salt Water to extinguish Thirst.

§. 805. Mastication is injured from some Defect in the Mouth, Tongue, Teeth, Jaws, Saliva or Muscles; which may again proceed either from Wounds, an Inflammation, Palsy, Cramp, Dryness, or the like.

§. 806. *Deglutition* ¹ is likewise injured, either from a Defect of the Mouth, Tongue, *Palate* ², *Tonsils* ³, *Uvula* ⁴, *Larynx* ⁵, *Pharynx*, *Oesophagus*, or upper Orifice of the Stomach; and this again may proceed from a
Wound,

10 *The Symptoms of Diseases.* §. 806.

Wound, Inflammation, Pain, *Tumor*,⁶, *Cramp*⁷, Palsy, Dryness, a Conversion of the membranous Parts into Bone or *Cartilage*⁸, a Dislocation of the Parts of the *Larynx*⁹ or of the *Vertebræ* of the Neck, or a want of *Mucus*¹⁰,

¹ Deglutition is so complex an Action, and requires the Assistance of such a great Number of Organs, (more in Number than any other Action in the Body) that it must necessarily be liable to Injury from a multitude of Causes.

² That is, whether the moveable Palate be injured by a Palsy, Convulsion, Erosion or Abscess.

³ Which are very liable to Inflammation and Scirrhus.

⁴ Thus when the Uvula is lost or slit, the Food and Drink is not then properly directed over the Epiglottis, so as to avoid falling into the Larynx; and when the Uvula is too much relaxed, it not only obstructs Deglutition, but occasions an Inclination to vomit.

⁵ The Larynx has a share in Deglutition, as far as it is moved by the respective Muscles; but when only one of these Muscles, as for Instance, when the Mylohyoideus is inflamed, the whole Business of Deglutition is stopped.

⁶ Sometimes an Inability of swallowing proceeds from a Tumor in the Oesophagus, which I have sometimes been able to cure, and sometimes not. Some have had the Aliment regurgitate through the Nose by endeavouring to swallow it; others again have been able to swallow it a considerable way down the Gula, where it at last met with so much Resistance, and gave so much

§. 806. *The Symptoms of Diseases.* 11

Pain, that the Patient has been obliged to bring it all up again with a considerable Force. These Tumors compressing the Oesophagus, are usually seated in the Glandulæ Dorſales of *Vesalius*, which when enlarged or rendered scirrhus, may compress the Sides of the Oesophagus close together, round which they are placed. The unhappy Patient in this Case perishes with Hunger if not timely relieved. Hence, if the Disorder is not soon remedied, you will be obliged to use the Assistance of Mercury to produce a slight Salivation, or at least to dissolve the Blood and open the Vessels, which has been attended with good Success, according to the Observation of *Ruyſch*.

⁷ Such as is frequent in hypochondriacal and hysterical People, whose Deglutition is often obstructed by such a Spasm of the Oesophagus, or upper Orifice of the Stomach; for they are almost ready to swear that they feel something rise up in their Throat, which is capable of being seen and felt; but after once breaking Wind the Tumor instantly vanishes. For in this Case, the Flatus heated and rarefied, is intercepted by the Spasm or Constriction of the Oesophagus above at the Pharynx; and below by the Constriction of the upper Orifice of the Stomach; whence the Patient has the Sense of an uncommon Swelling in the Throat, &c. but when the Spasm of the Pharynx and Cardia is removed, the Flatus discharges itself, and the Tumor subsides.

⁸ First *Nucke*, and since him others have observed the Cardia and Oesophagus, scirrhus, or indurated into the Consistence of a Cartilage, especially in old People, in such a manner that they have not been capable of admitting any thing into, or from the Stomach by the Mouth. This is a Disorder more frequent than one would imagine,
and

and seems to arise often from the drinking of Water or other Liquors scalding hot.

9 The Cartilages of the Larynx are connected together by particular Ligaments and Articulations; from whence, if they are dislocated, Deglutition is impeded, according to the Observation of Mr. *Cowper*, who has seen the Case.

10 This Mucus renders the Fauces and Oesophagus smooth and slippery, to facilitate the descent of the Aliment into the Stomach; but when the Membranes of these Parts appear tense, dry, or shining, or beset with Aphthæ, they are capable of swallowing nothing, as *Hippocrates* and *Sydenham* observe; to which add a Deficiency of the Saliva.

§. 807. The chief kinds of Injury to the Action of the Stomach, are *Apepsia* or Indigestion, *Dyspepsia* or bad Digestion, *Bradypepsia*¹ or a too slow Digestion, and *Diapthora*² when the Aliments putrefy into a Humour different from that of good Chyle. The Causes are almost the same with those which destroy the Appetite, or cause an Anorexy (§. 803.); more especially a Deficiency and Inactivity of the Saliva of the Mouth and *Stomach*³, a languid Condition of the Organs of *Respiration*⁴, foul Matter, *Worms*⁵, or tough Aliments ingested in the Stomach; or lastly, an Afflux of putrid Humours. But a too *quick*⁶ Digestion without any thing else amiss, is seldom a Disease; and the Causes thereof we have already explained, as they are the same which produce a Bulimy.

§. 808. *The Symptoms of Diseases.* 13

¹ A Bradypepsia is when the Food taken into the Stomach is not digested and discharged into the Bowels in the space of twenty-four Hours, but continues there some Days.

² Diaphthora is when the Aliments are indeed changed in the Stomach, but then they are not converted into good Chyle, capable of being assimilated into the nature of the human Body; as, for Example, when Bread or vegetable Food turns sour, or when Flesh or Fish putrefy upon the Stomach, &c.

³ There is a certain Efficacy or dissolving Power in the Saliva or Juice of the Stomach, which proceeds from their penetrating Salts set in Action by Heat; but when those Juices are deficient, both the Appetite and Digestion are impeded or destroyed. In this Case the Patient may be relieved in some measure by the use of Bitters and Medicines, which have the same Efficacy with the Bile, such as Elixir Proprietatis, Tincture of Wormwood, &c.

⁴ For Respiration has a great Share in promoting the Digestion of the Aliments.

⁵ Inasmuch as these disturb the motion of the Stomach, and absorb the more fluid Parts of the Humours; and therefore these occasion an useless Appetite without Concoction.

⁶ Rich People never complain of their Appetite returning too often or being too great; but among poor People, Hunger is often a terrible Disease. The *Arabian* Physicians give us a history of a Woman who applied for a Remedy against the Hunger or increased Appetite of her Husband.

§. 809. The Disorders of the Expulsion of the Contents of the Stomach, are reckoned to

14 *The Symptoms of Diseases.* §. 808.

be *Hiccups*¹, Nausea or Loathing, Vomiting, *Cholera morbus*², and Belchings. The former of these is, as it seems to be, a Convulsion of the Oesophagus, Stomach, and Diaphragm contracting upwards, while at the same Instant the latter is suddenly convulsed downward; but the Cause of this is usually a too *hasty*³ swallowing of too large a *Quantity*⁴ of Food at a time, filling the Stomach with too great a Quantity, or from some Acrimony or Irritation in the Stomach itself, an Inflammation of it or of the Oesophagus; convulsive Motions from too great *Evacuations*⁵, or excited by over-vomiting, sharp *Poisons*⁶, &c.

¹ The Causes of this Disorder are obscure, tho' their Effects are so manifest. This is commonly esteemed a Convulsion of the Diaphragm; but to a Hiccup belongs also a Contraction of the longitudinal Fibres of the Oesophagus, by which the latter is drawn up towards the Fauces, while at the same time the Stomach and Diaphragm are drawn downward; and hence it is that a Pain is perceived in the upper and lower Part of the Stomach, after a Hiccup has continued some time: When this Disorder arises from an Inflammation or other Defect of the Diaphragm, it is a fatal Sign.

² The *Cholera morbus* is a violent Expulsion of the abdominal Contents both upward and downward.

³ Gluttons are frequently troubled with the Hiccup, when they hastily swallow too large Morfels.

⁴ Hence Children are frequently troubled with the Hiccup when they have over-eat themselves.

Namely,

§. 809. *The Symptoms of Diseases.* 15

⁵ Namely, when this Evacuation has been so excessive as to denudate the Nerves, and expose them too much to the Acrimony of the Medicine; and this kind of vomiting is most constantly fatal, as has been observed formerly by *Hippocrates*.

⁶ These Poisons abrade the mucous Liniment which defends the Stomach and stimulate its nervous Coat; and therefore Hiccups are almost a constant Symptom of all acrid Poisons.

§. 809. Nausea and Vomiting seem to be a convulsive and *retrograde*¹ Motion of them uscular Fibres of the Stomach, Intestines, and Oesophagus, together with a violent Convulsion of the abdominal Muscles and Diaphragm, which in a less degree cause Loathing or Nausea, and in a greater degree excite Vomiting. But the Causes hereof are too great a *Quantity*² or *Acrimony*³ of what is taken into the Stomach; an Irritation from something poisonous; some Injury of the *Brain*⁴, either by wounding, Contusion, Compression, or Inflammation; from some Inflammation of the Diaphragm, Stomach, Intestines, Liver, Spleen, Kidneys, Pancreas, or Mysentery; from an *Irritation*⁵ of the Gula, or a disturbed Motion of the Spirits by unusual Agitations of the Body, either in a *Coach*⁶, or upon the Sea, &c. or lastly, from the disagreeable *Idea*⁷ of some things which often excite Loathing or vomiting.

¹ If a healthy Man swallows a Piece of Thread, and again suddenly draws it out again from his Throat by one End, a Nausea and Inclination to vomit

16 *The Symptoms of Diseases.* §. 809.

vomit follows; or if he puts his Finger behind the Root of his Tongue, the whole Stomach will be affected and throw up its Contents. Loathing therefore seems to follow when the natural peristaltic Motion of the Stomach and Intestines is inverted from below upward in a retrograde Course. *Wepfer, Bruner, and Peyer*, who have accurately enquired into these Parts, inform us, that the whole Business of Digestion is well performed, as long as the peristaltic Motion continues successively from above downward. But when those Gentlemen opened animals, after giving them emetic Medicines, they saw the peristaltic Motion inverted from the Anus upward. If now this inverted Motion is accompany'd with a Convulsion of the Diaphragm and abdominal Muscles, the Stomach is then in a manner squeezed betwixt two Presses, and throws up its Contents by Vomit. They who are troubled with Vomiting from this Cause, have it not incessant, but it returns at Intervals after each Convulsion.

² From taking too large a Quantity even of the most healthy Food into the Stomach, there follows first a Nausea, and afterwards a vomiting.

³ Even the *Sal Absinthii*, which is so universally used by Physicians to allay vomiting, is nevertheless able by its Acrimony to excite Vomiting if taken in too large a Quantity.

⁴ When a Vertigo or Giddiness appears, the Patient may assure himself that Vomiting is at hand, or will shortly follow, whether the Brain be injured by Compressure, from extravasated Blood, or from any other Cause.

⁵ Garlick, Onions, Leeks, Horse-radish, Pepper and Ginger, taken in a small and moderate Quantity, strengthen the Stomach, promote Digestion, and restrain Vomiting; but if these are taken

§. 810. *The Symptoms of Diseases.* 17

ken in too great a Quantity, they even excite Vomiting.

⁶ People who are not used to riding in a Coach, are often troubled with a Loathing and Sicknefs at Stomach, which is frequently followed with a Vomiting, more especially when they ride with their Back to the Horses. But upon a rough Sea few People escape vomiting, infomuch that *Navis* a Ship seems to derive its name from *Nausea*. At first they perceive no Uneasiness, but by degrees a Pain is felt in the upper Orifice of the Stomach, which is soon followed with a Nausea or Loathing, and at length a Vomiting; first of the Aliments contained in the Stomach, and then of a salt Water, and at last of Bile.

⁷ I know some People in perfect Health, to whom the Physician having order'd Purges to be taken for eight Days successively, at last they became sick even at the sight of the Cup, in which the Medicine was used to be taken; which is something wonderful: Any Person who has eat a small Quantity of the *Cicuta aquatica Gesneri*, and retains even but a Mouthful in his Stomach, it occasions the most severe convulsions of all kinds, a Tetanos in which the whole Body is stiff, an Opisthotonos in which the Body is convulsed backward, and at length Death itself follows; but if the Patient should be lucky enough to discharge by Vomit the small Piece of this Root, his Life is saved, and he returns in a little time to himself. This demonstrates the strict Alliance or Consent, which obtains betwixt the Stomach and its Nerves with the Brain and its common Sensory.

§. 810. But the *Cholera morbus* *, which is a violent Expulsion of the Contents of the Sto-

18 *The Symptoms of Diseases.* §. 810.

mach and Intestines both upward and downward, proceeds from a like Convulsion, which excites Vomiting (§. 809.), accompanied at the same time with a strong convulsive Contraction of the Intestines downward ; so that the Causes are much the same in both Cases, only are more violent in the present, and it follows more especially after eating too much Summer *Fruits*², and the very *hot Weather*³ of the Month of *August*.

¹ The Cholera is a violent Discharge of a bilious Matter by Vomiting and Stool. It is a most violent Disease, and generally kills in the space of twenty-four Hours : for when the two Orifices of the irritated Stomach are closely contracted, the confined Matter fermenting may burst the Stomach, as it has been sometimes known to do, or at least may destroy the Patient by Convulsions. But even if a passage is given to the confined Matter, the whole alimentary System is so convulsed, as to occasion a most profuse Discharge of the Bile, Saliva, and pancreatic Juice, so as even by that to weaken and kill the Patient ; but during the whole time of the Disorder, all the Contents of the Liver are discharged, all the Humours appearing from the first like Bile, yellow, as well from the Gall-bladder as from the Liver itself ; and at last it is vomited up of an intense green Colour. The Effects in this Disorder are the same as if the Patient had taken too great a quantity of *Afarum* or *Stibium*, which are Medicines as intensely purging downward as vomiting upward, when they extend into the Intestines.

² These Fruits being eaten in too great a Quantity in very hot Weather, and confined in the warm
close

§. 811. *The Symptoms of Diseases.* 19

close Stomach, do there ferment, rarify, and generate an elastic Matter like that which arises from fermenting Wine; from whence proceed those wonderful Tumults of the Stomach and Intestines. If this Matter makes its escape by Belchings, it is happy for the Patient; but when at the same time the Mouths of the Stomach are contracted close together, it is distended almost to a degree of bursting, in the same manner as a Bottle or Cask is sometimes split by the fermenting of its contained Ale. There is an Account in the *Philosophical Transactions*, N^o. 351. of a Man who swelled prodigiously and expired, from drinking too plentifully of fermenting Ale; and upon opening the Body, the Intestines were found distended to twelve times their usual Diameter; so great is the power of these elastic Vapours when confined.

³ *Sydenham* affirms from his own Observations, in opposition to the generality of Physicians, that this Disorder often arises from a hot Season, which dissolves the Humours and determines them towards the Intestines, which are then relaxed and afford little Resistance from the same Cause; and he observes, that the Month of *August* is more remarkable than the rest for producing the Disorder, because then the Heats are usually the greatest. It is of so malignant and violent a Nature, that it reduces the strongest Habit to extreme Weakness in an Hour's time, and in a few Hours more occasions Convulsions and Death, from Inanition of the Vessels.

§. 811. Belching is an explosive Eruption of *elastic Matter*¹, expelled by a convulsive Contraction of the Fibres of the Oesophagus, Stomach, and Intestines, being first compressed

20 *The Symptoms of Diseases.* §. 811.

and soon after set at liberty from its Confinement in these Parts ; but these elastic Vapours themselves are generated from Crudities, Indigestion, Putrefaction, or Acrimony of things contained in the Stomach, as Garden-fruits, *Must*² or new Wine, fermenting Liquors, poisons, every thing powerfully acrimonious, or finally *convulsive*³ Diseases themselves.

¹ In all Food taken from Vegetables, there is
1. An elastic Matter. 2. A Spasm which contracts the Oesophagus above and below the elastic Matter.
3. An Endeavour of this elastic Matter to set itself at liberty, which is proportionable to the compressing Power. 4. A violent Explosion or Eruption of the same Matter after the Spasm or Contraction of the Oesophagus is removed. How great the Power of Heat is in producing these Disorders may appear to any one who considers, that Fire is capable of expanding most Bodies above a thousand times greater than their natural Bulk. If an Ounce of crude Tartar be put into a chemical Vessel, from whence the greatest Part of the Air is afterwards extracted and the Vessel sealed up ; if now so great a Heat is applied to the Vessel as will suffice to melt the Tartar, the Vessel will be immediately burst into Pieces with a Noise no less than if it was filled with Gunpowder.

² Casks which contain fermenting Liquors are often burst by the elastic Vapours generated in the Fermentation, unless there is a small Aperture left in the Cask above, by which they may escape.

³ When too great a Quantity of elastic Air is generated in the Intestines of a healthy Person, the Vapours may quite change the natural Position of the Stomach and Intestines. I observed once myself

§. 812. *The Symptoms of Diseases.* 21

self the Intestines quite inverted by Flatus, that Part of them together with the Omentum being turned towards the Back which ought to have lain before. A remarkable case of this kind may be seen related by Mr. *St. Andre* in the *Philosophical Transactions*, N^o. 351. And from hence also arise those wonderful Tumours of the Abdomen, after the taking of Poisons. Some People have had their Abdomen burst, after the Stomach itself has been broke open, from the taking of some Poisons, in so much that it is a common Phrase in most Languages, that Poison makes People swell till they burst. It is also from these elastic Vapours that those Anxieties or Oppressions arise which molest Men of Letters, and those who lead a sedentary life, who are much troubled with Crudities in the *primæ viæ*.

§. 812. The peristaltic or expulsive Action of the Stomach and Intestines is also injur'd in a *Lientary*¹, which is a quick Expulsion of the Aliments by Stool soon after they have been taken into the Stomach, from which and the Bowels the Food appears to have receiv'd little or no Alteration; the Cause of which is an Inactivity of the Humours employ'd in Chylification, together with the Causes of Inappetency (§. 803.) and of Indigestion (807.) accompany'd with a great Relaxation of the Stomach and Intestines, Respiration being in the mean time strong enough.

¹ A Lientary is a Disorder in which the Food passes immediately thro' the Stomach into the Intestines without being retained or altered. It is a Disorder which frequently arises from a Palsy of the Stomach or its Pylorus, the Force of Respiration

22 *The Symptoms of Diseases.* §. 813.

tion in the mean time continuing to press the Contents of the Stomach into the Intestines thro' the relaxed Pylorus, which in this Case affords little or no Resistance. This Disorder would continually happen, even in the most healthy People, if the Food was not retained a considerable time in the Stomach and small Intestines by their contractile Force. From the preceding Idea of this Disease I have often happily cured the same; for it depends entirely on a Weakness and Relaxation of these Parts.

§. 813. If Chyle is discharged together with the intestinal Fæces, the Disorder is termed the *cæliac* ¹ Affection, the Causes of which seem to be too great a Laxity of the Intestines, while the Stomach and digestive Humours retain their due Strength; or it may likewise proceed from an Obstruction of the Orifices of the lacteal Vessels from any Cause.

¹ This is a very rare Disease, and hardly ever once observed by myself, at least in the manner it is described by Authors. For this Disorder supposes the Stomach to be sound, but the Pylorus to be too much relaxed or dilated; so that the Chyle is not slowly but hastily urged forward, together with the intestinal Fæces. Add to this an Obstruction in the lacteal and absorbing Vessels, by which the Chyle is refused Admittance; as for Example, when the *primæ viæ* are infested with Aphæ, or a sort of Crust lines the whole internal Surface of the Intestines; and in this Case, which is more properly the Cause of a Lientary, the intestinal Fæces are discharged little or nothing putrefied.

§. 814. *The Symptoms of Diseases.* 23

§. 814. A *Diarrhæa*¹, is a frequent and copious Discharge of the intestinal Fæces in a fluid State, proceeding either from the Food, Drink, or various Humours deposited from any part into the Intestines. But the Cause of this Disorder, is some Acrimony irritating the Intestines and forcing out their Humours, as the Bile and pancreatic Juices, with those derived from the mesenteric and intestinal *Vessels*², while at the same time the Mouths of the absorbing and lacteal Veins are obstructed; it may also proceed from a too great *Laxity*³ of the Fibres of the Intestines, or from some of the other Secretions being obstructed.

¹ So long as the intestinal Fæces are discharged in a fluid State without Pain or a Tenesmus, the Disorder is termed a *Diarrhæa*; but when joined with Pain and a Tenesmus, it is termed a *Dysentery*.

² The several Humours of the Body may be almost all of them deposited by the Vessels into the Intestines; as for Example, when the Liver is obstructed, the Blood being denied a Passage through the *Vena Porta* and its Branches, will occasion a Dilatation of the mesenteric Arteries, whose exhaling Orifices being from hence enlarged, will deposit sincere Blood into the Intestines. But Passages which are large enough to admit Blood, may more easily transmit any of the other Humours; hence we have *Diarrhæa*'s of various kinds, serous, mucous, bloody, &c. It is also to be observed, that Spaw-waters drank very plentifully, make their way through the Bowels.

24 *The Symptoms of Diseases.* §. 815.

³ In a strong Person, tho' there is a great Quantity of Humours discharged into the Bowels, and tho' he drinks much Water, yet a Diarrhæa does not follow, unless there is also a paralytic Disorder in the muscular Fibres of the Intestines; for then the lymphatic or serous Juices continue to be separated into the Intestines, but are not pressed again into the absorbing Vessels, while in the mean time the intestinal Contents are urged forward by the Power of Respiration. The Cure of this Disorder will consist in opening the Pores of the Skin so as to promote Perspiration, for by that means the Bowels are constipated as *Hippocrates* tells us.

§. 815. A Dysentery is a Diarrhæa with a *Tenesmus*¹, and considerable *Pain*², the Matter being the same as in a Diarrhæa but sharper, and composed for the most part of Bile, Serum, Blood, Mucus of the Intestines, Matter, Sordes, Atrabilis, Fibres, Caruncles or lacerated Membranes, &c. It has also the same Causes with a Diarrhæa, only more violent, being often from the Acrimony of some Humours, an *Inflammation*³, Ulcer or Gangrene, either in the Intestines, or in those Parts which deposit their foul Humours into the Intestines.

¹ A Tenesmus is a painful Inclination to Stool, without being able to make any Discharge; and the Cause is generally an Inflammation of the internal Membrane in the lower part of the Rectum.

² This Pain is chiefly in the Ilium; for if it is in the Colon, it occasions a continual and troublesome Irritation to Stool. In a Diarrhæa the Nerves of the Intestines seem to be covered over with a Crust, but in a Dysentery that Crust is abraded
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§. 816. *The Symptoms of Diseases.* 25

and the Nerves exposed. Hence *Hippocrates* tells us, that a Dyfentery follows a Diarrhæa, that from a Dyfentery follows a Tenefmus, and from a Tenefmus Death. For the Matter of a Dyfentery is more acrimonious than a Diarrhæa, being derived into the Inteftines either from the Liver, Spleen, Pancreas or Stomach, or from an Ulcer, Cancer, or Scirrhus turning cancerous in the Parts adjacent.

³ But an Inflammation is not perpetually the Cause of a Diarrhæa, unless we may be allowed the liberty of calling an Excōriation or uncovering of the Nerves, an Inflammation. But sometimes there is both a true Inflammation accompanies a Dyfentery, and a fatal Gangrene follows.

§. 816. The Iliac Paffion is a *violent* ¹ Difcharge by the Mouth of thofe things which are taken into the Stomach, either under the Denomination of Food, Drink or Medicine, or elfe of the Chyle, Bile, Liquor of the Stomach, Pancreas and Inteftines, or of Atrabilis, Mucus, Pus, Ichor, Fæces of the Inteftines, or *Chyfters* ² injected, &c. But the proximate Cause of this Symptom feems to be always from the Motion of the Fibres of the Inteftines, being *inverted* ³ together with the Fibres of the Stomach and Oefophagus, attended with Vomiting from many of the Causes afore-mentioned (§. 809, 810); but the more remote Cause may be an Inflammation, Inverfion of the Inteftine, an Abfcess, Scirrhus, Cancer, an obftructing Stone or indurated Fæces, Herniæ or a Convulfion of the Inteftines. From hence we may underftand,
the

the original Cause of the Retention of the indurated Fæces, with the Nature and Effects of the Disorder.

¹ An excruciating Pain of the Intestines, with Anxiety, and Vomiting of every thing which comes into the small Intestines; for the Matter discharged by Vomit, is every thing which comes into the Ilium, and not being able to pass through that Intestine, is more and more accumulated, violently distends and injures the sensible Intestine in that Part, so that the Pain and Irritation excites a Convulsion, which renders the peristaltic Motion inverted; by which the intestinal Contents are thrown upward and discharged by vomit. There are such an infinite Number of Nerves in the Stomach and Intestines, that it is the less wonderful that the Iliac Passion should so often kill. *Ruyfch* is the first who has observed, that a Wound in the Nerves of the Mesentery, though without loss of Blood, kills the Patient in three Days time; and in this he was confirmed by repeated Observations in opening Sailors, thirty of whom are killed at least every Year by stabbing each other with Knives in these Parts; but many of them were opened by *Ruyfch*, to enquire into the true State of the Wound. But since in this Case, the Pain from a wounded Nerve may be sufficient to kill the Patient, why may not the same Effect follow from a most intense Pain in the Ilium? but the external Surface of the Intestines is truly a Continuation of the Mesentery.

² We are assured by Men of undoubted Veracity, that not only the Fæces, but sometimes the Clysters injected into the Bowels, have been discharged by vomiting from the Mouth; and the Fæces of the large Intestines I have myself seen discharged

§. 817. *The Symptoms of Diseases.* 27

discharged this way. The last Symptoms are not easy to be accounted for. For the Ilius may be explained from the Obstacle which intercepts the Passage from the Fæces, but then Clysters cannot be discharged by the Mouth, unless the Intestines are pervious; but if they were pervious, why should the Clyster rather come upward by the Mouth, than downward by the Anus? Besides this, in order either for a Clyster or the Fæces of the large Intestines to be discharged this way, the Valve of the Colon must be either broke or rendered Paralytic.

³ Namely, that Motion which naturally determines the Chyle and Contents of the Intestine, downwards, now preternaturally determines them upwards. But then, why should Clysters be discharged out of the large into the small Intestines, since those large Intestines were never observed to have any peristaltic Motion in the numerous Dissections made of living Animals?

§. 817. If the Secretion and *Excretion*¹ of the Bile into the Intestines is injured, the principal Symptoms are these which follow; a *Jaundice*², bilious Cachexy, calculus or earthy Matter in the Liver, Obstructions, Whiteness, Hardness and Dryness of the intestinal Fæces, a loss of Appetite, an *impeded*³ Digestion of the Food, a Hindrance of due Mixture of the Parts of the Chyle, a *Tympanites*⁴ or a Dropsy: the Cause hereof is generally an Inflammation of the Liver, an Induration, Obstruction or some kind of Inspissation of the Humours, either in this, or in some other of the abdominal Viscera.

¹ Behind the Valve which closes the Orifice of the common biliary Duct at its entrance into the Duodenum, there is a free Passage by the Liver throughout the whole Body ; but the Bile is naturally carried downward to the Intestines, so long as the resistance there is less, nor can it return from the Intestines into the common biliary Duct. But when by any Cause the Bile is more resisted in its Course to the Intestines, it then stagnates and returns into the Blood, whose Texture it dissolves like Soap, whence the Blood becomes thin and watery, so that from a Jaundice follows a bilious Cachexy, and from thence a Dropsy, as was rightly perceived so many Ages ago by *Hippocrates*. But if the Bile stagnates any considerable time, the more fluid Parts being dissipated or absorbed, the rest is inspissated into a stony or chalky Consistence, with which we frequently observe the Orifice of the common biliary Duct at the Duodenum obstructed ; and the same is also frequently observed in those who have been violently afflicted with the Jaundice.

² A Discolouration of the serous Part of the Blood by the Bile, whence the whole Body is tinged yellow.

³ In this Case, the Patient is deprived of all those Benefits or Uses of the Bile, which we before enumerated (§. 99 and 100) ; the tenacious Parts of the Food are not dissolved, and therefore the Chyle is not duly attenuated and uniformly mixed, but continues serous, and renders the Blood watery ; nor can Oil ever enter into the Blood from the Aliments, unless it be first reduced and attenuated by the Bile.

⁴ Some Part of the Intestines being consumed, Flatus has been known to escape out of them into the

§. 819. *The Symptoms of Diseases.* 29

the Abdomen, so as to cause a Tympanites or dry Dropsy. But the more the Abdomen is distended, the more are the Intestines compressed, so that their Vessels admit nothing, whence follows a Consumption of the worst kind. In other Cases the like Disorders have followed from Worms eating their way through the Intestines.

§. 818. But if the Separation of Lymph or its Distribution is injured in the Pancreas, Liver, or Intestines, it causes almost the *like*¹ Symptoms with those before-mentioned (§. 817); and will be produced by the *like* Causes.

¹ The Chyle ought to supply the Blood with as much Humours, as there are absorbed or drawn off from thence; for without this, the Blood would soon become dry and impervious. When therefore the Chyle ceases to be diluted with thinner Humours in the Intestines, it produces gross and dry Fæces, which may grow to the Sides of the Intestines, and occasion the Iliac Passion.

§. 819. The Alteration made in the Blood by the Heart, is from its Reception, Stay, and Expulsion; which Motions being too quick, produce continual ardent and violent Fevers; but if it stays longer than it ought in the Heart, or if its Expulsion from thence is too languid, the Consequences are Faintings, polypous *Concretions*¹, *Cold*², Phlegm, Chills, Leucophlegmacy, Dropsy, and a long Train of different Disorders arising from these.

Those

30 *The Symptoms of Diseases.* §. 820.

¹ Those who have been subject to frequent Faintings and Palpitations of the Heart, being opened after Death, have usually polypous Concretions found in the Heart, and in the larger Blood-vessels.

² Namely, when one part of the Humours ceases to drive forward the other, then those which entered into the smaller lateral Vessels are not returned into the Heart, but stagnate, and by degrees produce an Inclination to a Dropsy.

§. 820. The Action of the *Lungs*¹, injured either with respect to Respiration or the Transmiffion of the Blood, consists chiefly in the Increase or Diminution of their Efficacy upon the Blood; from their Efficacy increased, seems to arise a phlogistic or inflammatory Disposition, but being diminished impedes the Business of Sanguification and Nutrition; whence a Cachexy, Atrophy, Phthisis, and an infinite Number of other Maladies; but the Causes of their Action injured, may lie in the Defects of those numerous *Organs*² which we have before described as subservient to the Business of Respiration.

¹ The Lungs act upon the Blood, inasmuch as that is an Assemblage of all the other Humours in the Body; and therefore the Action of the Lungs is continued, and produces its Effects upon all the Humours; for the Lungs first receive the crude Humours, and are the first Organs which attenuate and divide them, so as to be capable of flowing through all the Vessels of the Body, and in time to become part of ourselves, by assuming an
animal

§. 820. *The Symptoms of Diseases.* 31

animal Nature. When therefore the Action of the Lungs is either increased or diminished, then the Action of the Body, or its whole vascular System, will be likewise proportionably increased or diminished upon their contained Fluids. When the Action of the Lungs is diminished, the Assimilation or Conversion of our alimentary Juices into good Blood is destroyed, and the whole Body is weakened throughout. But the Powers of all the Vessels which transmit the Humours, depend upon the applying Force of the Heart, by which the Humours are urged through Vessels of a particular Configuration, contracting themselves to their contained Humours; and therefore the Action of the Heart being diminished, that of the Lungs, and of all other Parts will be proportionably lessened. But all the Humours formed in the human Body must of Necessity have been first prepared in the Lungs; and therefore the Action of the Lungs being too much increased, will occasion a too hasty Assimilation of every thing which is taken as Aliment, whence the Body will be disposed to Putrefaction; and this Disposition will be continued throughout all the Humours at the same time; because the Lungs are a sort of Compendium of the whole Body, whence there will be a perpetual Necessity of taking in fresh or crude Aliments, which may resist Putrefaction. But when the Action of the Lungs is diminished, all the alimentary Juices are too slowly, or not at all assimilated, whence Crudities, Cacochymia, &c.

² Nothing is more worthy of Admiration in the human Body, than that surprizing System of Organs, employed without ceasing in the Business of Respiration. The Creator has in a manner made the human Body twofold; the former part of which is the Lungs only, wherein there are as
great

32 *The Symptoms of Diseases.* §. 821.

great a Number; and as many Kinds of Vessels as throughout all the rest of the Body. In order therefore for the grosser Humours to be attenuated into the most subtle in the Lungs, these last are furnished with Vessels equally small with those in any other part of the Body, that so every Series of the Vessels might be supplied with their adequate Humour; and therefore the Lungs labour for the whole Body, whose Condition must be therefore answerable to that of the Lungs.

§. 821. The principal Symptoms of the urinary Secretion injured, are 1. an Ischuria or perfect Retention of the Urine in the Body without being able to discharge any of it; the principal Causes of which, are a *Plethora*¹, an *Inflammation*² of the Kidneys, *Ureters*³, Bladder, Neck of the Bladder and *Urethra*⁴, or an Obstruction of the same Parts by *Compression*⁵, a spasmodic or convulsive *Constriction*⁶, a Stone, *phlegmatic*⁷ Matter, Pus, congealed *Blood*⁸, *Caruncles*⁹, a Tumor or an Abscess.

¹ Namely, when the Arteries are so turgid with Blood as to compress the uriniferous Tubes in the Kidneys.

² And for the same Reason, there is often no Urine separated in ardent Fevers, attended with the most acute Pain in the Loins from an Inflammation of the Kidneys.

³ That the Ureters themselves may be inflamed, is evident from the Observation of *Nucke*; and they appear likewise in an inflamed State, when their Vessels are exhibited by Injection according

to *Ruyfch.* But these are more especially inflamed by Calculi, obstructed in their Passage through these Tubes from the Kidneys into the Bladder.

⁴ The Urethra is frequently liable to Obstruction after the venereal Disease, when the Parts have been left more obnoxious to an Inflammation from a preceding Gonorrhœa; and a Retention of the Urine in the Bladder, from this Cause, is frequently to be met with.

⁵ As when the distended Arteries compress the uriniferous Ducts, or when the same Effect is produced by a Calculus. Hence we may be able to give an Answer, why an Ischuria often becomes fatal in those who have only an Obstruction of one Kidney, the other remaining entire; namely, because in that Case the other Kidney is so much overcharged with Blood, that it becomes inflamed, whence the uriniferous Tubes in that are likewise compressed, and upon opening the Body one Kidney is found obstructed with a Calculus, and the other wholly destroyed by the Inflammation and Abscess; and in this Case the Disorder is incurable.

⁶ Hence People seldom think of making Water, unless they are admonished, when they are taken up with intense Passions of the Mind.

⁷ Namely, a mucilaginous Matter capable of being drawn out into Threads like Bird-lime, which may then obstruct these narrow Passages.

⁸ When Blood extravasated into the Pelvis of the Kidney congeals into Grumes, as they pass from thence into the Ureter and Bladder, an Obstruction is by this means generally formed either in the Ureter or Urethra. I have myself seen Blood concreted so as to put on the Shape of a Worm in the Urethra, from whence we were obliged to extract it by a Hook. Of this dis-

order perished that considerable Anatomist *Dre-lincourt*.

⁹ There are some of the Moderns who deny the Possibility of such Caruncles being formed in the Urethra; and there is a particular Dissertation published in favour of this Opinion by *Brunner*; but I have myself seen venereal Warts or Excrescencies grow up in the Urethra, where the Ducts of the seminal Vessels prostrate, and *Cow-per's* Glands open into its Cavity, resembling those Warts and Excrescencies which are commonly known to grow upon the Glans and external Parts of the Penis in the same Disorder; and these I have removed by the Application of strong Turbeth Mineral. These Excrescencies are frequent in the Glans, and well known to every one; but in the Urethra they are the same tho' less known. A Caruncle is also frequently formed in the Urethra for want of due Caution in the Cicatrization of an Ulcer in that Part, the Passage of the Urethra being obstructed by the Protuberance or Cicatrix. *Hippocrates* of old has pronounced, that Caruncles arise in the Urethra, which are to be removed by Suppuration; but the Caruncles which appear in our Days will not suppurate; which demonstrates them to be of a different Nature from those of *Hippocrates*, which were of a fleshy Nature, whereas our Caruncles are more compact and callous. It is a bad Practice in this Case, to apply Mercurius sublimatus upon a wax Candle; for by that means an incurable Ulcer is often excited to the great Damage of the Patient. Another almost incredible Disorder I have seen arise from an Ulceration of the internal Surface of the Urethra, and that within the space of eight or ten Hours sleeping, during which time the Patient abstaining from Drink, the excoriated Parts concreted together, in
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§. 822. *The Symptoms of Diseases.* 35

the same manner as the Margins of the Eye-lids, Lips and Fingers often grow together when deprived of their Skin by an Ulceration; and this kind of Disorder very difficultly admits of being cured—To these Causes of an Ischuria, add too long a Retention of Urine in the Bladder, by which the muscular Fabric of that Receptacle is rendered Paralytic. I have sometimes shut up a Dog destined for Dissection, and the timorous Animal has retained his Urine so long, that upon opening the Body the Bladder has been found extremely turgid, and by pressing it nothing could be discharged thro' the Urethra; but by making a small Puncture thro' its Membranes, the Bladder has contracted itself so closely into a Ball, that there has been no Possibility of passing any thing thro' its Neck. But in this Case the miserable Animal might have been relieved by the Catheter.

§. 822. The second Symptom is termed a Dysuria, wherein the Urine is discharged with Pain, Straining and Uneasiness, of which the *Stranguria*¹ is a Species, wherein the Urine is discharged by Drops, or in a small Thread, or with a sense of scalding: but the Causes of both these Disorders are manifold, namely, the Acrimony of Liquors drank, more especially of new and fermenting *Ale*², Wine or the Settlings of either; an Acrimony of the Humours themselves, either acid, ammoniacal, alkaline, oily, aromatic or bilious; an *Excoriation*³ of the membranous Parts themselves, either of the Bladder or Urethra, by an Inflammation, Ulcer, rough Stone, or the

Use of any thing *caustic*⁺, more especially some Insects; lastly, a Calculus¹ or Tumor occluding the Neck of the Bladder or its Urethra.

¹ The Strangury, which is a dripping Discharge of the Urine with great Pain and Straining, frequently arises from the Piles in the Rectum.

² More especially when Ale has lost its Spirit; and vapid or flat Wines do likewise cause a Strangury the Day after they have been drank. Sometimes the drinking of new Ale by People who have been used to better Liquor, produces the like Disorder, and from this Cause the Mucus of the Bladder has been known to be so much abraded in young People as to put on the Appearance of a true Gonorrhæa.

³ When a Stone lies in the Bladder, and especially when it has a rough Surface, it stimulates the sensible Membranes of that Receptacle to Excretion, abrades their defending Mucus, so as to excite Pain where the Stone lies, with a perpetual Desire of emptying the Bladder, which contracting about the Stone after the Urine is discharged, excites a Pain like that of burning, or like what is produced by a Caustic or corroding Substance confined in the Bladder. I have seen the miserable Patient sometimes so cruelly tormented by a Stone wedged into the Neck of the Bladder, that they have stood upon their Head and thrown their Heels upward, in order to make the Stone fall towards the Fundus of the Bladder; so that in this Posture and no other have they been able to discharge their Urine. I keep by me some of these Stones shaped like a Pear, with which the opening of the Urethra has been perfectly stopped up.

§. 822. *The Symptoms of Diseases.* 37

4 There have been some Physicians who by an absurd and almost unpardonable Mistake, have recommended the Use of Cantharides for the Cure of a Gonorrhæa; when at the same time the Nature of the Disorder is such as admits of a Cure only by the most smooth and balsamic Medicines, together with those which dissolve the Blood without Acrimony. But Cantharides, whether taken internally or applied to the Skin, cause Strangury or Difficulty in making Water, being frequently attended with such Straining that the Blood itself often follows. I have seen these Consequences follow from taking the Tincture of Cantharides described by *Bartholin*, which is made with Spirit of Nitre; and I can assert from Experience, that this Tincture and the like Medicines always exasperates this Disorder which it is intended to relieve. For there are many poisonous Animals which exert their virulence upon some particular Member of the Body; as the Serpent *Dipsas* and the Viper affect the Liver and cause a Jaundice, the *Lepus Marinus* affects the Lungs, and Cantharides the urinary Bladder—To these Causes of the Strangury, add that which follows from a Weakness in the Parts by old Age. Young Men discharge their Urine in a full Stream, whereas Old Men empty the Bladder with Difficulty, by Starts, and with a Tenesmus. The Cause thereof consists in a Weakness of the Bladder, and a paralytic Affection of the Muscles serving to expel the Urine, joined with an Acrimony of the Urine, &c. Old Men ought therefore to apply their Finger to the Perinæum in order to press out the remaining drops of Urine, which may otherwise give them uneasiness.

§. 823. The third Symptom of this Discharge, is reckoned an *Incontinency*¹ of Urine, when that flows spontaneously from the Bladder without the Inclination of the Will or the Force of Respiration; and this arises for the most part from the Fibres of the Sphincter Vesicæ being either *relaxed*² or paralytic, dilated, cut *asunder*³, destroyed by a Suppuration or a Gangrene.

¹ An Incontinency of Urine follows when the Sphincter of the Bladder is not close shut; for in a natural State it is always closely contracted, except when it is opened by some superior external Force; and it is thus closed, not by the Influence of the Will, but by a spontaneous Contraction unassisted from the Mind.

² In a healthy Person not so much as a drop of Liquor is involuntarily discharged from the Anus; but when Lapis Infernalis is taken into the Bowels under the Denomination of the *Hydragog* of *Angelus Sala*, or Mr. *Boyle*, in that Case, Water is discharged from the Bowels even unknown to the Patient; a manifest Indication that this Medicine not only loosens the Bowels, but likewise relaxes the Sphincter of the Anus to such a degree, that its Force cannot resist the Contents of the Rectum. The same Disorder may take Place in the Sphincter of the Bladder. When an Incontinency of Urine follows from a loss of Substance and Destruction of this Part, no Relief can be expected from the Physician, whatever may be done by the Instrument called a Yoke from the Hand of the Surgeon: but when this Disorder has continued from Infancy from a Laxity of the Sphincter,

§. 823. *The Symptoms of Diseases.* 39

Sphincter, they may be in some measure assisted by frequent making Water, as at every Quarter of an Hour, till by degrees the Bladder becomes extremely irritable; but they should never retain their Urine for Half an Hour together when they are awake, that the Sphincter may be relieved from the Weight of it, and they ought to be awaked to make Water three or four times in the Night.

³ In cutting for the Stone in the old way, there is almost constantly an Incontinency of Urine follows, because the Sphincter of the Bladder is so much dilated, and often lacerated by introducing large Instruments (as the Conductor and Forceps holding the Stone, which is often pulled out with great Violence, insomuch that the Strength of two Men is in some Cases hardly sufficient) that it cannot afterwards entirely contract itself. This same Disorder frequently happens to Women, from whom the Stone is hardly ever extracted by cutting, but by dilating the Urethra, first by introducing the Catheter, over that the Conductor, and over the Conductor a Pair of Forceps, with which the Stone is apprehended and extracted; but then the Sphincter and Urethra are by this means so much dilated, that the Patient is afterwards troubled with an Incontinency of Urine during Life. But the late celebrated *Raw* with great Skill and Dexterity, cut Women for the Stone in the Perinæum after the manner of Men, and by that means prevented the Hazard of this Incontinency of Urine. The same Disorder may follow from a venereal Ulcer, as also from a Luxation in the spina Dorfi, or a Contusion of the spinal Medulla, in which Case the Intestinal Fæces, as well as the Urine, are incapable of being retained. This Accident I saw in a Goldsmith, who had a Dislocation in the Vertebrae of the Loins.

§. 824. The last Symptom (4) or Disorder attending this Evacuation, is termed a Diabetes, which is a frequent and copious Discharge of a *milky*¹ Urine, or which is much saturated³ with Chyle; the Cause hereof is generally esteemed too great a Relaxation of the Fibres, accompanied with too *thin*² a State of the Humours; both which may proceed from the Humours being too much diluted with Water.

¹ In such a manner, that the renal Vessels are changed into lactiferous ones, like those of the Breasts; in which case, the Arteries termed emulgent do strictly answer their Denomination, inasmuch as they milk off, or deprive the Body of its nutritious Chyle. The Quantity of Urine in this Disorder is large, of a sweet Taste, and of a milky Colour and Consistence.

² Every Vessel is dilated in Proportion to the pressing Force; and therefore every Vessel transmitting too great a Quantity of Humours, will be relaxed. Hence it is that this Disorder became so frequent after the high Recommendations given to warm watery Liquors, especially Tea and Coffee, by *Cranen* and *Bentekoe*; for these diuretic Liquors hurt two ways, by thinning the Humours too much, and relaxing the Vessels. The greatest Hopes of a Cure will consist in a dry Diet, Abstinence from watery Liquors, with Exercise of Body, a free Perspiration, &c. But every increased Discharge by the urinary Secretion ought not to be esteemed a Diabetes; such as we observe after drinking a great deal of Tea, Coffee, or Spawwaters; For a true Diabetes, according to the Ancients,

§. 826. *The Symptoms of Diseases.* 41

icients, is, when the Urine appears milky, as I saw it in a young Man, who applied to his Studies Day and Night. His Method was to drive off Sleep, by perpetually drinking Tea or Coffee, which reduced him at length into a Consumption and incurable Diabetes, so that he appeared like a Skeleton, and at last expired tormented with an intolerable and unextinguishable Thirst.

§. 825. The vital Actions injured, respect chiefly the Symptoms of the Pulsation of the Heart, and the Exercise of Respiration, or both together.

§. 826. Hence therefore the first Symptom or Disorder of those Actions is reckoned a *Palpitation*¹ of the Heart; namely, a violent and sensible Contraction of it, accompanied with a great Resistance to the Blood expelled from the Heart; and the Cause thereof is, for the most part, some inordinate and violent Motion of the vital *Spirits*² impelled into the muscular Fibres of the Heart, as in violent Passions of the Mind, sudden Fear, hysteric Passions, violent and sudden Exercise, awaking out of one's sleep on a sudden; and sometimes it may be from Irritation of the Fibres of the Heart itself, proceeding from some acrid Stimulus, as in a Cacochymia, when the Humours are put in Motion, an Inflammation of the Heart itself, or its Pericardium, or a Disorder of them from a Calculus, *Worms*³, Hairs, or an *Aneurism*⁴; as also from Blood abounding in Quantity, or being too *thick*⁵,

or

or congealed into a *Polypus*⁶; or lastly, from the Membranes of the Arteries being either cartilaginous or bony, or else obstructed at their extremities.

¹ Thus we call a violent Contraction of the Heart, in Opposition to some great Resistance.

² When the Heart palpitates, it dilates by Degrees, and becomes aneurismatic. For when it receives more Blood than it is able to discharge, its Force weakens in Proportion as the Afflux, and consequently the Capacity is increased, since every muscular Fibre is weakened when too much elongated. Thus for Example, a Person who suddenly hears or sees the Explosion of Gunpowder unexpectedly in the Night, is thereby frightened, and flung into a Palpitation of the Heart, because all the Blood is by a sudden Constriction derived towards the Heart, which cannot dispense with, or move forward, so great a Quantity. Add to this, the unequal Distribution or Force of the Spirits, from whence arise hysteric and chlorotic Palpitations.

³ Thus *Lower* found Worms in the Pericardium, where, by irritating the Heart, it was thrown into violent Palpitations.

⁴ Women of a weak Habit subject to frequent Faintings, at last expire with Palpitations of the Heart; for when a Person is in a Swoon, the Blood continues to flow into the Heart, which being then dilated and at rest, the more viscid Parts of the stagnant Blood concrete into a fleshy Mass or *Polypus*, which stopping up the Passage more or less, causes the Heart to be still more dilated, and renders death more inevitable. This Disorder ought to be well known both to Physicians and
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and Surgeons, left from being unacquainted with the true Nature of the Disorder, they should destroy the Patient. I saw an Aneurism under the left Axilla, as large as a Child's Head, in a Man who was a *Greek*; and whenever this Man slept in the Night on his right Side, the Blood went out of the aneurismatic Sacculus of the subclavian Artery, and left an empty Space; but as soon as ever he rose up and altered the Posture of his Body, there was a free Passage made for the arterial Blood, which deserting the Brain, until the Sacculus was full, he was by that Means subject to a short Fainting whenever he rose up from Sleep. This Tumor being opened after Death, appeared full of fleshy Threads or Columnæ.

⁵ When the Blood is too thick, so that it cannot easily pervade the pulmonary Artery, it is there accumulated, and resists the Contraction of the right Ventricle of the Heart. Hence arise those frequent Palpitations of the Heart, to which Men of Letters, and such as lead sedentary Lives, are particularly subject; when they compose themselves to Sleep, then they can hear their own Heart palpitate or beat with some uneasiness; namely, because being in an erect Posture, and now laid down, the Blood flows suddenly from all Parts of the Body in too great a Quantity to the Heart. But these Palpitations seldom last above an Hour.

⁶ A Palpitation of the Heart from an inordinate Motion of the Spirits is not dangerous; but when the Humours are repelled of a sudden to the Heart, the Case requires to be managed with some Caution. This kind of Palpitation is familiar with those who are troubled with a Polypus. for they are sometimes a whole Minute together without any Pulse, and afterwards they return to themselves; but in the mean time the Blood stagnates and may con-
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44 *The Symptoms of Diseases.* §. 827.

crete into a Thrombus. I saw a Patient afflicted with this Disorder, to whom I ordered a low and suitable Regimen; but another Physician recommending the volatile oily Salt of *Sylvius*, occasioned by the unhappy Use of it the Polypus to be protruded into the ascending Aorta, whence sudden Death. Nor ought ever these volatile Salts or other violent Stimuli to be allowed, where there is reason to suspect a Polypus.

§. 827. An *intermitting*¹ of the Pulsation of the Heart or Arteries, proceeds either from a Deficiency or unequal Flux of the nervous Fluid from the Cerebellum into the Heart, or else from some Defect in the Artery itself receiving and transmitting the Blood and Humours; or lastly, from something amiss in the *Blood*² and Humours, which ought to flow thro' the Artery: hence therefore the Cause of this Symptom may be various, as a Convulsion, Polypus, a phlegmatic Cacochymia, an *Inflammation*³ of the Arteries, *Lungs*⁴, or *Heart*⁵ itself, a *Deficiency*⁶ of Blood, the Arteries render'd *bony*⁷, cartilaginous, or *aneurismatic*⁸, or else obstructed by a Calculus, or other Matter; to which add the Heart itself disorder'd various ways.

¹ An intermitting Pulse is a dangerous Sign in all Diseases, inasmuch as it denotes a Deficiency of the vital Powers.

² Namely, such as is apt to form Obstructions or polypous concretions.

³ I made my first Observation of an Inflammation of the Arteries in an Ox, which in driving to
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§. 828. *The Symptoms of Diseases.* 45

the Market to be killed, ran away, but was taken and killed after violent running; and in this Ox I observed the Coats of the Aorta quite black, and suffused with Blood impacted into the small Vessels of the arterial Coats. But *Ruyfch* has demonstrated that the Aorta receives the Branches which are spent upon its Coats from the coronary Arteries; and therefore these Arteries of the Tunics being distended, must consequently diminish the internal Capacity of the Artery itself, &c.

⁴ As in a fatal Peripneumony.

⁵ Such a Disease is described by *Hippocrates*, namely, the Heart inflamed, gangrened, and inclined towards the right Side.

⁶ A deficient Pulse after profuse Hæmorrhages is usually a fatal Sign.

⁷ When an Artery is either bony or cartilaginous it resists the Blood from the Heart, which consequently is thrown into a Palpitation, for want of Force sufficient to urge forward the Blood so as to overcome the Resistance.

⁸ The right Ventricle of the Heart is not so often dilated and rendered aneurismatic as the left, as appears from the Observations of *Lancifsi*, who has wrote professedly on the Subject, and shews, that the left Ventricle is not only oftener aneurismatic, but dilated to a much greater Size; more especially when the Blood stagnates in the Heart, as it does in fainting Fits, in which the Blood being accumulated distends the Heart, weakens its contractile Force by degrees, and renders it more easily dilatable upon the Return of the same Cause.

§. 828. The Pulse *quicker* ¹ than usual proceeds always from a quicker Contraction of the Heart, whose Motion is accelerated from
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46 *The Symptoms of Diseases.* §. 829.

a more frequent or copious Influx of Spirits from the Cerebellum, and from a difficulty in driving forward the Blood to be expell'd from it; and these again may arise from Acrimony and Obstruction.

¹ So soon as the Body is put into a swift Motion, the jugular Veins are obstructed from freely discharging their Blood into the Subclavians;—whence the Head shakes.

§. 829. The fourth and last Disorder of the Pulse is its Diminution and total Cessation, which may be reduced to a *Lipothymia*¹, or Fainting, when the Pulse is so deficient, that the vital Powers being much weakened, are hardly capable of sustaining the Body; *Lipoppsychia*², when the preceding Disorder is so far increased, that the natural Heat or Warmth of the Body is much abated; *Syncope*³, when the Heart is so far deficient, that the Heat, Motion, and Sense of the Parts, are almost destroyed, and cold Sweats ensue. Lastly, an *Asphixia*⁴, in which all the preceding Faculties are abolished as to Sense, and the Body appears a perfect Image of Death. The Causes of these Symptoms are various, and appear in different degrees, being almost the same with those which occasion an intermitting Pulse (§. 827.); more especially an Idea of something *frightful*⁵, the Person being with Child, Passions of the Mind, Convulsions, profuse Evacuations of any kind, and more especially of *Blood*⁶ in Wounds, Abortions, Delivery, or Cancers.

A Lipo-

§. 830. *The Symptoms of Diseases.* 47

¹ A *Lipothymia* or Fainting, is when the Strength fails one so as not to be able to sustain the Body.

² A *Lipofychia* is more violent than a *Lipothymia*, because in this last the Senses fail, so that the Patient can neither see nor hear, &c.

³ A *Syncope* is still worse, namely, when the Pulsation of the Heart and Arteries are hardly perceptible.

⁴ An *Asphyxia* is when the Respiration and beating of the Heart are not to be perceived, and differs from Death only in degree of Duration. Thus when a healthy Man perfect in all his Parts is drowned, like a good Clock in which every thing is perfect except the Pendulum which is not in Motion; but if to a Person thus drowned Motion is restored, he begins to live.

⁵ Even the Poets have described their Heroes as obnoxious to Fears and Frights: and in this Condition the Heart is almost stopped and the whole Body trembles.

⁶ Namely, when the Heart is not duly supplied with venal and arterial Blood; whence Faintings frequently follow Hæmorrhages.

§. 830. The principal Symptoms attending on the Respiration injured, are reckoned to be
1. An *Apnoea*¹, in which the Respiration is entirely suppressed; and which acknowledges for its Causes the same which we enumerated before, as productive of a diminished or suppressed *Pulse*² (§. 829.); as also from a vitiated Air (§. 746. to 754.), *poisonous*³ Vapours, and such as are caustic, acid, or austere; a Palsy or Spasm of the Organs subservient to Respiration

48 *The Symptoms of Diseases.* §. 832.

ration (§. 602 to 625); as also other Diseases which are capable of totally destroying the Functions of these Parts.

¹ An Apnoea is a State of the Body approaching nearer to Death, and absolutely terminates in Death if it continues for two Minutes together.

² So soon as the Action of the Heart ceases, the Respiration fails of Necessity; and as soon as the left Ventricle ceases to be supplied with Blood from the Lungs, all the Actions of the Body are immediately stopped.

³ Even the strongest Animals are immediately suffocated by the Fumes of burning Sulphur.

§. 831. 2dly, A *Dyspnœa* is when the Respiration is performed with Pain, *Difficulty*¹ and Fatigue; and this has the same Causes with the preceding (§. 830) but slighter; to which add more especially an ill Conformation of the Thorax.

¹ I here speak of Inspiration, for the Expiration still continues easy, as that is performed spontaneously by the Elasticity of the Ribs and Cartilages, and requires no Force or Action from the Muscles of Respiration. This Disorder arises from too strong a contractile Force in the muscoli Mefochondriaci of the Lungs contracting the Bronchia, so that they do not easily yield to be distended by the Weight of the Atmosphere.

§. 832. 3dly, An Asthma, which is a quick, difficult and noisy or wheezing Respiration, arising generally from stronger causes than a *Dyspnœa*, but more especially as it would seem

seem from a *spasmodic* ¹ Constriction of the muscular Fibres in the Lungs.

¹ The Lungs are always in a State of Violence, that is, more dilated than they would be if they were sustained in Equilibrium in the common Air. The Lungs therefore always resist Dilatation by their own proper force. If now this contractile Force of the Lungs is increased to twice its former Strength while the distending Power of the Atmosphere remains the same, in that Case the Lungs will not be dilated. For there is a natural Proportion betwixt the distending Force of the Atmosphere and the contractile Power of the Lungs, which Proportion being destroyed, the healthy Action of the Parts cannot succeed. In this Disorder then the Patients erect their Body, raise the Shoulders, and draw them nearer to each other, and fixing their Elbows in some Window, they draw in their Breath with great Violence and Wheesing, by dilating the Thorax as much as lies in their Power. When the Fit is run to such a Height that the Patient seems to be near to Suffocation, as the Blood now cannot pass thro' the Lungs, the jugular Veins appear turgid and ready to burst; neither the left Ventricle of the Heart nor the Aorta, and consequently the Encephalon and Lungs themselves receive no Supplies of Blood, whereupon the Musculi mesochondriaci are relaxed, and restore the Lungs to their free Respiration. The Patient is more especially afflicted with this Disorder when the Wind blows from the North, as the Air then increases the Strength and Elasticity of all the Fibres, and even in the Springs of Clocks; but the Patient finds himself better when the Weight of the Atmosphere is increased. This is the dry Asthma, a Disorder

which is very frequent, and often deceives one, as it can only be cured by riding on Horseback, with a milk Diet.

§. 833. 4thly, An *Orthopnœa* ¹, which is a short, difficult, and wheezing Respiration, that can only be performed when the Patient's Neck and Thorax is in an erect Posture; the Causes of this Disorder are the *same* ² with those before-mentioned (§. 830, 831, 832.), but they act and return variously by Fits or sudden Starts.

¹ An *Orthopnœa* is a Respiration with a kind of Stertor, performed with the Action of the Neck and Shoulders; *Hippocrates* calls it an exalted or high Respiration.

² More especially an *Empyema*, a Dropsy of the Pericardium, and other Disorders of the like kind, from whence an exalted Respiration may follow; and it may also arise from the Lungs being over-charged with Moisture or with Water.

§. 834. 5thly, A suffocating Catarrh, which seems to be a sudden and fatal *Apnœa* ¹, or total Suppression of the Breath: it has the same Causes with an *Orthopnœa* (§. 833.); but we more especially observe, as the most frequent Cause, a sudden Distillation of the fluid Matter into the Fauces and Lungs, or great Disorders of the Nerves, as in hysteric Cases; or lastly, a large Polypus in the Heart suddenly protruded into the Lungs.

When

§. 835. *The Symptoms of Diseases.* 51

¹ When a Person is suffocated on a sudden without any preceding Signs of any great Disorder, it is termed an Apnœa; but as soon as the Body stretches out and grows stiff, a bloody, purulent, or phlegmatic Matter is discharged in great Quantity from the Mouth and Nose. This Disorder happens when a Vomica is suddenly broke in the Lungs by a violent Inspiration, the Matter and Blood being suddenly poured into the Air-vessels and Bronchia. If so much as a single Ounce of Matter is discharged into the Bronchia from the bursting of its Cist, it is sufficient to produce sudden Death, and does not give the Patient an Opportunity to speak one Word, inasmuch as it perfectly intercepts the Respiration; but after Death the Parts contracting by Cold, protrude the Matter, and cause it to ascend through the Wind-pipe. Sometimes this same Disorder arises from the Lungs being affected externally in an Empyema or a Dropsy of the Thorax, when one Chamber of that Cavity being full of Water and Matter, and the Mediastinum eat almost thro', the Liquor suddenly makes itself a way into the other Chamber of the Thorax; whence an unavoidable Suffocation follows, as the whole Lungs are now oppressed; whereas before only one half of them being obstructed, occasions only an Orthopnœa.

§. 835. But all these five preceding Symptoms or Disorders of the Respiration (§. 830. to 835.) are commonly produced by some very remarkable Causes, which manifest themselves either by opening the dead Body, or by a Discharge of the offending Matter; such are chiefly a filling of the *Thorax*¹ with extravasated Lymph, Matter, or Blood, an Inflam-

mation of the Larynx, Wind-pipe, Bronchia, Lungs, Pleura, Mediastinum, Diaphragm, Pericardium, and Muscles of the Thorax and Abdomen subservient to Respiration; as also offending matter of various kinds, whether *polyposè*², *chalky*³, gritty, phlegmatic, *stony*⁴, or purulent; and likewise a Tumor formed about or within the *Larynx*⁵, or in the Lungs themselves, or in the Thorax, whether the Tumor be inflammatory, suppurating, scirrhous or cancerous: finally, we may add to these a very broad *Adhesion*⁶ of the Lungs to the Pleura.

¹ Even sometimes Matter has been found in the Cavity of the Pericardium itself; and at other times Matter has been formed after an Inflammation betwixt the Lamellæ of the Mediastinum, which might have been removed by trepanning the Sternum; which Operation was performed upon a certain Divine at *Amsterdam*, who was by this means freed from a great Quantity of Matter; and the Heart was thus left so naked, that by applying a Looking-glass opposite to the Wound, he could see his own Heart beating, which he seemed to take some Pleasure in, being a Man of an uncommon Taste; for it was the noted *Becker* who has wrote against the Existence of Devils.

² Frequently very large Polypus's have been discharged, exceeding the Belief of every one.

³ This matter grows hard when exposed to the open Air.

⁴ The celebrated Botanist *Vaillant* spit up 400 Stones from his Lungs before Death, though they were all of them indeed small and round. He was afflicted with an Asthma from a calculous Matter collected

§. 836. *The Symptoms of Diseases.* 53

collected in the Vesicles of the Lungs. I have seen Asthma's of the worst kind, in which the Patient has been tortured with incessant coughing without intermission, till after some Weeks they have brought up Calculi from the Wind-pipe, and then the Respiration has been free for some time, till more Calculi were again formed. I have seen other Patients who have kept by them large Cups full of these Stones, which had been brought up from the Lungs. Such People as these generally die with a spitting of Blood; for the tender Fabric of the Lungs is destroyed by the violent coughing used to bring up these Stones.

⁵ I saw a learned Man who was suffocated by a Tumor of the Parotid, which was enlarged to the Size of one's Head. I likewise remember a celebrated Statuary, who had all the Glands of his Fauces scirrhus from swallowing the Dust of the Stone; and this Man died suddenly.

⁶ When the Lungs thus adhere to the Pleura, they cannot descend or follow the Diaphragm when the Thorax is dilated, whence the free Entrance of the Air is impeded, and an incurable Dyspnœa is brought on. Nor is it at all wonderful that these Disorders should so seldom be cured, because very different and numerous Disorders are in this Case comprehended under one Denomination.

§. 836. The Symptoms of the Sight injured are very *numerous* ¹, and are best distinguished from enumerating their Causes, according to the different Seats wherein they reside; for

1. The containing Parts may injure the Globe of the Eye by *pressing* ², and thrusting it forward or outward, or by corroding it with Tu-

54 *The Symptoms of Diseases.* §. 836.

mors, either *inflammatory*³, suppurative, scirrhous, cancerous, an Exostosis or *Caries*⁴ of the Bones constituting the Orbit; for from hence the Figure, Circulation of the *Humors*⁵, visual Axis, and Collection of the Rays in their due Place in the Eye, may all of them *be depraved*⁶.

¹ So numerous that formerly the *Parisian* Oculist *Guillemeau* has reckoned up 300 Disorders of the Eyes. But this Division is rather Ostentatious, and tends to Confusion by its usefess Subtlety. In my Opinion, those Disorders only ought to be described which arise from different Causes, and which require a different Treatment and Method of Cure; and even these are numerous enough: for the Eye performs the Office of Vision by a Concurrence of an almost infinite Number of Instruments. But it is a general Axiom, that the more Organs there are employed in any Action, that Action must be exposed more frequently and to a greater Number of Disorders. If there are an hundred Parts in an Organ, it is easy to conceive, that such an Organ may be liable to three times as many Disorders.

² When the Glandula innominata is tumefied, the Sides of the bony Orbit cannot give way, no more can the Bulb of the Eye: and therefore the Eye can only occupy the Space which is allowed it by the increased Gland; thus the Globe of the Eye will be compressed, altered in its Figure, and deceived in its Office of Vision; which will be thus obscured from an external compressing Cause, without any thing amiss in the Eye itself. In this manner I observed the Eye project out of the Orbit in a Girl, but so that the Eye-lids could not
be

§. 836. *The Symptoms of Diseases.* 55

be drawn close together to cover it. I have likewise sometimes observed this Gland so much distended, as to thrust the Eye out of its Orbit upon the Cheek.

³ The whole Orbit is perfectly filled by the Eye, Muscles, and Fat; and therefore the Eye will be compress'd as soon as any of the parts contained in the Orbit are enlarged.

⁴ When the Nose is internally corrupted from the Venereal Disease, and the mucous Membrane eroded, the Canalis nasalis then begins to be uncover'd, which Canal forms part of the bony Side of the lachrymal Sack; and then also the Os planum and Unguis are uncovered on their inside next the Nose, and become carious; whence the Eye itself becomes inflamed in its Membranes, and at length the Patient loses the Sight of both his Eyes, or at least of the Eye on the corrupted Side. So soon therefore as the Eye appears inflamed and watery, tho' in but a small degree in those who have a Caries or Ozæna in the Nose from the Venereal Disease, the Sight is in the utmost Danger, inasmuch as the Disorder terminates in an Erosion of the Eye itself.

⁵ The Circulation of the Humours in the Eye may be depraved even by slight Causes, inasmuch as it is carried on through the most minute Vessels of the Membranes, aqueous Humour, ciliary Ducts, crystalline Lens, vitreous Humour, and Retina.

⁶ This is a bad Sign, and seldom yields to Medicine; nor ought even a slight Tumour to be neglected or despised, as of no consequence, tho' arising in the Orbit from an external Cause. Upon this Subject you may consult *Hildanus* in the first Century of his Observations; see also *Heister* in his Treatise concerning the Extirpation of a Cancer in the Eye.

§. 837. Besides this, the Eye-lids being inflamed, suppurated, *inflated*¹, glued together or *concreted*², or beset with Pimples, wonderfully disturb the Sight, and that from various Causes, but more frequently, and especially by the *glandulæ Sebaceæ*³ disordered; for then all the Parts of the Eye are filled with *Sordes*⁴, and begin to suffer the *like*⁵ Disorders, the Sight grows dull, and the Humours of the Eye are depraved.

¹ The cellular Membrane is in no part more liable to Distension and Diseases than in the Eye-lids, for these are often so much inflated as even to hide the Eye itself; and in the Small-pox they are even not opened for many Days, nor are there numerous Instances wanting of perfect Blindness from this Cause.

² I saw the Margins of the Eye-lids in a Child so much ulcerated, that they grew together every Night, insomuch that it became necessary to keep them asunder by the Interposition of a plate of Lead, after they had been separated by the Knife. This is the *Symblepharosis*.

³ When the small Glands destined to lubricate the Margins of the Eye-lids are obstructed and filled with a yellow Oil, thence arise Tubercles, termed by the Antients *Chalazæ*, and by the Latins *Grandinosæ*, which obstruct the Sight and ought to be extirpated.

⁴ The Eyes would be continually troubled and obscured, as if there were small Bodies continually flying before them, if they were not to be deterged and cleansed by the Eye-lids, and therefore when the Eye-lids are inflamed, or otherwise rendered
 immovable,

§. 838. *The Symptoms of Diseases.* 57

immoveable, the Brightness and Clearness of the Eye must necessarily be lost.

⁵ Whenever the Eyelids are inflamed, the same Disorder usually invades the Eyes at the same time.

§. 838. When the Tears offend either by their too great *Quantity*¹, *Acrimony* or *Thick-ness*² flowing along the Margins of each Eye-lid, they run down or distil in Drops out of the Eyes along the Cheeks, and thus occasion a watery Eye, obscuring the Sight, causing inflammatory *Erosions*³, Discolouration, lachrymal *Fistulæ*⁴, &c. And these Disorders happen either from a diseased *Relaxation*⁵ of the lachrymal Gland, or from too great Acrimony and Motion of the lachrymal Humour, and perhaps also from an ill Configuration of the cartilaginous *Tarsi*⁶ or Margins of the Eye-lids, or from an Indisposition of the *Caruncle*⁷ in the Corner of the Eye, as also from various Disorders of the *Puncta* or small *Orifices*⁸ in the Eye-lids which absorb the Tears, with the small *Ducts*⁹ leading from thence into the lachrymal Sack; or the Disorder may again proceed from some Indisposition of the lachrymal Sack itself, of its *Canalis Nafalis*, or the Membranes which internally line the *Nose*¹⁰, being so affected as to obstruct the Passage thro' that Canal into the Cavity of the Nose; but the Causes capable of producing the forementioned Disorders are almost innumerable.

In this Section is contained the Result of an infinite Number of Observations. *Petite* has wrote an entire Treatise upon these Disorders, and yet has not been able to reach to the Root of them. The Glandula Innominata of the Eye separates the Tears from the arterial Blood, and discharges them all over the Eye by its proper hygrophthalmic Ducts of *Meibomius*, betwixt the Eye itself and the upper Lid, by which means the Tunics of the Eye are washed clean and kept splendid. After performing this Office, the Tears are determined along the Margin of the lower Eye-lid to the lachrymal Points in the greater Canthus next the Nose, where they are always absorbed in a natural State of the Parts, unless by sorrowful Passion of the Mind the Tears are separated in an increased Quantity.

¹ When the Tears flow in great Quantities, and are accumulated along the Margins of the Eye-lids, the Eye is in a manner covered with Water, and does not accurately discern objects, unless it is first wiped dry. This disorder is usually attended with an Inspissation of the Tears into the Consistence of Gum, which proves troublesome to Men of Letters.

² This happens from a depraved Circulation, when it is almost suppressed in People who are dying; for then Particles of Dust which float in the Air are caught in this Liquor, and obscure the Sight.

³ These Erosions more especially happen when the Tears are very acrimonious, a Defect to which the Mucus of the Nose is often liable in a thin or ferous Coryza.

⁴ We say a lachrymal Fistula is present whenever the Tears flow down a Person's Cheeks from any Cause obstructing their natural Passage into
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§. 838. *The Symptoms of Diseases.* 59

the Nose. I know not of any Title to which these Disorders can be referred except this, which is therefore used with Design, even though I am obliged to comprehend in it very different Disorders.

⁵ Namely, when the lachrymal Glands are relaxed like the salival Glands in melancholy People; for as in these last there is a perpetual Flux of Saliva, so in a like State of the lachrymal Glands there is a perpetual and too copious a Flux of the Tears.

⁶ No Geometrician could ever adapt together two moveable Lines more exactly, than what we observe in the Margins of the Eye-lids; but when there is any Defect in these, as for Example, if there is a Fissure or Inequality in them, then the Tears will run down from thence. When Surgeons see this Disorder, they often search for the Cause in the greater Canthus of the Eye, when it altogether proceeds from some Inequality in the Tarsus or Margin of the Lid. Such a Fissure I observed in the Eye-lid of a Person from an Erosion, which prevented the Tears from flowing to the greater Canthus, instead of which they ran down the Cheek thro' the Fissure, which was corroded in the Margin of the Eye-lid. I observed this Disorder likewise in a Soldier, occasioned by a Wound received from a Bullet.

⁷ This Caruncle is red and beset with small Hairs, being placed like a Cushion in the internal Angle of the Eye, to make up the Deficiency which is there observable in the Tarsi or Margins of the Eye-lids, which terminate before they reach the internal Angle; and this space is therefore filled by the Caruncle, that the Eye might not be perfectly closed there, in order that the Tears might be derived thither, when all other Parts of
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the Eye-lids are closed. As there is only a space thus formed in this Part of the Eye, therefore the Hairs, Dust, and other Nufances will be retained about the Caruncle, together with the more gross and viscid Parts of the Tears, while the more fluid Parts are drawn off by the lachrymal Points. If now the Caruncle is corroded, a Cavity will be formed, through which the Tears will flow and run down the Cheeks, incapable of being suppressed, so as to afford the Appearance of a lachrymal Fistula, though there is really neither Ulcer nor Fistula.

⁸ At the Extremities of the Tarsi in each Eye-lid next the Nose, are placed two small Openings like Points, furnished each with a respective Valve, which absorb the Tears, and convey them into the Nose after the manner of a Syphon. But when the Tears are accumulated behind these Points, and cannot be absorbed by the lachrymal Ducts, it forms a spurious Fistula Lachrymalis; it being termed a Fistula, tho' it is only an apparent Symptom thereof.

⁹ When the Ducts leading from the lachrymal Points to the Sack are inflamed, ulcerated or compressed, the Tears are then obliged to run down the Cheeks, there being no Passage for them into the lachrymal Sack.

¹⁰ When the Membranes of the Nose are tumefied in a Cold, so as to compress the nasal Canals, then the Tears are likewise obliged to run down the Cheeks; and the same Disorder may likewise proceed from a Polypus, or from the venereal Disease seated in these Parts—From what has been said, it is evident how numerous and various are the Diseases of these Parts, and how complex their Causes are; and also that they require so very different Methods of Treatment in order for a Cure, that
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§. 839. *The Symptoms of Diseases.* 61

it is next to impossible for them to be healed by any Physician who is not acquainted with their Causes; and it is likewise evident, how ill qualified those are, who set about curing Diseases of the Eyes, when they are not well skilled in the Anatomy of these Parts. There would be no reason to find fault if they used nothing but Rose-water, or Water in which red-hot Gold and Flint-stones have been extinguished; for these are Medicines which hurt nothing but the Purse; but I only complain against their undertaking Chirurgical Operations, in the Administration of which they are altogether ignorant. I saw a Surgeon who intended to perforate the Os Nasi, to make a way for the Tears, when the lachrymal Ducts were only compressed by a small Tumor in their Course from the Puncta to the Sack; a Disorder which might have been easily removed by an emollient Cataplasm or Fomentation. But caustic and corroding Medicines more especially require great Caution, and ought rarely to be used. I intend this against the *French Surgeons at Paris*, who are most forward of any to oppose every thing by the Knife and Cautey.

§. 839. But Vision may be also depraved, obscured or destroyed, when the Tunica Cornea or Adnata are injured with an Opacity, Whiteness, growing thick, or *oedematous*¹, or invaded with a *Blister*², Inflammation, Unguis, *Sarcoma*³, *Pearl*⁴, *Cicatrix*⁵, Panniculus, Albugo or Cartilage; all which may again proceed from numerous and various Causes.

Otherwise

¹ Otherwise termed a Dropsy of the Cornea. About twenty Years ago when I read upon Diseases of the Eyes, I observed the Cornea in a Patient in which there were many small Vesicles full of a pellucid Water; I then stretched the Cornea, and with the Point of a very sharp Needle punctured the Vesicles, which distilled a pellucid Liquor, but still thereremained other interior Strata entire; after the first I opened another of the Vesicles, and so proceeded with the rest: this was an Oedema in which Water had been accumulated.

² I saw a studious Person who consulted me, and was full of Complaints that he had lost his Sight, and upon inspecting the Eye I found a lymphatic Vessel distended upon the Tunica Adnata, so that it seemed to the Patient like a Beam, and destroyed his Sight; but by opening this Vessel by Puncture, and then washing the Eye with Spirit of Wine mixed with ten times as much Water, he was perfectly cured.

³ When a kind of rough Wart or Excrecence rises up above the Surface of the Tunica Adnata, then the Eye-lids are obliged to wink Day and Night, while their internal Surface is irritated and inflamed. I have observed this Disorder from Sand falling into the Eye, which lying between the Globe and the internal Surface of the Eye-lid, has excited such Pain as to throw the Patient almost into Convulsions; so easily may the greatest Maladies arise from the slightest Disorders.

⁴ A Peal is a semipellucid and white Spot in the Cornea; but whether orⁿ it is a Callosity of a lymphatic Vessel burst may be questioned.

⁵ Such Scars frequently happen after the Small-pox, when the Eyes have been closed up by a Concretion of the Eye-lids for several Weeks, so as to render the Patient perfectly blind.

§. 840. When again the aqueous Humour is deficient, the Eye shrinks or falls away, and the Cornea becomes too flat or else *wrinkled*¹; if the aqueous Humour *abounds*² too much, it produces the Oculus Elephantinus; if it *stagnates*³ without being renewed, it vitiates the whole Fabric of the Eye; if it becomes tinged into any Colour, or inspissated into a mucous or phlegmatic Nature, it causes *Suffusions*⁴, Cataracts, or an improper *Colour*⁵ of the Eyes, and the Seat of these last Disorders is for the most part betwixt the interior Surface of the Uvea and the crystalline Lens, and the Cause is for the most part an *Inflammation*⁶, Cacochymia, or an imprudent Application of things too powerfully *coagulating*⁷.

¹ When the Cornea is wrinkled the Eye is said to be broke, as in dying People; and flat, when the Cornea being collapsed loses its Sphericity from a Deficiency of the Humour which ought to distend and fill it out.

² When this Humour abounds, the Eye must necessarily project more forward in that Part where the Sclerotica is absent, that is, where the soft Cornea is placed, and consequently where the Bulb of the Eye gives the least Resistance.

³ In the same manner as in the Jaundice, in which all Objects appear yellow, because some of the Bile then mixes itself with the aqueous Humour. I have also sometimes observed that all Objects have appeared red to a Person, who by a violent Blow

Blow upon the Eye has had some Blood extravasated into the aqueous Humour.

⁴ For unless the Humours circulate and keep moving, they corrupt.

⁵ The modern Physicians and Surgeons would not have differed so much among themselves about this Disorder, if they had thoroughly surveyed and understood its Nature. I have seen the aqueous Humour truly opaque, and the same happens to People in extreme old Age. In Animals lately born, but more especially in Puppies and Kittens, the aqueous Humour is by a Providence of Nature turbid or opaque, lest they should at that time see Objects, and their tender Eyes, as yet unaccustomed to Light, might not be so strongly irritated thereby as to throw the animal into Convulsions; but that the Eye may be gradually accustomed to its Action, as the aqueous Humour becomes by degrees more pellucid. It is therefore evident, that this Disorder may be so far increased in the aqueous Humour, as to cause it to concrete or thicken into a kind of Mucus; but this Species of the Cataract is not so frequently to be met with. For in this Disorder the Iris cannot be seen, and the Colour of the Eye is obscured. This Disorder may be termed an Hypochyma, or it may be ranked among the Species of Cataracts, tho' the last Term comprehends Disorders of a very different Nature. But then it must be observed, that this Species of the Disorder cannot be cured by couching with a Needle, since it is placed before the Iris, immediately behind the Cornea; but the Cornea ought not to be perforated: for in the true Species of the Cataract, the Needle is introduced behind the Iris, the Disorder being in this Case seated behind the Pupil, which therefore does not appear altered in Colour. But we may possibly
add

§. 841. *The Symptoms of Diseases.* 65

add a third Class of Cataracts, namely when the aqueous Humour behind the Uvea and before the crystalline Lens, concretes into a Membrane; and in this Case also, the Iris may appear distinct.

⁶ Thus the Eye being a long while closed with the Small-pox, is at length rendered opaque by the Inflammation, which destroys the Sight, but not without leaving Hopes of its Recovery.

⁷ It is well known by Experience, that Spirit of Wine, and consequently *Hungary Water*, do in a Moment's time cause the aqueous Humour of the Eye to harden like the White of a boiled Egg; and this Effect is more powerfully brought about by Alum, Vitriol, Sugar of Lead, and Aqua Chelidonii with Spirit of Sal Ammoniacum. From hence it is evident, that the Patient would often be blinded in the twinkling of an Eye, if the Medicines applied to that Part by empirical Practisers were to immediately act upon the aqueous Humour. But how much wiser were the *Ægyptians* in this respect, who made it the Business of a Person's whole Life, to be employed only in the Cure of Disorders of the Eyes; as *Aristotle* writes in his Politics. Nor ought ever any painful Medicine to be applied to the Eye but with the greatest Caution.

§. 841. If the Uvea is *inflamed*¹, it occasions an Ophthalmia extremely painful, and in a little time is highly destructive to the Sight²; if it is followed by a Suppuration, the Sight is lost; if the Uvea contracts and becomes immoveable, it occasions the Disorder termed *Hemeralopia*³, in which the Patient can see only by Day; which Disorder like-

wise happens when a Cataract is small, thin on the Edges, and thick in the middle; but if the Uvea is immoveable, and at the same time much dilated, it then seems to occasion the Disorder termed Nyctalopia, in which the Patient sees better in the Evening, or by Night, than by Day.

¹ This Inflammation is seated in the small Vessels, first described by *Ruyfch*, and afterwards by *Hovius*, in the Uvea. But the Iris is contracted, whenever the Rays of Light abound or fall upon it in great Numbers; but when the Muscles are inflamed they are more painful when in Action than is tolerable to the Patient, and therefore this Disease is extremely dangerous, and ought always to be treated carefully with antiphlogistic Medicines, and the Eye in the mean Time should be bound up, that no Light may fall upon the Iris to cause it to move, without which Precaution the Eye will of Necessity suppurate. As long as the Rays of Light are supportable, the Eye is well enough conditioned; but when it becomes extremely painful with the least Light, then the Disorder is seated in the Iris or muscular Fibres of the Pupil. By this Sign we also know that the interior Part of the Eye and not the Lids are inflamed; for when the Eye-lids are inflamed, the Eye itself is not injured by the Light. These Muscles are at rest in the dark, but contract themselves at the approach of Light, and exclude the too numerous Rays, exciting a severe Pain at the same time.

² Which I once observed to happen in a Man who taught the *English* Language; the Disorder proceeded from the Use of Collyria, as the Physicians searched for the Disorder in the Corner, so
that

§. 842. *The Symptoms of Diseases.* 67

that by this means the Patient lost the Sight of both Eyes. There is no room left for delay, but the Patient ought to be bled, even *ad Deliquium*; the most emollient Fomentations ought to be applied, and all the same Remedies used as in a Pleurisy, to prevent the Disorder from tending to Suppuration; for if that takes place it is over with the Patient's Sight.

³ In the Evening the Pupil is extremely large, that the Largeness of the Surface may make up for the Fewness of the Rays. When a great Quantity of Rays fall upon the Iris, it contracts and excludes those which are superfluous. But when the Pupil is immoveable and much dilated, then the Eye will be no more able to see in a strong Light, than Birds are able to see by Day, which take their Prey in the Night; such as Owls and Bats, which avoid the Light of the Sun, because they have the Pupil very large, immoveable, and without the Iris. But when the Pupil is immoveable and contracted at the same time, then on the contrary the Eye will not be able to see but in a very strong Light. But the Perfection of the Eye consists in being able to adapt itself to various Lights, contracting the Pupil in too strong a Light, and dilating it in Darkness or in a faint Light, so as to be able of itself to acquire a Disposition fit for Vision. But this Faculty is possessed in a higher degree by Cats, who in the Day-time see by shutting their Pupil, and in the Night-time dilate the same so much as to clearly perceive the least Mouse.

§. 842. But the crystalline Lens is also liable to Opacity, *Inflammation*¹, Suppuration, Dropsy, Corruption, and Atrophy or

Wasting, which may produce either a *Glaucoma*² or Cataract, either obscuring or totally depriving the Eye of Sight by a perfect Opacity, termed Amblyopia: but if the same crystalline Lens is injured variously as to its *Figure*³, Bulk, Thickness, or Tenuity, it will create many, various, and often wonderful Disorders incident to the Organs of Vision.

¹ The crystalline Lens is composed of an infinite Number of concentric or parallel Strata or Membranes, which are themselves composed of very pellucid Vessels, conveying a most pellucid Humour, and disposed close by the sides of each other. If now this Humour stagnates in any of these Vessels, it immediately forms an Opacity, and we begin to perceive the Patient's Eye to be of a different Colour at the Pupil; and this is the beginning of a Cataract. That the crystalline Lens is subject to an Opacity may appear from Heat or boiling Water, in which the crystalline Lens being thrown, is always rendered opake and white. At other times the crystalline Lens shrinks up and becomes dry or opake from that Cause, which being removed restores the Faculty of Vision.

² The celebrated *Woolhouse* and his Adversary Professor *Heister*, requested of me to give my Opinion concerning the Controversy which lay betwixt them; but I thought it advisable not to concern myself in their Contentions. But I think if they had rightly considered what I have here writ, they might easily have understood my Opinion. When the crystalline Lens is opake, it leaves the Iris sound; but then instead of a very black Colour, of which the Pupil ought to appear in a healthy Person,

§. 842. *The Symptoms of Diseases.* 69

Person, there seems to be a white Body placed behind the Pupil; and this is nothing more than the crystalline Lens, not pellucid as it ought to be. Under these Circumstances the Patient begins to be deceived in his Sight of Objects, and labours under an Amblyopia or Obscurity of Vision. When the Disorder continues and increases, it is from its white or pearl Colour termed by the Antients a Glaucoma; but this is a true Cataract which ought to be couched or depressed by the Needle. If now a Patient consults whether you can cure him by Couching, place him before the Light, and inspect his Eyes accurately; and if then you perceive the Iris of its natural Colour, you ought next to look upward and downward under the Iris, till you can see the crystalline Lens. When that is opaque it may be couched by the Needle, and the vitreous Humour will be thrown forward into the Space left by the crystalline Lens, in such a manner as to give a free Passage for the Rays of Light to the Retina; but then the Patient will not be able to see objects distinctly without the Use of very convex Spectacles, which will make the Rays converge so as to unite upon the Retina, which they otherwise would not, from the vitreous Humours being less dense and refractive than the crystalline Lens which is depressed or couched. The Widow of the celebrated Anatomist *Drelin-court* was couched for a Cataract by *Raw*, which yet did not restore her to Sight, until I ordered her to make use of very thick or round Spectacle Glasses, by means of which she now commodiously reads though 15 or 16 Years after Couching—But when the Disorder is not in the crystalline Lens, but proceeds from an Opacity in the aqueous Humour, you will not then be able to see the Iris, nor will it be proper in that Case to make use of

the Needle; which ought likewise never to be used when the crystalline Lens adheres to the Iris, or when the Iris itself is fixed and immoveable; for if in this Case you should attempt to depress or couch the Cataract, the Patient might be lost suddenly with Convulsions; namely, because the crystalline Lens cannot be separated from these Surfaces, without lacerating a great many Nerves. I therefore repeat it again as an Admonition, that you always inspect behind the Iris in all Cataracts; and if you perceive a Vacuity betwixt the Uvea and crystalline Lens behind the Iris, in that Case the Lens is at Liberty on all Sides and may be depressed. But if there is no Space appears behind the Iris, and you would attempt to make use of the Needle, you would certainly excite fatal Convulsions, or induce other Disorders, which would not terminate but with life itself.

³ When the Figure of the crystalline Lens is any way changed or split into many Plains, the Patient then sees as many Objects instead of one, as there are plain Sides in the Lens.

§. 843. Likewise the Figure of the Eye itself, being too spherical or protuberant in its Bulb, or the Pupil being too small, with many more Circumstances, not yet exactly considered or observed in the length of the Eye, and in the crystalline Lens, together with its Situation, may occasion various degrees of short-sightedness; as, on the contrary, when the Eye is too flat or plain, then according to the various Dispositions of the Lens and its Situation, arises a Sight which is best at a *distance*¹, as in old People.

§. 844. *The Symptoms of Diseases.* 71

Some People cannot plainly perceive near Objects; but if you remove the Object to a certain distance, in which it may be distinctly seen, you may still remove it to an infinite Distance farther, and yet it will continue to be distinctly seen by the Eye. People thus affected are called Presbyopes or old-sighted, the Eye being in this Case more flat or plain, as in old People happens when the Cornea is more powerfully contracted than it will admit of being expanded by the Humours. Other People again see near Objects the most distinctly, while remote Objects appear confused or obscure; and these are called Myopes or short sighted, happening most frequently to young People; but this Defect of Vision is corrected and improved as Age advances, with this Advantage, that when they are old, they can see as well as People of a middle Age furnished with the best Eyes; nor do they ever stand in need of Spectacles to enable them to read. Both these Defects of Sight may be corrected by the Use of Spectacles. In the Myopes or short-sighted, the crystalline Lens is too round, and causes the Rays to unite or converge together before they reach the Retina, after which they diverge again and spread themselves upon many Points of the Retina; but this too great Convexity of the Lens is corrected by a concave Glass: but the Presbyopes or old-sighted, who having their Eyes too flat or plain, as the Rays terminate behind the Retina, are assisted by convex Spectacles, by which the Rays are made to converge together sooner.

§. 844. But the vitreous Humour being subject to the forementioned Disorders, (§. 840,
F. 4 842.)

72 *The Symptoms of Diseases.* §. 845
842.) is obnoxious to nearly the like Accidents and Appearances.

§. 845. The Membranes of the Retina are furnished with numerous and various Vessels, by which it is rendered liable to different Disorders; such as a *Dropsy*¹, Oedema, *Phlyctenæ*² or little Blisters, *Inflammation*³, Compression, and the like Disorders of the optic Nerve, with the Membranes which invest it; add to these, a Tumor, Steatoma, Abscess, Hydatide, Stone, Inflammation, Extenuation, Erosion, Corruption, or Obstruction happening to the Brain itself, so as to intercept either wholly or in part the free Communication betwixt the optic *Nerve*⁴ and its Origin in the medullary Part of the *Brain*⁵; all these Disorders occasion various Images, Clouds, *Sparks*⁶, and at last, an *Amaurosis*⁷ or Gutta Serena.

¹ This is not at all surprizing, since *Ridley* has demonstrated lymphatic Vessels in the Retina, which when distended into Vesicles so as to compress the nervous Fibres of the Retina, may occasion an Amourosis or loss of Sight, without any visible Defect in the Eye.

² These *Phlyctenæ* are Varices or Tumors of the lymphatic Vessels.

³ This Inflammation and Tumor may be seated either in the Artery which runs through the optic Nerve, observed by *Mariot*, or in the smaller arterial Branches, demonstrated by *Ruyfch* in the Retina, and long before known to *Eustachius*.

§. 845. *The Symptoms of Diseases.* 73

⁴ At the bottom of the Eye behind the Axis of Vision is expanded a mucilaginous or pulp-like Production of the optic Nerves, upon the Surface of which the Picture or Image of every thing seen is represented, and from thence conveyed by the optic Nerve to the Brain and common Sensory, where is excited an Idea of the thing seen; and in this consists the whole Business of Vision. If now there is a Point in the Retina, upon which Objects cannot be painted, the Eye will be blind or insensible in that Point; as when, for Example, a drop of Blood is extravasated upon the Nerve, it will not be able to see any thing in that Part, and instead of perceiving the Disorder itself, it will see a black Opening or Hole, as if it were in the Heavens. If there are a thousand such blind Points in the Retina, the Eye will perceive as it were a thousand black Points dancing in the Air. To this Head belong Clouds and Apparitions of all kinds, the Seat of all which, according to the Demonstrations of *Pitcairn* and *Sir Christopher Wren* before him, is not in the crystalline Lens, nor in the aqueous or vitreous Humour, but in the bottom of the Eye itself, either in the sanguiferous or lymphatic Vessels. In this manner the Eye has a natural Disorder, since it is incapable of seeing in those Points where the sanguiferous and lymphatic Vessels are placed; but when those Vessels are distended, then the blind Parts of the Eye are enlarged. Nor is it wonderful that these Defects should appear to us as if they were placed without the Eye, since the common Image of every thing seen is always painted upon the Retina, and yet appears placed without the Eye.

⁵ And this, whether the Impediment be placed in the optic Nerve betwixt the Brain and Globe of the Eye, or in the Brain itself. This last happens
in

74 *The Symptoms of Diseases.* §. 845.

in an Apoplexy, wherein perfect Blindness follows from a Disorder of the Brain.

⁶ When I turn my left Eye towards my left Side, and at the same time compress it with my Finger, I see as it were a great Flame; but when I invert the Retina and cause the lower Part to be uppermost, I affect it almost in the same manner as it is usually affected by Fire or Light itself; and from thence proceeds the Flame which I perceive in the bottom of the Eye. Suppose now an Artery in the Retina to be an hundred times smaller than a Hair on the Head, and that by the Pulsation of this Artery the Retina is compressed, you will then easily perceive that such a Person will always be liable to see Sparks as it were of Light at every Pulsation; and this Disorder, together with a Giddiness or turning round of the Objects, and the various Colours of the Rainbow, are Symptoms which usually precede the Epilepsy.

⁷ Amaurosis is Blindness from a Disorder of the optic Nerve, or of the common Sensory, without any apparent Defect in the Eye itself, the Pupil being at the same time immoveable, even upon removing the Eyes out of Darkness into a very strong Light. In this Disorder, no Person of Sense will apply any external Medicines to the Eye.

§. 846. Besides these, a Palsy or a Cramp of the Muscles which move the Eye, various Distortions of them proceeding from an ill Disposition of the Bones of the Orbit, as also from Wounds, Ulcers, Inflammations, and a Blow or Pressure, may occasion the Eyes to look towards the *Nose*¹, to *squint*², blink, or be

be drawn far out of the Orbit, as in a *fierce*³ Aspect, with many such surprising Disorders or Depravations of the Sight.

¹ *Sennertus* gives us a celebrated History of a Person, whose abductor Muscle of the Eye being entirely cut asunder, the antagonist abductor Muscles by degrees contracted the Eye inward to such a degree, that the Point of Vision fell by the lachrymal Caruncle, so that he was obliged to place every thing that he intended to view, close under his Nose; and by this means the Eye was more inverted, and drawn towards the Nose. But afterwards this same Man happen'd to receive a Wound, which perforated the Nose; and from that time, during the remaining Part of his Life, he always looked through, and beheld Objects by the Perforation in his Nose, as through an optical Tube.

² There are some Men who have the Axis of Vision in a different Position from what it has in others. This I have found by Observation upon measuring the Angles intercepted betwixt the visual Axis and the Nose in different People, when I have order'd them to look with both Eyes upon the same Object. From thence arise different Kinds of squinting; for some People when they look on an Object incline their Eyes towards each other, and others on the contrary remove them outward from each other; while others again look with one Eye upward, and the other downward. These Disorders arise either from a Convulsion or a Palsy of the Muscles; as for Example, if the Action of the oblique inferior Muscle could be removed, the Eye would certainly be drawn in an extraordinary manner towards the opposite Side. If the *Musculus superbus* is injured, the Eye will be drawn down, as it will be drawn up when the *humilis*

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milis Muscle is injured ; so that the Patient is obliged to bend his Head towards every thing that he looks at. Squinting therefore is when both the Eyes turn outward from the Nose ; but Blinking is when they turn inward towards the Nose.

³ When all the Muscles by their conjunct Powers protrude the Eye out of its Orbit, it is said to goggle, or look fierce. Thus *Plato* relates, that *Socrates* talking of his Soul a little before Death, looked with the Fierceness of a Bull in his Eyes. All these Disorders are never understood, without being acquainted with the Conditions required as necessary to Vision ; nor ought Diseases of the Eyes to be committed to any who are not skilled in all those Particulars, with which it is no difficult matter for a Person to acquaint himself.

§. 847. Lastly, the *Tunica Choroides*, with the *Tunica Ruyfchiana* and *Uvea*, being extremely full of Blood-vessels, are obnoxious to Inflammation and Suppuration, from whence at length may proceed an *Hypopyon* ; and from various Disorders in the several different Parts of the Eye may frequently be produced various Symptoms, as Deception of the Sight, Confusion, Dulness or Blindness.

Hence you may perceive what an infinite Number of Disorders may arise in this one Organ ; but before the Disorder is resolved upon, the greatest Care is to be used to avoid Error, to which in this Case one may be extremely liable. Every Part therefore belonging to the Organ of Sight ought to be consider'd by itself ; by which means you may be able to judge whether the Disease is curable or not ; and if curable, you will by the
same

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same means easily determine the Remedies necessary to be employed for that purpose.

§. 848. The principal Symptoms of the Hearing injured, may be reduced to its Increase, Decrease, Depravation, or entire Loss.

In the Sense of Hearing there are still a greater Number of Disorders which occur than in the Sight, as there are a greater Number of Parts employed, together with several Bones.

§. 849. In the most acute Disorders of the Brain, Nerves and Membranes, these last seem to be over tense; from whence often arises an intolerable *Sharpness* ¹ of the hearing, in which the least Sounds do violently affect the Brain, and sometimes excite convulsive Motions.

¹ When the Sensorium commune, and the Nerves thereto belonging, are so tense as to be violently affected by the smallest Impulse, the Senses are then too exquisite, as we observe in all acute Diseases, which are in a short time about to turn into a Phrenzy: for the Patient under these Circumstances cannot bear the least Noise, even of a Person treading in the Room; an Instance of which is given us by the Illustrious *Boyle*; and the same Disorder likewise happens sometimes to hypochondriacal and hysteric Patients.

§. 850. A Difficulty or *Hardness* ¹ of hearing is when the Sensation of a Sound is less than it ought to be in a State of Health. But this may arise from a great Number of very different

different Causes, which may be most commodiously ranged and consider'd according to the several Parts affected: such are a Loss, or too great a Flatness of the *external Ear*²; the auditory Passage may be too much in a right Line, may be too small or *narrow*³, or else obstructed by some *Tumor*⁴, Insect, Matter, *Sordes*⁵ or concreted Ear-wax; the Membrane of the Tympanum may be injured, relaxed, tumefied, render'd callous, or much too thick, by a spongy fungous *Crust*⁶ adhering to its Surface; the internal Concha of the Ear may be filled with Matter, Ichor, Phlegm, or a Distension of the Membranes which invest it on all Sides; as also by Dust falling into that Cavity after the Membrane of the Tympanum has been broke; to which add an Obstruction, either wholly or in part, of the *Eustachian Tube*⁷; the Bones of hearing themselves are often separated from their Connection with each other, and discharged through the auditory Passage by a Suppuration of their connecting Membranes; as frequently happens after violent inflammatory Pains in the internal Ear; or it may proceed from an absence of the Bones of hearing through a Misconformation; from too great a Driness, Laxity, Tumor, Inundation of Humours, over Tensity, Corruption, Erosion, or Induration of the *Membranes*⁸ belonging to the Fenestra ovalis and the Fenestra rotunda; these Symptoms may likewise proceed from the very different Disorders of the Vestibulum, Labyrinth, Cochlea,

§. 850. *The Symptoms of Diseases.* 79

lea, or Meatus of the Os petrosum; whether from *Inflammation*¹, Obstruction or Palsy, with the Consequences which may again follow from these as Causes; as also Impediments or Injuries arising from Misconformation in these Parts. Lastly, the same may arise from every thing which compresses or obstructs the soft auditory Nerve, from its Entrance into the Os petrosum to the Medulla oblongata, or from thence to its Origin in the Medulla of the Brain itself; as from Inflammations, Tumors, Exostoses, an Injury of the Function of the Brain, with many more Disorders; from whence appears the Difficulty of distinguishing and curing the Disorders incident to the Organ of hearing.

¹ Hardness or Difficulty of hearing is when the Ear receives a less Impression from a Sound than it ought in a natural and healthy State.

² This Disorder may be remedied by applying the Hollow of the Hand, a Blowing-horn, or an Instrument of the like Shape.

³ Which I observed so small or narrow in a Maid of Quality, that it would hardly admit of a small Needle.

⁴ For Example: A fleshy Excrescence arising after the Cuticle has been abraded.

⁵ The Cerumen or Ear-wax is nearly related to the Bile, is viscid and easily concretes, so that mixing with the Dust, it forms a kind of Stopper filling up the whole auditory Passage. This kind of Deafness is cured by Quacks and old Women, by injecting saponaceous Liquors with a Syringe; the principal of which Liquors is made with Milk,

Venice

Venice Soap and *Honey*, with which many have been cured from my Directions.

⁶ Such a Crust is spread over this Membrane in the new-born Infant, who has hardly any auditory Passage, but instead thereof a very thick fungous Membrane which covers the Skin of the Tympanum, to prevent the tender Brain from being injured by a too strong Impression of Sound; as we also observe the aqueous Humour turbid in the Eyes of new-born Infants, to prevent them from being convulsed by too strong a Light. But as Age advances, the auditory Passage is extended both in Length and Breadth, and the thick Matter is discharged and suppurated, leaving only a very tense, dry and naked Membrane. But if this same Substance lines the Tympanum in an adult Person, it must injure the hearing.

⁷ In a most violent Quinsy arising from a Pleurisy, or a dry Peripneumony ascending to the Fauces, as also in the venereal Disease, the Opening of the *Eustachian Tube* is compressed or obstructed, which leads from the Cavity of the Tympanum into the Nose; so that when these are entirely shut up, the Patient is quite deaf; or if they are in part obstructed, the hearing becomes more or less hard or difficult. For in this Case the Air rarefied in the internal Concha is not renewed, but thrusts the external Membrane of the Tympanum outwards in such a manner that it cannot perceive any Sound. This Disorder is hardly curable, tho' there are some Instances of a Cure made by injecting Liquors into the *Eustachian Tube* itself.

⁸ When the Membrane of the Tympanum is broke, the Bones of hearing are sometimes discharged, together with a purulent Matter; from whence the hearing must necessarily become hard or difficult, and at last ends in Deafness.

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9 The auditory Nerve within the Skull is invested in its course from the Brain to the Os petrosum with the Pia Mater, which is a Membrane replete with Blood-vessels, liable to Inflammation. But if a true Inflammation there arises, the Medulla of the sentient Nerve will be compressed, and produce the same Disorder in the Hearing, which in the Sight we call an Amaurosis, sometimes curable by Nature, but not by Art. From hence it is evident, that no one can cure Deafness without being acquainted with all the parts and Conditions necessary to the Sense of Hearing. Without this Knowledge a Person must grope in the dark, tho' he may by good luck happen sometimes in trying an hundred Remedies to apply the right. Nor yet is a Knowledge of the Disorder always sufficient for a Person to cure it, except when the Hearing is injured from an Obstruction, Palsy, or Inflammation of the Membranes; which we may be able to remove by the antiphlogistic or cooling Method: and in this Case a principal Remedy is to drop some of the hot Bath-waters of *Aix la Chapelle*, which is a Method I have used to recommend to the Patients which I have sent to that Place. This is by the Ancients termed an Embrocation. Finally, the Variety of the Disorders in this Part is such, that one cannot directly assign the Remedies which shall be proper, without first determining the Cause, to which it will be still difficult to convey the Remedy.

§: 851. The Hearing may be also depraved through some Defect of the external Air, more especially being too *moist*¹ or cloudy; or the *internal*² Air not being able to pass to and from the Cavity of the Ear; and here we

ought particularly to regard the inflammatory *Disorders* ³ of those small Arteries which are spread upon the Membranes throughout the whole Organ of hearing; for this will easily enable us to understand the Reason of a *tinkling* ⁴, rumbling, *echoing* ⁵ or whispering Noise.

¹ It is commonly known that a dry and cold Air when the North-Wind blows, renders musical Consorts more penetrating and resonant; but when the West-Wind blows, the Air being moist, weakens the Sound of all musical Instruments, and even the human Voice itself loses its Strength from the Defect of the Air, which is lighter and more moist, so as to affect our Organs of hearing with a less Force, while at the same time it relaxes the Membrane of the Tympanum itself. Some deaf People hardly hear in the least when the Air is cloudy and damp, whereas they can hear very well when the North-Wind blows; and in this Case the Disorder proceeds from a Relaxation; and others again hear best with West-Wind, the Disorder proceeding from a Driness of the Membranes.

² The Tympanum is filled with the ambient Air, which passes through the *Eustachian Tube*; but if this Communication of the internal with the external Air by the *Eustachian Tube* is intercepted, Deafness certainly follows, because the internal Air may continue dense or in a compressed State, when the external Air is rare or light, and the reverse. But whether or no there is any true Air in the Cavity of the Vestibulum, as *Aristotle* has taught, is indeed to be doubted; since there is no Passage thro' these very hard Bones, which are almost as perfect in the Infant as in the Adult.

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³ *Ruyfch* has demonſtrated Blood-veſſels betwixt the two Lamellæ or Membranes of the Tympanum, which Blood-veſſels ſpread themſelves like Radii from a Center; and theſe are liable to Inflammation, from whence may ariſe a Pulſation, and then the Mind will perceive each Pulſation of the Artery in the ſame manner as it perceives the Stroke of the Malleus. But the ſmall Bones of hearing are themſelves likewise inveſted by the Periosteæ; and even *Du Verney* himſelf was aſtoniſhed, when he heard *Ruyfch* had by his Injections demonſtrated a great Number of Veſſels within the Bones of hearing.

⁴ In the Beginning of an Apoplexy and acute Diſeaſes, as alſo after wounds of the Head, there is uſually perceived a troubleſome tinkling in the Ears; the Cauſe of which is the alternate Vibration of the Arteries too ſtrongly ſhaking the auditory Membranes.

⁵ This Diſorder is in the Nerves, when a Sound is perceived ſome time after it was firſt heard without any external Cauſe; and this proceeds from a Laxity or Removal of the Bones of hearing one from another.

§. 852. If now all the forementioned Diſorders (§. 849, 850, 851.) greatly increaſe or continue a long time, then follows a perfect Deafneſs, from whence proceeds *Forgetfulneſs*¹, or a Loſs of the Speech; but the *Cauſe*² of this Deafneſs is alſo frequently from a Concretion of the *Euſtachian Tube*, when the Fauces have been excoriated in the Venereal Diſeaſe, and the crude or raw Lips concreted together.

¹ They who are born deaf never learn to speak articulately. It is something wonderful that all Animals should have their proper Tone of Voice, and yet that two Men being born deaf, never yield the same Sounds. But when a Person is taught to speak and by Accident becomes deaf, after having enjoyed the Benefit of hearing, he then likewise loses the Faculty of speaking; so that he is obliged again to learn his Words or Speech, if he recovers his hearing again after many Years Deafness. Perfectly in the same manner is a Musician obliged to learn the Use of an Instrument which he has never used for the space of 20 Years.

² A Concretion of the membranous or fleshy Parts in the venereal Disease, is frequently the Cause of Deafness.

§. 853. The Sense of Smelling may be likewise either diminished or perfectly lost from various Causes, as from 1. a *Deficiency*¹ or too great Solidity of the four spongy Bones, or a closing up of the *Sinus's*² in the Os frontis, upper Jaw, and Os cuneiforme. 2. Too great a *Driness*³ or *Humidity*⁴ of the olfactory Membrane, or an Inflammation, Suppuration, and Gangrene in the same. 3. From a Compressure of the olfactory Nerves by any Tumor, Exostosis, or *Polypus*⁵ in these Parts. 4. From some Disorder in the Brain where these Nerves take their Origin, as we observed before in the other Senses; or finally, this Sense may be depraved from the *fætid Smell*⁶ of the Matter of any kind, stagnating and continually exhaling into these Cavities.

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¹ For in this Case the Tension of the olfactory Membranes is too small.

² They who have no frontal Sinus's, have little or no Smell, which is an incurable Disorder.

³ Hence it is, that those who walk thro' sandy Deserts, lose both their smelling and hearing for a time, until the over-dried Membranes recover their natural Moisture.

⁴ As from a Redundancy of Mucus in a Cold, but more especially from an Inflammation in a malignant Coryza, particularly in a venereal Gangrene, in which the smelling is destroyed without any hopes of recovery.

⁵ I observed a Polypus in a Girl so large, that it thrust the Os maxillare outward, and destroyed the Sense of Smelling by compressing the whole olfactory Membrane.

⁶ I observed this in a Man of Worth, who suffered the same thing as if he was tied to a putrid Body; a Lotion was used to be drawn through the Nose, but nevertheless the foetid smell returned so as to be intolerable after Sleep, that it made Life a Burthen. The Cause of this Malady was a Caries in the Bones of the Nose; and the End of it is a perfect Loss of Smelling. Another Person complained that he had always the Smell of Lard. To People under this Complaint I order a Mixture of Water, Honey, Vinegar and Salt to be snuffed up the Nose for washing the Membranes, and a deterging Gargle to be used for the Fauces; by which means the Ulcer may be cleansed.

§. 854. The Taste may be likewise either diminished, depraved, or destroyed; the Taste may be weakened or lost, when the gustatory *Papillæ* ¹ of the Tongue are covered over with

a Crust, Sordes, Mucus, Aphthæ, small Skins, Pustules, or Warts, as also from an Inflammation and *drying up*² of the Tongue; while at the same time the *Nerves*³ of the fifth and ninth Pair are often injured. But the Taste is depraved through the Defect of some predominant humour, which more especially resides often in the Saliva discharged into the Mouth, which offending the Taste, produces various Effects, and excites a *bilious*⁴, alkaline, acid, *saline*⁵, eruginous, oily, *sweet*⁶, cadaverous or putrid Taste, seeming to the Sense as if the Aliments taken into the Mouth, were possessed of those Tastes.

¹ When the Papillæ are covered over with Mucus, as in the Beginning of a Catarrh, where a phlegmatic Matter is spread over the whole *Schneiderian* Membrane, and shuts up the Passage opening from the Nose to the Palate, so as to obstruct the Passage of the Air.

² When a Person has breathed the Air through his Mouth only for some Hours, as often happens when the Nostrils are stopt up, we then observe that the Tongue becomes dry, and the Taste is lost for the present.

³ It is certain that these two Nerves are liable to a great Number of Accidents betwixt their Origin from the common Sensory, and their Insertion into the Tongue.

⁴ In this Case all the Aliments seem bitter to the Taste, as we observe in a Jaundice.

⁵ Those who recover after a severe ardent Fever, perceive as it were an abominable saline Taste in all their Aliments, even such as are perfectly fresh and without the least Salt: for in these the nervous

Papillæ

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Papillæ being a long time dry and cover'd with a Crust, and then on a sudden set at liberty from thence being naked and moist, are too strongly irritated or affected by Objects, so that they become painful even by a moderate Sharpness in the Food. The same Disorder may likewise proceed from some Acrimony or Defect in the Saliva.

⁶ A Person who has been eating of Sugar, and then drinks a Glass of tart Wine, will think the Wine to be of a very different Taste, from what it would appear to have if drank without any Sugar preceding. They who undergo a Salivation with Mercury for the venereal Disease, accuse their Food with having a foetid Smell; but the Putrefaction which they think is contained in the Food, resides only in their own Breath.

§. 855. The Sense of Touch is usually injured for the most part by a Stupor or Numbness, hardly perceiving Objects, or at least but very *dully*¹, as if something was interposed betwixt the Object and the Organ; which may happen from extreme *Cold*² in the Organ of Touch, or from some Defect either in the Nerve or in the Brain itself, as also from the Interposition of some improper Matter betwixt the Object and the Sensory. The Sense of Touch may again be too acute or exquisite, either for want of the Nerve being sufficiently covered by the *Cuticle*³, and perhaps from the Nerve being at the same time too tender, or over-stretched. But when the Sense of Touch is entirely lost, that may proceed from any Cause rendering the Brain, Nerves, or both of them unfit to perform their Office

with respect to this Sense, as is sufficiently evident from the History of an Apoplexy and *Palsy* ⁴.

¹ This is a Sign that the Nerves and Brain are much injured, and frequently presages a future Apoplexy.

² When the Hands are almost frozen with Cold, they can perceive nothing accurately by the Touch.

³ We have Accounts of a certain Prince of *Lithuania* in *Poland* born without a Cuticle, and of another at *Amsterdam*. Thus also when we cut our Finger Nails too close to their Roots, they usually give Pain and Uneasiness from touching every thing, because the Papillæ not being sufficiently defended by them, are too exquisite in their Sense.

⁴ Hitherto we may also refer a Stupor or Numbness excited by the Fish Torpedo, by touching which, a most painful or troublesome Sensation follows, which excites a Pain even at the Heart. This has been long ago observed by the Ancients, who though derided without Cause by the Moderns, are nevertheless vindicated by the Experiments of *Malpighi* and *Borelli*; from whence it appears, that upon touching the Torpedo, the tactile Nerves throughout the whole Body vibrate in the same manner as when a Finger is rubbed upon the Table with a tremulous Motion, or as when a Knife scratches a Piece of Glass, which in many People excites a disagreeable Sensation in the Teeth, which are said by this means to be set on edge, the same thing spreading not only through every Finger, but also throughout the whole Body. These Effects of the Torpedo have been related to me for Truth by many who have returned
from

§. 856. *The Symptoms of Diseases.* 89

from the *Indies*; and it is not difficult to conceive that the Agitation of the nervous System should be communicated to the cardiac Plexus, whence a Cardialgia or Pain at the Heart.

§. 856. Watchfulness or Inability to sleep proceeds, 1. From too plentiful Determination of the nervous Juice to the Organs of Sense. 2. From too great a Determination of the same towards the Brain, by an Obstruction in the lower Parts from *Cold*¹, or any other Cause; as we see in hypochondriacal, melancholy, and maniacal Patients, as also in those who have their Feet cold. 3. From *Irritation*² of any kind upon any Part capable of vellicating the Organs of Sense, especially the Brain. 4. From too great a *Motion*³ of the Humours towards the Head, while the secretory Ducts of the Brain are as yet pervious and open. 5. From Diseases in which any of the forementioned Circumstances prevail, as from Fevers, a Phrenzy, Melancholy, Pains, Suppurations, and Disorders of the like kind.

¹ If you are careful to keep the Head cool, and the Feet warm in hypochondriacal People, you may depend upon removing their troublesome Watchings.

² Whether Pain, Care, or any other Passion of the Mind.

³ When I was afflicted with an acute Disease some Years since, I perceived my Mind to be more acute, and my Thoughts more quick than in Health, and therefore I was afraid of a Delirium, and not without Reason.

§. 857. But over *Sleepiness* ¹ proceeds usually from every Cause impeding the free Afflux and Reflex of the healthy Spirits abounding in great Quantity from the medullary Part of the Brain to the Organs of Sense and voluntary Motion, and again from these to the Origin of their Nerves in the Medulla of the Brain; and of this the Causes are very numerous; but may yet be easily referred to a *Plethora* ², Obstruction, Extravasation of the Humours, a Compression of the Vessels, Inflammation, Suppuration, Gangrene, Weakness, a Collapse of the Vessels from Inanition, the *Use* ³ of *Opium* ⁴ and narcotic Medicines, of *Spices* ⁵, spirituous or fermented Liquors, either too much applied to the *Nose* ⁶, or taken into the Body; to which add Aliments, hard, fat, and taken in great Plenty, so as to lie a long time upon the Stomach, especially eating too great a *Quantity* ⁷ of such Food at a time.

¹ Sleep is a Rest or Inactivity of the common Sensory; and such things cause Sleep, as procure a Rest and Inactivity in this Part of the Brain.

² The Blood of plethoric People rarefies in the Summer time, and renders the Vessels before distended extremely tense. But all other Parts of the Body resist the Blood's Impulse, while the Brain only can neither resist the Blood, nor yield or dilate outward; and therefore the whole Increase of Distension will be employed in compressing the Vessels and soft Medulla of the Brain; whence *Sleepiness*, and sometimes a fatal *Apoplexy*.

Opium

§. 857. *The Symptoms of Diseases.* 91

³ Opium exerts its Force while it is yet retained in the Stomach, before it has entered the Mass of Blood. I caused a Dog to swallow Opium against his Will, and afterwards when he began to be convulsed by the Medicine, I opened him, and found the Opium yet retained in the Stomach; and therefore it follows from hence, that Opium exerts its Efficacy by the Nerves of the Stomach itself, or at least that it does not require to pass into the Blood, by the long Course of the Chyle, in order to produce its Effects.

⁴ If any Medicine has a specific Operation or Virtue to act upon some certain Part of the Body, it is certainly that of Opium, which exerts its Force not on the vital, but on the animal Spirits. When a dose of Opium is given to any Person not accustomed to it, it affects them so that they cannot sleep, but perceive as it were a sort of pleasant Vision, or Entertainment of the Mind, as if they were transported into Heaven; and this more especially if the Patient has been first tortured with severe Pains. I have known some, who after taking Opium to ease the Pain of the Gout, have protested they would give all they had in the World, if they might perpetually remain in the same Condition they were in after taking the Opium. Opium therefore does not act by compressing the Brain, nor suppressing the Spirits, or laying them asleep; but by degrees it operates on the Spirits, so as to excite the most agreeable Repose when given in a small Quantity, but in a greater Quantity it excites Sleep; and thus also the most intense Pleasures cannot be sustained for a long time without fainting.

⁵ The Druggists inform me, that they fall into an insuperable Sleepiness, when they come to open the Chests of Spices brought from the *East Indies*,
A Per-

⁶ A Person who has smelt a long time at a Vessel full of strong Wine, will be equally fuddled and disposed to Sleep, as if he had drank Wine.

⁷ Especially Food of hard Digestion, such as Beef, with which the Stomach being filled, presses against the descending Aorta, so as to cause the Blood to flow in a greater Quantity to the Brain.

§. 858. A *Coma Vigil*¹, or an insuperable Propensity to Sleep, with a perpetual waking from terrible Dreams, may proceed from the forementioned *Causes*² (§. 857.) or others of the like nature, accompanied with a great Stimulus or Irritation, and for the most part with a violent Inflammation. But a *sleepy Coma*³ in which the Patient is continually sleeping, and when awaked falls into it again, proceeds generally from almost the same Causes as before-mentioned (§. 857.) only more intense or violent. A *Carus*⁴ is a profound Sleep with a sudden Loss of Sense and Motion, accompanied with an acute Fever, the Patient being very difficultly awaked; so that it seems to be a slight kind of the Inflammatory Apoplexy. A *Lethargy*⁵ is a profound quiet Sleep without dreaming or the Remembrance of any thing, proceeding from a slow and cold Cause; but in other respects resembling the many Causes before mentioned (§. 857.) and often arises from the Concurrence of several different Causes among those before mentioned. A *Cataphora* differs but little from the preceding.

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¹ This seems to consist in a great part of the Brain being collapsed, while the rest remains free and pervious; and therefore the Humours are derived in a greater Quantity to this Part than is able to pass through the Vessels; and hence it often terminates in an Inflammation of the Brain.

² There are some who sleep so sound, that they may be carried even to remote Parts without waking; for they are as insensible to what is done to them, as we are of the Motion of a Boat carried along by a Ship.

³ I remember a Person having received a Blow upon the Head, fell into a perpetual Sleep, so that he could not be awaked by any Art; but upon opening the Head after Death, a great Quantity of Blood was found extravasated under the Cranium.

⁴ A Carus is a profound Sleep with an acute Fever; and it denotes an Inflammation of the Brain, so great that no Part remains capable of being freely pervaded by the Spirits.

⁵ A Lethargy arises from a cold and slow Cause, obstructing the Vessels of the Brain in such a manner that no Spirits can be separated, whence a perpetual Sleepiness must consequently follow. When that Liquor is deficient which ought to flow through the smallest Vessels, natural Sleep follows, because that subtle Liquor can only be repaired by Sleep, in the same manner as we observe the thick Albumen of the Egg attenuated by the sitting Hen, so as to be capable of exhaling thro' the Shell in a volatile State. For in this manner in Sleep, by a moderate and equal Warmth, the Parts of the Humours are rendered very subtle; nor can the Humours of our Body be digested and reduced to that necessary degree of Subtlety without Sleep, any more than the Albumen of the

Egg

Egg can be attenuated without the Heat of the sitting Hen.

§. 859. *Anaistobesia* ¹ is a total loss of the Faculty of perceiving sensible Objects upon the Organs of the external Senses; which includes the various degrees of this Disorder, such as Stupidity, Dullness, or Confusion of the Senses; the *Memory* ² being less or greater than usual, abolished or *confused* ³; the Faculty of Judging, weak, destroyed, or confounded; the Faculty of Reasoning instable, lost or disturbed; a *Delirium* ⁴, *Foolishness* ⁵, raving or melancholy Madness, with a depraved Imagination, and all the Disorders which may be hitherto referred: All which may proceed indeed from many and very different *Causes* ⁶, which yet may be commodiously reduced to those before enumerated (§. 836 to 859); having still a regard to the Age, *Passions* ⁷, Rigidity, *Laxity* ⁸, and *Concretion* ⁹, or Loss of the Solids, with an Inspissation, Acrimony, or Inactivity and Sluggishness of the Humours, which are observed to be the chief among other Causes.

¹ This is such a State of the common Sensory, that the Mind there residing either does not take notice of the Ideas brought there from external Objects; or else the common Sensory itself is so disordered, that it can receive none of the Motions from external Objects, or at least can represent none of them to the Mind. It is a Law of human Nature known by Experience, though not to be explained,
that

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that there is a certain Part in the Brain, and not its whole Surface, to which our Thoughts are confined, according as they are by our Wills prefixed to certain things : as for Example, there is a Latin History of some cruel Tyrant ; if that be given to an *Arabian*, he will see the Lines, Circles, Figures, Paper, and nothing more ; but if the same is given to a Person skilled in Latin, his Eyes will in Reality see no more than the *Arabian* ; and yet different Ideas will arise in his Mind of Pity, Anger, Indignation, &c. Hence it is evident, that the Letters themselves do not excite Thoughts, and yet that by Custom or Use, fixing Ideas to certain arbitrary Characters, the same Thoughts are recalled by those Characters ; nor is it necessary to produce a change in the whole Body, in order to deceive the right Mind or way of thinking in a Person, since that may be produced by the slightest change in the common Sensory.

² Sometimes the Memory is too strong and attentive, as in melancholy People, who have always the same Idea presented to their Mind. When the Memory is lost, all the other Faculties perish, both the Understanding, Judgment, and even thinking itself. A Person begins to date their Being from the time which they can remember ; and their Being ceases with respect to themselves, so soon as they are destitute of Memory ; for to remember, is to be conscious or sensible of the present Thought, compared with some preceding Thought. When this Faculty of the Memory is destroyed, the Mind becomes a cogitative Atom, destitute both of the Knowledge of itself, and of the Judgment between Good and Evil ; for even Self-knowledge supposes a former Idea. But this Faculty of Memory, so long as we live, depends upon the Body, with which it grows up or improves,

proves, and at last ceases. Infants and old People are almost destitute of Memory, which is the strongest in those who have the Nerves in the Brain most tense, the Vessels most numerous, and the fewest of them callous. It may be asked then, whether or no we think after Death? But concerning this I doubt. Concerning these *Socrates* has wisely treated to *Crito*.

³ *Socrates* was so overcome by drinking an unusual Quantity of good Wine at the Feast of *Alcibiades*, that being disordered in Mind, he ordered the Musician to play up something ludicrous, that he might dance to it, nor did he refrain from dancing. In this Case, the Feast stood in need of a Physician to correct the small Acrimony and Disturbance, occasioned by the Wine.

⁴ This is as true as incredible, being equally certain with mathematical Demonstration. A learned Man took some Seeds of Henbane among those of Poppies, but after a few Minutes he began to be delirious, in such an extraordinary manner as was hardly ever known; but a prudent Physician vomited the Patient with a Dram of Vitriolum Album, which discharged the Seeds unaltered from his Stomach, and immediately restored him to his Senses and right Mind. Such was the powerful Effect of a small Quantity of these Seeds communicated to the Brain.

⁵ In Foolishness, the Connexion of the preceding with the subsequent Idea is depraved; for after one Idea has been raised in the Mind, it is entertained with another, having no Congruity with the former. For the Ideas of Fools are not foolish separately, or in themselves; but only in the Connexion and Relation of the preceding with the following Ideas.

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⁶ The Passions of the Mind arise generally from some Condition of the corporeal Organs; for in a healthy Person it is not easy to excite Sorrow, or even if there is a Necessity for him to imitate Sorrow, there will always appear some joyful Signs of Health; but in a melancholy Person you will hardly be able to excite Mirth, until you have first changed the whole habit of Body.

⁷ A Person who is in Love, sees and thinks of nothing but his darling Girl, in the same manner as a Geometrician thinks of nothing but his Lines, and considers himself as if alone in the World, looking upon all the rest as nothing.

⁸ In leucophlegmatic Habits, the Memory and Senses are generally impaired, from a Laxity of the Solids, and Imperviousness of the Fluids; and therefore such are to be cured by strengthening the Habit: but in a Phrenzy, the contrary Method is to be taken, namely, the too great Tension is to be removed by relaxing the Fibres. In the first Case, Stimuli are to be added, but in the last they are to be quieted.

⁹ From this Concretion of the solid Vessels, arises the Anæsthesia or Insensibility of old People, whose Minds cease to be any longer a Looking-glass to the World. In such the Perception and Senses by degrees grow dull, and the Mind begins to reflect upon itself, neglecting the Ideas which it acquired in former times. This Misfortune of old Age is beautifully described by *Barzillai*, when being invited to the Table of *David*, he prayed to have that Honour transferred to his Son, since all the good things would be useless to him, for, says he, I am this Day fourscore Years old, am neither able to distinguish betwixt Good and Evil, nor can taste what I eat or drink, nor hear the Voice of the singing Men and Women, &c. *Vid. 2*

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Samuel xix. 36, & seq. In the same manner also the Passions of the Mind depend in a great Measure upon the Condition of the Body ; for an hypochondriacal Person will remain serious in the midst of the most diverting Objects ; whereas a Person who is naturally destined to Mirth, will hardly refrain from his Jocoseness, even in the midst of the public Broils.

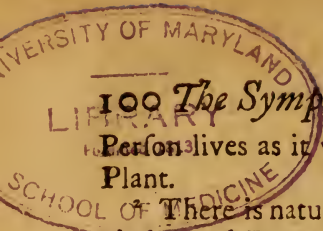
§. 860. An Apoplexy is a total and sudden loss of all the external and internal Senses, with the voluntary Motions, the Respiration and Pulse continuing, and are often increased while those Functions remain, which immediately result from the former. The cause thereof, is any thing in the *Brain* ¹ which obstructs the Course of the Spirits from their Origin in the Medulla of the Brain through the Nerves of the Cerebrum; and this may be manifold, and may be commodiously reduced to such things as compress the Brain, either externally or internally, according to the five principal Classes following: such as, 1. *Fractures* ², Depressions, *Exostoses* ³, Tumors, and Compressions of the Skull, especially in Youth and Childhood, while the Bones are yet tender. 2. Humours, bloody, ferous, purulent, phlegmatic, or sanious, stagnating or extravasated in those Parts where they may compress and erode the Brain or its Membranes, as betwixt the Cranium and its Meninges, betwixt these last and the Brain itself, in the Ventricles of the Brain at the medulla Oblongata, and at the medulla Spinalis. 3. Tu-

mors,

§. 860. *The Symptoms of Diseases.* 99

mors, inflammatory, watery, serous, purulent, mucous, sebaceous, scirrhus or stony, formed in the same Parts, and producing the same Effects by their Compressure. 4. All Impediments to the free Course of the Blood to and through the Brain, more especially from Injuries of the *Vessels* ⁴, either by Wounds, a Compressure, Obstruction by some polypous Concretion, or a withering of them. 5. Impediments to the Blood in the small Veins, Sinus's, and jugular *Veins* ⁵, through which the Blood ought to pass freely from the Brain; but these last Impediments arise chiefly from a Compressure of the Veins, or a *Spissitude* ⁶ of the Humours.

* It cannot be any where else, since it is nothing more than an Impediment of the present Afflux and Reflux of the animal Spirits, into and from the Nerves for Sensation and voluntary Motion. This is the proximate Cause, but the remote Causes may be almost innumerable, though they all terminate in this one immediate or proximate Cause. But this Multiplicity of the remote Causes, makes it necessary to reduce them to certain Classes. It is an Observation of *Bellini*, that Fainting, Sleepiness, and sometimes a Stertor follow after Bleeding, because the Pressure of the Blood upon the Encephalon is by that means removed; but when the Person receives no Blood to the Cerebellum, he must infallibly expire. In an Apoplexy also, the Person seems to be insensible of his own Being, since all the Actions cease which depend on the Mind, both Sense and Motion, while the vital Faculty only remains entire, so that the



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Person lives as it were for the time the Life of a Plant.

There is naturally no space betwixt the Encephalon and Bones of the Skull, even none so much as to be capable of receiving a single drop. If now the Skull is depressed, or any Humour extravasated betwixt the Brain and the Bone, by diminishing the Capacity of the Cranium, the Encephalon must of Necessity be compressed, 'till a Space is again made ; and this is the Reason of Apoplexies proceeding from Accidents requiring the Assistance of the Surgeon. I saw an Apoplexy in a new-born Infant, and suspecting that the Head was compressed by the Midwife, or too tightly bound by the Nurse, I ordered all the Dressings to be taken off, whereupon the Child surprisngly returned to itself, almost in less time than one can tell twenty.

³ A certain Nobleman after being troubled with epileptic Fits, died of an Apoplexy ; but when the Head was opened after death by *Raw* and myself, we found Exostoses or bony Tumors protuberating within the Cavity of the Cranium, from whence the Spirits must of Necessity have been subjected to Irritations, irregular Motions, and at length an Apoplexy itself was unavoidable. Wonderful Apoplexies of this kind sometimes happen in the Venereal Disease, from an Exostosis or bony Tumor of the internal Table of the Skull compressing the Brain.

⁴ *Drelincourt* in his anatomical Experiments upon Dogs, demonstrates that if one of the carotid Arteries be compressed by a Ligature, the Animal becomes feeble of a sudden, and loses all its Strength ; that if both the carotid Arteries are tied, he begins to snore as in an Apoplexy, with which the Dog falls down upon tying one of the vertebral Arteries ;

§. 861. *The Symptoms of Diseases.* 101

Arteries ; and if both the vertebral Arteries are tied as well as the Carotids, the Dog expires. Hence it is not difficult to conquer the most fierce Mastiff, or even the Lion, provided you immediately grasp his Neck, and compress the carotid Arteries when he first approaches ; for by that means the Beast immediately loses all his Strength.

⁵ If you make a Ligature upon the external jugular Vein of a Dog, according to the Observation of *Drelincourt*, the Animal will immediately appear disordered ; and if the other Jugular be tied, the Dog will be sick, snore, swelled, and red in the Face, drivelling at the Mouth, and will at length be suffocated, because the venal Blood is prevented from flowing back from the Brain, while the arterial Blood continues to ascend freely to the Head by the carotid Arteries. This is the kind of Apoplexy of which those die who are hanged.

⁶ I saw an Apoplexy from this Cause, in a Lad born of a Woman far advanced in Years ; but by applying Spirit of Sal Ammoniacum to his Nose to excite the Brain to a stronger Motion, the Disorder vanished.

§. 861. A *Palsy* ¹ is an Inability of moving the Muscles which are relaxed ; and the Cause is an Obstruction of the Influx of Spirits into the Fibres of the Muscles, or of arterial Blood into the Vessels, through some Defect, either of the Brain, Nerves, Muscles themselves, or their Arteries.

A *Paraplegia* ² is an Immobility of all the Muscles below the Head, which receive all their Nerves from the Brain and Cerebellum

passing out from below the Skull; and therefore the Cause is generally seated, either at the fourth Ventricle of the Brain, or about the beginning of the spinal Medulla.

An Hemiplegia is the same Disease, only restrained to one Side of the Patient's Body; whence the Cause appears to be the same, only acting upon one Side of the Brain and spinal Medulla.

From hence we may be able to understand the Nature of a Palsy in any particular Muscle or muscular *Part*³. And we may likewise perceive why an Apoplexy is always accompanied with a Paraplegia, or at least with a violent Hemiplegia. And why after the Apoplexy is removed, one or other of these last almost constantly succeeds and continues a long time.

¹ A Palsy is an Impotency to Motion in the Muscles, with a Flaccidity of their Parts.

² A Paraplegia is an Apoplexy seated in the spinal Medulla, in which all the Parts are relaxed which receive Nerves from the whole, or one half of the same Medulla.

³ The Cause of which is always either in the Artery, in the Nerve, or in that Part of the Brain from whence the Nerve arises. But this never takes place in the Heart, for there it must be instant Death; though I suspect this to be the Cause of the most sudden Death which often happens in the most malignant or acute Pestilence. Concerning this you may read the Histories of the Plague in *London*. But a Palsy of the Muscles, subservient to voluntary Motion, is a chronical Disorder,

§. 862. *The Symptoms of Diseases.* 103

order, which may be sustained for a long time, Life yet remaining.

§. 862. The *Epilepsy*¹, or *falling*² Sickness, is a sudden and entire Abolition of all the external and internal Senses and voluntary Motions, accompanied with a violent and *reciprocal*³ Convulsion or Contraction and Relaxation of the Muscles: Hence there seems to be two Causes concurring in this Disorder, and in a Manner opposite to each other, being partly an Apoplexy, and partly a Coma Vigil, acting alternately from their respective Causes, (§. 856, 858, 860), but not so violent, nor of so long a Continuance, as they are there described.

¹ An Epilepsy is a sudden Abolition of the animal Actions, with a violent convulsive Motion of all the Muscles.

² But in the Beginning of the Paroxysm, the Patient runs for some time in a Circle, or continues moving strait forward, without knowing or remembering what is done; but so soon as the Disorder is come to its Height, they always tumble down upon the Ground.

³ The proximate Cause of an Epilepsy, is such a Condition of the Brain, as closes up those Parts appertaining to the Senses; while the other Parts appertaining to the voluntary Motions, not only remain pervious, but transmit also the Spirits more swiftly and copiously to the respective Muscles. Hence, when an Epilepsy abates, it always turns to an Apoplexy; namely, into a most profound Sleep, from whence the Patient cannot be awaked; but when this Disorder goes off spontaneously, the

Sense and Reason do not return all at once, but slowly and by Degrees.

§. 863. A *Vertigo*¹ is a seeming Rotation of Objects, accompanied with a Feebleness, or staggering Motion of the Limbs; and the Causes are the same as in an Apoplexy, only more slight.

¹ This, when accompanied with Darkness, is termed Scotoma, which is still worse; otherwise, when it is without Darkness, and the Limbs only tremble, so that they cannot sustain the Body, the Patient, in that Case, lays hold of something to support himself, while every Thing seems to turn round. There is still a worse Degree of this last kind of Vertigo, in which the Patient sees the various Colours of the Rainbow. The Cause of this Phænomenon, is indeed something wonderful; as for Instance, when Children turn their Body round swiftly in a Circle, they lose their Senses, and fall down like one apoplectic, if they continue to turn in that Manner for a long time. But if the Eyes are shut in the mean time, the same turning round of the Body does not cause a Vertigo; for blind Horses are not at all affected in turning round Mills. Some People cannot behold a Torch whirled swiftly round, without falling into a Vertigo; and most People again, are apt to be giddy, if they look down from a high Place. I myself was once so giddy after eating Hemlock, that every thing seemed to run round very swiftly, so that I could not stand; but after taking a Vomit, the Disorder vanished. But the same Disorder happened to a stout Gardener, only from cutting up this Plant. The like Effect also has
the

§. 864. *The Symptoms of Diseases.* 105

the *Cicuta Aquatica* of Gesner ; and even Wine, or the Crapula of Yesterday, will produce a Vertigo also ; whence it appears, that a Vertigo is frequently a Disorder of the Stomach.

§. 864. A *Spasmus* ¹, or Convulsion, is a violent and involuntary Contraction of a Muscle, with a Motion of the Parts to which the Muscles are connected ; the Cause thereof is the nervous Juice strongly and continually urged into the Muscle, which may again proceed from an infinite Number of other Causes, residing in the Blood, Arteries, Meninges, Brain, Nerves, Muscles, or Skull.

A *Tetanos* ², is a violent and involuntary Convulsion, accompanied with a Rigidity, or Stiffness of the Muscles destined to bend and extend any Part, which may be therefore *universal* ³, throughout all the Muscles, or only in the Muscles of some particular *Member* ⁴.

Emprosthotonos ⁵, is a Spasm, or Convulsion of the Muscles of the Head, Neck, Thorax, and Loins, bending the Body forward.

Opisthotonos ⁶, is a Convulsion of the Muscles in the Head, Neck, and Back, inclining the Body backward : but it is evident enough to one who considers, that the Cause of these last, is one and the same with that of Convulsions, only more universal or general, and almost constantly some very subtle, acrimonious, or poisonous Matter.

That

¹ That is, the Determination of the Faculty of muscular Motion, to contract one Muscle more than another, without the Inclination of the Mind, in such a Manner, as to violently draw the Part into which the Muscles are inserted. To this Disorder, very tender hysterical Women are more especially liable, even from the slightest Cause; but the Spirits return to their Equilibrium, if the Nerves are affected by something more violent than the Cause of the Disease, such as Fœtids, or Spirit of Sal Ammoniacum applied to the Nose.

² A Tetanos is a most violent Cramp or stiff Contraction of a Muscle, so as to render the Part immoveable; but sometimes also the antagonist Muscles are contracted, as well the Extensors, as the Flexors. I have observed this Disorder in the temporal Muscle, which has felt harder than a Board. It may be also frequently observed in the gastrocnemii and solei Muscles which compose the Calf of the Leg, as also in the Abductor of the great Toe, at which time the Muscles feel hard and contracted, like a Piece of Wood or Iron. The Cause of this Disorder, which was well known to *Hippocrates*, is more violent than that of a Convulsion.

³ If the Cause resides in the Brain, it will be universal. This more rarely happens among us *Europeans*, but is more frequent among the *Greeks*, more especially among the Mines, where Quick-silver or Arsenic is dug up; whence Paracelsus justly calls the Disorder metalline. This soon weakens and destroys the Patient.

⁴ Which we call the Cramp, being a painful Contraction of a Muscle, arising from a Distortion of the Tendon out of its proper Channel. When a Muscle is distorted from its proper place in a healthy Person, the Part will be always deformed and

and drawn aside otherwise than in Health. To this Disorder is related a Luxation of the lower Jaw, when in yawning the Jaw is drawn down so low, as to throw out its condyloide Processes from their proper Cavities; and in that Case the coronoide Processes do by their Sharpness prick the Muscles, whence they are miserably convulsed. This Disorder is cured neither by pressing the Jaw upward, nor to either Side, but downward and forward, drawing it afterwards up. I have seen some who have labour'd whole Days in endeavouring to reduce the lower Jaw.

⁵ Emprostotonos is when the whole Body is so contracted forward, that the Head and Feet approach together, and the whole Body is bent almost into a Circle. This is a Cramp of the flexor Muscles of the Head, Neck, Thorax and Loins. It sometimes proceeds from eating the *Cicuta Aquatica* of *Gesner*, as also from metalline Vapours.

⁶ Opisthotonos is when the extensor Muscles of the Neck, Back and Loins, together with the Flexor of the Thighs and Legs, are all convulsed at the same time; the Head being likewise bent back in such a manner, as almost to touch the Heels. These Disorders kill the Patient in the space of twenty-four Hours, and leave the Body of a blacker Colour than an *Ethiopian*; and then the ignorant common People ascribe the Patient's Death either to Poison, Enchantments, or to the Devil himself. But the true Reason of this Appearance is as follows: A Muscle when contracted repels the arterial Blood, which is thus refused Admittance, while the venal Blood is at the same time expelled forward toward the Heart; which being thus supplied, continues to protrude the Blood into the Arteries, which not being able to
empty

empty themselves into the Muscles, are distended to such a degree, that they at last force the Blood into the pellucid Arteries and Cells of the Panniculus adiposus, where there is the least Resistance; and then the more fluid Parts being dissipated, the rest of the Blood becomes very black under the Skin, and makes the whole Body appear of the same Colour, as if it was black and blue by beating. I saw this Disorder in the Son of a neighbouring Baker, to whose Body I was called, that I might be a Witness to the Poison which was given; and in this Subject the Muscles were extremely rigid even after Death.

§. 865. From hence it is sufficiently evident, why a Vertigo or Convulsions, especially universal, with the Epilepsy or a Palsy, especially when great or stubborn, and from an internal Cause, almost constantly terminate in an Apoplexy.

§. 866. Disorders of the Excreta and Retenta have been already explained, in treating of the Causes of Diseases (§. 772 to 779), from whence these and their Causes may be understood; and to these may be referred Worms, Stones, and other unusual Bodies of the like kind.

§. 867. The *Quality*¹ of any Part of the Body is said to be vitiated or depraved, when its Disposition is injured as to Sense; but this chiefly relates either to the Colour or Smell.

¹ Thus we call every corporeal Appearance, which we percieve by the external Senses.

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§. 868. A pale, yellow, green, livid or red Colour ¹ of the Skin, Cuticle, Tunica adnata of the Eye, Tunica Cornea, Lips, Mouth, Tongue, Fauces, Caruncles of the Eyes, proceeds from the like Humours or Bodies seen through the *pellucid Vessels* ²; and according as these Humours are lodged in Vessels of different Series, they are to be referred to different Causes, as is evident in an Inflammation, Gangrene, Sphacelus, &c.

¹ A pale Colour signifies a watry Cacochymia; so that from this Inspection of the Eyes, the whole History of a Disease may be foretold. For if you see the red Blood deficient, you may certainly pronounce that the Patient is afflicted with all the consequent Disorders; that is, you may safely tell the Patient, that he is subject to a Palpitation of the Heart after any little Exercise or Motion of the Body, &c.

A yellow Colour denoting an Obstruction of the Liver, will consequently be attended with Anxieties in the Hypochondria, white Fæces, Urine tinging things of a saffron Colour, &c. A green Colour denotes still a greater Depravity of the Bile, being either extremely redundant in the Blood, or vitiated with acid Crudities. And thus you may, like a Conjuror, tell the Patient of his Complaints only by looking in his Face, which will seem astonishing to the ignorant common People.

A red Colour denotes an abundance of Blood, and an inflammatory Disposition, with Pains in the Head, and a strong Pulse. But the Physician may also learn much from the successive Changes

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to be observed in these Parts ; and therefore he ought never to depart from a Patient afflicted with an acute Disease, without having first inspected his Eyes, Lips and Tongue, which afford the most evident Diagnosis of the Disease. Dealers in Cattle are always sure, by examining these Parts, when they buy Oxen or Sheep, not to be imposed upon with such as are diseased ; for by inspecting the Eye, they can soon tell whether the Animal be sick or in Health ; and it is probable, that the same Marks are used by those who deal in Slaves, namely, by the Eyes and Lips among other Parts, they judge whether they are sound or healthy, and fit for their designed Labour.

² Because here the Humours may be seen through the pellucid Vessels by a Microscope. But there are few Parts of the Body which allow of this ; for only the Lips, Tongue, Eyes and their Lids, are not cover'd with the Skin. I myself have often observed the Humours moving in the pellucid Vessels of the Eye in a healthy Person opposed to the Light, and have been thence able to judge concerning the Nature and Circulation of the Blood and its Serum.

§. 869. A Paleness, Redness, yellow, brown or black Colour of the *Bones*¹, arises from a Contusion, Inflammation, Abscess, Disease of the Medulla, Loss of the Periosteum, a Caries or Spina ventosa.

¹ A Bone which has been lately exposed to View by some Accident, appears of a semi-pellucid and reddish blue Colour, almost like the Appearance of the Nails of the Fingers. If it appears white or pale, it is a Sign the Blood now ceases to circulate

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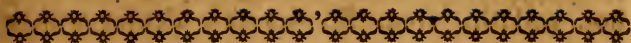
late through the Bone, in the same manner as the Nails looking pale presage the Paroxysm of a Fever, or an approaching Syncope. But the Bones are in no part uncover'd in a healthy Person, and therefore the Teeth are to be examin'd which are not cover'd with the Periostæum; for when the Teeth appear yellow in the Scurvy or Rickets, in a little time the same Disorder will take place in the Bones. As to Disorders of the Teeth themselves, independent on the State of the Humours in the grinding Teeth, they generally arise from within, from the putrid Flesh or other Aliments corrupting betwixt their roots, and eating Cavities into them. But in the incisive and canine Teeth, the Disorders are for the most part external, and proceed more especially from a tartarous or stony Matter discharged by the Vessels of the Gums and Periostæum of the Teeth; which stony Matter ought carefully to be cleansed from the Teeth, that they may neither be corrupted, nor loosen'd so as to fall out.

§. 870. A *stinking Smell*¹ always arises from the Humours stagnating, extravasated, or corrupting, or in some manner infected; as also from all Causes which too much attenuate and volatilize the oily and saline Parts of the Humours, such as Fasting, Heat, violent Motion, Food too acrimonious, &c.²

¹ There are properly no stinking Smells in any Part of the healthy Body, except only the Fæces of the large Intestines; for the Urine is little or nothing foetid; and from the Intestines it is, that upon opening the Abdomen of a living Animal, there is a disagreeable or ill smelling Vapour perceived;

ceived; but in the Thorax this Vapour smells less disagreeable, and in the Cranium it has little or no Smell. When therefore a fœtid Smell is observed in any Part of the Body, it is a sure Sign that the Humours degenerate, that their Salts turn alkaline, and that their oily Parts incline to Rancidity. If such a Smell proceeds from the Mouth, it arises either from the Sordes there collected for want of washing the Mouth, or else it ascends from the Lungs, or from the Stomach. When it is in the Lungs, riding on Horseback is the principal Remedy; when from the Stomach, the *Spaw* Waters; and when from the Mouth, Spring-water with a tenth Part of Wine, and an eighth of common Salt, may be used for a Wash.

² Animals which live only upon Vegetables, have the Fæces of their Intestines free from a stinking Smell. A Person who feeds only upon Bread and Water, will discharge Fæces smelling but very little; but they will be extremely fœtid, if he lives upon much Flesh, Eggs, Fish, and the like. Those who have complained to me of the intolerable Smell of the Fæces, have been usually relieved by the Use of mineral Waters, Acids, and salted Aliments; and when the Colour of the Fæces is somewhat more yellow than that of Straw, it may safely be relied upon as a good Sign. When the Breath and Fæces are extremely fœtid in a pulmonary Consumption, I order the Patient to abstain from all Flesh, and to use Plenty of Lemon-Juice. And the same Method is to be taken when the Urine is more than ordinary fœtid, so as to be offensive to the Patient. The same Rule is likewise to be observed by dropical Patients, who may eat Flesh as long as their Fæces are not over fœtid; but when they are sensible of that Alteration, they ought to abstain from Flesh, and have recourse to Acids.



SEMEIOTICA, *or of Signs in general.*

§ 871. SINCE a Disease is an Effect resulting from its Cause, it is therefore a particular *Entity*¹ distinct from all others, and ought therefore to be accurately known or understood, according to its peculiar and individual Nature, in order that it may be *cured*². The same is also to be understood of Health and its various States.

¹ Every Disease is a distinct, physical, and created Entity or Being, so as to be distinguishable like a Plant or animal from all other Beings by its proper Signs or characteristic Marks. This Branch of Physic derives its Name from *σημειον*, a Sign, which is derived from the *Hebrew* Word *Sem*, of the same Import.—A Sign in Physic is termed an Appearance perceptible to the Senses, from whence the Physician discovers something different from the Sign itself, and which he could only discover by its Appearance; as, for Example, a Quartan is known from its external Appearances, Lassitude, &c. Signs are taken as well from the past as the present Appearances in the Patient; and from thence we are enabled to understand both the present and future Disorders and their Consequences; for the Physician not only understands the present Condition of the Body, but also its Powers. When by Signs I know a Person to be
I plethoric,

plethoric, and from the Principles of natural Philosophy, foresee that the next Day will be very hot, and that from Politics this Person will be drawn-in to drink great Plenty of Wine on the same Day; from these and other Signs, I may safely prognosticate that this Person will at that time be in great Danger of an Apoplexy. This Branch of Physic, more than any other, was cultivated by *Hippocrates*, and hence it was that he acquired the Name of Divine. In this respect, *Hippocrates* has been followed by all the *Greek* Physicians, whose Writings are now extant, for at least four Parts out of five in all their Books are employed in treating upon Signs, and in drawing Consequences from thence; because such a Sign will be attended with such a Change; and therefore such a particular kind of Remedy ought to be used. *Hippocrates* has indeed considered Disease as an unknown Entity; but God has furnished us with Organs capable of distinguishing the Appearances, whereby we may know all Diseases, if we rightly attend to their Symptoms; for a Symptom is part of the Disease, and all the Symptoms together make up the whole Disease; hence therefore the Physician will have performed all that is in human Power when from considering the Symptoms and their Effects before observed, he draws Conclusions with respect to the present and future State of the Disease. It was the Opinion of *Sydenham*, that *Hippocrates* ought to be followed, and that from considering all the Signs, a Physician may perfectly know what ought to be done; he was likewise persuaded that all Diseases when known might be easily cured, either by assisting or restraining Nature. In this respect I cannot help pitying those Physicians, who seeing my new Edition of *Prosper Alpinus de præfagiennâ vitâ & morte*, pronounced

nounced with Contempt, “ What is it *Boerhaave* “ designs in this Book which he has published, “ for it contains nothing more than Semiotics.” Certain it is that the Interest of a Physician lies in no Part of Physic more than in this; since from hence he may be able not only to discover what the Disease is, from what Cause it proceeds, in what Part or in what Humours it resides, with the manner in which it affects the Patient, but also he is hereby directed to the most rational Methods of treating or removing the same.

² It is necessary for us to be acquainted with distinct Signs, by which we may be capable of knowing one Disease from another; in the same manner as we distinguish Gems from each other by their particular Marks.

§. 872. But the present Nature either of Health or Disease *seldom* appears of itself to the Senses, and therefore cannot by itself be accurately known; yet are we capable of knowing when these are present in the Body, and this even though the Reason or Causes of both often lie concealed from us.

¹ In an Apoplexy we see nothing of the Blood extravasated and compressing the Brain; nor are the Causes of perfect Health to be known but by Anatomy. In Diseases therefore (except Wounds, &c.) the Patient knows not what his Disorder is, but by the external Appearances which flow from thence.

§. 873. But when either Health or Disease are present, we observe certain *Effects*¹, proceeding either from the Exercise of the healthy

Functions, or from the Disorder of them; these Effects are indeed distinct from their Causes, yet are they so related and linked together, that the Effects or Symptoms manifest the Nature of their Causes, the Diseases themselves; and as these Effects are evident to the Senses, they therefore afford great light towards discovering Health or Disease in itself.

¹ Both Health and Disease are active Beings. In a healthy Person there are certain Motions and Actions performed, which are either altered or abolished in Disease or Death. Health is known from the Actions which follow from a healthy State of the Parts, as Disease is known from those Appearances which deviate from the Signs of Health.

§. 874. But besides this, a Knowledge of the Application of the known Cause to any Part of the Body, which has been already understood from *Physiology*¹, teaches the Nature and Effects following from the same Cause, and whether it will be salutary or pernicious; nor does it much signify in this respect, whether the Cause in the Body be external, internal, natural, accidental, salutary, morbid, or fatal.

¹ From *Physiology* you are acquainted with the Nature of the soft Pulp of the Brain, and know the Uses or Effects depending upon this Part; if now you hear that a violent Blow is inflicted with a Hammer, upon that Part of the Skull which contains the Brain, you thence readily conclude that

§. 875. *Of Signs in general.* 117

that the Person must become apoplectic, and this you may as certainly foresee, as if the Patient was present in an Apoplexy before your Eyes. But if the same Hammer exerted its Force upon the Arm, it is certain that it would not produce the same Effect; and therefore it is evident that the Part injured, as well as the injurious Cause, ought to be well known.

§. 875. Now the Effects before-mention'd (§. 873.) and their Causes (§. 874.) are termed *Appearances*¹, so far as they are sensible in themselves, or may be immediately deduced from Sense; but when these Appearances, discover'd by Sense, point out by the Laws of just Reasoning the Nature, Presence, Condition, or *Events*² either of Health, Disease, or Death, they are then usually termed Signs.

¹ Phænomena or Appearances are those Changes which happen in the human Body, capable of being perceived by the Senses, and of being understood by the Mind; but these Signs are taken as well from the things which are without, as within the Patient, including such things as are applied; and they belong either to Health, Disease, or Death.

² How exact the Physician ought to be in these Respects, may appear inasmuch as the Fate of a whole Kingdom may depend upon what he declares; as, for Example, when he is to answer whether the Fœtus be alive in the Womb of its Royal Mother, &c.

§. 876. These Signs are termed diagnostic, when they denounce and point out the present
I 3 Condition

Condition of the Body, whether alive and in Health, or diseased, or about to die, or in the Article of Death; but when they import the future Events which are hereafter to happen, they are then termed prognostic Signs; and lastly, when they call back to the Physician's Mind such Things as have already happen'd in time past, they are then termed anamnetic or commemorative Signs.

§. 877. But in distinguishing of Diseases, the Sign which is proper to, and inseparable from the Disease, as arising from its Nature, is termed the *Pathognomonic*¹, or Characteristic Sign.

¹ And this Sign is so inseparably appropriated to each Disease, that it agrees with no other; so that it serves for discovering the Disease, and to prevent it from being confounded with others. I heartily wish that every Disease had such pathognomonic Signs; whereas we know not of above three or four in the whole Practice of Physic. When the aqueous Humour of the Eye is deficient, a Collapsion of the Cornea is an inseparable Sign. In the Stone of the Bladder, the only pathognomonic or infallible Sign, is the touching it with the Catheter.

§. 878. The Knowledge of this Sign is therefore extremely necessary and useful, tho' often very *difficult*¹ to be known; yet does it always accompany the Disorder, as long as it continues of the same Nature: but frequently likewise this is composed of many concurring Signs *aggregated*² together. It

It would be happy for us if every Disease had its pathognomonic Sign. A Person who can describe all the Differences of one Disease, as for Example, of Deafness, with the proper and inseparable Signs of each, would do more service to Mankind, than by making all the Conquests of *Alexander*.

To know the pathognomonic Sign of a Disease, is to be acquainted with its physical Cause. But this Cause is hardly ever simple, and continually affects not one Organ only, but several; and therefore the pathognomonic Signs are generally an Accumulation or Assemblage of other Signs. A Pleurisy is an inflammatory Pain of the Side increasing upon Inspiration, and accompanied with a hard Pulse and acute continual Fever. A pricking Pain of the Side alone is not the Sign of this Disorder, for that has been known to arise from a Convulsion or Cramp; nor yet is a pricking Pain of the Side, accompanied with a hard Pulse, sufficient to denominate it a Pleurisy, since these Symptoms may arise from some other Inflammation; but an acute Fever must necessarily be added with an Increase of the Pain upon Inspiration. One or even several of these Signs alone determine nothing, but altogether make it a Pleurisy.

§. 879. But those Signs which teach us the various Changes and Conditions of the Disease through its several Stages, are termed Epigenomonic, supervening or accessory Signs.

Thus under the Name of a Pleurisy is comprehended as many Diseases as there are different Stages of that Disorder, without at all changing the Name. A Pleurisy is, therefore, 1. An Inflammation resolvable. 2. It is an Inflammatory

Disease tending to Suppuration. 3. It is an inflammatory Disease suppurating or forming Matter. 4. It is an inflammatory Disease with Matter already formed. 5. It is a Vomica or Collection of Matter in a Cist from a preceding Inflammation, and this Vomica breaking becomes an Empyema. Now all these Disorders comprised under one Title are very different from each other, and require to be treated after different Methods; as for example, bleeding will be most convenient while the Inflammation is resolvable, but in the Suppuration it will be highly pernicious, because it will make way for the Matter to be received into the Blood, whose Texture will be thus corrupted and dissolved.

§. 880. From what has been said, it is evident that these accessory or supervening Signs are so necessary towards a just Knowledge and Cure of Diseases, that there is hardly any one thing can be of greater Use in Practice; and therefore the greatest Blunders and Mischances happen when these are neglected.

§. 881. But since all these Signs following are Effects produced by the Cause of the Disease, the Disease itself, and its Symptoms, which are continually changing, they therefore denote the present *Condition*¹ of the Matter, which first produced the Disorder throughout the several Stages, or the State of the Matter which was produced by the Disorder; and these States are usually reduced to the three following Classes: 1. *Crudity*² and Concoction. 2. Termination in Health, Disease, or Death. 3. Sepa-

3: Separation and Excretion of the concocted Matter, which are therefore termed *Critical*.

¹ In order to be a good Physician, one ought to make it a rule never to leave the Patient, till the State of the Viscera is perfectly known. I formerly never visited a Patient without writing down all the Signs and Symptoms according as they occurred, and by this means it is almost incredible how much I improved. If you take this Method through four or five Disorders of every Class, you will ever after easily distinguish the like Diseases.

² Crudity is said to be any State in which the Humours deviate from their natural Condition. When the crude Matter is put in Motion, it causes a Fit or Disturbance; but when concocted, a Crisis.

³ A critical Discharge is either of the Matter of the Disease, as of tenacious Blood in a Pleurisy; from which Tenacity of the Blood the Disease itself arose; namely, this Tenacity joined with an acute Fever, and Inflammation or Obstruction in the Side, causes a Pleurisy. This Matter is perpetually changed through the Course of the Disease, and is either resolved or more compacted; or it may be a Matter produced after the Disease from the same Cause, or from some procatartic Cause, or from both those Causes together; as in the preceding Instance of a Pleurisy, in which the Blood is corrupted by the inflammatory Fever which accompanies the Pleurisy, and is a Cause continuing the Disorder.



General Signs of perfect HEALTH.

§. 882. **T**HESE Signs are to be taken from the Actions of the Body (§. 695.) being performed with Ease, Convenience, Pleasure and Constancy.

Health admits of a great Latitude and various Degrees; for among a Hundred healthy People, one is more so than the rest, a second is more healthy than the third, &c. Thus *Hippocrates* observes, that there are near a thousand Humours predominating in People, watery, saline, bitter, &c. and of various Degrees; but the Signs of the most perfect and of these particular Kinds of Health are first to be consider'd, that we may be better enabled to judge concerning Disease; for a Rule may have its Obliquities, as well as its right Lines.

§. 883. Of the four preceding Conditions necessary to Health, the three first are easily perceiv'd, but the fourth is more difficult to determine; for the greatest Constancy of these Actions can only be known by those Signs which indicate that the Person will be long-liv'd; and therefore the Signs of Longevity generally denote likewise perfect Health.

§. 884. But all those Signs of *Longevity* have the Effects of such a Disposition throughout

out the whole Machine, but as to Solids and Fluids, as principally disposed to last a long time, with respect to the Dependence of the several Parts upon each other, and the Renewal or Maintenance of them in the same State; but this is performed by a Reduction of the Aliments into the same Nature with that of the Parts of which the healthy Machine is already composed.

¹ Longevity depends, 1. on a good Constitution of Body; 2. by resisting and overpowering every thing which tends to destroy the Body. For the Non-naturals ought to be changed into Naturals, and the ingested Aliments must be assimilated into vital Solids and Fluids,

§. 885. From the most diligent and repeated *Observations*¹ in *Europe*², these Signs may be reduced to the following Classes.

1. From the Generation. As being conceived by healthy and strong Parents of a full Age; using *Venery seldom*³, but with Vigour, and in the Morning after the Concoction has been completed by Sleep, and this more especially in a healthy Season, in the *Spring*⁴.

2. From the Gestation in the Uterus. The Mother being Sound and in Health, and addicted to *Exercises*⁵ of Body, sufficiently strong, having an easy Mind, and nourishing only *one*⁶ Fœtus at a time in the Womb, by feeding on a healthy Aliment.

3. From the Birth. The Delivery happening after nine whole Months have expired
from

from the time of Conception, more especially when this happens in the Month of *December*⁷, *January*, and *February*.

4. From the Manner of Growth in the Body. When it grows *slowly*⁸, and very equally, the Bulk and Strength of the Body increasing until, or even after, the 25th Year of Age.

5. From the Make and Habit of the Body. The Thorax being large and broad, the Abdomen slender and fat, the Shoulders, Arms, Thighs, and Legs strong, muscular, fleshy, and thick-set with Hair that is strong and bristly; a large and *capacious*⁹ Skull, especially towards the Occiput, but not before towards the Face, the Head seeming much smaller than it really is; the Skin hard, the Bones well clothed with Flesh, and with but little Fat.

6. From the State of the Humours. The Blood being florid, but *thick*¹⁰, soon concreting after Extravasation, into a very firm and compact Mass; the rest of the Humours being sufficiently copious, of a firm Consistence, moderately warm, little oily, and without Acrimony.

7. From the Actions of the Body. The Respiration being slow, deep, full, easy, and uniform, or equal, with little or no apparent *change*¹¹ in the respective Organs; the Pulse of the Arteries being slow, large, full, uniform, or equal, strong, constant, and not easily alterable by *slight*¹² Causes; the Bowels not

too loose, but *coftive*¹³ without detriment; the Urine small in Quantity, and well concocted, the Skin not too easily inclined to sweat, the *Sleep*¹⁴ sound, continued, and refreshing; a plentiful Appetite with an easy Digestion, Ability to Labour, Dulness of *Wit*¹⁵, and of all the animal Motions both of Body and Mind, with an Easiness of Temper under all Accidents and *Changes*¹⁶.

¹ These Marks I have enquired after from all Quarters, more especially from those who buy Soldiers for their Colonies in the *East-Indies*, who are therefore careful to get them strong, fit for Labour, and capable of enduring Hunger and Thirst; I have also made Enquiry among those who buy Slaves for the Gallies.

² For we intend our Commentaries for the Physicians of *Europe*, hardly regarding the other Parts of the World; for the *Arabians* even derive most of their Knowledge from the *Europeans*.

³ *Lycurgus* wisely contrived to add a Stimulus to the Venerly of new married People, that upon publick Notice of the least Misdemeanor, the Husband should be imprisoned, if it was reported that he had to do with his Wife; and by that Means he procured Venerly to be much sought after, but seldom enjoyed; but then he hoped by its being more vigorous, that all his Citizens would beget a stronger Generation. And it is a common Observation in *France*, that Bastard Children (*Enfans d'Amour*) are commonly stronger and handsomer, than those of the Marriage-bed.

⁴ In Man there is no set Time for Venerly, but in Brutes we see there are set Times and Seasons. But even in the human Species the publick Registers

sters demonstrate, in which the Births and Burials are enumerated, that those are the most healthy, who are born in the three Months before the vernal Equinox. These Rules have been recommended of old by *Socrates*, when he reflects on People for being so very solicitous about breeding up excellent Cocks and Horses, while at the same time they neglect every thing which may tend to make their Children be born as healthy as possible.

⁵ This is one of the principal Reasons, why the Offspring of Princes are so tender and liable to Diseases, because their Mothers being of a delicate Habit, lead an unactive Life. It is certainly much the best for the Mother to use moderate Exercise. Thus *Virgil* advises those who desire stout Cocks and strong Horses, to use them to Exercise; and the same Care is to be taken by those who study to breed up Dogs for fighting.

⁶ For in this Case the single Fœtus will be stronger and better than if there are Twins, or three brought forth at a Birth; and then the Fœtus will be also proportionably more strong and healthy, as the Mother has gone more of her full Time; for the Birth ought not to be too early, nor too long deferred beyond the proper Time.

⁷ For those who are born in these Months, were conceived in the Spring.

⁸ Both Men and other Animals who grow up apace, are observed to be of short Life, from the too early Callosity and closing up of their Vessels, and from their being disposed to a pulmonary Consumption. I find it remarked in my Journals, that young Men who have seemed hardly to grow in Appearance, are the longest Livers; for these usually continue as long in their full Growth, and in their Decay, as they are a growing up. Thus those who grow to the 25th Year of their Age,

Age, live to the Age of 75; for till 50 they continue in the same State, but from thence to 75 they decline.

⁹ Not with a large Face or loose Cheeks, spreading on each Side, but with Bones joined together, so as to form a large and capacious Skull. The ancient Engravers, indeed, seem to have drawn *Hercules* and *Lacoön* with a small Head; but this is only so in Appearance, compared with their broad Shoulders, which make the Head seem less.

¹⁰ A thin and flrid Blood is the best, but denotes Instability of Health, but a more firm or thick Texture of the Humours, renders a Person more capable of sustaining Labour, and from hence it is in Part, that a strong Man seldom sweat even at his Labour.

¹¹ The more a Person is in Health, the less external Appearances are there of Respiration, except at the time of Sleep, as I have often attentively observed in the most healthy Men; because in these the Lungs are extremely pervious, expand and dilate most freely, and act most powerfully upon all the Humours. But the more unhealthy or indisposed a Person is, the more evident are the external Signs of Respiration.

¹² They who buy Slaves count their Pulse and Respirations in a given time, and then order them to run; if now they find the Respiration and Pulse not much altered by that violent Motion, they know that they are of a strong Habit of Body, but the more weak and morbid, the slighter Causes will alter the Pulse, and those who are in a declining way towards Death, have their Pulse twice or thrice as frequent as it ought to be when they exercise the Body. This Experiment is tried by the Officers appointed to purchase Soldiers for our *Dutch Colonies* in the *East-Indies*.

¹³ For this is a Sign that the greatest Quantity of the ingested Aliments is duly attenuated and discharged by insensible Perspiration. I have known the most healthy People complaining of a Costiveness in their Bowels, and Dryness of their Fæces, whereas this is a Sign of a healthy and strong Constitution ; and I have known those who have been most healthy, to have a Stool but once in seven Days without Detriment. The same is also true with respect to Urine. But on the contrary, the weaker any Person is, the more fluid and abundant are the intestinal Fæces, and the more Urine is made, as we frequently see, to the Prejudice of hypochondriacal and hysterical People. It is also a good Sign, when a Person is neither swelled nor over-hot after a plentiful Dinner, for they digest easily.

¹⁴ Sleep in the most healthy People is profound and uninterrupted, by which they are recruited and awake with Cheerfulness.

¹⁵ They who are of a strong habit are of stupid Intellects, and the Reverse ; for Ingenuity requires a delicate or very moveable State of the Brain and Nerves ; but this again supposes a Weakness of Body. On the contrary, Firmness or Solidity in the Fibres or Vessels, supposes the Nerves to be less susceptible of Impressions or Motions subservient to Thought. No Person therefore can be blest in all these Respects, nor can he be a *Solomon* who is cut out for a *Methusalem*. We have no Accounts of Ingenuity in old *Parr* of *England*, except that he delighted much in Eating, and committed Adultery at the Age of above an Hundred.

¹⁶ Such as the Changes of Heat, Cold, &c. and therefore *Celsus* advises a healthy Person not to tie himself down to certain Rules, but to use a

reasonable Variety in his way of Life, which may dispose his Body to sustain easily all the Changes to which it may be liable.

§. 886. But that the Fabric of the Body is such as disposes it to the Exercise of its several Actions with Ease, Pleasure and Promptitude, will appear, 1. to the Testimony of the *Senses*¹; 2. from the Presence of the Signs before enumerated (§. 885.); 3. from the solid Parts being found strong, tough and elastic, with respect to their Matter; and from their appearing of such a Bulk, Figure, Connection, Situation and *Proportion*², as may best serve for the Performance, both of the particular and common *Actions*³ belonging as well to the Fluids as the Solids with Ease and Expedition; 4. from the Humours being of such a Nature, as may dispose them to an equable Performance of their several intestine, circulatory, secretory, nutritious and excretory Motions, without Irregularities and their Consequences: and indeed the most evident Sign of this Equability in the Actions of the Fluids, is the Absence of throbbing Tumors, Pains, Heats, Immobility or Insensibility of various kinds in various Parts. 5. If the Union of the Body and Mind appears to be such, that the Passions are *moderate*⁴ and not over violent; 6. if the Colour of the Skin appears rosy, *white*⁵, or of an agreeable swarthy Colour, the Body being at the same time moderate as to Heat, and light as to Sense; 7. and lastly,

lastly, from its strongly resisting all the Causes of Diseases.

¹ Every Person has in himself the Signs of his own Longevity; for if he finds himself not at all oppressed after Meals, it is a good Sign; as it also is when the Perspiration is free and plentiful some time after Meals, when the Chyle has mixed itself with the Blood. If he perceives no Uneasiness in any Part; for so long do the Humours equally circulate, as the Patient shall find no Oppression or Uneasiness; for no Person in Health perceives the Weight of his own Body upon his Feet, nor even if he stands upon one Foot.

² Skilful Statuaries make a Difference in the Symmetry or Proportion of the Parts of *Mercury*, *Apollo* and *Hercules*; but whatever be this Proportion known to Statuaries, it is sufficient to demonstrate, that a particular Make of the Body disposes it better for some certain Motions; but when the Proportion of the Parts in the Body is the most uniform, it is then best disposed for the Performance of all the Actions of Life; whereas in those who have one Part of the Body overpowering the rest, Health cannot long subsist without being disturbed by Disease.

³ When the Parts perform their Motions without Pain, Pulsation, Tumor or Redness after strong Exercise, it is a Sign that the Humours are very equally distributed; but when a Pulsation, Tumor, or Pain is afterwards perceived, Disease lies concealed, as *Hippocrates* tells us; for the Sense of no Pulsation demonstrates that all the Humours pass thro' their Vessels without Resistance, which is a Circumstance extremely necessary to Longevity.

⁴ When the Body is best disposed for a Habitation to the Mind, it is generally with Ease determined

mined to Anger, Sorrow or Joy. Happy are they who have these Motions moderate, otherwise the Passions of the Mind destroy the Body, in the same manner as a Moth eats away a Garment, which is a manifest Sign that the Spring of the Passions is in the Body; it is therefore no wonder that the Passions of the Mind should manifest their Signs in the Fabric of the Body, in such a manner that one may judge of one by the other. For the Mind generally follows the corporeal Habit, unless the Malignity of the latter be overpowered by Reasoning; as *Socrates* by Wisdom corrected all the Vices to which his Body was naturally inclined from its Make, obliging it to be the Receptacle of one of the best of human Minds.

⁵ Lean People are the most healthy, whereas those who are fat and of a delicate Habit, are disposed to Disease, and become very much deformed by a slight Emaciation, and fall into a bad Habit. It is also a good Sign of Health, when the Appetite, Digestion, Exclusion of the Fæces, and Inclination to Sleep, return every Day at their usual times regularly.

§. 887. From what has been said, it is evident that the greatest Power of resisting the Cause of any particular Disease, whether venomous or contagious, does not always denote the most perfect Health, and the reverse, as is sufficiently apparent in contagious Diseases and in *Poisons* ¹.

¹ Contagious Diseases, Pleurifies, Small-pox and the Venereal Disease, destroy the Flower of Youth; whereas People of a languid Disposition, and afflicted with chronical Disorders, sustain a pe-

stilitual Air without Injury, and those who are dropical are almost cured by it, while only the most florid Youth and plethoric People perish. A Person therefore who escapes the Plague, has no reason to think that his Body is of the most firm Constitution, because it is less inclined to acute Diseases; for that Disposition of Body will be best, which secures it, not only against one, but even against all kinds of Diseases. Add to this, that the lean *Spaniards* are seldom infected with the Venereal Disease from cohabiting with unclean Women; whereas the *Germans*, who are more fat and corpulent, are always infected, and much more severely handled for their Crimes this way.



Signs of HEALTH in particular, according to the several Constitutions or Habits of People.

§. 888. **T**HE most healthy Condition of any particular Viscus or Part, is known when its Action is known to produce its several Effects constantly, readily, and with Ease or *Pleasure*¹; but as these Actions, and their Effects have been explained at large in the physiological Part of our Institutes, their Meaning in this Place will be therefore easily understood without a Recapitulation.

¹ Thus we know the State of the Lungs by trying the Pulse and its Numbers in a given time; then ordering the Patient to take as deep an Inspiration

§. 889. *Signs of Temperaments.* 133

ration as he is able, and to retain the Air as long as possible. If he performs this without Pain or Uneasiness, the Pulse continuing a long time and without great Alteration, it is a sure Sign that he has good Lungs. The like Experiment may be repeated upon the other Viscera. If I desire to know whether the Heart be well conditioned, I observe whether it is subject to a Palpitation after Heat and Exercise, or after the Chyle has passed from the Aliments into the Blood.

§. 889. But Health is a Disposition residing in every Part throughout the whole Body, made up both of Solids and Fluids ; and therefore it can only be relative, according to the particular Habit of Body in every *individual* ¹ Person ; whence we see that different People, whose Solids and Fluids vary much from one another, may nevertheless be found or healthy ; and this has been termed by the Antients *Idiosyncrasy*, or the Health of the Temperament, which therefore cannot without Difficulty be reduced to proper Heads ; yet the Division of the Temperament proposed by the *Antients* ² into hot, cold, moist, dry, bilious, sanguine, phlegmatic, and Atrabiliary or Melancholy, is of some use in Practice.

¹ There is no such thing in the Universe as absolute or general Health, because Health depends on a certain Proportion, in the Nature and Quantity of the Solids and Fluids, with respect to themselves and to each other in one individual Person ; as for Example, *Cajus* and *Sempronius* are both of them in Health ; but if now the healthy Humours of *Cajus* are transfused into *Sempronius*, both of

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them will be disordered ; but restore each of them their respective healthful Humours, and they will both of them be well again. For in the same manner as we never see two Faces exactly alike, so there is also a Difference in the Proportion and Make of all the Viscera and Humours, that the Heart and Lungs of one Person never resemble those of another. This is what the Antients have called the Idiosyncrasy or particular Habit of a Person ; and it is from the Antients I have deduced these Differences of Constitution, only I have added their Causes, derived from the Structure of the Solids, together with a short List of such things of the Juvantia and Lædientia with respect to each.

² These Classes have been opposed by *Helmont*, who yet durst not affirm that they were useless.

§. 890. The Signs of hot Temperature *are* ¹ said to be thick yellow Hair, abounding all over the Body, a reddish Colour in the white of the Eyes, and in the lachrymal Caruncles, with an intense Redness of the Face, Lips and Mouth ; a slender, active, warm and robust Body, a large and quick Pulse, an angry Disposition, but soon over. In such Persons the Vessels seem to be strong and contracted, the Viscera firm and active, the Humours compact, acrid and briskly moving ; and therefore in such, Aliments and Medicines which are moistening, cooling and diluent will be serviceable, whereas such as heat the Blood of all kinds, will be highly prejudicial.

¹ Easily excited to Anger, but as easily appeased. Such Persons living in the same Air with others, are actually warmer than those of different Constitutions.

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§. 891. The Signs of a *cold*¹ Temperament are all contrary to the former ; such as Smoothness of the Skin, thin or fine Hair, a pale Colour, a corpulent, lazy, weak and cold Body, disposed to Swellings ; a small and slow Pulse, a dull, unthoughtful and fearful Mind. In these People the Humours are mild, watery, phlegmatic and slow of Motion, accompanied with a Laxity and Weakness of the Solids. For such, every thing that strengthens the Solids and *warms*² the Humours will be serviceable, whereas such as cool, moisten and relax, will be prejudicial.

¹ In such the Body swells upon every slight Occasion, nor are they liable to Passions of Mind, except Fear, which arises from every thing without occasion.

² Such as Spices and antiscorbutic Medicines. But weak Girls belonging to this Class, destroy themselves when they drink Tea profusely.

§. 892. The Signs of a *dry*¹ Temperament are much the same as of the hot one (§. 890), if *Leanness*² be added to them ; and the Vessels here are more contracted, the Humours small in Quantity, and in a manner more acrid. They are assisted and injured by the same things as we mentioned in the warm Temperament. But a moist Temperature is much the same with the cold one (§. 891), if we add a Tumor or Turgescence of the whole Habit ; so that what has been said of that will hold true of this.

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¹ In such the Humours are less in Quantity, more powerfully moved through Vessels which are less contracted, and consequently are render'd more acrid.

² To such warm things are prejudicial, as is well known of the Inhabitants of *Africa, Spain,* and *Italy*, who are of a more dry and more lean Habit than any other People; for among these, the slightest Alteration of Air always brings the most fatal Diseases.

§. 893. A choleric or bilious Constitution is said to discover itself by an *abundance*¹ of black and curling Hair, Hardness, Leanness, and Thinness of the Flesh, a brown Skin, large Veins, a quick and large Pulse, Boldness and *Angriness*² of Temper. In these the Solids seem to predominate over the Quantity of the Fluids; whence they seem to be nearly a-kin to those of the dry (§. 882), and of the hot Temperament (§. 890.) Things warm and dry will be prejudicial to these; but such as moisten and cool will be serviceable.

¹ Among the warmest Nations, the *Moors* and *Asiatics*, they remarkably abound with Hair, and every Child becoming warmer at the Age of Puberty, do then begin to abound with Hair in several Parts; even Girls themselves of a stout Habit, have a sort of woolly Beard.

² They are called Choleric, because they often discharge a bitter Choler both upward and downward; whence they seem to make more Bile than other People, which gives them a more intense Heat.

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§. 894. A sanguine Temperament is said to be distinguished by Scarcity of Hair, which appears of a yellowish, white, or brown Colour, the Flesh soft and abundant, the Veins large, blue, and distended with Blood, a rosy Colour in the Face, Aptness to Anger, and of a pliant, fickle Temper. For such, things which cool and evacuate are useful; but such as warm or stimulate violently are prejudicial.

These perfectly answer the Description which *Homer* gives of *Achilles*. In such the Blood is always rarefied, and distends the Vessels.

§. 895. The phlegmatic Constitution is known by the great Smoothness of the Skin, Whiteness and Fineness of the Hair, growing very slowly, Paleness, Softness, Turgescence or Fatness of Body; the Veins small, and concealed in the Fat. Such People seem to have the Series of Blood-vessels small, but the lateral or serous and pellucid Vessels more capacious, agreeing in other respects with those of a cold Temperament (§. 891); and therefore in these likewise cold and moist things are very prejudicial, whereas those which heat, strengthen and dry, will be useful.

§. 896. Lastly, the Signs of a melancholy Habit are a Smoothness of the Skin, intense Blackness of the Hair, extreme Leanness and Dryness of the Flesh, the Colour of the Skin much blacker than is usually observed in People

ple of the same Nation; they are diligent, *constant*¹ or indefatigable, *revengeful*² of Injuries long passed, and of a very penetrating and intelligent *Wit*³. In these therefore the Vessels seem to be tense or contracted, strong and firm, the Humours *dense*⁴, tenacious, intimately mix'd, and not easily separable, nor liable to Changes. In these, hot, dry and acrid things are very prejudicial; but they are assisted by such things as are moistening, cooling, relaxing and emollient in a mild Degree, dissolving without Acrimony.

¹ A past Injury makes a deep Impression upon the Mind, is long retained in the Memory, and not easily effaced.

² They always continue in the way to which they have been accustomed. If their Inclinations are good, they become exemplary for their Virtue; but when the Reverse, they are in effect Cacodæmons, or worse than Devils. These are the black ones which *Horace* cautions us to be aware of.

³ Discoveries in obscure Matters are best made, when the Mind contemplates a long time upon the same Object, considers the same on all sides, and is not in the mean time drawn off to other Matters. Such is the Disposition of the Mind in melancholy People, who are best disposed to enlarge the Bounds of Sciences, as *Aristotle* well observes. Of this the celebrated *Swammerdam* is a notable Instance, who after an accurate Knowledge and Dissection of all Kinds of Insects, determined the particular characteristic Marks to each Kind, and reduced them to a small Number of Classes with immense Labour. The same Person has left us many Writings upon Flies, Bees, upon the Gnat
and

§. 897. *Signs of Temperaments.* 139

and Louse, which I have endeavoured to collect from several Parts of *France*, and may perhaps some time or other publish them; for they are Works which bear even stronger Marks of Labour and Industry than those of *Malpighi*. But this same *Swammerdam* was of such a melancholy or atrabiliary Habit, that he would sometimes hardly give an Answer to a Person that spoke to him, but look with an unconcerned Countenance; and it is remarkable that when he ascended the *Rostrum* under the Presidency of *Sylvias*, he stood like one astonished, and answered not a word to the Objections laid by his Opponents to his Theses, leaving all the Care of answering them to the President, when at the same time he was probably more learned than the President himself. Lastly, being taken with a melancholy Raving before his Death, he burnt all his Writings which were in his Possession, when taken in one of his raging Fits, and perished a mere Skeleton with a Consumption.

⁴ The Atrabilis has been best described by *Hippocrates*, because he had frequently seen that Constitution prevailing in his Time in *Greece*; and even at this Day melancholy People are very frequent to be met with in those Parts.

§. 897. What has been said will afford much Light towards the Knowledge and Cure of *Diseases* arising from the particular Temperaments or Constitutions peculiar to different People; and from hence one may see to what Diseases each of them is inclined, so that from hence is derived a great Part of the proguminal or predisposing Causes.

It is remarkable, that whole Nations may be ranged under one of these Temperaments. The *Italians*, *Portuguese* and *Spaniards* are brisk and airy until the eighteenth Year of their Age; but after the thirtieth Year, they all become grave, melancholy, of a cross, sorrowful Disposition, and are subject to the Piles. They seek their Cure naturally, by avoiding Spices, by the Use of warm Baths, with which they are delighted, by Abstinence, and drinking of Water.



The Signs of DISEASES.

§. 898. **T**HE Signs of an approaching Disease are derived, 1. from an Observation of the unusual Changes or Alterations made in any of the Functions, more especially an uncommon *Weariness*¹, and Sense of Heaviness throughout the Body from an obstructed *Perspiration*²; 2. from an accurate Knowledge of the *Temperature*³, peculiar to each Person, with a particular Make of the Body in each; 3. from a due Attention to the Classes of the several procatartic or *remote*⁴ Causes, (§. 744. to 780.); 4. from a Knowledge of the *epidemical*⁵ Distempers which reign at particular Times or Seasons.

¹ *Hippocrates*, in his Epistle to King *Perdicas*, and *Diocles* to *Antigonus*, lay down as a Rule, that if you desire to know, whether you are in danger of any Disease, you must observe, whether any thing

thing unusual happens to yourself; whether being accustomed to sleep sound, you are now restless, whether you are sensible of a Weariness without Cause, or whether you sweat in Sleep, contrary to what you have been used to; for all these are Presages of Disease. *Sanctorius* has beautifully demonstrated, that when the Body becomes heavier of Sense, and unfit for Exercise, Disease is then at hand; for this denotes an obstructed Perspiration. When the Arm is less moveable than it ought, there is then Disease, or its Cause there present. When the Bowels are more than usually loose, they are disordered. But all these were as accurately observed by *Hippocrates*, without the Use of the Ballance, as by *Sanctorius*, who invented the weighing Chair. Almost all Diseases are preceded by such a Weight, except an Apoplexy; and they may be for the most part prevented, if the Patient and Physician take Notice of this Sign in time, and use proper Measures accordingly.

² That is, when the Body appears heavier by the Steelyard.

³ If I know a Person to be of a plethoric Habit, I readily conclude, that he will have better Health in Winter, and worse in Summer.

⁴ When you have discovered the predisposing Cause in the Patients Habit, and the remote Cause in the Non-naturals, you have then a full Knowledge of the whole Cause, that is, of the Disease itself.

⁵ After *Hippocrates*, *Sydenham* has first taught us that twice a Year, there is in every Constitution an Inclination to Diseases, and that some Diseases have a natural Tendency to cure themselves; as for Example, that all Diseases require to be cured by a Dysentery, when that Distemper is predominant. When there is a reigning Disposition to

Quartans, plethoric People escape, but the Melancholy suffer most. This is a most useful Observation, and is sufficient to furnish us with a Reason, why a wise and successful Physician, changing his Country, will not be equally successful in his Practice, without varying it accordingly.

§. 899. The Signs of a *past*¹ Disease, are evident, from the known Effects which remain after the Injury of any solid Part, or following from peccant Humours, or the Actions injured; for he that compares the Uses of the Parts, as observed in Health, with those Defects which remain, will from thence easily understand the Nature of the Disease.

¹ By this Discovery of past Events, the Physician will acquire Admiration from the People, in the same Manner, as by presaging what will come after, he will seem to them learned beyond human Capacity. If a Physician is told by the Patient, that he has sweated all Night, and answers, but I see in your Urine, that you sweated little or nothing yesterday Night; namely, because he sees a large Quantity of Urine, he will by that Means gain great Admiration from the Vulgar. For when you see an Effect, of which you know the Cause, it will be easy to conclude from seeing the same Effect, what Causes preceded. Another Patient complains, that he is troubled with an Asthma; but enquiring after the Particulars, the Disorder is not brought on either by Cold or by Heat, nor yet was it hereditary from the Birth, nor is the Patient able to lie easily upon either Side; whence I may certainly conclude, that his

Lungs are inflamed, and may safely pronounce^e that to be the Cause.

§. 900. The Signs of a present Disease, relate either to its Causes, Nature, Symptoms, State, or Event.

§. 901. The Signs indicating the Nature of the Cause of the Disease, are taken, 1. from an Observation of such Things, as being applied to the Body, produce Diseases; concerning which we treated before, under the Title of Causes of Diseases; 2. from the *Idiosyncrasy*¹ or Constitution of the Patient before described (§. 888, to 898.); 3. from observing the Nature of the present Effects obvious to the Senses.

¹ You will easily discover the Disease after being once acquainted with the Habit and Constitution of the Patient, and the external Causes, which conjunctly applied, constitute the Disease.

§. 902. A Disease in the solid Parts is known 1. from the Force, Quality, Continuance, and Method, of applying the Cause, either externally or internally; 2. from a sensible Change of the Qualities, *Situation*, and *Connection*¹, of the affected Part; 3. from the *injured Functions*²; 4. from what is discharged, either immediately or *obliquely*³ from the affected Part.

¹ In Dislocations and Distortions, the Disorder is known from the Part having changed its Situation.

When

² When a dropfical Patient can fustain Heat, it is a good Sign ; but if that is intolerable to them, the Humours are already difpofed to Putrefaction or Acrimony.

³ As when I fee a reddifh-coloured Mucus difcharged, I know the Veffels to have been dilated.

§.903. Wounds, Contufions, Corrofions, or Burns, are known to be prefent by the Senfes themfelves, when they happen in an obvious Part.

But the Condition or State of thefe Accidents is known, 1. by Infpection ; 2. from the known Nature of the *Part*¹ injured ; 3. from the feveral Symptoms.

The Events of thefe are prefaged, 1. from confidering the Neceffity of the injured Function, with refpect to Life and Health ; 2. from the Nature of the Part injured ; 3. from the Manner in which the Injury was committed ; 4. and laftly, from the *Temperature*² and Habit of the Patient.

¹ For a Contufion, which would be of no Confequence in the Skin, would nevertheless, in a conglomerate Gland, produce a malignant Scirrhus.

² Which alone frequently renders a Wound fatal, when it was but flight in itfelf. In confumptive People, there is very little Blood circulating within the Veffels ; fo that taking away a few Ounces of Blood by a Wound, or other Accident in thefe, it proves fatal, when it would hardly affect a healthy Perfon. A Cancer is eafily cured in
a plethoric

a plethoric Woman, but very difficultly in one of a melancholy Habit.

§. 904. The Presence of *Ulcers*¹, *Fistulæ*, *Scirrhi*, *Cancers*, *Caries*, *Inflammations*, *Gangrenes*, and perfect *Mortifications*, lying obvious to the Senses, makes it easy to discover them by their pathognomonic Signs contained in their Definitions.

But also the Condition of these is known, 1. by the Sight, Touch, and Smell; 2. from the known Nature of the injured Part; 3. from observing the Symptoms.

But the Event of these is prognosticated, 1. from the known Nature of the *Malady*²; 2. from the Nature of the *Parts injured*³, and their Importance, with respect to Life and Health; 3. from a Knowledge of the other *circumjacent Parts*⁴; 4. from the Difficulty of applying the proper Means or *Remedies*⁵; 5. and lastly, from the Temperature and Habit of the Patient.

¹ These being known by their Definitions may be easily discovered in the Patient when present. Thus a *Scirrhus* is an indolent, hard and unequal Tumor in a glandular Part; and in this Definition, you have comprised all the Appearance of a *Scirrhus*. A *Cancer* is the same *Scirrhus* painful, ulcerated, or changed into a gangrenous Nature, discharging an *Ichor*. Thus you may see, that by keeping the Definitions in Memory, it will be easy to discover the present Disorder in the Patient.

² When I see an Inflammation, I readily conclude, that it will either terminate in a Resolution, Suppuration, Gangrene, or Scirrhus.

³ It is easy to determine, whether the Brain and Cerebellum are injured in a Wound, according as the vital and animal Functions appear to be injured.

⁴ A Suppuration in itself seldom does much Injury, but if it happens in the Groin, and eats thro' the cellular Coat of the iliac Artery, it may produce a fatal Hæmorrhage; and in the same manner a Cancer often suddenly kills the Patient by a profuse Hæmorrhage, after the Vessels have been corroded by the most sharp Ichor.

⁵ Thus an Ulcer of the Lungs would not destroy the Patient if it was practicable to make an immediate Application of balsamic and other Medicines, as in an Ulcer of the Arm.

§. 905. But if these Disorders before-mentioned (§. 903, 904.) lie internally concealed from the Senses, they are nevertheless to be discovered by their Signs; taken 1. From the Nature of the Cause. 2. From the *Function*¹ of any kind which appears injured at the same time. 3. From the *Excreta*². 4. From the *Part*³ affected, already *known*⁴ by Anatomy, as well with respect to its internal as external Make. 5. and lastly, From the sensible *Quality*⁵ or *Action* of the Part injured.

But the present State and future Events of them, after they are once known, are derived from the same Heads as we before mentioned. (§. 902, 904.)

¹ When a Jaundice appears after a Contusion or Fall, one may safely conclude that the Liver is injured.

² When Blood is discharged by Vomit, after we are assured some Contusion has preceded, as the Injury can hardly exert itself upon the Stomach and Intestines, it will therefore follow, that the Blood must proceed from the Liver, Spleen, or Pancreas.

³ The best anatomical Demonstration is that recommended by *Lancissi*, in his Preface to the Tables of *Eustachius*; namely, that in which the Body is distributed into particular Parts and Regions, taking exact Notice what Parts appear situated under the external Parts, upon opening the Body. Almost in this manner has *Eustachius* disposed his Tables, drawn up to correct the Errors of *Vesalius*; the first Table shewing the external Parts, and the next exhibiting the Parts contained under the former; so that by comparing the Tables together one after another, the Situation of all the Parts may be accurately known. I am not indeed ignorant, that Nature sometimes sports and varies the Situation of the Parts, but that does not render this Study less useful or necessary with regard to Practice.

⁴ Thus the Structure of the Breasts and of the Pancreas is nearly alike, and in both a Scirrhusity of the Glands follow from a Contusion; and therefore one may from thence conclude, that as an irritated Scirrhus may turn to a Cancer in the Breasts, so it may likewise do the same in the Pancreas, where it may spread and corrode all the adjacent Parts.

⁵ If a Person falls from a high Place, and soon after has a Yellowness appears throughout the whole Skin, and discharges Blood concremented either by Vomit or Stool, as if it was the Substance of the

Liver; from these Marks one may safely conclude that the Liver is contused, and that Blood is extravasated from the ruptured Vessels of the Liver into the Cavity of the Stomach and Intestines.

§. 906. The Part affected in a Disease, whether external or internal, but injured from an external Cause, has generally Signs which manifest themselves to the external Senses, by which one may easily discover the Cause; of this Nature are a great Number of Disorders, such as Wounds, Contusions, Inflammations, Tumors, Ulcers, Gangrenes, Sphacelus, Luxations, Distortions, Fractures, Caries, Withering, Scirrhus, Cancer, &c.

Add to this that a *Comparison*¹ of the injured Function, with the Origin of the Instrument by which the Action is performed, will point out the Seat of the Disorder.

¹ This is a Rule of the last Importance, though very much neglected. For Instance, a Patient is paralytic, not being able to extend his Arm; I first enquire whether the Disorder is to be found in the Muscles, but not finding it there I enquire farther, and the Patient informs me, that he has been some time before afflicted with an Epilepsy or Vertigo, by which means I learn that the Disorder is in the Brain, though manifesting its Effects in the Arm.

§. 907. If the Part affected be internal, and injured by an internal Cause, it is not indeed so easy to discover, yet may it be known 1. From the known Nature of the Cause. 2.

From the injured *Function* ¹. 3. From the Nature of the Disease. 4. By the Excreta in a great measure. 5. From the Symptoms well understood, and compared together, with an anatomical Knowledge of the Parts; for from these five Heads or Springs, are we principally acquainted with internal and latent Diseases of the Brain, Nostrils, Fauces, Thorax, Pleura, Mediastinum, Pericardium, Lungs, Heart, Diaphragm, Liver, Spleen, Stomach, Pancreas, Mesentery, Intestines, Kidneys, Ureters, Bladder, Urethra, Womb, and genital Parts.

¹ The Physician ought to recollect from Physiology, what the Functions are belonging to the injured Part. Thus the Brain being injured, causes a Vertigo, Noise in the Ears, Loss of Sight, Abolition of the Senses, and Apoplexy; if any of these Disorders is present, it denotes the Injury to be in the Brain. Therefore at first visiting the Patient, unless the Physician is perfectly clear in the Case, he ought only to speak in general Terms, not capable of being taken hold of, and to order some innocent Medicine, making a Memorandum at the same time of all the Symptoms upon a Piece of Paper, that he may at home more leisurely weigh them in his Mind, and determine with himself which is the Part affected; in what Stage the Disease is advanced; what may be thence feared; upon what Part the Disorder may be translated, &c. Thus he will always be able to understand the Disease, having first rightly considered all the Circumstances; but if this Method be neglected he will always be liable to Error and Mistake, which does but too frequently happen, at least to the Damage of the Patient's Welfare, if not to the Physician's

Reputation. Yet ought not any Signs of Doubt or Hesitation to be shewn before the Patient; and at the next Visit he may assert what he has to say concerning the Disease, as if derived from mathematical Demonstration, as he may safely do the next Day, after having thoroughly understood the Disease. For a Patient will always adhere to a Physician who is confident or positive; but on the contrary, he will not easily incline to a Physician, who seems to be wavering or unsettled in his Opinion.

§. 908. The Signs of acute Diseases arising in the Humours, are derived 1. From the Velocity and Violence of the Increase of the Disease itself. 2. From the Violence of the Symptoms. 3. From the injured Functions. 4. From the *Excreta*¹, or what is discharged from the Body. 5. From the epidemical Constitution; or 6. *Season*² of the Year. 7. From the Sex, *Age*³, *Mode of Life*⁴, and *Temperature*⁵ of the Patient.

¹ The more the Excreta recede from their natural State, the more dangerous is the Disease.

² Sudden Alterations of the Air from Heat to Cold, are always attended with great Danger; and therefore Diseases are the most acute in the Spring, in the Middle of Summer, and the Beginning of Autumn.

³ Infants and Children are but little obnoxious to acute Diseases, which are more frequent and severe in young People, and those of a middle Age.

⁴ A Person of a laborious and active Life is more liable to acute Diseases, as those of a sedentary

tary Life are more liable to chronical Disorders ; and the more a Person feeds upon Aliments inclined to Putrefaction, the more liable is he to acute Diseases.

5 Plethoric People are more subject to acute Diseases than the Melancholy.

§. 909. If all the forementioned Signs (§. 908.) are very severe or violent, they denote great Danger ; but if they are more gentle, they promise some Hopes of Recovery.

§. 910. The Signs also of acute Diseases in the Fluids, which determine and presage the State, Danger, Duration and Event of the Distemper, are understood from an Observation of the Effects resulting from the depraved State of the Humours, as before-mentioned, (§. 760 to 766, and 781 to 792.)

§. 911. The Signs of Acrimony in the Humours are chiefly *Pain* ¹, without any Signs of an increased Motion, and without any apparent or great Obstruction ; as also an Erosion of the Parts, without being accompanied with any Swelling or Tumor.

¹ Pain does not therefore always arise from an Acrimony of the Blood, as many have believed, but from the Impulse of the Blood into an obstructed or too narrow a Vessel, by the violent urging Force of a Fever ; and I may safely pronounce, that Pain does not proceed one time in ten from Acrimony of the Humours. But when Pain proceeds from Acrimony, it shews itself without Fe-

ver or intense Motion of the Blood, as in the Scurvy. It is therefore unjust in *Paracellus* to ascribe the same Hurricanes and Alterations to the human Body, as to the Air in the greater World; as for Example, the Cardinal Winds, &c.

§. 912. The Signs of an *alkaline*¹ Acrimony are a fœtid cadaverous Smell either in the whole, or in some particular Part of the Body; a *Taste*² in the Mouth like that of putrid Flesh or Urine; an Ash-coloured, leaden or blackish Erosion of the Skin, that creeps and spreads apace; intense Thirst hardly to be appeased; a *Loss of Appetite*³, abhorring all Food; a Looseness of the Fæces from the Bowels, of a splendid brown or black Colour, and cadaverous Smell; acrid, thick, brown and frothy *Urine*⁴, smelling as if it was putrid, and hardly depositing any Sediment; *Sweat*⁵ little or none, or at least resembling the Urine before described; the external Skin dry, as also the internal Nose, Mouth, Tongue and Fauces; the Blood thin, dissolved, of a *florid*⁶ Colour, and hardly congealing; reddish Pustules full of Ichor, of a brown, leaden or black Colour, and soon tending to a *Gangrene*⁷; 5. Buboës, Carbuncles, purple Spots, and most acute Inflammations, very speedy in their Effects; a Sphacelus, with a blistering of the Cuticle; and lastly, Relief from the Use of *Acids*⁸.

¹ Which is in itself as bad as a severe Plague. For the more our Humours incline to the Nature
of

of a volatile rancid Oil and alkaline Salt, the more ardent or acute Fevers must they necessarily excite.

² This Taste the Patient complains of as if it was in the Food, whereas it is in the Saliva degenerating into an alkaline Acrimony; and not only the Saliva, but the Sweat, intestinal Fæces and Urine testify of an alkaline Acrimony by their cadaverous or fœtid smell. When the intestinal Fæces are in this Condition, one may always safely give Acids.

³ Not only with an Aversion to Food, but with the greatest Abhorrence to Flesh-meats. A Loss of Appetite sometimes proceeds from an acid Cacoehymia; but this never induces an Abhorrence of Food.

⁴ Such Urine is putrid and lixivial, of a dissolving and destructive Nature.

⁵ Staining Spots in the Linen so strongly, as to be hardly capable of being washed out.

⁶ Such kind of Blood as this is sometimes taken from a Vein in a Pleurisy, and in the Plague of a malignant Kind. This Fact is taken Notice of by *Baglivi*, but he ascribes it to wonderful Causes: but it proceeds from alkaline Salts, which dissolve the Blood into an Ichor. Oftentimes in the most malignant Plague, and in the worst Species of the confluent Small-Pox, there is no other Sign of Malignity in the Disease, except a known epidemical Constitution should advertise the Physician. It is therefore evident, that the Humours do not become so acrimonious in Diseases as is commonly imagined; for pleuritic Blood dropt into the Eye excites no Pain or uneasy Sensation.

⁷ Such gangrenous Eruptions as invade the tough Skin in the Small-Pox, may doubtless take place also in the Integuments of the Liver and
Lungs,

Lungs, so as to be of fatal Consequence in those Parts.

^s For Acids resist Putrefaction, and overpower or change every thing alkaline. Hence it was observed by the Physicians called to the Cure of the Plague at *Marseilles*, that the disorder was much enraged by the Use of Spirit of Hartshorn, bezoardic Tinctures, and volatile oily Salts, which added Flame to the Fuel, though these Medicines are nevertheless a frequent Cure for Convulsions in Children. But *Sydenham*, who was a Person otherwise averse to chemical Medicines, confesses that sometimes there raged a kind of Small-Pox accompanied with livid Vesicles, containing a foetid Water, which being let out, the subjacent Flesh appeared very black; but of this Kind of the Small-Pox, he could not recover one Patient, till he fell upon the Use of Spirit of Vitriol given to the Patient in thin Ale, or good small Beer. It is an egregious Error in *Helmont*, to think that Acids are always inimical to human Nature; nor do I think *Helmont* intends this, as many of his Disciples would have us believe; for in another place he says, that Spirit of Sulphur by the Bell extinguishes Fevers as Water extinguishes Fire, and therefore highly recommends the same against Thirst, and to prevent Putrefaction in Fevers. But that the Plague inclines the Humours to an alkaline Nature, is evident from the stinking Smell and black colour of the dead Bodies, which in about twelve Hours after Death are all over perfectly black. These most acute Diseases destroy hardly any but the most robust and exercised Persons, sparing Children and weak People; but for melancholy and dropsical People, they are rather recovered in the time of the Plague.

§. 913. The Signs of an *acid*¹ Acrimony, are an acid Smell in the Breath, and Taste in the Mouth; a pale Colour in the Face, in the Corner of the Eyes, Lips, Mouth, Gums, and Fauces; a slow Erosion of the Skin with Paleness, frequent Thirst but not violent, often accompanied with a great Appetite and quick Digestion; a strong Inclination to eat *earthy*² and absorbent Matters; *Gripings*³ in the Bowels, attended with a Paleness and Coldness of the Body, green griping Stools of an acid Smell, Urine acrid, as in a Strangury, thick, *white*⁴, and depositing a copious, thick Sediment; much *Sweat*⁵, of an acid Nature, a loose Skin, the Blood thick, and either pale or black-coloured; *slight*⁶ Inflammations slowly advancing; and lastly, a Relief of these Symptoms from the Use of such Things which are *opposite*.⁷ to Acids.

¹ An acid Acrimony, which is so much accused by *Silvius*, *Tachenius*, and their Followers, does sometimes cause Erosions and other Mischiefs in the Body, but not near so frequently as an alkaline Acrimony; however it must be owned, that an Acid too plentifully or constantly used, so as to enter into the Blood without depositing its acid Nature, may be very injurious.

² Thus Children, especially weak Girls, eat Mortar, Cinders, &c. to obtund the offending Acid.

³ The Fæces never smell sour, as long as there is a sufficient Quantity of Bile sent into the Intestines.

⁴ So white, that it leaves a Stain upon the Earth like Milk.

⁵ Acids excite Sweat, and more especially Vinegar is a great Sudorific.

⁶ *Hippocrates* of old observes, that those who have acid Belchings are not subject to Pleurifies.

⁷ As *Venice* or *Græcian* Soap are Absorbents, &c.

§. 914. The Signs of a muriatic or ammoniacal Acrimony, are a brackish or salt Taste in the Mouth, a slow Erosion, Itching and Redness of the Skin; continual and great *Thirst*¹, hardly to be appeased; Driness of the Flesh, and Rigidity of the flexible Membranes and Ligaments; a very salt or brackish *Urine*², but slowly inclined to Putrefaction, depositing a thick Sediment, and having a thin oily Skin floating upon its Surface; and lastly, a Relief of these Symptoms by the Use of watery Liquors and Aliments.

¹ This more especially arises from a muriatic or saline Matter, such as that of Sea-salt combined with the putrid Flesh of Animals; as also a rancid Oil and Salt, which in some Measure putrefied and conjoined, destroy the Appetite to Food. The Blood of such People repels Water almost as much as Water is repelled by a red-hot Iron. These are assisted by mild, acid and saponaceous Medicines and Aliments. To these Disorders the Sailors are most liable, who live a long time upon salt Provisions in the midst of the salt Vapours of the Sea, and drink Water, which by long keeping is become replenished with small Worms of various kinds,

A green-

² A green-coloured and oily Urine with a Skin upon its Surface, which is not the Sign of a Consumption but of Acrimony, from whence a Consumption may follow.

§. 915. The Signs of a putrid, *oily* ¹ Acrimony are a burnt fœtid Smell, a bitter *rancid* ² Taste in the Mouth, like that from rancid Oil or Lard of a nidorous or rusty Smell, and *inflaming* ³ the Fauces; an inflammatory and black coloured Erosion of the Skin; Sickness at Stomach, a Loss of Appetite or an entire *Abhorrence* ⁴ or Aversion to Food; intense Thirst hardly to be allayed; the intestinal Fæces fat or oily, extremely fœtid and exco-riating in their Discharge; a high coloured fœtid and frothy *Urine* ⁵, small in Quantity and hot or caustic; a Dryness of the Skin and Mouth, with a Foulness and ill Smell in the latter; the Blood thick or adust, and subject to create acute, violent and *stubborn* ⁶ Inflammations, Suppurations of the like kind and most fœtid Gangrenes; and lastly, a *Relief* ⁷ of all the Complaints from the use of such things as are cooling, acid, watery and saponaceous.

¹ Which is both more frequent and much worse than an alkaline Acrimony, as it is more difficult to remove.

² Hence it is that Patients afflicted with the most acute Diseases, imagine by their Taste all sorts of Flesh to be putrid.

³ If a Person has eat too much fat Bacon, in about six Hours after, a rancid Oil will rise up in his

his Throat, of a caustic, bitter and nauseous Taste, and flaming when spit in the Fire.

⁴ A small Portion of a rotten Egg is an immediate Remedy to destroy Hunger; for this will not only cause Sickness of the Stomach, but terrible Vomiting and a destructive Fever. In this Case many Physicians accuse the Bile, which yet is often not culpable, unless it happens to putrefy together with the Aliments themselves.

⁵ The Colour of the Urine is entirely derived from the Oil; and therefore a more high coloured Urine denotes a greater Acrimony and Attenuation of the Oil.

⁶ Such Peop^e suffer most by acute Diseases; for the Salts and Oils by their Acrimony obstruct, inflame and destroy the small Vessels. You cannot apply a worse Remedy to cutaneous Inflammations than rancid Lard, or Oil of Hartshorn, which last has been rendered rancid by Distillation.

⁷ In this Case, the Oxymel of *Hippocrates* is a principal Remedy.

§. 916. Signs of too great Thinness or *Fluidity*¹ of the Humours are too great a Discharge by the Sanctorian Perspiration, Sweat, Urine and Saliva, with loose Stools; Leanness, Weakness, and wasting of the whole Body; Thirst and Irritability; lastly, Relief from the use of such things as inspissate.

¹ This is the true *Tabes Anglicanus*, which is so frequently to be observed among the Gentry of *England*, whose Humours being naturally very fluid, are still more dissolved by the Air and Diet, whence they become too easily moveable, while in the mean time their Bodies are very tender, and

if

if not strengthened by Exercise, they either melt away in nocturnal Sweats, or are destroyed by profuse Spitting, and other Evacuations. Such are never to be cured but by rendering the Blood of a more compact and firm Texture; which can only be performed by riding and other Exercises, without which, neither Milk nor the most nourishing Diet can be of Service. But to administer such things to these as dissolve the Humours, is an Error of the most pernicious Consequence. So long as the vital Powers continue strong, too great a Fluidity of the Humours is the Cause of Leanness; but when this is accompanied with a Weakness of the Heart and Arteries, the Patient becomes leucophlegmatic and dropfical.

§. 917. The Signs of too great a *Tenacity*¹ or Thickness in the Humours, are Tumors, Pains, Anxieties; the Circulation; Secretion and Excretion obstructed or diminished; a Lentor or Glueyness of the several circulating Humours, with those derived from them by the Secretions and Excretions. If together with these Signs there is a manifest Coldness of the Habit, it denotes a phlegmatic Glutinosity of the Humours; but if it is accompanied with intense Heat, it signifies an inflammatory Spissitude of the Blood and Humours.

¹ Which too great Tenacity of the Humours may arise as well from too little as too great Motion of them, and as well from Heat as Cold; and yet must the Method of Cure be very different, according to the Diversity of the Cause from whence it is derived. If the Blood is possessed with a phlogistic Tenacity from inflammatory Causes, which

which by too violent Motion destroy the Liver and Lungs, in that Case, Bleeding and Diluents will be useful; but the same Method of Cure being applied to a phlegmatic Viscidity of the Humours, will increase the Disorder to the great hazard of the Patient.

§. 918. From what has been said you may be likewise able to discover the Signs of Water, Salt, Oil, or Earth predominating. But if along with the forementioned Signs of Acrimony, there is also the Signs of a strong *vis Vitæ* or Circulation, it then denotes a very *speedy*¹ and ample Destruction of the Texture, both of the Solids and Fluids; as the reverse denotes the contrary.

¹ When there is a great Spiffitude of the Blood in an ardent Fever, accompanied with a violent Increase of its Motion, in that Case being impacted into the smallest Vessels of the Brain and Lungs, it must soon destroy the Patient; hence therefore it will be convenient in such a Case, to attenuate the Humours by saponaceous Liquors and Garden-fruits, a mixture of Vinegar with Honey, and Salt Prunell.

§. 919. From well considering all that has been said, we may be able to understand the Signs of *Malignity*¹ in acute Diseases; for as this Malignity denotes a most speedy Tendency of the Disease to Death, the Signs thereof may be collected: 1. From the violent and swift Action of the Causes applied to the Body, as in the Plague, *Poisons*², *Fire*³,
putrid

putrid Contagion, &c. 2. From a Knowledge of the Nature of the raging *epidemical*⁴ Diltemper, discovered by Observation. 3. From a Knowledge of the natural and *morbid Disposition*⁵ or Temperature of the Patient. 4. From the stubborn Resistance of the Disease against all kinds of *Remedies*⁶, tho' possessed of a strong alterative Power. 5. From the *bad Symptoms*⁷ which more especially denote the vital Actions to be much injured; the chief of which are inextinguishable *Thirst*⁸, Driness, Foulness, Whiteness, Yellowness, a brown or black Colour, more especially with a Scurf or *Crust*⁹ in the Mouth, Nostrils, Fauces, Tongue and Palate; an entire Loss of Appetite, violent and continued Sickness at Stomach, with Loathing, intense *Vomiting*¹⁰, Hiccup, acute Pain and Anxiety in the Region of the Stomach, a Vomiting of a pure serous Liquor, of Bile or of some putrid Humour; loose Stools discharging nothing but fœtid Humours, with Fibres, Caruncles, or Membranes, much weakening instead of relieving the Patient; a very thin Urine, red, frothy, small in Quantity, and often discharged; cold, clammy *Sweats*¹¹ gathering in Drops about the Head and Neck, ill Smelling, and affording no Relief to the Patient; a quick, weak, hard, unequal, and intermitting Pulse; a quick, laborious, obstructed, coughing, painful, or deep Respiration; a Depravity of the Mind, Delirium, Raving, or Stupidity; the *Sleep*¹² abolished,

interrupted, not refreshing, troublesome, or else perpetual; *spitting*¹³ of Blood; *bloody Urine*¹⁴, or bloody Stools; a small dripping of black-coloured Blood from the *Nose*¹⁵; unusual trembling of the Tongue, Lips and Hands; violent Convulsions, with continual *Anxieties*¹⁶, and Tossings of the Head and *Limbs*¹⁷; a lying helpless upon the Back with the *Feet*¹⁸ hanging carelessly out of the Bed, as if the Patient knew not of their being naked; the Eyes watering spontaneously, looking sorrowful, *wandering*¹⁹, fixed, dry and *unpolished or dusty*²⁰; an insensible Discharge of the *Fæces*²¹ or Urine; a catching or fumbling of the *Bed-cloaths*²², and a diligent or laborious feeling and groping about; the Appearance of *Purple Spots*²³; imperfect and unrelieving Crises, with *unusual*²⁴ Alterations of any kind.

¹ By Malignity we understand only the great Danger of Death; and Death we know is a Cessation of the Heart's Motion: and therefore Malignity in Diseases appears from all those Signs by which we discover the Patient to be in Danger of Death. *Sydenham* indeed would have fain expunged the Use of the Term Malignity, not from any vain Scruple, but because that Term was commonly misunderstood to import something of an imaginary Poison in Diseases, against which, sudorific and alexipharmic Medicines were commonly employed, for the most part with fatal Events.

² Suffocation with the Fumes of Arsenic is one of the worst Poisons.

Lighten-

³ Lightening kills in the Twinkling of an Eye.

⁴ Namely, epidemical Diseases which invade Animals of a particular Class; for one kind of Plague is peculiar to Swine, another to Sheep, and a third to Mankind: for it is very rarely if ever that all kinds of Animals are observed to be invaded at the same time. This is a necessary Observation; because there is often no Sign of Malignity in the most fatal Pestilence, tho' the diseased soon expire, and all the Humours seem to be suddenly coagulated. Hence we learn, that Danger is to be expected, not only from the present Signs or Symptoms in the Patient, but also from a Consideration of the Nature of the prevailing Distemper.

⁵ The Plague rages in none more than in People of a strong and changeable Habit or Disposition of Body; and while it destroys the plethoric and robust, it often relieves the weak and melancholy.

⁶ As when the proper Medicines do not produce their usual Effects, when Purges have no Operation, and Clysters do not move the Bowels, it is a Sign of great Malignity; and that the vital Powers are extremely weakened almost unto Death.

⁷ Young Physicians frequently hear old Practitioners called into Consultation with them, pronouncing that in the present Case there is Malignity; at which Presage the Junior ought not to be surprized, since it is derived not from their better Knowledge of the Nature of the Disease, but from their frequent Experience of fatal Events under the like Circumstances. Thus they know (*a Posteriori*) from the Effects what Malignity is; but (*a Priori*) from the Causes, both young and old are equally ignorant.

⁸ So great a Thirst, that although the Body be filled ready to burst with watery Liquors, yet the

Thirst is not relieved. Such is the Effect of being bit by the *Ægyptian* Serpent *Dipfas*, in which case the greatest hope of Relief consists in abstaining from Drink.

⁹ These are not mortal in themselves, but only denote as a Sign, that the Humours stagnate in the smallest Vessels. But this Stagnation takes place not only in the Mouth, but also in the Intestines, which have nearly the same Fabric with the Fauces; as also in the Liver, Lungs, and Brain, whence Death must necessarily follow.

¹⁰ *Hippocrates* feared no Symptom more than a Vomiting of the sincere or simple Humours, as when only Bile, Blood and Lymph are ejected unmixed; which demonstrate that the other Passages are shut up, and that this way only remains open.

¹¹ The common People are fond of Sweats, and rank them among the good Signs; but it ought to be remembered that the Patients who have had their Skin extremely dry for several Days together, do nevertheless melt into a profuse Sweat a few Hours before Death; and that this Sweat is not critical, but from a paralytic Relaxation of the smallest Vessels, incapable of retaining their Humours.

¹² This is a Sign of Inflammation in the Brain, which is fatal when once it is extended into the *Cerebellum*.

¹³ *Sydenham* confesses that he never could recover any who had a Spitting of Blood from the Lungs in an acute Disease; nor has he more than one Instance of a Patient recovered after having this Symptom.

⁴ In acute Diseases this is always a fatal Sign, from the Violence of the Distemper; nor do I remember one to have recovered after this Symptom.

This

¹⁵ This is a Sign that the Blood being thick and inflammatory, is urged with so great a Force as to burst the Vessels, yet that it is so tenacious as to be incapable of flowing through the ruptured Vessels. Hence *Hippocrates* always condemns the slight Bleedings at the Nose.

¹⁶ This Anxiety arises from the Blood accumulated and stopped in its Course through the large Vessels about the Heart and Liver.

¹⁷ Such a Failing of the Limbs is a most dangerous Sign, especially if the Patient is not able to stand upon his Legs for the least space of time.

¹⁸ I have often observed and remarked it to be fatal, when the Patients being in right Mind and told of their Feet being out of Bed, have answered that they knew nothing of it. For it is a Sign that the Muscles are not governed by the Mind; and that therefore the Commerce between the upper and lower Parts is interrupted, whence an Insensibility of the latter ensues. The same is also the Opinion of *Hippocrates* and *Sydenham* concerning this Symptom.

¹⁹ Whether the Patient continually looks every way with Eyes rowling about, or has them fixed upon one Object, or towards one Corner, it is equally a fatal Sign. If you ask them how they do, they answer, they know not; or else, that they are well.

²⁰ This is a most fatal Sign, as denoting, either that the Eye-lids, which are naturally so extremely sensible; are now not affected by the Dust, or else, that the Humour which comes from the glandular Cilia or Margins of the Eye-lids, is no longer expressed from the Eye by the Motion of its Lids.

²¹ Except they should come away thus from

some manifest Cause, as from a Palsy of the Sphincters.

²² They catch at something in the Air, and upon asking them at what, they answer, they know not. An Instance of this, *Galen* relates in himself. When he lay ill, the Physicians who attended him said to each other, Do you not see that our *Claudius* gathers the Wooll of the Bed-cloaths? which he over-hearing, cried out, Do I catch at the Bed-cloaths? Therefore do you preserve me from the Phrenzy which is threatened. This is always a Sign of a present or approaching Delirium.

²³ Spots in the Skin, like those from Aqua fortis, though unattended with other malignant Signs, are always observed fatal, as *Hippocrates*, *Sydenham*, and *Diemerbroeck* testify. For they are the Consequence of an Erosion, or Rupture of the smallest Vessels, which we may reasonably judge to be likewise present in the Viscera; but in chronical Diseases, such as the Scurvy, they import no great Danger. Blood spit up from the Lungs in these acute Diseases, has been likewise constantly observed a fatal Sign by *Sydenham*.

²⁴ Whether in the Motions, in the Sweat, Stools, or Actions of the Body, such an Alteration from their usual and natural State, is always a fatal Sign. When a Man, who being well, was solicitous about losing his beloved Children, and his Wife, now neglects every thing, and thinks of nothing, but being in a Manner conscious of Death, despises the beloved Things which he is to relinquish, it is also a fatal Sign; insomuch, that the common People convert these Changes into a Proverb, and call them an Enlightening before Death. From hence we know, that the Brain scarcely thinks or performs its Office, but is greatly changed

changed towards Death. All these Signs denote the Malignity to be greater in Proportion, as more of them concur together in the same Patient; and the Reverse.

§. 920. Acute Diseases are judged superable, either by Nature or Art, from the Absence of these Symptoms, (§. 919.) and the Reverse.

§. 921. The Doctrine of *Crudity*¹, Concoction, Crisis, and changing of a Disease into Health, some other Disorder, or Death, are the Objects and Signs of Prognostication in Diseases.

¹ This is a Subject of the last Importance to be considered in Physic, and is that which properly distinguishes the rational Physician from an Empiric. The Consideration of this was both begun and perfected by *Hippocrates*. He considered, that we are altogether ignorant of what is performed within the Body of the living Patient, whether in Health, or diseased; and that we are only capable of knowing those Changes which appear in Diseases, different from the Appearances which we usually observe in Health. These last Changes, or Appearances, are the Effects of Life remaining; but the Cause exciting the morbid Effects, is that latent Entity which we term the Cause of the Disease. No one can resolve, suppurate, or discharge the Matter of a Pleurisy; but a true Physician observes all the Appearances of Life and Health, of the Disease and Nature changing it, however, arising from a Cause unknown. *Hippocrates* does not appear to have known any thing which we do not know, only he had

this Peculiarity, that he very accurately remarked the Appearances and Events of each Disease. All this is as simple and obvious as the Alphabet; and therefore they are greatly mistaken who search for Mysteries in *Hippocrates*.

§. 922. The morbidic *Matter*¹ in a Disease is said to be crude, when its great Quantity, Figure, Cohesion, Mobility, and Inactivity, is such as *makes it the Cause*², producing or increasing the *Disorder*³.

¹ When a Disease is present, we are here to understand accompanied with a morbidic Matter; for there are some Diseases without any such Matter, as a most swift Motion of the Muscles continued even to Death. Such Diseases are not related either to Concoction or Crisis, nor do they belong to this Place.

² This is of two Kinds; namely, 1. That which lying concealed in the Body produces the Diseases: 2. That which arises from the Disease as another Cause. Of the first, we have an Instance, in phlogistic or inflammatory Blood producing a Pleurisy; and of the last, we have an Instance, in the purulent Matter formed after the Pleurisy.

³ The Ancients intend nothing more than this by the term Crudity; the Causes of which may be almost innumerable, in proportion to the Numbers of crude Matters, whether fluid or solid. When there is too great a Stricture in the solid Parts, that alone may be the Matter of the Disease, and the State of Crudity may be said to continue as long as the Stricture. Young Physicians often understand the Term Crudity to point
out

out and determine the particular Nature of the Disease, but in this they are much mistaken: for the Causes of Crudity may be almost infinite, as acrimonious, thick, or watery Fluids; or, as *Hippocrates* speaks, a Redundancy of sweet, bitter, salt or acid; nor can the Nature of Crudity be determined in general any farther than by these Marks, whence the Disease of whatever kind may result. Even the most healthy Blood itself will cause Disease and be crude, if it abounds too much in the Veins of a Person weakened by Disease. *Hippocrates* understands nothing mysterious in the Term Crudity, only he intends it for a general Term to comprise every morbid Cause in the Body; deriving it from Garden-fruits, which we call crude, until they have acquired their most perfect and agreeable Disposition.

§. 923: But such a State of the Disease, in which the morbific Cause continues as before-mention'd, is termed the State of Crudity of the Disease; and this takes place as well in Diseases where the whole Mass of Humours is infected, as in those Diseases where only one particular Part or Humour is injured by such a Matter.

§. 924. What has been said of the Humours with respect to *Crudity*¹, is likewise true of the *Solids*², so far as these last are disordered by the Fluids.

¹ Crudity in a Wound continues as long as the Lips are drawn asunder by the contracting Fibres; and Concoction takes place when all Inflammation is removed.

² So long as those Appearances are observable which result from the Disease.

§. 925. This Crudity in Diseases (§. 922. to 925.) is known, 1. From the Intensity or *Violence*¹ of the Disease lasting or increasing. 2. From the continual Increase of the Symptoms. 3. From the Exercise of the Functions being as yet much injured. 4. But above all, it is best known from the Recession of the circulating and secretory Humours, as also of the *Excreta*² or Excrements, deviating in Quantity, *Quality*³, or both; from their healthy State; hence this State of the Disease is pointed out in the Sweat, Tears, Mucus, Saliva, Matter spit up, or Humours discharged by vomiting the Bile, intestinal Fæces, Urine, Ichor, Matter, Blood, Menfes, Lochia, Milk, Abscess, Aphthæ, &c.

¹ In a Pleurisy the Matter continues crude so long as the Disease and its Symptoms are increasing.

² A Diarrhæa is crude so long as it continues excessive.

³ We have already explained the Quantity and Qualities of the Excreta agreeable to Health; but if any of these shall deviate in these Respects from what is usual in Health, we from thence discover Disease. From hence we easily conclude that the Disease is more crude in proportion as all the Qualities of the Disease recede more from a State of Health.

§. 926. But if the morbid Matter first crude (§. 922.) is so changed either by the Actions of *Life*¹, its own Nature, or convenient Medicines, as to become less injurious, more healthy, and consequently disposed to abate the Violence of the Disease by the Change thus wrought in the Quantity, Figure, Cohesion, Mobility or Inactivity in the Matter of the Disease, it is then said to be *concocted*².

¹ For the vital Actions remaining work upon the Matter of the Disease; and if the vital Powers are absent, the Body is nothing more than a Carcase.

² Crude Humours are sometimes changed from their own natural Disposition, as fluid and extravasated Blood, being first thickened, afterwards dissolves and becomes more fluid than before, only by a gentle Warmth. But we term the morbid Matter concocted, not from any Change which it receives from Heat, but from the Restitution of the injured Function. This is all which *Hippocrates* understands by the Nature of Concoction, except when the concocted Crudities lose those Qualities which denominated them crude, and nevertheless they continue productive of Diseases.

§. 927. But this State of the Disease in which those Changes (§. 926.) are thus made, is termed the *Concoction*¹, Maturation or Digestion of the morbid Matter.

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¹ The Concoction or Assimilation of a preternatural crude Matter to be less injurious or inoffensive with respect to our own Nature; that is to say, when all the Qualities, with respect to Colour, Smell, Consistence, &c. which before deviated, are now restored to their natural and healthy Appearance. Crude Matter is a created Entity, equally obedient to the Laws of Nature with any other Entity, or even as a Fruit or Apple tending to Maturity.

§. 928. This State of the Disease (§. 927.) and its Matter (§. 926.) is known, 1. From the Cessation or Diminution of the Disease, and its gradual Declension, the vital Powers in the mean time *remaining firm*¹ or growing stronger; 2. from a Removal or Decrease of the Symptoms, accompanied with a natural Strength in the vital Organs; 3. from a perfect Restitution of the several Functions to their natural State and Order; 4. from the *Similitude*² of the circulating secretory and excretory Humours and Excrements, agreeable in all Respects with those which we observe in a natural and healthy State.

¹ For otherwise the lessening of the Disease may proceed from the nearer Approach of Death; but when the vital Powers increase when the Disease itself lessens, there is always a just Foundation to hope.

² As for an Example, in an Ophthalmia or Inflammation of the Tunica adnata, there is the Crudity observed by *Hippocrates*, from whence an acrimonious Water flows out of the Eye, excoriating

ating the adjacent Parts. But the Concoction is said to take place, when the Eye-lids appear beset with soft, glutinous, or gummy Scales, which is a Sign of the Concoction or approaching of the Disease towards Health. In a Coryza or Running at the Nose from a Cold, the Disorder is said to be in a State of Crudity, as long as the Humour distils like a salt Water from the Nostrils; but the Concoction is said to begin, when after this Water there is discharged a large Quantity of white or yellowish and tough Mucus, not easily blown out of the Nose.

§. 929. The Cause changing the crude (§. 922.) into concocted Humours (§. 926.) is the Action of the remaining Life or Circulation, a spontaneous Change of the morbid Matter, with the assisting Virtue of *Medicines*¹.

¹ The Physician ought never to intrude his Assistance upon Nature, but when she calls for it. Thus *Sydenham* gives us an Example of the Humours arriving spontaneously to a Concoction or Resolution, in Cases where the Disorder lying in the Head, the Patients have been kept in suspense as it were betwixt Life and Death for fourteen Days successively; and were certain to be precipitated into the latter, if the Physician attempted to do any thing extraordinary for their Assistance: but if they were left to themselves, and only kept moderately warm, and supplied with a thin Diet, they always recover'd without Physic; whence it follows, that the Physician ought only to moderate or govern the Disease, that the Circulation may be neither too violent, nor too much depressed.

§. 930. The matter of the Disease being so far concocted or digested by the Causes (§. 929.) as to become like unto the healthy Humours, the Disease is then said to be resolved; and the Action itself is termed Resolution, which is always the most perfect Way of *curing*¹ the Disease, without any contingent Evacuation, supposing the Matter to be of a mild Nature, the Patient of a good Habit, and the Medicines good or perfect.

¹ This Way only of terminating the Disease deserves the Name of a Cure; and this many of you have experienced, when being seized with a kind of Torpor, Languor, and Anxiety extended throughout all the Functions; and afterwards by Abstinence, Rest, the drinking of Tea, &c. the Disorder has gone off spontaneously. In this Case the morbidic Matter is so concocted and changed, that it differs nothing from the State of the healthy Humours; but this requires a happy Constitution only, without any Evacuation.

§. 931. In acute Diseases consisting in the Humours, the morbidic Matter is generally disposed to receive such a Change within a certain time, as will make a sudden Alteration in the Disease either for Health or Death; which Alteration is termed a Crisis, and the *Matter*¹ thus disposed is said to be critical.

¹ The Matter of the Disease, which is foreign from that of the healthy Humours, does in time begin to be changed either to a better or worse
Condi-

Condition; from whence new Symptoms arise, and appear at a certain time in each particular Disease. This we call a Crisis, or that State of the Disease in which a great Change happens, in order to terminate it in Health or Death, or in some other Disease different from the first; and this Crisis is generally confounded, for want of Skill, together with the critical Evacuation. *Hippocrates* considers Nature and the Disease as two Enemies, betwixt whom the Rencontre being severe, cannot long remain undecided, but one must overpower the other; and this State of the Combat he has termed a Crisis; from whence it must be evident in a little time to which Side the Victory will turn; and in this State he saw that it was easy to attribute the Victory either to one or the other, the Cause remaining as yet doubtful.

§. 932. The Cause of this Change in the morbid Matter is the remaining *Vis Vitæ* irritated by the said Matter variously condition'd, so as to cause either a Translation or a Discharge of the Matter, or kill the Patient.

§. 933. If the morbid Matter is disposed to change its place, or to be evacuated before it has acquir'd a healthy Nature, there follows from it a Change in the Motion of the Humours, deviating from that which is usual in healthy Bodies; and this is called a *critical Disturbance* ¹ or Perturbation.

¹ When the morbid Matter being in some measure concocted, but not yet healthy, has lain still for a time, but is now suddenly moved, this is termed, *Perturbatio critica*; and though Health does

does not follow from this, yet the Disease is changed for the better : as for Example, when the Atrabilis is moved in a Fever, all the Symptoms become irregular, and a great Disturbance follows, changing every thing for the worse, unless the Symptoms are carefully reduced to their proper Order by the prudent Physician.

§. 934. But these Changes arising from the *Vis Vitæ* beginning to move, circulate, mix or separate the critical Matter, if they are sensible, are termed critical Symptoms, and are the demonstrative *Signs*¹ that a Crisis is present, or near at hand. The distinguishing of these Signs is *difficult*²; but to be ignorant of them must be attended with great *Danger*³ and mischievous Events.

¹ Critical Symptoms or Signs are the sensible Changes arising from the *Vis Vitæ*. When the phlogistic Matter in the Blood is so changed, that it no longer causes an Inflammation, but being half dissolved is carried forward into the Veins, there then follows a Coldness and Rigor, or Shivering throughout the whole Body; whence the Unskilful are afraid that Death is at hand. But this is a great Error, since the Disturbance arises from the *Vis Vitæ*, and will be so much the more salutary, as the Patient seems to be worse. For this Rigor happens when the Blood, which stagnated at the Ends of the Arteries, finds a Passage into the Ends of the Veins; whence the former are depleted or unloaded, the obstruction of the arterial System removed, and the Attrition, Heat, and other Symptoms proportionably diminished. If now you was to oppose this Chilliness, by treating it
with

with Medicines as a Fever, it would be a most egregious Error.

² This Difficulty will be met with chiefly by those, who are not acquainted with the Functions and Mechanism of the human Body, and who have not learned to judge by the Signs of Sicknes and Health; but to one skilful in these respects, the Distinction of the critical Symptoms or Appearances will be easy and manifest enough.

³ He that disturbs the Symptoms of a Disorder without knowing what is performed within the Body, has only a Chance either to cure or to kill, since he proceeds upon no sure Footing. When the Lips tremble in the Increase of an acute Fever, it is almost constantly a Presage that dreadful Convulsions are at hand; but when they tremble on the third Day of an ardent Fever after the Signs of Concoction, a salutary Vomiting will ensue in about half an Hour after. But this Difference of the Presage depends on the time of the Disease, and the past Signs, &c. A *Spanish* Physician has wrote an elegant Treatise, entitled, *Consultatio medica*, in which he calls in the various Sects of Physicians, who study hard to relieve the Patient, but disagree in their Opinions, some recommending one thing, and some another; but at length *Hippocrates* comes in, and with one Word silences all their Contentions: Let the Patient lie still, says he, to-morrow he will have a Sweat, or a Bleeding at the Nose, and be cured.

§. 935. For too frequently these critical Signs are *confounded* with the Symptoms arising from the Cause of the Disease, from the Disease itself, or from the crude, morbidic
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Matter;

Matter ; from which Confusion a most unhappy Method of Cure is often deduced.

Suppose a Patient afflicted with a Pleurisy, in which the crude Matter causes Anxieties, Pains, &c. but this Matter being concocted by Nature and proper Medicines, at length there follows a Discharge of bilious Blood, which one ignorant of the true Art of healing, may mistake for an Hæmoptoe, and by opening a Vein may kill the Patient ; when one more skilful and experienced would be rather pleased than terrified at the Approach of this salutary Assistance of Nature. Those Appearances therefore which arise from the Disease, ought to be well distinguished from those which are the Effects of the remaining vital Powers.

§. 936. But the Signs by which we distinguish the *critical Symptoms* from those of the Disease, are chiefly the following : (1.) The former arise from the *Vis Vitæ* overpowering the *Vis Morbi*, and the latter arise from the *Vis Morbi* prevailing over the vital Powers. (2.) The former again follow after a Concoction has manifested itself by its proper Signs and salutary Effects ; whereas the latter are observed in a State of Crudity. (3.) The former happen about the time proper for a Crisis, but the latter appear at any time of the Disease, but more especially in its Increase. (4.) The former alleviate the Disease in a little time, but the latter soon change every thing for the worse.

Violent

¹ Violent Symptoms appearing before any Concoction, threaten every thing that is ill; but they afford one of the best Signs when they follow after Concoction, or even if they afflict the Patient in the very time of the Concoction itself.

§. 937. The principal or primary of these critical *Symptoms*¹ and Signs, which precede a critical Evacuation, are the following: When after Concoction about the time of a Crisis, there arises suddenly, without any *new*² or manifest Cause of Disease, a Stupor or Drowsiness, Propensity to Sleep, Watchings, Delirium, Anxieties, Dyspnæa, a restless or troublesome Night; a Shivering, Pain, Redness, Titillation, or Itching; a Pricking, Heaviness and Dulness in the Parts; Darkness, shining Light, and a spontaneous Discharge of the Tears in the Eyes; a Loathing or Sickness at Stomach, with burning *Heat*³ and Thirst; a drawing up of the Hypochondria, with a tremulous Motion of the lower Lip.

¹ The different Nature of these Symptoms at different times of the Disease being well understood, make a great Part of the *Hippocratic* Knowledge, so absolutely necessary towards presaging Events, and accomplishing the Cure of Diseases.

² For the Accession of a new Disease will make every thing doubtful.

³ This Heat being chiefly about the Præcordia.

§. 938. The Signs of a present critical *Discharge*¹ are, when after the Appearance of

the former (§. 936, 937), we observe a Vomiting, Spitting, frequent blowing of the Nose, Expectoration of Phlegm, a Looseness of the Bowels, much turbid Urine, a bleeding at the Nose, or by the menstrual or hæmorrhoidal Flux, a Sweat, *Abscess*², Pustules, Tumors, Bubo, Parotis, Aphthæ, or a Translation of the Humours from one Part to another.

* These critical Evacuations derive the peccant Humour from one place to another, and either discharge it out of the Body, or else deposit it in some other Part; which last is termed a *Metastasis* of the morbid Matter; which will have a good Effect, when the Matter is deposited from a more into a less noble Part, and the reverse. And tho' in this Case the Disorder is so reduced by Concoction and Crisis, as to be less hurtful; yet it is not entirely removed without leaving any ill Effects, as sometimes happens by a Resolution.

² By an *Abscess* we here understand not that which produces an Ulcer, but a Recession of the morbid Matter from the Blood.

§. 939. These critical and salutary Evacuations (§. 938.) which ought not to be disturbed by any Assistance from Art, are known to be such when they follow after the Signs before-mentioned (§. 936, 937.): After a preceding *Concoction*¹, the Disease being at its *Height*², the *Vis vitæ* of a due Strength, the *Excrements*³ of a healthy or natural Appearance; the Congruity of the Disease with the *Part*⁴ affected, *Way of living*, *Diet*⁵, Age, Sex,

Sex, and Habit of the Patient, with the Time or Stage, and Part or *Emunctory*⁶, &c. these being also follow'd with an Alleviation of the Disease and its Symptoms, accompany'd with an incipient or perfect Restitution of the healthy Colour, Heat, Strength, Pulse, Respiration, and other Actions in the Patient; to which add a *Continuance*⁷ of the critical Evacuation until the End of the Disease: for if all or most of these Signs are present, there will be a perfect Separation of the morbid from the sound Humours, and the Crisis may be said to be perfect, evacuating, or separatory.

¹ If the Patient vomits, and it is asked whether this vomiting be critical or symptomatic, Attendance must be given to the time of the Disease in which this happens; if it is found to be in the Decline of the Disease, after the preceding Signs of Concoction, it is a good critical Evacuation; but if the Disorder be in its Increase, every Evacuation is bad.

² In acute Diseases the Progress is generally thus; the Disorder increases for four Days, which make the Stage of Crudity; but the Ackme or Height is limited to the 5th or 6th and the following Days 'till the 9th, when the Disorder begins to decrease; and this is the Stage of Concoction or Crisis. The ninth Day is as different from the Height of the Disease as the first Day, and this is the Stage wherein any critical Evacuation happening is salutary.

³ When the Disease is in the pituitary Membrane, the discharged Muc^{us} ought to be thick and white; when the Disorder is lodged in the Blood, the Urine ought to be thick or turbid, and scalding.

⁴ When the Disease is in the Lungs, there ought to be an Expectoration upward from the Mouth, or else there must of necessity follow a Translation.

⁵ If a Patient in an ardent or inflammatory Fever should have fed upon Butter, and after some Hours he discharges a bitter, rancid, and inflammatory Matter by vomit, this Discharge would be neither critical nor symptomatic, but the Consequence only of a wrong Diet.

⁶ When the Disorder lies in the *primæ viæ*, a vomiting will be critical and salutary; but if the Malady lies in the Blood, vomiting is neither critical nor good, because it does not evacuate by the convenient Emunctory; but, on the other hand, a bleeding at the Nose in an ardent Fever, is one of the best Evacuations, but a spitting of Blood from the Nature of the Parts, must be of bad Presage.

⁷ When the Patient has continually a bloody spitting on the second Day, which after a few Hours turns white, it is a bad Sign, denoting that the Concoction is too early, and that the crude Matter is but imperfectly digested. This whole Business of Concoction and Crisis is performed almost entirely by the Industry of Nature, by the Action of the vital Powers, and by a spontaneous Change in the morbid Matter; insomuch, that the Physician can hardly claim a third Part in the Recovery of the Patient.

§. 940. But if those Signs (§. 939.) are absent, or their Contraries appear, then it is evident that these are the *Symptoms of the Disease*¹, and not of a Crisis or the Conquest of Nature; and that therefore being ill Symptoms they are to be remedied as well as the Distemper itself: but if all these are not present, only

ly some of them, and those not perfect, we then know that the critical Matter is as yet wandering or ill-conditioned, and that it may produce various Symptoms in this or that Part upon which it happens to settle; and this is termed a critical *Metastasis* or Translation of the morbid Matter.

¹ These Symptoms of the Disease are not to be left to themselves, but to be treated with proper Remedies like the Disease itself.

§. 941. From what has been said, the following and the like Axioms or Rules are deduced and received into the Diagnostics and Prognostics of Diseases.—A critical Evacuation after a Concoction is always good.—The same Evacuation is good when it happens on a critical Day.—But this Evacuation differs according to the *Time*¹ and Matter of the Disease, the *Age*², Habit, and Sex of the Patient, and also the Country or *Climate*³, Season of the Year, and epidemical Constitution of the Disease.—That this Evacuation before a Concoction is bad.—But that Coction itself is always good.—That the sooner the Concoction is made, the better; but not so of the *critical Evacuation*⁴.

¹ In the Plague a Crisis happens before the third Day; and in the worst Fevers it often falls out upon the third Day.

² In old People critical Evacuations continue almost throughout the remaining Part of Life; but in young People they terminate in a few Days.

³ The Crises of Diseases which happen in *Norway* will be different from those which happen in *Greece*; those in a Woman different from those in a Man: they will also differ in the Child and in the Adult, and as various will be the Crisis in an ardent and intermitting Fever. Even in the Plague itself there are four kinds of critical Evacuations, namely, none at all in the worst Species of the Plague, which suddenly kills the Patient without a Crisis. 2. That which is fatal and accompanied with Spots. 3. That which is fatal with Carbuncles. And, 4. That which is of a good Kind, and curable by critical Buboes. All these ought to be accurately known, because the Physician must never purge but when the morbid Matter abounds, nor evacuate but when the morbid Matter rages; or when the Blood moves so violently by the *Vis Vitæ*, that Nature cannot conquer the Disease that way but will destroy Life itself; and in that Case he is boldly to invert or alter the Attempts of Nature. In a Pleurisy the inflammatory Matter and Stricture upon the intercostal Vessels, make the proeguminal or pre-disposing Cause of the Disease; but the procatartic or immediate Cause is the Fever which coagulates and compacts together the phlogistic Matter. From these Causes conjunctly follow several Changes in the Functions or Actions of the Parts. Now in this Case the Physician who knows that the Disorder being left to Nature will degenerate into a Gangrene or Suppuration, either of which may be fatal in their Events; such a one will neither urge Nature, nor wait for a Crisis, which may be of fatal Consequence; but he will diminish the vital Powers, that they may be no longer able to maintain the Fever, and then he will endeavour to resolve the Matter.

Namely,

⁴ Namely, a critical Evacuation; for that th might be serviceable, it ought to follow Concoction.

§. 942. The Foreknowledge of the *Event* of a Disease is principally founded upon having first understood and compared together the Causes; upon which the present and future Life of the Patient depend, and of the Causes from whence the present Disease arise; for from these rightly discover'd and examin'd, arises a Prognostication or Presage concerning the Event of the Disease, whether it will terminate in Life, Health, some other Disorder, or in Death; moreover, from the same Considerations we may understand the Times and Changes which happen in Crises.

¹ Nothing is more necessary to the practical Physicians than to know how to predict the Event: of Diseases, since there are perpetual Enquiries made on that head. This Doctrine has been deliver'd to us in a compleat manner by *Prosper Alpinus* in his Book *De præfagienda vita & morte*; and it were to be wished we had that Author's Treatise *De variis permutationibus morborum* in our Possession; the Knowledge of which we are in the meantime to derive from *Hippocrates* and practical Anatomy. Life is a certain Condition of the human Body, whose opposite is Disease and Death, which terminates both. But the Condition of the Disease changes the Body from what is requir'd in it to produce Health. But the practical Physician compares the vital Powers with those of the Disease, and from that Comparison judges whether Death or Recovery will be the Event.

§. 943. The Efficacy of the Cause from whence Life is as yet continued, may be known from each of the remaining Functions, more especially the vital, then the animal, and lastly, the natural. All which are usually reduced to the two following Axioms : In proportion as a greater Number of the Functions are more like to the same Functions which usually are exercised in Health, so much the greater and better is the Power of Life, and if much greater are the Hopes of the Patient's recovering perfect *Health*¹ : also the more healthy that Function is in the Patient, upon which depend the greatest Number of the *other Functions*² as their Cause, so much the more likely is the Patient to recover and escape his Malady ; and on the reverse, opposite Conclusions are to be drawn from contrary Principles.

¹ Health is the Presence of all the Functions both vital, animal, and natural. Suppose there are 100 of them, and but one only of them is deficient, this must produce a Disease ; but as there are 99 of the Functions remaining entire, there is just reason to expect that Health will soon be recover'd : but if 99 of the Functions are destroyed, and one only remains, it is plain that Death ought to be presaged.

² So long as the Pulse remains strong and equal, the Patient is not near Death, unless some powerful Cause should suddenly intervene. For such a Pulse denotes the Heart to be strong, the Lungs pervious, and the Cerebellum employed in its vi-
tal

tal Action; but upon these Viscera depend the Actions of all the rest, and therefore so long as these Springs or principal Functions are strong, there is reason to hope for the best, and the more in proportion as those primary Functions are more entire.

§. 944. But a Function is known to be like that in Health, if the evident Effects inseparable from that healthy Function, (which we have before described in the physiological Part of these Institutes) are found to be such as we have there explained: but more especially we are assured of the good Disposition of any Function, if the Cause, Matter and Effects of the Disease are changed to Health by the Power of the *remaining Functions*¹; and therefore we are principally to judge of the Patient's being in a fair way to recover, from the due Concoction of the morbid Matter, and from a good critical Evacuation.

¹ The Physician who is called to a Patient in the Fit of a tertian Ague or intermitting Fever, finds his Pulse disturbed, with the Urine and Respiration much disorder'd, from whence he might infer much Danger at hand: but if he returns a few Hours after, he will find all those Symptoms and Disturbances quiet; and if he visits again the next Day, he finds every thing still more sedate and regular, and from thence readily concludes that the Case is not dangerous.

§. 945. The best Concoction is judged to be that which soonest, and most perfectly
turns

turns the crude Matter of the Disease, so as to resemble the natural healthy Humours; whence follows this Axiom, The better the *Concoction*¹, the greater Hopes are there of the Patient's Life and Recovery.

¹ Any Matter or Humour is said to be crude, when it deviates from Health; but Concoction is the reducing such Crudities towards a healthy State; and therefore the best Coction is, when a crude Humour is perfectly changed to the Nature of the healthy Humours.

§. 946. We also know that the Humours return to their healthy Disposition, and that the solid Parts are restored to their due State, when the injured Actions of any kind are entirely restored; and if at the same time all the Excretions put on their usual healthy Appearance. From hence we deduce the following Axioms: The more the Actions are changed to a nearer resemblance of Health, the better is the Concoction; and again, the more nearly all the Excrements approach to their natural State, the more perfect the Concoction, and the reverse.

§. 947. Finally, the *Strength*¹ of the vital Powers is known from the Age, Sex, Habit, Course of Life, Nation and *Family*² of the Patient.

¹ The vital Powers are but weak in old People, and in general weaker in Women than in Men.

² In some certain Families particular Diseases are fatal, which other People easily get over.

§. 948. From all these Particulars (§. 942 to 948.) the Physician determines the *vital Strength*¹ in the Patient, with the Strength of its Causes.

¹ This Knowledge of the vital Strength supplies the chief Prognosis, and is taken from the remaining Signs of Health in the Patient; if those which remain, and those which are lost are equal, the Case is doubtful; but if the Number of healthy Signs remaining be more or less than those absent, there will be Hopes or Danger in proportion of the Patient's Recovery. But here the Physician ought to be extremely cautious not to defame himself by judging a dangerous Disease to be slight, nor to imitate the Quack or Mountebank in giving out that slight Disorders are dangerous, as *Celsus* has formerly observed to us.

§. 949. But the Strength and Magnitude of the Cause producing the Disease is known,

1. From being acquainted with the Magnitude, *Malignity*¹ or *Obstinacy* of the Cause.
2. From the known Nature of the Disease itself, and the epidemical Constitution thereof.
3. From the Number, Magnitude, and Violence of the *Symptoms*².
4. From the Crudity of the morbid Matter.
5. From the *great Alteration*³ made in the sensible Qualities of things appearing to the Organs of Sense, as the Figure, Bulk, Colour and Consistence.
6. From

6. From the Deviation of the *Excreta*⁴ from their healthy Conditions.

¹ Thus the Physician must consequently form a bad Judgment concerning the Gout, or Venereal Disease of the worst kind.

² When a Disease has increased violently for two Days, and arrives at its Height on the third Day, it is certain that Disease will soon have a Period either fatal or fortunate.

³ When a Person suddenly loses the natural Colour, Smell, Taste, and Forms of Objects, it is a very bad Sign, demonstrating a great deal of Weakness in the Power of Nature.

⁴ You have been already acquainted from Physiology, with the Disposition which the Saliva ought to possess in the Morning fasting in a healthy Person; namely, to be mucous, white, pellucid, dissolvable in Water, and freeing the Lungs by its Excretion. But in a Peripneumony, the Spittle ought to be yellow with Streaks of Blood; and such is said to be concocted, when upon the Appearance of this the Symptoms gradually diminish.

§. 950. These Causes (§. 948, 949.) being well understood and compared together, we may predict agreeable to the following Axioms; That if the Causes of Life in the Patient are much more powerful than those in the Disease, then the Patient will be perfectly recovered in a short time.

But that if the Causes of Life and the Disease are of equal Efficacy, that then the Distemper will be dangerous, of long Continuance, or terminating in some other Disease.

But

But if the Causes of the Disease appear more powerful than those of Life, Death must follow, either throughout the whole, or in the Part affected.

§. 951. The Greatness of Danger in the Disease is estimated from the Excess of the morbid Cause over that of Life.

§. 952. The Continuance of the Disease is measured from the *Slowness*¹ with which it advances towards its Height; from the Weakness of the vital Powers, and from the Obstinacy or Tenacity of the morbid Matter.

¹ Common acute Diseases terminate within 14 Days; they increase for seven Days, stand at the Height on the eighth Day, and from thence decline, so as to leave the Patient free on the fourteenth: but if now the Disease advances slowly to its Height, you may be always certain that the Declension and Recovery of Health will be slow in the same proportion, as the Disease advanced to its Height. These Changes ought to be well observed by the practical Physician, observing every two or three Hours whether the Disease increases, or the vital Powers diminish. If now the Disease from the first Day appears to have its Symptoms increasing every Hour, but if you observe that the next Day it is at a stand, it is certain that Disease will soon terminate. If the Disease was two Days increasing, being at its Height on the third Day, it will terminate on the sixth. This is the Doctrine of *Hippocrates*, who tells us that the first Day of the Disease is an Index to the third, the fourth to
the

the seventh, and the fifth to the ninth. Nor will this deceive the Physician, provided he commits the Disorder to Nature, and it meets with no Disturbance, either from obtruding his unnecessary Assistance, or from some unforeseen Accident.

§. 953. That *another Disease* ¹ will follow from the first, may be known from the Remission of the Force of the Disease and its Symptoms, without a Concoction, and without a just or sufficient critical Evacuation, and this in a Disorder attended with an offending Matter.

¹ We may foresee that another Disease will follow when the Violence of the Disorder and its Symptoms diminish without any due Concoction or critical Evacuation of the morbid Matter, which always causes a Return of the former, or some new Distemper after an imperfect Crisis.

§. 954. But this succeeding Disorder is often *worse* ¹ and more obstinate than the first, according to the Nature of the Part injured, in which the new Disease takes up its Seat, or according to the different Change made in the morbid Matter, even by time or standing only.

¹ The Patient frequently wishes to be freed from his Pain, and uses all his Efforts for that End; which if he obtains, it is often either at the Expence of Life, or for a worse Disease. Thus if the sharp Pain in a Pleurisy suddenly remits, there follows a dangerous, and for the most part a fatal

Empyema: for the Ulcer is not in the Physician's Power to remove, tho' the Inflammation was.

§. 955. But the Part where the indigested morbid Matter will reside or settle itself, may be known from an Itching, Titillation, Redness, Pain, Heat, Tumor, Numbness, Pulsation, and a perpetual Uneasiness and Agitation in some Part of the Patient, and also from the Nature and Essence or epidemical Constitution of the Disease.

§. 956. Moreover, if it is perceived that *Art*¹ or Accident has produced the forementioned Symptoms (§. 955.) in some particular Part of the Body, then also we may foresee that the Matter of the Disease will be collected in that Part.

¹ When there is a wandering morbid Matter lodged in the Blood in an acute Disease, I take care to keep some Part lax, soft, and less resisting, that it may become inflamed and painful, with certain Hopes that the Matter of the Disease will there settle and form an Abscess. Thus no Physician can cure the worst confluent kind of the Small-pox, unless he procures the Feet to be almost gangrenous, by the Application of Epispastics, Fomentations, &c. and it has been my Practice in this Case, to apply a Pultice of Bread and Milk to the Feet, renewing it Day and Night, till they swell, become painful and much diseased; but in the mean time this diverts the Disorder from the Head and Breast. But *Sydenham* has long ago observed, that the Danger of the confluent Small-pox is to be estimated from the Number of Eruptions

tions which come forth in the Head. But if contrary to this in an acute Fever, I should let the Feet be cold, and apply warm things to the Head, then a Phrenzy would ensue, rather from the Effects of Art, than from the Nature of the Disease.

§. 957. From all that has been said (§. 951, to 957.) it appears to us that the Knowledge of Concoction and Crisis is highly necessary, in order to make a just Presage in Diseases; and it is also evident, that this can hardly be attained any other way, than from having known or examined the vital Powers as the principal Cause of these Changes; but these last are chiefly to be judged of by the Pulse and Respiration, which will therefore engage us here to treat of them first; but as also the Urine is an Excrement separated from the whole Mass of Blood, and from every Part of the Body expelled thro' the Outlets by the *Vis Vitæ*; therefore this also will require a careful Consideration, in order to point out the State of the Blood, and the Concoction or Crisis.



*The Pulse of the Arteries considered as
a Sign.*

§. 958. **S**INCE the Pulse of the Arteries (§. 217, & seq.) reports the precise Condition of the *Heart*¹ as the first Mover, and also the Disposition, Quantity and Motion of our whole Mass of Humours, the Blood, from whence all the rest are derived, and as it also shews the different State of the Artery itself, which is almost the principal or primary Vessel in all Parts of the Body; it is therefore evident from hence, that the Doctrine of the Pulse is of the last Importance, towards discovering the Nature and Events of Diseases by the present Signs.

¹ There is no need of any Arguments to shew the Usefulness of Pulses as a Sign in Diseases, since like an Index they point out the Nature of the Blood, from whence all the other Humours in the Body are derived, together with the Strength and Condition of the Heart and Arteries, which are properly the Springs from whence all other Changes in the human Body arise.

§. 959. A strong Pulse therefore denotes,
1. a great muscular Force of the Heart's Contraction, and consequently that the contract-

ing Causes thereof are powerful; that is, 2. a strong and copious Influx of the nervous Juice from the Cerebellum into the Fibres of the Heart; 3. that there is a Plenty of Blood, and 4. that the Circulation and Secretion of the Humours is carried on *very well*¹. Such a Pulse is therefore a good Sign, if it is found the same throughout the whole Body in all its Parts. But it is often fallacious in apoplectic Disorders, and in some others where there is a free Passage from the Heart to the Cerebellum, and from thence to the Heart again, while the Course of the Blood and Spirits is much obstructed in the other Parts, especially in the Viscera.

¹ The Pulse of the Artery can never be strong, unless the Heart strongly propels much Blood into it; but the Heart itself has no Blood but what it receives from the Lungs, which again receive it from the Veins, as the Veins return it from the Arteries. A strong Pulse therefore demonstrates, that the Heart is strong, that the Lungs are pervious, that the Communications betwixt the Arteries and Veins are free, and that the whole Circulation of the Blood is regularly performed: only in an Apoplexy this Sign is fallacious, since the Pulse therein continues good and very strong even until Death, because the Brain only in this Case is affected, without injuring the Heart and Cerebellum. But there is also another way of making a diseased Pulse deceive the Physician; for if the Patient grasps his Hand so as to compress the Veins by the Contraction of the Muscles; the Blood will by that means be accumulated, and distend the Artery

tery with a greater Force. It is therefore prudent to examine the Pulse, not in one Place only, but in several, in the Wrist, Temples, &c.

§. 960. A weak Pulse then denotes every thing contrary to the former (§. 959.) but then this is also sometimes fallacious in those who are very *fat* †.

† For in these, 1. the circumjacent Fat buries the Force of the Ictus; 2. and the more Fat abounds, the less Blood is there in Proportion; but the Strength of the Pulse depends on the Quantity of Blood, and therefore a weak Pulse in a fat Person presages less Ill.

§. 961. A large or *full* † Pulse denotes, 1. Plenty of Blood; 2. Strength of the Heart; 3. that the Artery is free or pervious and contractile; 4. that there is a good Circulation and Secretion. A small Pulse denotes the contrary. From hence a full or empty Pulse may be likewise understood, so far as they are actually observed.

† A full Pulse differs not from a large one, unless perhaps in having a very great Diastole and small Systole. But the Generality of physical Writers do not speak of this Pulse, as attending inflammatory Diseases, where the Pulse never ceases to be full, because the Artery is not able to urge forward the thick Blood; but they in a manner confound the full and the large Pulse together.

§. 962. But a *hard*¹ Pulse, which is so much talked of, denotes many particulars; as, 1. That the *Coats*² of the Artery are drier than natural; and therefore, 2. that there are Obstructions in the smallest Vessels interwove in the Tunics or Membranes of the Artery; 3. that the Arteries are *full*³ of Blood; but that, 4. the Extremities of the Capillaries are obstructed with an inflammatory Tenacity; 5. that the Blood itself is very thick and compact; whence, 6. the Circulation, Secretions and Excretions are disturbed or perverted; and lastly, 7. all the numerous ill *Consequences*⁴ which follow from these several Particulars. But a *soft*⁵ Pulse denotes every thing contrary, though in an acute Peripneumony it is extremely fallacious.

¹ This is when the Pulse seems to the Finger of the Physician like a hard Stick or a Quill, hardly contracting or dilating itself, but continuing almost equally extended.

² In this Case the Artery seems hard, not from the Fault of the Blood, but of its own Substance; since the minute Arteries of *Ruyfch* being over filled, inflamed and distended, resist the Finger in the same manner, as we observe a Bladder feel hard when it is filled with Water.

³ As the *Piedmont* Physician observes in *Bonnetus*, that this happens in an acute inflammatory Fever, namely, that there is always a great deal of thick Blood found in the Arteries, and but little and dilute in the Veins.

Namely,

⁴ Namely, that all the more fluid Parts will run off into the lateral Vessels, whence the Blood will become dense or thick, &c.

⁵ A soft Pulse is therefore a good Sign in all inflammatory Diseases, except a Peripneumony, in which a soft Pulse is a bad Sign, and a hard one is good: for in this Disease the softness of the Pulse arises from the Obstruction of the Blood in its Passage thro' the Lungs, whence little or none of it is transmitted thro' the pulmonary Arteries.

§. 963. A rare Pulse denotes that in a given time there are, 1. fewer contractions of the Heart; and that therefore, 2. there is a slower Influx of Spirits from the Cerebellum thro' the Nerves into the Fibres of the Heart; 3. that the Circulation of the Blood is *free and equable*¹; and, 4. that the Circulation of the Humours is easily performed through all the Vessels. But if the slowness of the Pulse proceeds from Weakness, it is to be esteemed a bad and dangerous Sign. But a frequent Pulse denotes the contrary, and also that there is some acrid or irritating Stimulus, that the Spirits are agitated, and that a Fever, or Delirium either does, or will soon attend.

¹ A Person in Health is always warm, and warmer in Proportion as Health is more perfectly enjoyed; but this Heat depends on the Quantity of Blood transmitted through the Arteries in a given time, and therefore the most healthy People are warmest. But the Pulse of a Person in Health is slow, which demonstrates the Heart is at each Action perfectly filled and emptied; but when the

Pulse is quick, some of the Blood is retained in, and irritates the Heart at each Systole, whence the Heart moves very quick indeed, but does not urge forward the Blood as it ought; and hence appears the reason why a quick Pulse is almost constantly unequal at the same time. And this is the State of the Pulse in dying People, who have it always very quick. But when the Heart perfectly empties itself at each Systole, while the Pulse is very quick, then Death must soon follow from the too great Attrition and Violence of the Fever. A Quickness of the Pulse therefore generally indicates the Obstruction in a great Part of the Arteries; but if a third part of the arterial System is obstructed, the Blood must of Necessity pass one third part more swiftly through the pervious Arteries.

§. 964. A Pulse equal in Strength and Frequency is good, as it denotes a Continuance of Life; and therefore an unequal Pulse is bad.

§. 965. An *intermitting* ¹ Pulse denoting the vital Powers to be weak or instable, is therefore pernicious.

¹ It is a Sign that Life participates of Death, or that the Heart sometimes stops; but if the Heart ceases to move till the Arteries have emptied themselves, and discharged all their Blood into the Veins, then a Syncope and Death itself must inevitably follow.

§. 966. A Pulse therefore which is strong, large, equal, and slow at the same time, is of
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all the best; one that is large and strong, strong and slow, or large and slow at the same time, is a good Pulse. But a weak, small, hard, unequal, intermitting, and at the same time frequent Pulse, is of all the *worst*¹; and so much the worse is the Pulse, as attended with more of these Circumstances at the same time, and the Reverse.

¹ The Pulse which has all these malignant Characters joined together, is certainly a fatal Sign; nor have we an Instance of a Person escaping after it; as on the other hand, I cannot believe that a Patient ever perished with a large, strong, slow, and constant Pulse.

§. 967. From what has been said, we may easily understand the *mouse-like*¹, or creeping Pulse, the *ferrate*², or knotty Pulse, as also the *undulating*³ and *rebounding*⁴ Pulse.

¹ *Galen*, and the other Physicians, have made too subtle Distinctions of Pulses, many of which are without any Use. The principal Causes of these Variations, are either an Aneurism of the Artery, a Tumor, or Distortion of it from its proper Place. It is called mouse-like, or creeping, because from a full Pulse, it becomes, by degrees, none at all, like as the Tail of a Mouse grows gradually smaller nearer its Extremity or Tip. This Pulse takes place when the Heart does not fill the Arteries to their Extremities.

² This is when the Artery beats well in one part and not in another, being evident enough in one Place, and in another not to be perceived; but it may be well doubted, whether ever there is
any

any such thing as a true ferrate Pulse; or if there is, it would seem to be caused by an Aneurism or Fracture in the Bones.

³ The caprizant Pulse is to be perceived in the upper or lower Part, but hardly at all in the Middle, from an Aneurism, Tumor, &c. so that it seems to dance, or undulate, by striking the Finger in one Place, and not in another.

⁴ The dicrotic, or rebounding Pulse, which seems to strike double in the Contraction of the Artery, is a Sign of great Inflammation, that the Arteries are very full, and that the Heart strongly urges the Blood into them. This is one kind of the hard Pulse. When the Physician examines the Pulse in each Arm, and in one finds the Pulse to be double in the same time, and not so in the other Arm, the Cause may possibly be an Aneurism repelling again the Blood of that Arm.

§. 968. From the Doctrine of Pulses, we are again taught the Signification of Heat in the Body, as it is an Effect of the Pulse; for it denotes a Narrowness of the Vessel, a Density and strong Propulsion and *Attrition*¹ of the Humours, and great Resistances about the Ends of the Vessels; and hence, a diminished Heat denotes the contrary; and hence also, the Relation of Heat and Cold, with respect to the Diognosis and Prognosis of Diseases, may be understood.

¹ Heat is perceptible in an inflamed Part, because the obstructed Vessels resist the Blood, which is more swiftly and powerfully urged forward by the Heart. This Heat does not arise from a fermentation; for if a Person, having a violent Inflammation

flammation in some Part, faints away, that Part becomes as cold as any of the rest; and if a Person dies, the Place which before in a manner glowed with inflammatory Heat, becomes as perfectly cold as the rest of the Body. The Heat of the Blood and Humours is therefore derived from the Motion and Attrition of the Vessels, as indicated by the Pulse; and therefore the Pulse being increased, the Heat will be augmented, and the Reverse.

§. 969. But it ought to be remember'd, that the Nature of the particular Artery with the Age, Sex, Passions of the Mind, and six Non-naturals; as also the natural or acquired Habit of the Patient's Body, with the Climate or Country, and Season of the Year, may all of them wonderfully *change*¹ the Pulse. And what is of great Use, the *Order*² wherein several Pulses succeed each other, ought likewise to be remembered.

¹ If we count the Pulses by a Watch or a Clock, which has a Hand shewing the Seconds of a Minute, we find that they are one third Part slower and weaker in the Morning fasting, than they are in the same Person an Hour after a Meal. If again the Pulses of a Person at rest, be compared with those of a Man in anger, or heated by Exercise, there will be found a very wide Difference; nor even are the Pulses of any two People in Health to be observed in the same Number; and therefore the Physician ought cautiously to allow for all these Particulars, in order to preserve his Character, and form a just Estimate by the Pulse.

A strong

² A strong Pulse following a weak one, is always good, as a weak one following a stronger, is bad.

§. 970. But the Pulse ought to be very strictly attended to, inasmuch as it points out to us the Nature of the morbid Matter to be concocted or moved, the various *Motions*¹ of it, that is prepared for Excretion, and when it is just upon a Crisis, or Beginning to be separated; for in this Case, it indicates the time when it is most convenient for acting or assisting the Patient by Art, and the Manner how, with many other Particulars.

¹ Frequently acute Diseases are by the best Physicians judged desperate, at that time when Life gets the better; namely, when the critical Matter attenuated by the vital Powers begins to move, then the Pulse is disturbed, trembles or intermits, and seems to threaten every thing that is ill, whence one might believe that the Patient will be lost, when in a little time he perfectly recovers. This may be understood of the Atrabilis, when dissolved by the Use of Garden Fruits in the Summer-time, and when returning into the Blood, it affects the Lungs.—In Women with Child, and those who give Suck, there is a wonderful Variation of the Pulse, which may seduce the Physician into capital Errors, if he forms a Judgment or Prognosis from the Pulse alone. Nor is a Horror or Trembling always of bad Presage, for in many Cases it indicates, that the foreign Matter abhorred by Nature begins to be overpowered and conquered by her.



Of Signs by R E S P I R A T I O N.

§. 971. **A**N easy *Respiration*¹ which is constant or equable, and without Pain, denotes that in Diseases all the Organs subservient to breathing are in a good and healthy Condition, that the Lungs easily dilate or expand themselves, that the Blood is freely transmitted through them, and that therefore it is disposed to circulate through all the *other Vessels*² of the Body, whence such a Respiration is always a very good Sign. But a difficult Respiration denotes every thing contrary, and is therefore always one of the worst Prefages.

¹ This Sign was always considered as the chief by *Hippocrates*, who has left us many Observations upon the Respiration, but very few upon the Pulse.

² The Lungs are in a Manner an Epitome of the whole Body, as to its vascular Composition, having as many Series of Vessels as the rest of the Body; and therefore the Blood which can flow freely through the Vessels of the Lungs, may make an easy Circuit through all the rest of the Body. On the other hand, when Respiration is difficult, all the Blood which is expelled from the Arteries through the Veins, and which is obliged to pass through the Lungs, before it can enter the left Ventricle of the Heart, will be accumulated and obstructed

obstructed in the Lungs, whence the Œconomy of the whole Body must necessarily be disturbed.

§. 972. But the Respiration which is performed with great *Pain*¹, generally denotes some internal Inflammation, and is therefore always a very bad Sign.

¹ It is always a Sign of Inflammation in some of the Organs of Respiration, and ought never to be neglected; since an Inflammation in these Parts is highly mischievous, and suddenly increases from a small to a very large one; in a word, a small Inflammation here is to be suspected, and a large one is almost constantly fatal.

§. 973. A *large*¹ or deep Respiration, always denotes that the Thorax is in itself easily dilatable, that the Diaphragm is duly disposed to move, and the Abdomen easily expanded; that the Blood easily pervades the Lungs, and that the vital Powers are firm, or in good Condition, whence such a Respiration is always of good Import in Diseases.

¹ That is, when a great deal of Air is admitted at one Inspiration, which sometimes is render'd small from the too great contractile Power of the muscoli Mefochondriaci, resisting the Air.

§. 974. A small or short Respiration, denotes every thing contrary to the former, (§. 973.) and more especially, declares, that the Lungs are stuffed up with Blood or other Matter, to which they are not pervious but rigid;
or

§. 976. *Of Signs by Respiration.* 207

or else that the Wind-pipe, or its Branches, being compressed or obstructed with some Sort of Humour or Matter, are scarce capable of admitting the Air; whence it is a very bad Sign.

§. 975. A slow Respiration demonstrates, that the Lungs are equally free and capable of Expansion; that the Blood is pervious through them, and equably circulated or propelled forward; and therefore such a Respiration is a very good Sign, when there is no *Uneasiness*¹, nor Disorder of the *Senses*².

¹ Such, namely, as may oblige the Patient to breathe slowly, to avoid the Severity of Pain, whence they rather chuse to be suffocated than to breathe quick. When the Respiration is slow without these Causes, it is always a good Sign, and is even the best of those which presage well.

² When the Mind does not attend to the Uneasiness, and the Patient does not breathe quick enough in proportion to the Necessity, then the Physician is often deceived, and mistakes that for a good Sign, which is the Forerunner of Death. A slow and large Respiration therefore in ardent Fevers, having a long Interval betwixt Expiration and Inspiration, and without a Crisis or other good Signs, is always to be suspected; for the Patient is then usually convulsed or delirious on the next Day, and expires soon after.

§. 976. A *quick*¹ Respiration denotes that the Organs of breathing are injured, that the Lungs are obstructed, stiff, or dry, and the
Blood

Blood indisposed to circulate through them, and therefore always brings something of Danger with it.

¹ The Lungs transmit a greater Quantity of Blood by acting in Respiration, than if they were at rest. If now a greater Quantity of Blood is to be moved through the Lungs in a given time, the Respiration must necessarily become quicker, in order to transmit such a greater Quantity; and on the other hand, if the Quantity of Blood remains the same, and the Respiration becomes twice as small, it must also become twice as quick, since without that, one half of the Blood will stagnate in the Lungs, and by degrees more compress the Air-vessels, till they are at length wholly oppressed; the Consequence of which, if not timely removed, must be Death.

§. 977. An equal Respiration indicates, that the Lungs and Organs are in good Condition, and that the Blood is well attenuated, whence it is of good Import; but an unequal Respiration declares the immediate Causes of Life to be in danger, and is therefore always of bad Import.

§. 978. A suffocative Respiration, in which the Patient perceives a Sense of choaking, bespeaks that the Lungs are inflamed, obstructed, *overfilled*¹ or disordered by Stiffness and Driness, also that the Blood is impervious; hence it proves fatal in a little time, unless when it proceeds from a slight convulsive Cause in *hysterical*² and hypochondriacal People, or

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in those who have been accustomed to an Asthma:

¹ This is a kind of Death which generally terminates acute Diseases; namely, the Arteries of the Lungs are so distended with Blood, that they can transmit none to the Veins and left Ventricle of the Heart; whence the Pulse intermits, cold Sweats break out, and after Death the Lungs are found heavy and extremely full of black Blood in their arterial System, while their venal System is empty, and whereas the Lungs of a healthy Person are extremely light or spongy.

² It is true, that hysterical Women, hypochondriacal Men, and especially those who are troubled with an Asthma, are sometimes invaded with a suffocating Respiration, perfectly like that of a dying Person: but these when they seem to be about expiring, are commonly relieved of a sudden; for the convulsive Spasm, which suppressed the Respiration, is removed when the Patient is thereby render'd extremely weak. Such a Strangling arises from the Fumes of burning Sulphur, which by exciting a Convulsion of the Musculi Mesochondriaci suppresses the Inspiration.

§. 979. Respiration carried on in the upper Part of the Thorax, denotes the very worst Condition of the *Lungs* ¹ stuffed up, and therefore that Life is in danger by this almost fatal Sign:

¹ In this Case some Humour or Matter stagnates in the Lungs, which cannot be urged thro' its Vessels by the ordinary Powers of Respiration; whence Nature makes various Attempts, and ex-

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cites wonderful Agitations of the Body, in order to propel the Blood a little more powerfully thro' the obstructed Vessels. We begin to die from the Extremities upwards, the superior Parts continuing longest alive. This Sign therefore denotes, that the lower Parts do not transmit the Blood, being almost dead; whence all the Blood takes its Course to the superior Parts, when we see that Nature uses her utmost Efforts to continue Life as long as possible, by elevating the whole Thorax, as we observe it commonly in Women. This also follows from violent Running, but goes off again by Rest. This is the sublime or high Respiration, which *Hippocrates* so frequently condemns:

§. 980. A *high* ¹ Respiration which is performed with an Elevation of the Clavicles, an Agitation of the Sternum, a Motion of the Shoulders, a drawing up of the Nostrils, with a violent Agitation of the Abdomen and lower Ribs, is mortal; for it signifies that the Motion of the Blood through the Lungs is extremely difficult, and that the vital Powers are at the same time weak or deficient.

¹ This always attends before Death, unless the Person is extinguished quietly by a mere Deficiency of the vital Powers, or extreme old Age.

§. 981. An *easy, large* ¹, slow, equal, and refreshing Respiration, performed only by a gentle Motion of the intercostal and abdominal Muscles, with the Diaphragm, is the most healthy; and the Respiration, which has most
of

§. 984. *Of Signs by Respiration.* 211

of these Conditions, must be followed with the best Consequences.

▪ Even *Galen* long ago assures us, that no one ever yielded to the Disease under these Signs; which is also my own firm Belief.

§. 982. A difficult, painful, short, quick, sobbing, unequal, suffocative, and high Respiration, performed by the utmost Endeavours of all the Muscles attached to the Ribs, is infallibly mortal; and the Respiration which has the most of these Faults is the worst.

§. 983. The Breath seeming *cold*^r is a fatal Sign, as it is almost constantly a Forerunner of a Gangrene of the Viscera and Vessels within.

▪ When the Air breathed out against the Back of the Hand seems as cold as that which is drawn in, it is a Sign that the Lungs and their contained Blood are reduced almost to the Temperature of the Atmosphere, and therefore that the Patient is near Death; otherwise the Lungs and Air would be heated by the copious and swift Transmission of the Blood; whence this Sign is without exception a mortal Prefage.

§. 984. A small Respiration, with a sobbing or snoring Noise, as if the Lungs and Throat were boiling or rattling, is quickly mortal, especially if attended with other bad Signs; for it signifies almost constantly, that the vital Humours are accumulated and obstructed in their Passage through the Lungs.

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¹ This is a rattling like that of boiling Water, arising when the pulmonary Blood-vessels are so distended as to compress the Air-vessels; whence the Air admitted, strikes with a greater Impetus, and vibrates more powerfully against those Parts, which being compressed by the Blood-vessels make a greater Resistance. In this Case it is usual for the Patients Friends to advise them to spit up the troublesome Phlegm; but the Disorder lies in the Blood of the Lungs, not in the Bronchia: it is commonly a certain Forerunner of Death, never failing to be mortal, though sometimes it appears two or three Days before Death.

§. 985. A large and quick Respiration is often salutary, as it is both a Sign and Cause of a good Concoction and Crisis.

§. 986. A large and slow Respiration denotes the Brain obstructed, and the Disorders which may thence follow, such as a Coma, Lethargy, Delirium, &c.

§. 987. But in the mean time it must be carefully consider'd, that the Respiration may be wonderfully disturbed and varied in *different* ¹ People according to their natural Constitutions, with the different Formation of the Thorax, Lungs, Diaphragm and Abdomen; the different State of the Air, Age and *Sex* ², or being with Child, Passions of the Mind, Habit of Body, Climate, Season of the Year, *Weather* ³, and the like.

¹ There are hardly ten People in a hundred having the same Number of Respirations in a given time; as for Example in an Hour.

The

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² The most healthy Woman breathes much quicker than a Man, who is equally in Health ; and in her the Scapulæ are raised, which in a Man would be a mortal Presage ; but this is more especially to be observed in Women with Child, when the distended Uterus compresses and lessens the Thorax.

³ We have no Thermometer so sensible as the Dog ; for that Animal discharges all the perspirable Matter by the Mouth in Vapour. Dr. Keil and Hales compute the Area or Surface of the Lungs to be equal with that of the whole Body ; and considering the Laxity, Heat and Vicinity of this Organ to the Heart, we may conclude that there is an incredible Quantity of Vapours exhaled from the Lungs ; hence you may perceive the Reason why the Dog presently pants after an Increase of Heat.

§. 988. But the different Order in which the Changes of Respiration are made from one to the other, likewise affords much Light into the Diagnostics and Prognostics of Diseases ; for a Change from a bad to a good Respiration, presages well ; but from a good Respiration to a worse, the contrary.

§. 989. But those Changes which happen in the Respiration for the better about the time of the Crisis, are best of all.

§. 990. Since therefore the Respiration points out to us at once the present Condition of the Heart, Lungs, Blood, Juice of the Cerebellum, and of the Pleura, Thorax, Dia-

phragm and Abdomen ; it is evident, that an accurate Observation thereof must be of the greatest *Use* ¹ and Importance in all, and more especially in acute Diseases, in order to form a just Diagnosis and Prognosis.

¹ Let the following Experiment be made ; take out the Lungs, and inflate them with Air by the Wind-pipe ; and thus you will see their Capacity or Dimensions ; but the Lungs suspended in the warm Thorax admit more Air than when they are cold and taken out ; let us therefore suppose they contain twice as much in the living Animal. If now the pulmonary Arteries or Veins are more distended without increasing the Dimensions of the Lungs, this must consequently diminish their Capacity, which will be taken up by the dilated Blood-vessels. If, on the other hand, the Area of the Lungs is increased without any Augmentation of the Arteries and Veins, the Blood must then be diminished in its Quantity : but the greater Area the Lungs have, the more healthy is the Person, so much the more Air is taken in at each Inspiration, and so much the more Blood is transmitted through the Lungs at each Respiration, and therefore a free Respiration is always slow at the same time. On the contrary, as the Blood takes up a greater Space in the Lungs, the less Air can be received into them at each Inspiration ; and the Mass of Blood to be transmitted, being in this Case larger, while the inspired Air is less from these two Causes, the Respiration must of necessity become quicker. From all this it is evident, with what Certainty a Physician may deduce a Prognosis from the Respiration.



Of Signs by the URINE.

§. 99 I. **H**E that is about to form a Judgment concerning the State of the Body from the Inspection of the *Urine*¹, ought to remember, 1. that the Urine of a sound Person compared together at different times, or with the Urine of other sound People, is varius according to the *Age*², *Sex*³, *Habit*, *Season of the Year*⁴, the Use of the six *Non-naturals*⁵, and of Medicines; and that therefore, 2. in giving his Judgment from the Urine, he ought to consider, and at the same time carefully attend to the other apparent Signs in Diseases; for without this Precaution, his Judgment may be very much *deceived*⁶.

¹ The Presages formed from hence by a prudent Physician attending on the Patient are more certain; whereas they are false and ridiculous which are given out by some, who attend only to the Urine without regarding the other Signs.

² The Urine of Infants is always like Whey, sweet and inodorous; but it becomes gradually more acrimonious as Age advances, 'till in old People it is extremely acrid and very fœtid; for in these the Bladder being wrinkled, and hardly

ever entirely evacuated, the retained Urine becomes acrimonious by itagnating.

³ Thus the Urine which is voided by a healthy Ploughman exercised with Labour, though it denotes Health in him, yet would it import a most malignant and fatal Disease, if it was to be voided by a delicate and weak Girl addicted to a sedentary Life. For in the weaker Sex the most healthy Urine is much paler or less inclined to a red Colour, less foetid, and less apt to froth than the Urine of Men.

⁴ In the Summer-heats the Urine is made much higher coloured by every body than in Winter.

⁵ Even the most skilful Physician may be imposed upon, so as to think the Urine presages ill if the Patient sups upon Asparagus, and afterwards in the Night takes a Bolus of Cassia with Rhubarb; for by this means the Urine will be rendered black and very foetid, so that the Physician though skilful, being ignorant of what the Patient has took, might pronounce that the Owner of the Urine must in a little time perish by a Gangrene of the internal Parts, when the very next Day the Patient being very well will deride the Physician. Even Urine of almost any Colour may be discharged, either yellow, green, or red, only by taking inoffensive and simple medicines. Turmeric being taken inwardly tinges the Urine as in a Jaundice, and Saffron renders the Urine like that of a Person in an ardent Fever, &c. By these Artifices I saw two Professors of this University imposed upon, who having well considered the Urine, without being acquainted with what the Patient had taken, pronounced their Judgment according to the Rules of Art.

⁶ It is surprizing that the most ignorant Fellows should pretend to tell every thing by the Urine,
of

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of which stamp there are three Profits dwelling in this City of *Leyden*. One of these is so ignorant and stupid that he hardly knows his own Name, but has three or four Formulæ or Notes containing Symptoms common to almost all Diseases. These he dictates in every Disease, not knowing how to write; but the other is a little wiser than the first, having nine set Forms of prognosticating, which are always sure to contain something of Truth.—The Urine of a Person who is about to die of an ardent Fever, being voided to the Quantity of three Pounds, is colourless, hardly froths, and perfectly resembles hysterical Urine; but it would be an egregious Error to pronounce it therefore hysterical, when it was made by a Person in the Agonies betwixt Life and Death.

§. 992. In examining the Urine in order to form a Diagnosis or Prognosis of Diseases, or for any other Use in Physic we are to consider its Quantity, Colour, Smell, Taste, Fluidity, and the Contents lodged in it.

§. 993. The Quantity of the Urine increased above what is usual, denotes all or some of the following Particulars. 1. An Abundance of watery Drink taken. 2. A particular Laxity of the renal Ducts or Tubes which separate the Urine. 3. A Diminution of the Perspiration, Sweat, or *Spitting*¹. 4. That Diuretics have been taken. 5. An *imperfect*² Mixture of the Blood, whence the watery Parts easily recede from the rest; or, 6. That there is some nervous Disorder, and that the Patient is either hysterical or *hypochondriacal*³, &c.

Hypochondriacal

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¹ Hypochondriacal People are perpetually spitting, and if the Spitting happens to be suppressed, they are indisposed, and their Urine becomes watery; but when the Spitting returns, the Urine is diminished.

² Water makes up almost nine Parts in ten of the whole Mass of Blood; and yet is it so confined with the rest of the Blood in a healthy Person, that it neither runs off by Sweat, Urine, or other Evacuations; but when by Disease it leaves the rest of the Mass of Blood, great Quantities of Urine are discharged like new Whey, of which Appearance is the Urine of hysterical Women; but the Consequences of these profuse Discharges by Urine are very bad, namely, a greater Melancholy, a Consumption, Driness, perpetual Thirst, and a Defect of Nutrition.

§. 994. Such Urine (§. 993.) therefore pre-
sages, 1. A *Thickness*¹ of the remaining Hu-
mours. 2. An Acrimony of them. 3. Thirst.
4. Anxieties. 5. Obstructions and their Con-
sequences. 6. A *Tabes* or universal Wasting
from a Diabetes, attended with Thirst, Dri-
ness, and inflammatory Heat.

¹ For the more fluid Parts of the Blood being dissipated, the rest must become thicker and more saline from the Loss of the diluting watery Parts.

§. 995. The Quantity of Urine made being much less than usual, denotes, 1. Either a small Quantity of Drink, or that it contains too great a Quantity of inflammable Spirit produced by *Fermentation*¹. 2. That the uriferous Ducts are obstructed or contracted by

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a Spasm ; or, 3. That some other of the Secretions are *augmented*². But if the *Discharge*³ of the Urine be wholly intercepted, it denotes an Ischuria and its various Causes (§. 821.)

¹ All Wines are less diuretic in proportion as they abound more with Spirit, which has a Tendency rather to the Head than the Kidneys ; but acid and oily Wines pass off more by Urine. They who have been drinking largely make no Water that Night, but are disordered with an internal Heat from the Spirit of Wine remaining in the Vessels.

² A Person who sweats, or is afflicted with a Diarrhæa, will always find them diminished or increase according as the urinal Discharge is either profuse or suppressed.

³ Every Person in Health makes Urine in a small Quantity, sweats but little, discharges few Fæces, but perspires a great deal. But in acute Diseases if the Urine is suppressed and the Skin feels dry it is a fatal Sign.

§. 996. Such a Discharge of the Urine (§. 995.) portends future Repletions, Heaviness, Stupidity, Sleepiness, convulsive Tremblings ; and especially when it proceeds from the second Cause, it denotes that the Patient will die *apoplectic*¹.

¹ Those who are killed by a perfect Ischuria or Suppression of Urine, are never endanger'd 'till the Disorder extends to the Head.

§. 997. The Urine which is thin like Water, limpid, colourless, insipid, *inodorous*¹, and discharged

discharged in great Quantities, imports 1. Plenty of Water or watery Drinks taken into the Body. 2. That the renal Ducts are much *contracted*², while the Humours in the mean time are violently agitated by too swift a Circulation. 3. That there is too strict a Cohesion of the Oil, Salt, and Earth in the Substance of the Urine, a Tenacity of the Humours, and a Difficulty of intermixing watery Liquors with them. 4. Violent Passions of the Mind, hysterical or hypochondriacal Fits, that the Person looks pale or sickly, as in Virgins, or that the Patient has been lately *delivered*³. 5. That the Viscera are incapable of concocting the alimentary Humours; whence *Crudities*⁴, Phlegm, and Coldness of Habit. 6. Obstructions of the Vessels and Viscera. 7. But in *acute*⁵ Diseases it denotes a Hindrance of the Concoction and Crisis, and that thence the morbid Matter is deposited upon the interior Parts of the Body.

² In acute Diseases, the thick Blood refuses to mix with Water, which it repels, and if in this case you can dilute the Blood, you cure the whole Disease. This I have frequently declared in Consultations, that no acute Disease would be fatal, if we had a Remedy, by which we could make the Blood intimately unite with Water, which however plentifully supplied to the Patient, is all repelled, as if you had poured it upon oiled Paper or Pitch; for the Blood in these acute Diseases becomes so tenacious, that the Water is no sooner drank than it escapes, either by Urine, or some other Emunctory. In the worst Kind of the Small-

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pox, I have, in a manner, overwhelmed the Patient in thin Drinks which they have taken covetously; but the Water has immediately come away by Urine, insipid, inodorous, and pellucid; nor have I been able to procure a flame-colour'd Urine, acrid and strong smelling, under such a Course of Drinking.

² The Urine almost constantly appears thus in convulsive Disorders; for the renal Ducts or Vessels being likewise constricted or contracted smaller by the Spasm, and at the same time the Humours being urged on more powerfully, therefore much Urine is indeed made, but very thin from the Stricture of the Vessels; and from the Concurrence of these Causes is this kind of Urine discharged.

³ When the Lochia are suppressed, there is a watery Inundation of Urine no less clear, in Consequence of which Convulsions must necessarily follow in a little Time.

⁴ The Blood consists of Particles differing among themselves, but so intermixed together, that they cohere with a certain Force: Now when these Particles are not accurately mixed, the more fluid of them depart from the rest, whence the more earthy and immoveable Parts are left to themselves, to the Destruction of Health.

⁵ *Hippocrates* tells us, it is a fatal Sign, when the Urine being acrimonious, or scalding, and flame-coloured, changes to be limpid, and without Smell, for such Patients being disordered in the Brain, are soon taken off by Death.

§. 998. This kind of Urine (§. 997.) imports almost the same with that of (§. 994.); but in acute and inflammatory Diseases, it foretells the very worst Condition of the Viscera,

cera, Delirium, Phrenitis, Convulsions, and Death, from a Gangrene produced by the retained Acrimony.

§. 999. Red Urine *without* ¹ a Sediment in acute Diseases, indicates, 1. a violent Motion and *Attrition* ² betwixt the constituent Parts of the Humours, and betwixt the Humours and *Vessels* ³; 2. that there is an intimate Mixture and Cohesion, or Tenacity of the oily, saline, earthy, and watery Parts of the Humours; and therefore, 3. that there is a great Degree of Crudity in the morbid Matter; 4. that the Disease will be of long Continuance; and lastly, 5. that it will be attended with great Danger.

¹ For when the Urine deposits a Sediment, it is a Sign of Concoction.

² The higher-colour'd the Urine appears above what is usual in Health, so much the more increased is the Attrition in the Mass of Humours above the convenient healthy Degree; for the Oil only communicates Colour, Smell, and Taste to the Urine, as I have demonstrated before in Chemistry: And the Earth freed from the Oil appears extremely white, the Salt is also white, and the Water perfectly clean and limpid. But this Oil cannot abound more in the Urine, but by being first dissolved with an increased Attrition, or more rapid Circulation; and then being changed by the Heat from a white Colour, and sweet Taste, to be yellow, black, and bitter. Thus even Milk which is so extremely white, by burning becomes first yellow, then black and bitter.

When

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³ When the Urine becomes higher-colour'd from an internal Cause, there is always either a slight Fever or Inflammation in the Habit; nor is any Person ever afflicted even with a slight Fever, but it shews itself apparently in the Urine.

§. 1000. But this red-colour'd Urine (§. 999.) presages, 1. a gangrenous Destruction of the *smallest*¹ Vessels, more especially in the Brain and Cerebellum, and from thence Death; 2. that the Concoction of the morbid Matter will be difficult; and, 3. that the Crisis will be slow and very doubtful. But it is evident, that all these Particulars (§. 999. and 1000.) must be worse, as the Urine is more intensely red, and at the same time without *any Sediment*².

¹ When a mild Humour flows with a moderate Impetus, the Shock is easily sustained by the Vessels; but when the same Liquor is render'd more acrimonious, and at the same time moved forward with a greater Violence, it will not be confined in the larger Vessels, but will pass off laterally into the smaller, where increasing the Plentitude, both the Quantity and Velocity of the Humours so forced off laterally, will be again increased. But the smallest Vessels of the Body are in the Brain and Lungs, and therefore these Parts above all others, will be more disordered by such acrid and impetuously moving Humours.

² A flame-colour'd Urine without depositing any Sediment, or without a pale Cloud, denotes that the Patient will hardly escape.

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§. 1001. Hence also a *flame-colour'd*¹ Urine which is thin, and without any Sediment, denotes the same Particulars, but more violent; and consequently it has the same Presage, but much more dangerous.

¹ This kind of Urine presages every thing the same as before, only more violent. Thus Milk, Butter, Cream, and Oil, by burning; turn yellow, then red, lastly, black, and are then bitter and acrid. The like Changes happen to the oily Parts of our Humours from the febrile Heat.

§. 1002. Red Urine with a plentiful heavy Sediment like red Bole or Brickduft ground fine, denotes, 1. that a violent Motion and Attrition of the Humours has *preceded*¹; 2. that the Vessels are now relaxed; 3. that the Blood is acrid, saline, and of a broken Texture, unfit for Nutrition; 4. it denotes *intermitting Fevers*², which go off with a violent Paroxysm; 5. upon the Northern Coasts it denotes the Scurvy.

¹ Such Urine is opaque immediately after it is made, but after it has stood a while, the upper Part appears very red, and below it deposits a thick Sediment.

² Before the Fit or Paroxysm of Intermitments, the Urine is never observed to have this Appearance. When the Urine is pellucid above, red below, and sends a fat Pellicle or Skin to the Sides, with a furfuraceous Mass towards the Bottom, one may then boldly pronounce, that the Patient is
either

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either scorbutic, or afflicted with an intermitting Fever. But even the Scurvy is, in reality, a continual Fever, though slight, and the Pulse of scorbutic People is always inflammatory.

§. 1003. Such Urine therefore presages, 1. a long Continuance of the Disease; 2. an Attrition, Weakness, and Destruction of the small Vessels; 3. colliquative Sweats, Urines, Spittings, or Diarrhæas; 4. an *Atrophy*¹, or universal Wasting for want of Nourishment; and, 5. Dropsies of all Kinds.

¹ The Blood cannot nourish when it deposits this Kind of Urine, which may be relied upon as a sure Sign; since these Diseases are never without this Kind of Urine, and as this Urine is never made without such Diseases.

§: 1004. If such Urine (§. 1002.) has in it a *furfuraceous*¹ or scaly Sediment, it denotes every thing the same, but in a worse Degree.

¹ For this Appearance of a scaly Sediment, demonstrates a more violent Attrition.

§. 1005. But if the Urine appears of a *saffron-colour*¹, and stains Paper, Linen, or the Sides of the Glass of the same Hue, depositing likewise a Sediment like that before-mentioned (§. 1002. 1004.) it denotes a Jaundice, together with all its Symptoms in the Skin, Bowels, Hypochondria, and whole Body; and hence the Presages of this Urine

Q appear

appear plainly from the History of this Disease.

¹ This Kind of Urine is easily distinguished; for it resembles Oil of a greenish, yellow Colour, and always denotes a Jaundice; and upon the Sight of such Urine, one may pronounce the Patient to be troubled with Anxieties and Pains about the Præcordia, after which a yellow Colour diffuses itself throughout the whole Body.

§. 1006. Urine of a green Colour with a thick Sediment, denotes, 1. an atrabiliary Habit; 2. that the atrabiliary Matter now begins to be dissolved and discharged, and that therefore, 3. there must be Anxieties about the Præcordia, a Disturbance in the Bowels, with iliacal ancolicky Pains, &c.

§. 1007. Such Urine therefore denotes a *Dissolution*¹, and Translation of the atrabiliary Matter into the Blood and Viscera; from whence follow an infinite Number of Disorders, and those often acute ones, as may be understood from consulting the History of the Atrabilis thus disposed. From hence we may know what to think of *black*² Urine, as being of the same, or a worse Nature, (§.788. 789.)

¹ In this Case, one ought to regard to which Part the atrabiliary Matter tends, though it seldom fixes; but if it settles upon the Stomach, it will cause Sickness and Vomiting; if upon the Intestines, Gripes and a Diarrhæa are to be expected; sometimes

§. 1008. *Of Signs by the Urine.* 227

Sometimes it denotes a Gangrene of the Kidneys. But in either Case, the Cause commonly proves fatal.

² Such black-colour'd Urine is commonly discharged in the highest or fourth Degree of the atrabiliary Disorder; and sometimes it is observed in melancholy People after violent Passions of the Mind. The Use of Cassia fistularis likewise renders the Urine of this Colour.

§. 1008. The Urine which has *Blood*¹, Matter, Caruncles, Filaments, Hairs, or Strings like little Eels, grumous Concretions, Sand, Fragments of a Stone, and Mucus in the Bottom, denotes Disorders of the Kidneys, Ureters, Bladder, *Testicles*², seminal *Vesicles*³, *Glandulæ prostaticæ*⁴ and Cowperianæ, and of the *Urethra*⁵.

¹ The Number of these Matters in the Urine have much increased since the Times of *Hippocrates*, who has pronounced, that these come only from the Kidneys or Gall-bladder; but now the Face of Things is changed by the Accession of a new or modern Disease, the *Lues Venerea*.

² When the Testicles contain any corrupt Matter it is propelled by the Force of the cremaster Muscles as yet uninjured, to the Epididymis, Vas deferens, seminal Vesicles and Urethra; for if the Semen takes this Course, why may not also the thin diseased Ichor of a corrupted Testicle pass the same Way? This Disease is in our Days sometimes observed, when after the most dreadful Pains, a corrupted Semen is discharged through the excoriated Parts of the Urethra; but the Case is rare.

³ This is the last and worst Species of the Gonorrhæa, which spreads and burrows into the Anus, and distils its virulent Humour into the excoriated Urethra; but this Case is also not very common. All these Particulars ought to be regarded, when one enquires after the Cause of the present Disease.

⁴ This Disorder is frequent, and was not unknown to *Galen*.

⁵ These Glands of *Cowper* and *Morgagni*, are the first and most frequent Seat of the Gonorrhæa. Thus for Example, if after continual obtuse Pains in the Loins, or after riding on Horseback, bloody Urine is discharged, and afterwards a purulent Matter, there being no Sign of any Disorder in the Bladder, we may be certain that it lies in the Kidneys; but when a purulent Matter flows out of the Urethra without those Signs, or together with a seminal Discharge, it is commonly a virulent Gonorrhæa.

§. 1009. But the particular Nature of the Disorder denoted by the forementioned Symptoms, and also the particular Part affected, ought to be determined from the other concurring Signs, to be observed at the same time in the Disorder, where such Urine is discharged.

§. 1010. The Urine which appears fat, commonly contains small Particles of Sand, adhering together by a kind of viscid Matter, so as to form on its Surface, a Skin or Membrane, in Appearance oily; and such an Appearance denotes an abundance of earthy,
sluggish,

§. 1011. *Of Signs by the Urine.* 229

sluggish, and saline Parts of the Blood, whence it presages the *Scurvy*, the *Gravel*, and the like.

When the Urine having stood still some time in the Pot, has a Sort of oily Skin floating on it, like a Spider's Web, which adheres to the Sides of the Glass, when it is poured out by Inclination, the Urine then abounds with invisible Calculi, intermixed with a viscous or tenacious Oil, as I have often seen by the Microscope; and this happens in the same Manner as Salts, being dissolved in hot Water, and evaporated or exposed to the Cold, shoot upon the Surface, and form first a thin Pellicle or Skin, and afterwards saline Crystals. When the Urine abounds with such a Matter, it forms a Stone in a little time, by growing round the Surface of any solid Particle which is not of an oily or mucilaginous Nature.

§. 1011. But the Urine which is truly *fat*, or oily, though it seldom happens, does nevertheless denote *when it appears*²; 1. that the Vessels are wore away by a violent Motion and Attrition, are dissolved and mixed with the Blood, and discharged together with the Fat in the Urine; 2. that there is an Acrimony in the Humours, which therefore threatens an Atrophy, or a pulmonary Consumption.

This is only observed by *Ruyfch*, and the Dealers in Cattle before him, who are used to say, whenever a fat Horse is suddenly killed by too violent Exercise or hard riding, “ that his

“ Fat is melted in his Body,” which is a very true Phrase : For *Ruysch* always found the Fat dissolved and extravasated into the Cavity of the Abdomen, to the Quantity of several Pounds. Something of the like kind I have also observed, after an oily Clyster has been a long time retained. This oily Fat may be again absorbed entirely by the Veins, and discharged by the renal Arteries, together with the Urine. I have myself observed Urine in which there have been oily Threads attracting each other, like as one may observe in Water mixed with Alcohol, before they are intimately blended.

² For this is commonly fabulous. I have designedly given a Man Oil to drink, but yet I could not find that any of it passed the Kidneys together with the Urine ; for if the Kidneys are capable of transmitting Oil, they must necessarily discharge the Chyle also together with the Urine, since that is much more pervious than Oil.

§. 1012. The Urine which upon shaking *retains* a lasting Froth, denotes that the oily and saline Parts of the Humours are dissolved and combined into a lixivial saponaceous Nature ; and that therefore 1. there is a great Tenacity from such a close Mixture ; 2. that the Concoction and Crisis will be difficult ; or lastly, 3. that the Patient will be troubled with pulmonic Disorders or catarrhus Distempers in the Head.

• I never knew any Prefage fail from this Appearance. When the Urine retains a Froth like that made by dissolving Soap in Water, it is a Sign that the oily and saline Parts as yet tenaciously

§. 1014. *Of Signs by the Urine.* 231

ously adhere together; but when on the seventh Day upon shaking the Urine, the Froth which thence arises spontaneously disappears immediately after, you may be certain that the Patient is out of Danger.

§. 1013. Urine which is foetid upon being first made, denotes an Attenuation of the saline and oily Parts of the Humours, dissolved and almost putrefied; and therefore it indicates great Danger and Difficulty of Cure, both in chronical and in acute Diseases.

§. 1014. The Urine which appears coloured in Diseases without any *saline Taste*, declares a Weakness of the vital Powers, and that Death is at hand.

At *Amsterdam* there lived one by predicting from the Urine, who never foretold any Event but Death or Recovery. He carefully enquired whether the Urine had been long retained, and discharged in the Morning fasting; and being certified of this, he would turn himself to a Corner and taste the Urine, from whence so long as it left any Impression upon the Tongue, he pronounced that the Hour of Death was not yet at hand; but so soon as he found it insipid he presaged instant Death; and by this Artifice only procured to himself Riches. This is altogether a just Sign, since the vital Powers always form a salt Urine; from whatever Aliments are taken, and even from Milk itself, as I have experienced in myself; but if now there is no Salt to be found in the Urine, and the Water passes off by the Urine, almost

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without Change, it is a Sign that none of the vital Powers remain.

§. 1015. The Urine which is pale, thin, and deposits a mucous, tough Sediment, having a saline-putrid Smell, almost constantly denotes the Stone in the Bladder.

§. 1016. But in acute Fevers more especially the Urine ought to be consulted, as affording a pretty sure Prefage; for 1. the Urine which has a light, smooth, and unequal Sediment, soon subsiding in the Shape of a Top or *Cone*¹, having hardly any Smell throughout the whole Course of the Disease to the Crisis, is one of the best Signs and Prefages; 2. much white Urine which is hot or *scalding*² in the Discharge, and affords a great Quantity of white Sediment about the critical time, cures the Patient, and prevents Abscesses; 3. the Urine which is made plentifully on the *indicating critical Day*³, with a copious, white, or reddish Sediment relieving the Patient, denotes a Cure will be made by a perfect Crisis on the critical Day; 4. the Urine which is thin and *reddish*⁴ without any Sediment, or *white*⁵, thin and watery, or of a golden Colour, thin, and continually without any turbid Appearance, as also that which continually remains turbid without subsiding, denotes, that in very acute Diseases the Concoction has been injured, that the Crudity of the Morbific Matter is great, that the Crisis

§. 1016. *Of Signs by the Urine.* 233

will be difficult, the Disease of long standing, and Life in great Danger; but in the most acute inflammatory Distempers, it portends certain Death; and lastly, in moderately acute Diseases, it denotes them to be long and troublesome, and that some Abscess or Translocation of the Disease, will be made on some Part or other.

¹ Namely, that which forms a Cone rising up in the Urine with its Basis above. It is a Sign that the Sediment is light, may be sustained in Water, and is therefore concocted; whence it is one of the best Signs in acute Diseases which seldom fails. But when the Sediment is flat or low, it appears to be too ponderous, and denotes that the Concoction will be difficult.

² So long as the thick and obstructing morbid Matter finds a ready Passage through the lax Vessels of the Kidneys, it will not seek a Passage any other Way which is more resisted; and will not therefore occasion any Abscess. When this happens on the critical Day, it terminates almost every kind of inflammatory Disease; or even when an Abscess has already begun to be formed, one may hope to discharge the Matter this way.

³ This very useful Doctrine, owes its Invention to *Hippocrates*, since whose time it has lain uncultivated by the succeeding Physicians, even though it tends to give the Physicians the Reputation of a Deity. When the Disease is more acute, that is, coming to a Crisis in five Days, then the third Day is an Index to the fifth; and if the Urine appears well on the third Day, on the fifth the Disease will be removed; but in Diseases which extend their Course to the ninth Day, the third is

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an Index to the seventh; and in common acute Fevers, the seventh Day is an Index to the fourteenth; for in these the Urine having continued limpid for seven Days, if it deposits a Sediment on the eighth, the Patient will be well on the fourteenth. For when the Matter appears concocted on the third, fifth, or seventh Day before the Height of the Disease, there is reason to hope that the Matter will be discharged by a true Crisis on the critical Day after the Height, and that the Patient will recover a due State of Health. Nor does the Presage ever fail, when the Urine appears thus on the seventh Day, that the Patient will be recovered on the fourteenth; which may be therefore promised without any Danger or Hesitation.

⁴ Namely, that which is watery and white, in which there appears something of a pellucid red, as in the Agate or Toad-Stone, and some Species of the Cornelian: for that is very bad Urine, and much worse than the Flame-coloured.

⁵ The milky Urine which deposits no Sediment is pernicious, and shews that no Crisis is near, and that none of the morbid Matter is deposited from the Blood.

§. 1017. The Urine therefore truly declares to us, 1. the Nature or Disposition, and Velocity of the Blood; 2. the Symptoms and Stage of the Disease and Concoction: 3. the State of Secretion and Crisis; 4. Disorders of the Kidneys, Ureters, Bladder, and in some Measure of the *Testicles*, *Vasa deferentia*, feminal Vesicles, the prostate and *Cowper's* Glands, and of the Urethra itself; 5. some Disorders

Disorders arising in the Bile. But for the rest, If only guessed at by the Urine alone, they must be very *uncertain*² and almost ridiculous.

¹ I have often observed myself, and have intimated to you, that the Vas deferens may be compressed by an Inflammation seated about the seminal Vesicles, so as to intercept the Course of the Semen, which stagnating from this Cause, will urge and tumefy the Testicle; which is so frequently swelled from hence, that among an hundred Patients, ninety-nine are afflicted from this Cause. But these Patients are hardly to be cured, but by plentiful Bleeding, with antiphlogistic Remedies; whereas one ignorant of this, who should fall into the Use of Fomentations, would destroy the Testicle, and oblige it to suppurate.

² Nothing more than what has been mentioned, can be expected to be known from the Urine; and it is adviseable for the Physician to intimate, when the common People are desirous for him to give his Opinion on the Urine, that he knows enough of the Disease from the other Signs, and that the Urine is not necessary; and above all, he must avoid presaging any thing more from it, than what relates to the Disease. For certain it is, that no mortal can tell by the Urine, whether it came from a Man or a Woman, except perhaps some of the Animalcules washed off by the Urine after a seminal Flux, should by the Help of a Microscope discover it to belong to a Male; much less can any one determine, whether the Person to whom the Urine belonged, was a Virgin, a married Woman, or with Child; all which Pretensions deserve only to be laughed at. I remember two Professors many Years ago in this City of *Leyden*,
who

who were egregiously deceived in their Uromancy, when according to the Rules of their Art, they denied a certain noble Lady was with Child, 'till the Birth of the Infant silenced the Prophets. I have known the principal Urine Judges in this Republic, to have been guilty of such egregious and glaring Errors, that if they had the least Shame or Merit, they would have never after appeared in that Character. For more upon this Subject, you may consult *Hippocrates*, *Duretus* and *Prosper Alpinus*, who are almost the only Writers upon Urine in the medicinal Way.



HIGIENE or PROPHYLAXIS:

*The Preservation of Health, or
Prevention of Diseases.*

§. 1018. **T**HERE are three Rewards which crown this fourth Part of Medicine which regards Health; namely, the Preservation of Health when present, and the Prevention of Diseases; the Seeds of which lurk *concealed*¹ in the Habit, and are very apt to break out; and lastly, the *protracting Life*² to a good old Age. (*Vid.* §. 36.)

¹ As a Plethora which is not yet a Disease, but by a slight Cause may be excited into Disease.

² The incomparable Lord *Bacon* has observed, that in his time Physicians had neglected this part of Physic which promotes Longevity, and was
himself

himself the first who broke the Ice to make way for this Discipline.

§. 1019. As Health is an Aptitude in the Body to the regular Performance of its several Actions, and as this consists in a determin'd Disposition to Motion in the several solid and fluid Parts, it follows, that even Health itself, though once perfect, will by its Nature and Actions *wear away* ' the Solids, consume the Fluids, and corrupt both, so as to be destructive to itself.

' And this Waste will be the more speedy or considerable in Proportion, as Health or Life is better and stronger; for so much the more in Proportion will the Body be wore out, since Health is a most active State of all the Parts, and consists in a Possibility of exercising every Function: hence there will be an Attrition of all the Humours against every Series of the Vessels, against the Humours, and of the Parts of the Humour against each other; from which Attrition must follow a Dissolution and Destruction of all the Parts of the Body, both fluid and solid. A chaeftical Person will easily fast three Days, as is commonly known, People being us'd to say in this Case, that the Disease nourishes itself; but a healthy strong Man, in whom the Juices have a brisk Ciculation, cannot fast 24 Hours without being faint.

§. 1020. Health therefore is preserved by continually restoring the *same Quantity* ' and Quality to all the Parts of the Body, which they

they had before the last mentioned Destruction, (§. 1019.) as well in the solid as fluid Parts.

¹ If a Person was to feed upon Blood itself, it would not be immediately fit for Nourishment, but it must be first changed and reduced to another Form in the Stomach and other Passages; and the same is also to be understood of Eggs, if they are used as Food: whence it follows, that the lost solid and fluid Parts of the Body are to be restored indeed from the crude Aliments, but yet not while they are in a crude State; until they have been attenuated and digested by the chylificative and sanguificative Organs of the individual Body itself, which requires to be repaired.

§. 1021, The Matter then for this Restitution, (§. 1020.) is supplied from the solid and fluid Aliments, and possibly from the *Air*¹, which being taken into the Body, prepared and modified by the Performance of the several vital, natural and animal Actions, are by the same Actions applied when so prepared to the several Parts which want to be *repaired*²; and lastly, by the same Actions the Body is freed from the old worn out superfluous or crude Matter, which might be injurious if retained.

¹ There is no room to doubt but the Body absorbs some Nourishment from the Air, which is a Chaos or confused Mixture of the finer Parts of all Bodies, many of which must be nutritious, and more immediately so as they are already volatilized or attenuated. It has been demonstrated

by

by an Instance of a Man in *England*, that so much Nourishment may be drawn in from Fomentations applied externally, as will be sufficient to support Life. It is not therefore difficult to conceive, that the Body should take some of its Nourishment from the Air.

² A Person who feeds only upon Milk, is supported by it after being prepared, digested and applied by the respective Organs, while the more crude and gross Parts unfit for Nutrition are expelled out of the Body under the Form of intestinal Fæces; for even the purest Aliments, Milk, Whey, and even Jellies, contain excrementitious Parts which require to be separated; for the purest Milk injected into the Veins of a living Animal is destructive.

§. 1022. From what has been said, it is evident that this whole Art of preserving Health, is comprised in those Rules which have been already given for directing us how to apply and adapt the several necessary Particulars of the Non-naturals, (§. 744. or 745.) so as to satisfy the Purposes now mentioned (§. 1020.) in every particular Constitution.

§. 1023. Yet it is difficult to lay down these Rules in such a manner adapted to each Constitution, as that the Observation of them shall be equally profitable to all Men.

§. 1024. And the Cause of this Difficulty lies chiefly in the *Idiosyncrasy*¹, that is, in the particular Habit or Constitution of each individual Person; from whence follow often
opposite

opposite Effects in Men, who yet live after the same Rule.

† This consists in the Proportion betwixt the Solids and Fluids, and is the Cause why the Actions of one Person differ from another, though they are equally healthy. But these Actions convert the ingested Aliments into animal Humours, which Humours are not produced alike from the same Aliments taken by different People. There are some who live upon pure Water, Apples and Herbs; others again eat all Sort of Aliments, and each of them are healthy in their Way: but give the low vegetable Diet of the first to the latter, and the rich Varieties of the latter to the former, and they will both of them be indisposed. It cannot therefore be affirmed in general of any Aliment, that it is either good or bad, but with respect to its Agreement with the particular Habit and Customs of each individual Person.

§. 1025. Thus indeed every one keeps his Health, and often entire, though People severally make a different, and even opposite Use of the six Non-naturals; when on the contrary, if they were to change mutually with each other their Methods of living, both Parties altering their Way of Life would be ill, while those, who went on their own way, would continue in Health.

§. 1026. Custom itself also, which is not improperly called a second Nature or Idiosyncrasy, makes a surprising Difference with respect to the Effects of Air, Food, Drink, Exercise,

Exercise, Medicines, Poisons, and other Particulars.

§. 1027. Wherefore a sudden Change from accustomed to new things, is always and every where very dangerous; even tho' the Change should be from reputed ill Habits, to such as are judged to be good.

§. 1028. But gradually changing, and frequently *varying* the daily way of living, is an extraordinary Help towards the Preservation of Health.

¹ This is the Advice of *Celsus*, who says, “ that
 “ a healthy Person who is his own Governor,
 “ ought not to tie himself down to any strict
 “ Rules, but should vary his way of Life, being
 “ sometimes in the City, but oftner in the Coun-
 “ try; sometimes to eat as long as he can, and at
 “ other times but sparingly, yet so as never to
 “ continue long in the same way,” &c. They
 who are over moderate in their way of Life enjoy
 the most perfect Health, but then such cannot
 suffer the least Alteration without being indisposed,
 so that they cannot live longer than they shut
 themselves up like *Diogenes* in a Tub. A certain
 Physician who lives by a strict Regimen according
 to the statical Rules of *Sanctorius*, leads indeed
 as yet a healthy, but pusillanimous Life; and upon
 the slightest Alteration of Air being indisposed,
 thinks he is about to die, as indeed at last it hap-
 pens, according to his Prediction, from a very
 slight Disorder, which would not have injured
 one who indifferently accustoms himself to every
 thing.

§. 1029. An Air which is very *heavy*¹, and at the same time, as we commonly observe it, serene and dry, is the most healthy in every Country².

¹ This seems to be a Paradox to the common People, since every Body before the Invention of the Barometer, pronounced the Air to be heavy, when the Body seemed to be the most heavy to the Sense, and that the Air was light when the Body seemed so. But at present it is sufficiently demonstrated, that when the East or South Wind blows, the Limbs seeming heavy and weak, the Air is light, and that it is the heaviest when there is a clear Sky and a northerly Wind, at which time we perceive our Bodies lighter as to Sense; and in general, excepting the Clouds, the serene Air is the heaviest.

² To us the North Wind is the most healthy, and to other Countries that Wind is always the most salutary which blows over the largest Tract of the Continent, and therefore arrives impregnated with the fewest Vapours exhaled from the Sea, as the North Wind with respect to us. But in general, any Winds are better than a Calm; for the Air only by stagnating a long time becomes pestilential, more especially when hot, and filled with moist Vapours.

§ 1030. The various Effects of the Air and its salutary or destructive Nature, will be described in treating of the Causes of Health, (§. 1060.) as they have been in part under the Causes of Diseases, so far as they are lodged
in

in the Air, (§. 746. to 754.) which Places you are to consult for what might be said here.

§. 1031. The Qualities likewise of the Air, which by their Access produce Diseases, may be corrected by their Opposites; for a cold and moist Air may be rendered warm and dry, by *kindling Fires* ¹ fed with dry or spicy Woods, by the Exhalation of warm fragrant Spices, either spontaneously, or by the Heat of the Fire, and by admitting, or artificially exciting a warm dry Wind: But if the Air offends by its Heat and Dryness, it may be corrected by the Exhalation of *cold things* ² spread abroad by an artificial Wind, or by the watery Exhalations which transpire from cooling Plants, sprinkled with, or set in Water, such as the Willow, Poplar, Rose, Elder, Ash, Mulberry-tree, &c.

¹ One may procure the Air of one's Chamber to be serene and dry, however moist it may be without. I can make Clefs communicating betwixt an adjacent Stove and the Chimney of the Chamber, and other Communications opening into another Chamber opposite the Chimney; and then by burning Juniper-wood, Fir, Amber, &c. in the other Chamber, from whence only the Air can be admitted over the Fire, escaping again other ways, there will be thus a perpetual Succession of new Air free from Moisture; and the Success of this may be testified from the chemical Salts very difficultly melting in such an Air, which if moist, is known to dissolve them readily; it may be also

discovered by a Sponge which swells in a moist Air, but contracts in a dry one.

² Water of itself in a Vessel does not exhale much, but if these Plants are placed in Water, they perspire an incredible Quantity, as is evident from what they drink up; and from hence they render the Air about them extremely moist. This has been cleared up lately by Dr. *Hales* in his vegetable Statics. But the Plants which perspire most, are the Willow, Rose, Poplar, Elder, Mulberry-tree, and the aquatic Plants. But the Air may be also cooled by freezing Mixtures with Sal Ammoniacum.

§. 1032. An Air therefore which is serene, heavy, temperately warm and dry, coming from clean inland Countries, and off from Rivers agitated by a gentle Wind, free from sudden and great Changes, open and rural, and purged from oily and saline Exhalations, is the *best* ¹ in general for the Preservation of Health.

¹ In such an Air ought to be fixed the Courts of Princes, and Country-houses of those who desire to be blest with a pure Air.

§. 1033. But that Food is reckoned the best and most wholesome which is most simple, free from all Acrimony, and containing but few Fæculencies or gross Fæces, and not consisting of Parts which may be too easily *dissipated* ¹; but coming very near to the healthy Nature of our Bodies, or which may be very easily assimilated thereto by our Digestive

gestive Powers, or which has received a Disposition to these Qualities, by the Art of Cookery.

That Food is best which approaches nearest to the gelatinous Nature of the healthy Solids and Fluids which compose our Bodies, and which are free from all Acrimony, without possessing any strong Smell or Taste; as the penetrating Lord Bacon long ago observed. Such Aliment is permanent and cannot be too easily dissipated; whereas that which is volatile, and excels in Fragrancy, is also inconstant, not affording healthy durable Juices. All the Aliments with which we are supplied by Nature, are therefore of a mild and soft Disposition, whether Flesh, Pulse, or ripe Garden-fruits. Natural Drinks are also very mild or soft; for fermented Liquors are not the Produce of Nature. But these Aliments all consist of Parts which are not very easily dissipated. From Must before it has fermented, the finer Parts are not so easily dissipated as when it is become Wine, even though it be reduced to one twelfth Part by boiling; but so soon as it has fermented and become Wine, if one hundredth Part of its Weight be exhaled, all the rest will be an useless Mass, of no Benefit in the Stomach.

§. 1034. Of this nature are all those Aliments which are made, 1. from the several sorts of Corn or *mealy Grain*, sufficiently ripe, clean, moderately dry and fresh, as Wheat, Spelt, Rye, Barley, Oats, Rice, Buck-Wheat, Maize, Millet, Panic, Sago, &c. which by grinding, kneading, fermenting and baking, are so prepared, as to come to us

with an agreeable Smell and Taste under the Denomination of *Bread*². 2. From the leguminous or podded kind, as well with their tender Husks, and while the Seeds are green, as when they are ripe; such as broad Beans, *French Beans*, Peas, Lentils, Tares, Vetches, &c. after preparing them by macerating, *boiling*³, grinding, and often by a gentle roasting. 3. From fresh and green pot or *sallad Herbs*⁴, prepared only by tying up their Leaves, and keeping them from the Air; such as *Lettuce*⁵, Endive, Succory, Purslain, Smallage, Cabbage, Mallow, Spinage, Beet, &c. more especially if they are gently boiled in their own Juice. 4. From Fruits of the more solid kind, such as Artichokes, Nuts, Almonds, Turnips, Parsnips, Radishes, Beet-roots, &c. as also the softer kind, as Apples, Pears, Plums, Cherries; and the pomiferous climbing Annuals, as Melons, &c. 5. From the Juices and Flesh of animal Bodies, *young*⁶, healthy, and not over-fat, whether Fish, Fowl, Quadruped or Insect, prepared either by boiling, roasting, frying or baking; to which add Milk and Eggs.

² These ought to undergo a previous Fermentation, in order to deposit their Flatulency, or deprive them of the Power of generating elastic Air, which they are capable of doing in a wonderful manner, as Mr. Boyle discover'd. Those who live only upon Corn are commonly the longest Livers; of which we have an Instance in the *Gymnosophists*, the most ancient of the Philosophers, who

who never eat any thing that had Life, nor any thing which grew under Ground, but lived entirely upon Vegetables growing out of the Earth, and enjoying the Influence of the Sun's Rays. These were so healthy and long-lived, that being tired of living, they made away with and burnt themselves alive.

² This is the most common and received Food of Mankind, being the Basis of Nourishment in all Nations; and this Bread is made in *Europe* of Wheat, in *Asia* of Rice, and in *America* of Maize or *Indian* Wheat. Certain it is, that the Galley-Slaves, who are chained down to the hardest Labours in the *Mediterranean*, continue strong and healthy, only with dry Bisket and Water, unless the scorching Air or some epidemical Disease afflicts them. The same Observation is also true of Men, who are either condemned or reduced by Misfortunes to labour at the Oar.

³ The Ancients made use of roasted Wheat or parched Corn as an agreeable Food, which had deposited its Meal in Water. Of this sort of Food we read in Scripture; and *Hippocrates* recommends to us roasted Vetches as a very light kind of Food, after they have been macerated a Night in Water. The Meal of Beans is more gross or heavy than that of Wheat, and is therefore more agreeable for the stronger laborious People.

⁴ Boiled in a small Quantity of Flesh Broths, and eaten all together; for it is wrong in Cooks to throw away the Liquor, in which resides the whole Virtue of the Plant, instead of which they treat their Guests with the Skeletons or Carcases only of the Greens.

⁵ The *Italians* have a common Saying, That Lettuce was the most likely Plant in *Paradise* to prolong Life.

° Of which nature are Eggs, which are much better raw than boiled. The same is also true of Muscles and Oysters, which by boiling become harder and of a worse Digestion, so as to pass through our Bodies without any Alteration in their Substance. Even other Parts of Animals are eaten raw without Offence by some People. The Prince of *Conde* fed a Man some time with raw Flesh only, and he lived with great Strength; but was extremely voracious and fierce almost like a Beast, his voracious Appetite inclining him to fall upon the first Ox or other Creature coming in his way; he was also subject to a perpetual Diarrhæa. Lord *Bacon* thinks that Flesh-eaters live more healthy than those that feed upon Grain or vegetable Food.

§. 1035. But Aliments which are hard, dry, gross or thick, heavy and feculent, are serviceable to those who have very strong Viscera, a quick Digestion, undergo *great Exercise* ¹ or muscular Motions, and in whom the Humours move very quick while they are in Health: but Aliments which are soft, moist, thin, light, and free from gross Parts, either disagree with such People, or else they are obliged to be perpetually feeding.

¹ It is a Rule, that the Food should be proportion'd in Quality and Quantity to the Labour. If a Ploughman be fed with thin Flesh-broths mixed with Citron Juice, he will be as hungry within an hour after as at first, and be almost ready to faint; but give him Bacon and brown Bread, and he will find himself in good plight, with Strength sufficient.

§. 1036. But for those who have weak Viscera, a difficult Digestion, and who lead a still, sedentary, unactive Life, such Aliments are best as are prepared by Nature or Art, so as to come near the Texture or Consistence of thin *Chyle* ¹.

¹ Men of Letters are generally willing to indulge their Appetite, and venture to feed plentifully upon the same gross Food with a Ploughman, and immediately after give way to Sleep and Inactivity. But such gross Food fills them with Diseases; for they ought either to abstain from such Food, or else to leave their Studies, and addict themselves to Exercise. This is an Admonition proposed by many wise Men; and *Celsus* testifies that gross Food causes the Head-ach, and disturbs the Sleep in those not accustomed thereto.

§. 1037. In Habits inclined to an *alcalescent* ¹ Acrimony, acescent Aliments are the best, (as in §. 1034); but when the Humours are inclined to an acid Acrimony, *alcalescent* Food is the best, such as is taken from Fish, Fowl, Quadrupeds or Insects.

¹ Baked or boiled Flesh-meats given in the hot Summer-weather to a Person addicted to hard Labour, will turn his Stomach, or incline him to be sick and feverish, if they are not mixed with Acids or Salt; on the contrary, *alcalescent* Aliments will agree with, and be most liked by one who has a prevailing Acid in the Humours, as the Broth of Cray fish recommended formerly by *Hippocrates*; of which nature also is the Jelly made from Viper's
Flesh,

Flesh, which the *Italians* praise much. But if such alkaline Aliments were given to a Person afflicted with an alkaline Disease, they would destroy the Patient. *Pecquet* having made the noble Discovery of the thoracic Duct after *Eustachius* had observed it in a Horse, fell into a very extraordinary Notion, that the Digestion of Food ought not to be promoted by Exercise of Body, but by drinking of spirituous Liquors only, in which Course setting himself for an Example he soon perished. He was for some time very well under his Course of drinking, but by degrees the Stomach and Intestines contracted themselves, so that they would transmit nothing but Spirit of Wine, and he at last died suddenly in his public Office at the anatomical Theatre. Such spirituous Liquors may indeed nourish for some Days, as *Democritus* was supported by the Vapours of warm Bread; but when they have become habitual, they lose their Efficacy.

§. 1038. Upon these few Principles depend the whole Business of chusing, preparing and determining the Quantity of the Aliments or Diet, provided you are first acquainted with the Nature of the Viscera and Humours which are to concoct them, and also the Temperature, Age, Sex, Course of Life and Studies of the Person.

§. 1039. The Quantity of Food most convenient for every one, is that by which they afterwards find themselves refreshed without any *Heaviness* ¹ or Oppression. *Moderation* ² is safest for weak Persons; but Excess more agreeable to those who are of a strong or robust Habit,

They

¹ They that rise from Table with a Heaviness or Inclination to sleep, have eat too much Food; but the best Proportion of the Aliments is when the Body seems refreshed, light, and fit for Exercise after eating.

² Sobriety or a spare Diet would be less convenient to a robust Man, whose Habit would waste by adhering to too thin Aliments. They who have been remarkable for long Livers, are seldom known to have fed upon Flesh-broths or the like, but upon Bacon, coarse Bread, and other gross Food. Hunger is one of the most acute Diseases; for if Aliments are not given to allay it, the Body is prey'd upon, all the Humours become acrimonious, the Bile and Blood especially become alkaline, whence follow a Fever, Wasting, &c.

§. 1040. But Pickles made of *Acids*¹, Salt and Spices are prejudicial to healthy People by their Acrimony; whence they injure the smallest Vessels, create a false Appetite by their Stimulus, and overload the Body more than it is nourished.

¹ Wealthy People who have been gluttonous in their Youth, continually whetting their Appetites by their Luxury of Sauces, &c. soon grow old; for the Vessels are destroyed or wore out by such acrid Juices, and the Stomach by being overfilled loses its contractile Power; so that at length they are obliged to force an Appetite by Bitters, &c. and by this means the Body is at length depraved, so that in the end no Food agrees with them. Hence we may justly condemn those high relished Ragoes, as *Swalve* justly observes in his Treatise *De querulis ventriculi*.

§. 1041. From the same Rules also (§. 1035 to 1041.) we may understand what sort of Drink is most healthy and convenient; for if it be required only to quench the Thirst, and correct the Driness, Thickness, or Acrimony of the Humours, then cold *Water* ¹, which is clear, light, and without Smell or Taste, but exercised by the *Current* ² of a Brook or clear River, is the best of Drink for a strong Person.

¹ Water is certainly more healthy than Wine; for the Diseases of all healthy People are acute, or arise from too intense a Motion of the Humours, and chronical Diseases seldom appear before the vital Powers are weaken'd or deficient; so that a strong Man is rarely afflicted with any thing before the fiftieth Year, but what is of an acute or inflammatory Nature: if now such a Man was to indulge himself in heating or stimulating Drinks, they must evidently either increase, or bring on his Disorder. Some indeed answer to this, that it is uncertain whether they ever arrive to such an Age, and that therefore they may indulge themselves as they please; but thus they run blindfold into Danger. But the drinking of cold Water depurates and frees the Humours from their Acrimony, strengthens all the Viscera, and renews the Tone of the Stomach; and hence it was esteemed as an universal Medicine both among the *Greeks* and *Romans*. If healthy young People would be contented with this Drink, they would hardly ever be afflicted with acute Diseases. When Thirst is urgent, or when there is a Redundancy of bilious or acid Acrimony, Water is the best Medicine, and drinking

ing of it cold is better than warm, provided it be taken in small Draughts when the Body is not heated.

² *Herodotus* attributes the Longevity of the *Æthiopians* to the Lightness of their Waters, which is such that Wood sinks in them; and it is certain, that in our Days the lightest Waters exercised with running are the most wholesome.

§. 1042. But if such a Drink is required as will answer these Intentions, and at the same time *warm* ¹, attenuate and increase the Motion of the Humours, then *Malt Liquors* ² are serviceable, which have been well boiled, fermented, and kept no longer than they are well refined; to which add clear, fragrant and pleasant Wines; but then the Choice, Quantity and Use of these are again to be determined from the Circumstances of the Person for whom they are designed.

¹ In public Rejoicings even *Socrates* would sometimes intermix Mirth with his Cares; nor did he speak against Feasting. All these Particulars are necessary to be known by the Physician, who is frequently asked by great People, what Course they shall take in the Diet of their Son or Daughter in order to keep them healthy? In which Case it is always adviseable to order the most simple Diet.

² Fine Ales are ever preferable to Wines in Dropsies and leucophlegmatic Disorders.

§. 1043. Aliments the least fat or oily, and Drinks the most watery, render the Body most healthy and strong.

§. 1044. *Exercise*¹ of Body after *Digestion*² or before Meals, continu'd till the Skin begins to be in a gentle breathing Sweat, or till there begins to be a Sense of Weariness in the Muscles, the Body seeming lighter, is the best and most healthy Rule. From hence also we may be able to lay down a Rule for the Time and Seasons of Rest.

¹ The strongest Foot-soldiers lead the most healthy Lives, being content with their coarse Ammunition-bread and clear Water; for three or four Pence a Day will not permit them to live richly. But People who have been used to a better way of living are not so capable of sustaining Labour, for they are soon out of Breath, and would in a little time faint. But even too much Labour is fatal to all kinds of Animals, and great Fatigues exhaust People's Lives before their time. Among a thousand Husbandmen who get their Bread by the most intense Labour, there are very few who arrive to their sixtieth Year, before which time they are commonly worn out by too much Work. But Men of Letters who spend their Lives in a different way, ought never to sit down to Table, without having first exercis'd themselves for about an Hour, according to the Advice of *Leonidas*; for these on the contrary sit still, and are as much injured for want of Exercise, so that they very rarely reach a great Age, as is evident from the News-Papers.

² When the Stomach is too full and distended with Aliments, which by degrees ferment in a little time, and swell the Stomach, more violent Exercises must at that time be prejudicial not only to the Stomach but to the several adjacent Viscera.

§. 1045. The best time for *Sleep* ¹ is when the Body grows dull or heavy; and the best time for rising is when the Body upon waking appears refresh'd, and inclin'd to Activity.

¹ Sleeping too long always stupifies the Intellects. Whether Sleep is allowable after Meals, is a Question much controverted; the Generality have opposed it; but *Platerus* being asked by his Prince in a Consultation of Physicians at the *Spaw*, whether it was wholesomest to sleep before or after Dinner? gave his opinion, in Opposition to all the rest of the Physicians, in favour of the latter; since from his own Experience, tho' he was then above seventy Years of Age, a Day had not passed without his taking a Nap in the Afternoon, though he lived free from Diseases. The wholesomeness of this Practice is dictated by Nature, provided it be not carried too far, since all Animals are sleepy after Meals; and if Persons go to reading then, they are heavy, drowsy, and do nothing as they ought; and therefore it is better to sleep for about a quarter of an Hour, and then being refreshed to return to Labour.

§. 1046. All *Medicines* ¹ either evacuating or acrid under any Title, are to be altogether avoided.

¹ Medicines ought not to be used by a healthy Person, who needs no Physician; but if a Prince or great Person being alarmed at the Shadow of a Disorder, applies to his Physician for a Remedy, as they would not be pleased to be answer'd, that they did not want Physic, and as such an Answer might cut themselves off from a good Dependance; therefore

therefore something is to be prescribed as a high-sounding Arcanum, which can do no harm, if but little good.

§. 1047. But Cleanings of the external Skin by rubbing, washing, bathing, swimming, and shaving, are extremely salutary.

§. 1048. Yet the Passions of the Mind are not to be altogether *suppressed*¹, nor raised to too great a Pitch; since the former would be attended with a Stupidity or Dulness of the Spirits, and the latter must be followed with a disturbed Circulation. But *Hope*² and Desire, of all Passions, are found to be the most salutary to the Body.

¹ Without any Passions of the Mind, Life burns away without Light and Alacrity; but too intense Passions hurry on Life too fast, and waste the nervous Fluid.

² Hope is the Expectation of something desired, which, when supported by certain Grounds, is the sweetest of all mental Affections; and is even more amiable than the Possession itself. It is the Advice of Lord Bacon never to satiate our Desires, but to leave some part of the Inclination still to be satisfied. Old Men of Erudition live as if they were Stones, when they in a manner cease to be affected in their Passions by Objects.

PROPHYLAXIS, or the Prevention of
Distempers.

§. 1049: **D**ISEASES are prevented by immediately opposing their Causes, upon the very first Appearance of their approaching Signs.

§. 1050. But the chief preventative Remedies against Diseases about to approach in a short time, are the following; *Abstinence*¹, Rest, the drinking of warm Water, and then having recourse to moderate Exercise continued for some time, till one perceives the first Appearance of an incipient Sweat, taking afterwards a good long Sleep with the Body well covered; for by this means the gross Humours are diluted, the Vessels are relaxed, and the morbidic or offending Matter is discharged.

¹ Not an Abstinence entirely from Food, but only from that which much alters the Body, or which is hard, acrid, or difficult to digest. Abstinence, moderate Exercise, and diluent Liquors drank plentifully have frequently prevented the most grievous internal Diseases, which could not have been afterwards cured. Watery Liquors relax the Vessels and dilute the offending Matter; moderate Exercise continued to the Appearance of

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a slight

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a slight Sweat, attenuates and expels it, and the sleeping afterwards refreshes and recruits all the Powers. This Method is convenient whenever we find ourselves heavy and inclined to be indisposed; from whence we may infer, that the *Sanctorian* Perspiration is impeded. But be not too hasty to vomit or open a Vein by way of Precaution, for you know not what you are about; these may disturb or expel the Matter before it is concocted, whence Nature will be disorder'd and weaken'd.

§. 1051. Nor is there any thing more capable of defending the Body against the Violence of external Causes, than for a Person to gradually lessen his Winter *Apparel*¹ as the Spring advances; and again to timely increase the Summer Cloathing in Autumn.

¹ *Sydenham* observes, that among a hundred People who are invaded with autumnal Diseases, as Pleurifies, Peripneumonies, Catarrhs, &c. there are very few of them who owe not their Disorder to some Alteration in their Cloaths, by which they are too much exposed to the Cold; but are never disorder'd from keeping themselves too warm; of which *Horace* was aware, when he tells us,

Matutina parum cautos nunc frigora mordent.

§. 1052. To the same End also will a moderate¹ Diet, described in the few foregoing simple Rules, very much conduce: In Summer-time the Diet ought to be light, soft, laxative², moist, and composed mostly of mild Sallads, or Pot-herbs, ripe Fruits, Milk, and
Broths,

Broths, with Plenty of watery or very thin Drinks, assisted with gentle Exercise of Body, avoiding all the more violent Exercises.

In *Winter*³ the Diet ought to be more compact and heavy, hard and dry, higher seasoned with Spices or Salt; Meats roasted and the Bread more thoroughly baked, and accompanied with longer and more robust Exercises of Body.

In Spring and Autumn the Diet should be at a Medium, betwixt that of Summer and Winter, making a proportionable Allowance as the Weather inclines more to one Season or the other.

¹ No Food ought to be allowed which is easily inclined to Putrefaction; but the Drink should be plentiful, and chiefly a Mixture of Wine and Water; but in Winter the Drink should be stronger and more sparingly used.

² Provident Nature seems to have prescribed us this Diet, since in Summer-time Flesh-meats putrefy much sooner, that they might not be so frequently used; but at the same time we are plentifully supplied with Garden-fruits furnished by Nature, with watery and acid Juices to allay the Heat and resist Putrefaction, to which the Season greatly inclines.

³ These Rules are given by *Hippocrates*, and by *Diocles* in his Epistle to *Antigonus*.



DIET *for* LONGEVITY.

§. 1053. **A** Healthy human Body is gradually so chang'd by the Actions inseparable from Life and Health, that the smallest Fibres become *rigid*¹ and immovable, and the *minuteſt*² Veſſels grow together into ſolid Fibres, no longer pervious to the Humours, while at the ſame time the larger Veſſels become harden'd, *contracted*³ ſmaller, and all Parts ſhrink together, become more compact, grow to each other, and thereby occasion the Drineſs, *Waſting*⁴, Immobility and Inſenſibility remarkable in old People. By theſe Means the Offices of the ſmalleſt Veſſels are deſtroyed, the Humours ſtagnate and thicken in them, concrete together, and with the Sides of their own containing Veſſels; whence the Body is deprived of its moſt ſubtle Juices, the concocting Powers are weaken'd, the Waſting of the Body ceases to be repaired, and the groſſer Humours only continue to flow ſlowly through the larger Veſſels; whence Life is in a manner barely ſupported alone, without the *animal Actions*⁵; till at length from theſe Changes, conſequent of Health itſelf, Death from a mere old Age becomes inevitable.

¹ The Body of the most healthy Person becomes gradually more rigid and indisposed for Motion, as Age advances.

² In new-born Infants no Humour is more abundant than that of the Nerves, nor is any Humour more deficient in old People; but in these last the Veins appear turgid to the Eye, from the Abundance of the grosser Humours in the larger Vessels.

³ In old People the Skin becomes wrinkled and contracted over the fleshy Parts, their Bodies fall away, and they become thin or slender, which is the *Marasmus* or wasting of old Age.

⁴ They who are very tall in their Youth, become much shorter with old Age, and incline forward, as *Hippocrates* observed of old. A Person of eighty Years old, loses near one third Part of the Height which he had before he was passed the fiftieth Year. The Cause of this contracting proceeds from the Reduction of the Spaces betwixt the *Vertebræ* of the Spine, from a shrinking of the Cartilages, whence the *Vertebræ* either immediately grow together, or the whole Spine is incurvated.

⁵ For these Actions are performed by the smallest Vessels, which are the first that grow hard and close up, and from hence arose those Complaints made by *Barzillai*, when invited by *David* to the Regal Feast. The Dulness or Weakness of all the Senses in old People, especially of the Eyes and Ears, is sufficiently apparent to every one who will take it into Consideration.

§. 1054. This Change therefore happens sooner, if the Actions of Life and Health have been *violent*², but later if they have been

moderate. So that a just Moderation in this respect, seems to promise the greatest Longevity possible, more especially if the Art of preserving Health, and preventing Diseases, concur with their several Means or Effects not to interrupt this End, the Sum of which here follows.

¹ Violent Exercise in the Time of Youth, wears out the Body and brings on old Age before its time, and therefore it gives me Pain to see Parents oblige their Children to work before they are capable. But too little Exercise accumulates crude Humours in the Vessels, so that the Body is overfilled with Juices, not having their due Motion or Circulation. A proper Medium is therefore to be observed to exercise the Body sufficiently, to prevent any Crudities from gathering; but not to work it so far as to dissipate those which are already perfect or concocted. That we keep up to the Mediocrity may be known, if our Bodies continue for several Years of the same Weight; for if the Weight increases, the Exercise is not sufficient, and if the Weight decreases, the Exercise is too great.

§. 1055. The Body ought to be qualified according to the several Circumstances (mentioned before at §. 885.) as far as they can be given it by any Art. The Actions of the Body ought also to conspire so as to restore what is lost, assimilate the Aliments which are *taken in*¹, procure the Body to grow to its due Limits; with a constant or regular, easy and slow, *Expulsion*² of the Fæces; for which
Purpose

Purpose therefore moderate Exercise or Labour constantly used, till a slight Weariness is perceived, will be highly useful. In Childhood, this Exercise should be more gentle and gradually increased, as the Body acquires more *Strength*², and again decreased, as old Age advances. In the mean time, Life ought to be rendered agreeable by Variety of different Objects and Employments of the Mind, especially in Agriculture.

¹ No more Nourishment ought to be retained, than is consumed or wasted by the daily Actions of Life.

² There is no occasion here for Purges; for there are many of eighty Years of Age who never used a Purge in their Lives for the Benefit of discharging the intestinal Fæces; but if there is found a Necessity of keeping the Bowels lax, that may be procured by increasing the Drink, and lessening the Proportion of solid Aliment, or by omitting a Dinner, or by a little increasing the Exercise before Meals, which is the natural way of purging.

³ Thus may the Body be preserved strong to the Age of fifty; when it will be necessary to diminish the Exercise, unless you would exhaust your Strength, as I remember to have seen in one of my very good Friends. An old Person ought to forget all Cares, and enjoy himself in innocent Recreations, and the most gentle Exercises of Body.

§. 1056. Those Employments of Mind should be chose which are most suitable to every one's particular *Genius*¹, or natural Inclination;

clination ; and these are to be governed or moderated so, as neither to exhaust nor dissipate the Spirits by too much Motion, nor to let them be dull by too much Rest. In *Childhood*², sharp Contentions and intense Study, are to be restrained, and the Mind to be gradually more exercised as Age advances ; and in old Age again, to be gradually more and more moderated, frequently *varying*³ the Occupations or Employments of it, by diversifying the Object.

¹ There are some who seem to be, in a manner, revived or animated with new Life, when, upon leaving some disagreeable Study to which they are compelled, they apply themselves to another more agreeable and better adapted to their Inclination.

² I remember a Boy so skilled in every Science, that he was a Monster of Learning ; but then his Life extended no farther than the fifteenth Year : And I likewise saw a very learned Youth who studied Day and Night, but then he died in the nineteenth Year of his Age, emaciated without any Disease, but what came from too great a Waste of the Spirits.

³ To be always poring over the same Object, dulls the Intellects and tires the Mind, which is delighted and improved by a Variety : and therefore it ought, at times, to be relaxed from the more severe mathematical Contemplations, and to be employed upon something more light and agreeable, as Poetry, Physic, History, &c. for as the incomparable Lord *Bacon* tells us, the Spirits ought not to be allowed by Rest to stagnate or concrete,

nor yet to be dissipated; nor lastly, to dissolve or prey upon the Vessels.

§. 1057. Simple Aliments which are dry, hard, firm, and neither acrid nor inclined to Putrefaction, as of the vegetable Kind, Bread, Roots, and Fruits not over-ripe, but a little austere; from Animals, lean or salted Flesh, or Fish so prepared, *are most wholesome*^s for People in Years who desire to live long. But in *Childhood*², Milk and Bread gradually increased, proceeding thence to the more firm Aliments as Age advances is the best; but in old Age again, the Diet is to be reduced to that of Children.

¹ This has been taught by nobody so well, as by the Example of *Atesius Cornaro*.

² Children are born without Teeth that they might not injure the Nipples; afterwards the Teeth appear through the Gums, but are so soft and infirm, that they cannot be safely trusted to eat any thing but Bread, to which they may be brought by Degrees. But after a few Years these Teeth all fall out, and others stronger grow up in their Stead; but the last and strongest Teeth of all come out when they are near of Age; so that at about twenty-five Years of Age, a Person may be able to chew the hardest and toughest Aliments.

§. 1058. The drinking of pure and cold Water in Moderation, sufficient only to allay the Thirst, and dilute agreeable to the Constitution, is most to be approved from the Instances of its Effects. Pure and soft Ale, and
Wine

Wines which are come to Maturity, may be used also in Moderation, but too much of them are highly pernicious. In Childhood, Milk may be allowed, gradually more diluted, and at length, Water in *robust*¹ Age; but in old Age when the *Teeth*² are wanting, soft Wine will be convenient.

¹ *Alexander* owed his untimely Death in the Flower of his Age, not to *Mars*, but to his Contentions with *Bacchus*, making a too free Use of Wine.

² But this Wine ought neither to be sharp, or acrid, nor strong, though these are the Qualities for which Wines are usually praised; for the Bodies of old People are sufficiently dried up from other Causes, and therefore they rather require moistening: Therefore it was wise in *Socrates* to order the Butler to pour him out but a little, and as often as he pleased; for Showers are destructive, when Dews refresh.

§. 1059. In the mean time rigid *Abstinence*¹, and the most thin or spare, drying and emaciating Diet, now and then interposed, is of wonderful Advantage.

¹ When the venereal Disease first invaded the *Spaniards* and *Italians*, before the Efficacy of Mercury was known, they made use of drying and sudorific Medicines, with a low Diet, chiefly of Raisins and Bisket, with plentiful drinking a Decoction of the Woods; by this means they washed out almost entirely the Fat from the whole Habit, which is the principal Seat of the Disorder. The very same Effects we now procure by the Use of Mercury,

Mercury, given with Discretion, so as to raise a Salivation; after the Use of which the whole Body, in a manner, seems to grow young again. A melancholy Man of a noble Family, strongly persuaded himself, that the Effects of his juvenile Faults had overtaken him in his old Age, and would not be persuaded from undergoing a Salivation; to which the Physicians consented for the Cure of his imaginary *Lues*, by which Means, though he did not come of a long-liv'd Family, he recovered a perfect State of Health, and survived to eighty Years of Age: For by this Medicine all the Humours are attenuated, and their vicious Parts discharged from the Body, their Place being supplied with better Humours from laudable Aliments; whereas, when too great Quantities of Food are constantly taken into the Body of a Person, whose vital Powers are much exhausted, then worse Humours are generated, instead of those which are consumed or expelled. Lord *Bacon* observes, that evacuating Medicines conduce to long Life; but then the Viscera ought to be strong enough to make more healthy Humours from the ingested Aliments. It is altogether imprudent to purge those People, whose Humours appear to be discharged either healthy or diseased, and their Powers not sufficient to restore them; for with bad Humours they may be capable of living, which they cannot without any.

§. 1060. As old Age advances, Nourishment may be introduced into the Parts by external Application in the Form of Vapours, Baths, *Fomentations*¹, Clysters, and *Unguents*². The Air must be pure, *mountainous*³, or coming from a plain dry Country, from the Fields,
shady

*shady Woods*⁴, and inland Places; and especially a cold Air off Islands, is reputed the best and most healthy.

¹ Of this we have an Instance in *David*, who having lost all his Strength by old Age, so that he could not keep himself warm by any Means, was persuaded by his Physicians to take a healthy and beautiful Virgin as a Concubine, by whose Warmth and Contact he might be recruited, which Counsel seems to have answered Expectation. They might, indeed, have made him warm enough by culinary Fire, but by this Means the healthy Vapours of the healthy Virgin were applied to, and drank in, by his wasting Body, without endangering a greater Waste, as must have followed from common Fire. *Sydenham* observes, that he has seen the most excruciating cholicky Pains relieved, barely, by the Application of living Puppies upon the naked Abdomen of the Patient; for by this Means, the most volatile exhaling Vapours pass from the Body of the healthy Animal, into that of the diseased Patient; and these Vapours are absorbed most during the time of Sleep, when the Pores are most open and relaxed.

² When the Oils of *Jasmin*, *Lignum Rhodium*, *Roses*, and the like, are placed under the Nostrils of the Patient, their exhaling Vapours greatly refresh and renew the decayed Functions of the Brain. Hitherto also may be referred the ancient Story of *Democritus*, whose Sister kept him alive three Days only by the Vapours of warm Bread, that he might not die in the time of their solemnizing certain Rites or Ceremonies.

³ *David* promises a Habitation to the Just in the Mountain of the Lord; whence *Helmont* concludes, that they must be long livers in the highest Mountain,

Mountain, which the Eastern Inhabitants might call the Mount of God. Certain it is, that a *Dutchman* has built himself a House upon a very high Mountain in the *Cape of Good Hope*, where he has lived Time out of Mind in a healthy old Age beyond the Memory of any of the Colony: But the Air of open Fields and Countries is also recommended, as being freely agitated by the Winds.

† People living in the barren Woods, and naked Mountains of *Germany*, upon a very coarse Diet, survive often to the Age of one hundred and fifty.

§. 1061. The *Excretion* † of the more gross Humours in old People is to be promoted by the most innocent and safe Remedies, which excite the Fibres to Motion, and dissolve the feculent Juices; among which, Saffron, Salts, aromatick Gums, Honey, and soft Wines, are the best.

† Such, namely, ought to be used as will evacuate the gross excrementitious Parts of the Humours without impairing the Strength; for the natural excretory Powers are to be strengthened, and not infringed.

§. 1062. An almost radical Change of the Humours by Resolvents, and a Discharge of them afterwards, as by the received Methods of Cure with Mercury, or attenuating, drying, and sudorific Decoctions, often dispose the Body in the best manner to expel the old Humours, and acquire fresh Supplies of *new* †, vital Matter; whence these Means prudently
and

and artfully used, may conduce to Longevity.

¹ When a large robust Man, whose Body weighs above an hundred Pounds, has had all the Fat consumed by mercurial Salivation, he will afterwards in a few Weeks time by Milk Diet, gradually recover his Strength and Corpulency, and his Body will be effectually prepared for Longevity.

§. 1063. Vapours, Fomentations, Unctions, Bathings of sweet smelling and pleasant Ingredients, with *Milk* ¹, *Flesh Broths*, *Oil*, and of living *Animals* ², are excellent Remedies to *put off Death* ³ and the Driness of old Age, and to prolong Life, though they are hurtful to Youth.

¹ *Frederic Hoffman* demonstrates, that from acidulated Liquors by a gentle Heat, there exhales a limpid Water with little or no Smell, Taste, or Colour, but having all the Powers of a medicinal Water concentrated in itself, and is therefore so efficacious for increasing the Strength and Spirits, that nothing can surpass it; and such a kind of pleasant, mild and restorative Faculty is there in Milk.

² Some of the Tyrants of the barbarous Nations have often prolonged their Lives, and cured themselves of a Leprosy by using warm Baths of Blood taken from the most healthy young People; but a milder Remedy of the same Nature, may be had from human Milk lately extracted.

³ After the fiftieth Year the Body begins to decline, and therefore one should be cautious not

to consume old Age in Youth, by drinking of spirituous Liquors, Bleeding, &c. for of fifty People who have abused spirituous Liquors, there is hardly one who escapes his fiftieth Year.

§. 1064. From what has been said (§. 1053, to 1064.) it is evident that those things which render the Body large, hardy, strong and durable of Age, not liable to violent Distempers, generally dull the Intellects and obstruct the Briskness of the Mind's Action through the *Grossness*¹ of the Organs. Nor are the Helps by which the Causes of the *most perfect*² Health, are generated or assisted, the Means to procure long Life.

¹ They who are solicitous only about the Entertainment of their Bodies have dull Intellects; and they who are over-studious have infirm Bodies; but such violent Exercise of Body and Mind, cannot suffer the Machine to last long; the Truth of which appears from the History of long Livers.

² For the extreme Mobility which is required for the most perfect Health, too soon destroys the Body.

§. 1065. What is most firmly promised and recommended by some to prolong Life, are therefore vain and empty Boastings, without any true Support, either from Reason or Experience: such are the Use of *Helmont's* first Ens or Essence of *Cedar*¹, *Elixir Proprietatis*² of *Paracelsus*, the highly praised Tincture or Elixir of the Adepts; the first Essence of *Metals*³, Minerals, Animals and
Vege-

Vegetables; repeated Purgings with *black Hellebore*⁴, Spirit of Sulphur by the Bell, Spirit of Rosemary-flowers; Magnets drawing the Spirits out of healthy *young People*⁵ according to *Artephius*; the feeding upon long-lived *Animals*⁶, or such as frequently renew their Parts; or lastly, the wearing of *Sigils*⁷ adapted to the Planets productive of Life; all which are equally vain and stupid.

¹ The Adepts in Alchymy have wrote much upon Longevity, and have laid down their Opinions in such a manner, that they cannot be easily refuted by one who is not versed in Chemistry. They tell us, that a first Ens can be extracted¹ from Vegetables, Animals, and Minerals, of which the two former are less valuable. But the Essence or Spiritus Rector of the very old Cyprus, which is called the Cedar of *Libanon*, is highly recommended for Longevity; for this Tree neither rots nor decays by the Worm, growing to such a Magnitude, that in the *Sheldonian Garden at Oxford*, there is one which grows constantly, and covers above fifty Paces with its Branches. *Helmont* imagines this is the only Tree we have remaining among those that were in *Paradise*, without any new ones of the same kind since propagated; but this is an Error or Falsity, for it is propagated from the Seeds sown. Of this Wood was made *Noah's Ark*, and the Ark of the Covenant. The primum Ens of this Cedar-wood extracted by means of the Alcahest, under the Appearance of a milky Liquor, will then, according to their Accounts, make the human Body as long-lived as the Cedar itself is among Trees. But this Longevity of the Cedar is a Faculty placed in the
Seed

Seed thereof by the Creator, and neither resides in the Juice nor in the Spirit of that Wood; but we do not make Cedar, but receive it ready made to our Hands, nor are we capable of taking from it the Properties essential to its Nature, and residing both in its solid and fluid Parts.

² So called, as having the Property of prolonging Life. With this Medicine *Paracelsus* promised himself he should live to the Age of *Methusalem*, that even then it would be at his Choice whether he would continue any longer among the living. But we do not see that any of these Adepti were long livers; and *Paracelsus* himself died in his forty-seventh Year, and *Helmont* in his sixty-seventh, which are Ages commonly arrived at by People even who drink freely; only *Lully* surpassed his eightieth Year, when he is said to have been killed by the *Barbarians* for preaching the Christian Religion.

³ The Chemists tell us, that the Cause which renders Gold the most simple and permanent among Bodies, and capable of being corroded but by a few, may be called its *primum Ens* or the Spiritus Rector of the Gold. This concentrated Cause of Fixity they endeavour to extract by a Dissolution of the Gold, and then apply it to the human Body, to inspire our elementary and constituent Parts with the same permanent or fixed Nature as is possessed by the Gold itself, endeavouring by that means to render the Body immortal, or at least extremely long-lived; and from hence their high Praises of *Aurum potable*. The Cause of their Error lies in placing the Essence or Form of Bodies in their Juices only; whereas the Cause of Firmness in Gold consists in the particular Construction or Connection of the solid Elements which compose that Metal. Nor is their Counsel in this

respect at all wiser than that which directs one to eat Hares Flesh that he may be a swift Runner.

⁴ This Plant is by *Paracelsus* called *Daura*, as recovering Youth, and disposing the Body to Longevity, by purging out every thing injurious. But here *Helmont* prudently opposes the Chemists, by observing that when the Body is thus exhausted they ought to know how to fill it again with laudable healthy Humours. Thus indeed *Medea Æsones* had Youth restored by discharging the old Humours; but *Pelias*, who was left to himself exhausted, perished.

⁵ *Artephius* has left us some small Treatises of the Philosopher's Stone, which the Chemists highly esteem and reverence as Oracles, because they are unintelligible. They tell us of this Man, that he discovered a Magnet peculiar to human Spirits, so that he could by this means draw out the vital Spirits from a healthy young Man, who in Consequence of that must die; and then when he had by this means survived to a great old Age, being tired of Life, he included this moderately volatile Tincture in a vessel, and inclosed it with himself in a Sepulchre, where he would sometimes only draw in with his Nostrils as much of the Tincture as would just suffice to keep him alive, by which means he had protracted Life for above a thousand Years past. This however is certain, that the Strength of a healthy Body may in some Measure be communicated to one that is weak or diseased, since Girls lying with old Women waste away, whereas the old Women improve, and have better Health and Spirits.

⁶ Such as the Stag is believed to be; but the Flesh of these Creatures is very hard, and so diffi-

cult to digest, that one may reasonably conclude it rather destructive than conducive to Longevity.

7 The Adepts tell us, that the Creator has fixed in every Being, both Male and Female, a Seed for its Multiplication, not excepting Metals themselves; and that in this Seed lies concealed a small Spark, which animates and directs the Seed to form only the particular kind of being peculiar to its own Species. This little Spark of Life, or Animation assigned by Nature, is the more firm or permanent as the Life of the Being is required to be more constant; and therefore every thing which is produced out of the Seed, is to be assigned chiefly to the Aura or animating Spark thereof. Hence therefore they conclude, that the *primum Ens* is to be separated by the Art of Chemistry by the same Medium by which it was communicated; as for example, the *Spiritus Rector* of Cinnamon to be extracted with water, by which means they hoped to procure a Medicine capable of communicating the same Durability to the human Body, as is peculiar to the Aura of the Substance from whence the *primum Ens* was prepared. For my own Part, I believe that if the same Firmness could be communicated to the human Body which we observe in Gold, it would become indeed infinitely durable, but at the same time, like Gold, it would be immoveable; so that they would make Statues out of Machines.

§. 1066. Nor is it at all probable that Life can be prolonged, even by the best Methods in Nature to *such*¹ a Number of Years as the adept Chemists propose; and even their own Arguments and Experiments are the strongest Proofs of their Inabilities in this respect.

A perpetual moving Instrument will last as long as the Matter of which it is made will allow, though it must infallibly wear away itself in time by Attrition. But such is the Make of the human Body, that it repairs itself at the same time and by the same Actions by which it is wore out; and this is an Advantage which animal Bodies enjoy above all other Machines. But even the human Body itself is in time destroyed by its own Actions, and all Bodies with which we are acquainted in the Universe, have their Beginning, Perfection, Declination and End; nor is it in the Power of Art to invert, if it can direct the Course of Nature. There have been two or three Instances of Men surpassing their hundred and fiftieth Year in *England*, nor are we acquainted at our time of Day with Instances of People attaining a greater Age. In *Sumatra* and *Java*, we are told that there are old Men of 130, 150, and 200 Years old; and *Carulus M. Armiger*, who is called *Johannes de Temporibus*, or the wandering Jew, is said to have lived 300 Years, preserving his Body by the Use of Honey internally, and of Oil externally. But this Account favours too much of Fable to be relied upon, since we can have no living Testimony for such remote Ages, there being no Companion cotemporary with such an old Man to witness for him; nor was it without great Difficulty, that King *Charles II.* traced back the Age of old *Parre* for 150 Years past, which would not probably have been discovered after all, if his Testimony as a witness had not been registered in the Archives of their Courts of Judicature; where it is known from the Laws of the Kingdom, that no one can be admitted as a Witness under a certain Age. There now lives a Man in this City of *Leyden*, who has seen the Beginning and End

of the seventeenth or last Century, being always very healthy; if he is asked by what means he has attained to so great an Age, he usually answers, by a Method you will not imitate, Temperance and Sobriety.



Of the Therapeutic or Curative Part
of P H Y S I C K.

§. 1067. **T**HIS fifth and last Part of our Medical Institutions (§. 37.) explains the general Precepts, teaching the Manner in which the Physician ought to behave and treat his Patient, in order to attain the Ends here proposed: 1. to preserve Life; 2. to remove the Cause of the Disease; 3. to take away the Disease itself; and lastly; 4. to expel the present Effects or Symptoms of the Disease.

§. 1068. To accomplish these four *Intentions*¹, (§. 1067.) an artificial Change is to be produced in the Body of the Patient, for which Purpose Instruments or Remedies are required, by the Efficacy and Application of which, the Changes necessary for the Attainment of the proposed Ends may be excited, whether under the Denomination of Remedies, *Medicines*², or Helps of any kind.

¹ This Part of Physick contains the Rules by which the prudent Physician discovers what he is to do to preserve Life, weaken or destroy the Causes of the Disease, and remove the same together with its Effects or Symptoms: and in this Part of Physic the Heads of an University desire, that the Candidate for a Degree in Physic may undergo a rigid Examination.

² These are Instruments or physical Substances, by the Application of which to the Body, an Alteration is made in it from a diseased to a healthy State.

§. 1069. But these Remedies are to be *applied*¹ in such a manner to every particular *Patient*², as to produce this necessary Alteration (§. 1068.) and therefore a Physician ought first to know what Alteration is necessary to be made in the Patient, and by what Means or Remedies he is to bring it about; and consequently he must be acquainted with the Effects following from the Use and Application of those Remedies in the Sick Person; all which can be only known with Certainty, from the Appearances or Symptoms offered to the Senses in the *Patient*², or by just Reasoning, from whence he may perceive the Action or Change required with the proper Means.

¹ The Physician ought to be acquainted with the Change necessary to be made, and the Remedies by which the Change may be affected; he ought also to know the Effects of Medicines, for he can attempt nothing without a previous Knowledge of what may be expected from the particular

particular Method of treating his Patient, for the whole Business turns here upon Futurity, which much increases the Difficulty.

² These Signs are to be taken from the Patient himself, and not from the general Principles of Physic, which when applied to particular Cases are often found deceitful: As for Instance, suppose a Case which indicates a Vomit; if the Physician does not attend to the particular Habit or Antipathy of the Patient, it may kill him, for there are some who are always thrown into Convulsions by an Emetic.

§. 1070. Whatever is thus discovered in the Patient so as to instruct the Mind of the Physician (§. 1069.) is called *Indicans*¹, or the Thing that indicates, and the Knowledge of this arising in the Mind of the Physician, is called the *Indication*², as that which is by this Knowledge indicated to be done, is called *Indicatum*³.

¹ This is any physical Condition in the human Body, either past, present, or future, from whence one may learn what Method is necessary to be taken in the present Case at that Instant or some time after.

² The Indication is the Knowledge of the Thing indicating, or the Knowledge of what is to be done at present or hereafter, agreeable to the Things indicating.

³ The Indicatum is the Thing itself now required to be done or used agreeable to the Rules of Art, derived from a Knowledge of the Indication and Things indicating.

§. 1071. The Indicans or Thing indicating (§. 1070.) is therefore all that can be known in the sick Person *concerning him*¹, whether *past*², present, or to come, which may serve to give the least Knowledge of what ought to be done by a Physician, which is often various and even opposite.

¹ These are not restrained to the Patient alone, as the Methodists have presumed to inform us, for the Indication is derived from every thing which is known to have any Influence upon the Patient, so as to affect him more or less. If I attend a Patient sick of the Small-pox, and know from Astronomy, or experimental Philosophy, that the next Day will be extremely hot, I ought by all means from such Observation, from whatever Quarter derived, to conclude what is best to be done to prevent the Mischiefs that might be threatened to the Patient from such increased Heat of the Air.

² As for Instance, if I know a Patient has drank plentifully of Brandy or other spirituous Liquors, I thence know what is best to be done for his Recovery.

§. 1072. Yet all this (§. 1071.) may be reduced, 1. to the remaining Life in the Patient, with its Causes, Nature, Consequences, and Degrees; 2. to the present Disease in the Patient, with its Causes, Nature, Consequences, and Symptoms.

§. 1073. For from all these Particulars, (§. 1072.) the Physician learns, 1. what is to
be

be done to preserve the present Life, to recover it when impaired, and to remove every thing which might destroy or diminish Life; 2. to know what Medicines or Instruments are to be chose for obtaining this End, with the particular Manner, Order, and Time in which they are to be adapted and applied.

§. 1074. Lastly, that Part of Therapeutics which directs how to discover the Things indicating, (§. 1070.) and the Things indicated (§. 1073.) is denominated *Methodus Medendi*, or the Method of Healing, a Summary of which here follows.



The METHODUS MEDENDI.

§. 1075. **I**N every sick Person there is *Life*¹ remaining, together with its Causes and Effects; and these are termed *Res naturales*, and commonly Nature itself.

¹ The most perfect Life is the Faculty of performing all the Actions agreeable to Nature; but Life diseased is the Faculty of performing only some Functions which remain in the Patient.

§. 1076. But since Life is always in *Action*¹, there will be always some of these Actions remaining in the sick Person, which before accompanied Health, and which may be there-

fore esteemed the Remains of the former Health, and the Effects of present Life, under the Denomination of Strength.

¹ The Disease always cures itself, since it is that imperfect Life which still remains from Health; that is what *Hippocrates* calls Nature, and what others term Strength; namely, the Powers of generating Motion.

§. 1077. Which Powers being carefully examined, will be found to depend upon the remaining Motion of the Humours through the Vessels, however conditioned that Motion may be.

§. 1078. And though these Powers are reduced to the least degree, they yet continue the circulating Motion of the Humours thro' the Heart, Lungs, and Cerebellum; in which therefore consists *every*¹ the least Force of Life, which may be increased in various degrees.

¹ Hence one may understand what Life is in the least Degree. If a Person falls down in a Syncope, the Circulation of the Blood is hardly carried on, and though the Heart now palpitates, Death is not yet at hand; for if you sprinkle cold Water upon the Patient, the Elasticity of the vessels will be increased, the Motion of the Blood will be renewed, and the Patient recovered: but Life in the highest Degree is an increased Heat and violent Motion of the Vessels and Humours, that is to say, a Fever.

§. 1079. From what has been said, it is evident that these Particulars (§. 1075 to 1079) being discovered and well understood, require to be preserved and restored to their healthy State. And the Knowledge of this is termed the vital or preservative Indication.

§. 1080. The Cause of this Disease being known, calls for its Direction or Removal; and as the Cause is always previous to the Effect, therefore this Indication is termed Prophylactic or Preservative, inasmuch as it prevents the approaching Disease by an Extirpation of its *Causes* ¹.

¹ In this Case I do not cure the Disease itself, since the Cause, according to Reason, is always prior to the Effect; but I foresee what is about to happen from the Symptoms now present, which I therefore predict; and this is what we term preventing a Disease.

§. 1081. But the Disease itself being perfectly known, indicates the Removal of it; and this Indication is termed Therapeutic or Curative.

§. 1082. Lastly, the Symptoms being known, and importing more Danger and Uneasiness than will permit their Treatment to be deferred, until the Disease, whence they proceed, is cured, call for a Mitigation and particular Treatment of them; and this is called the urgent, mitigative or *palliative* ¹ Indication.

Suppose

Suppose an ardent Fever under Cure, and I act upon the Cause of the Disease itself, namely, the too great Attrition or Motion of the Humours, from whence I foresee a Gangrene will follow; then this Treatment may be esteemed prophylactic or preventative. When I support Life by a proper Regimen and Diet, the Cure is termed preservative; but if from thence follows so great a Hæmorrhage as endangers the Life of the Patient, I must then leave all other Considerations, and apply a Styptic to restrain the Flux.

§. 1083. From whence it is now evident, that what is proper to be done cannot be indicated, unless we first know wherein *Life* consists, with its Causes, Conditions, Powers or Strength and Effects; and also from a previous Knowledge or Consideration of the Disease with its Causes, Stages, Degrees of Violence and Effects.

If nothing was to be done by the Physician but to add or take away, the whole Art might indeed be learnt with Ease; but the Addition and Removal of any thing may be injurious, and a different Treatment is required in the very same Disease in the same Patient, but at different times, or in the same Stages of the like Disease in different People. The Physician ought therefore to distinguish betwixt what is at present injurious and what is serviceable, to which Depth an empirical Practiser seldom penetrates. But a Physician learned in all the Particulars that may be known in our Day, may as firmly and confidently answer for every thing that he does, as a Counsel can reason for his Procedure, agreeable to the Digests or established

blished Laws. Yet it must be confessed, that the Generality of common Physicians run daily into Errors, either from too much Business, or from Hurry and want of Thought. Thus also myself being much hurried in Business, I frequently see that I have erred or neglected something, which it is too late to amend or prevent; and the same is confessed of themselves by every candid Physician who has transmitted Histories of his Practice to Posterity.

§. 1084. Hence it follows, that first what is to be done must be indicated or pointed out; and then by what Remedies, Dose, Condition, Time, Order, &c.

§. 1085. But since all these Particulars (§. 1083.) are to be considered in one and the same Patient, while every one calls for something to be done particularly with respect to itself, and as they often require particular and different Remedies to be applied, it frequently falls out, that what is indicated to be proper for one Symptom is *repugnant*¹ to another, or as an opposite Remedy to that which is required by another Symptom. From hence therefore is derived that useful and celebrated Doctrine of the Indicans and Contra-indicans, of things repugnant and permissive, or which co-indicates or is co-repugnant; all which may be easily understood from what has been already delivered.

¹ In a spurious Peripneumony the Oppression of the Lungs indicates a great Impulse and Obstruction.

struction of the Blood in the Lungs, in a little time capable of inducing Suffocation; and therefore these Causes indicate bleeding to make a Revulsion: but this is again opposed by the Lentor or Viscidity in the Blood, which is increased by bleeding. In such double Calls, that is always to be preferred which is most necessary to Life, namely, bleeding is here to be used in order to prevent imminent Suffocation, and acquire time in order to dissolve the Viscidity. In another Case, a wounded Patient being greatly weakened by a Hæmorrhage, some Physician will perhaps order him a Drink of rich Wine, or some Cordials to recruit his Strength; but another more cautious Physician will forbid every thing which increases the Blood's Motion, lest the Hæmorrhage should return, and discharge the little Blood which yet remains within the Patient. In such a Case then there are two contrary Indications; and this often occasions the greatest Danger and Difficulty in Practice: for if you give any Wine or Cordials, the Patient will bleed to death; or if you give him none, he will perhaps perish with a Deliquium; and yet some Course must instantly be taken, since in acute Diseases especially there is no room for Delay.

§. 1086. Therefore when such Contrarieties happen together at the same time, the Physician must have recourse to the Rules or Maxims established, to determine his Choice, and remove the Difficulty, which would otherwise arise in these doubtful Cases; and these are principally the following.

I. What-

1. Whatever indicates in the Patient requires either to be preserved or removed.

2. Whatever is found in the Patient agreeable to *Nature*¹, always requires to be preserved in that Condition.

3. But whatever is found in the Patient *contrary*² to Nature, demands a Removal,

4. The Body is made up of those things by which it is *nourished*.

5. Like things are to be preserved by others of a *like Nature*⁴.

6. The Cause curing Diseases by Remedies is the *remaining Life*⁵, and Constitution peculiar to every individual Person, which being weak or deficient, Medicines are of little Use.

7. Hence therefore when the vital Indication is urgent, together with any other, then the former must always be regarded or satisfied in the first place.

8. But where unequal Indications urge together, the greatest ought always to be most regarded and satisfied.

9. The Juvantia and Lædentia, or things which appear to relieve or hurt, are some of the chief that indicate.

10. *Contraries*⁶ are removed by their Opposites.

11. Nature rejoices in the Use of those things to which she has been accustomed, but is commonly disordered or uneasy under things *unusual*⁷.

12. In the greatest Maladies the most powerful Remedies are to be used out of hand or at once.

13. But in a more flight Disorder, *milder*⁸ Remedies are to be given gradually and in small Quantities, and often repeated.

¹ The chief thing according with Nature is the *Vis Vitæ*, which yet is not always to be preserved in the same Strength; for when something more urgent contra-indicates, the *Vis Vitæ* is to be diminished or weakened discretionally, that it may be afterwards restored; an Instance of which is well known in the Pleurisy.

² As a Flux of Blood from the Nose may be suppressed by opening a Vein in some other Part.

³ For all that Mass which we now call ourselves, was diffused in other Bodies or taken from the Aliments, which have by this time been changed into our own Nature. Originally we were infinitely smaller than a Grain of Sand.

⁴ Blood is repaired by more Blood made in its room, Milk with Milk, the mild Humours with mild Aliments, and the acrimonious with those which are acrid, &c.

⁵ The Physician therefore operates by his Skill, not upon the Disease but upon Life, which has been denominated by *Helmont* the Archeus; for only suppose the animal Humours to cease once from their Circulation, and all means of Recovery are at once removed. So soon as Life is over, there is no room for healing, since no Medicine operates upon a dead Body. It is therefore manifest that when Indications contradict each other, one ought to chuse that Side which shall preserve Life.

⁶ Not by such means as are directly opposite to the present Disease, but by such Remedies as will afterwards manifest their Effects, contrary to the Cause of the Disease. *Paracelsus* and *Helmont* unjustly

justly laugh therefore at this Maxim ; as, for Example, that a Man who is froze should be killed by bringing him to a warm Fire, and on the contrary, that his vital Heat should be renewed only by washing and rubbing him with Snow or cold Water. They do not consider, that in this Case the diseased Cold must be preserved by Heat, and that the Remedies which renew the Heat, of whatever kind they are, are nevertheless certainly opposite or contrary to the Cold. When in an ardent Fever the Body is to be restored to its natural Coolness or Temperature, we are not therefore to give cold Water, but such things as will by their Effects be afterwards followed with Coolness.

⁷ It were to be wished that this Maxim was always had in remembrance; for Constitutions and Diseases are not to be governed and altered at pleasure, like Boys in the Hands of a School-master, but it ought carefully to be learn'd from the Circumstances of the Patient what is necessary to be done ; for every thing new is not always the best, but that only which is most agreeable to Nature. They who have long accustomed themselves to drink plenty of Wine, cannot safely be altogether denied it when they are diseased. *Mithridates* fearing the Treachery of his Mother-in-law, endeavour'd to acquire such a Habit by the use of his Antidote, as would render him able to sustain all the Poisons at that time known without Harm ; which Advantage however terminated at last in a Calamity, since he was obliged to kill himself by the Sword to escape the Conqueror ; since Poisons were of no Service. There was an *Indian* Woman so much accustomed to a most violent Poison, that she could breathe out the poisonous Effluvia on all Sides, so as to kill those who loved her by their lying with her, herself in the mean time escaping

free and healthy ; and this was a Contrivance to kill *Alexander*.

⁸ Violent Remedies which operate in a very small Quantity, should hardly ever be used, when others more mild will suffice. In this respect the Practice of two celebrated Physicians at *Amsterdam* reconciled each other ; for one proceeded like *Fabius* the *Roman* Dictator with great Deliberation and Fearfulness, while the other ran upon the contrary Extremes of the Cautery, Knife, and most potent Medicines. If one of these was called alone to a Patient, the former often neglected what was necessary, and the latter frequently precipitated the Patient to his End ; but when they were both called together into Consultation, they always gave very good Advice, the Method of one being qualified by that of the other.

§. 1087. The Condition of Life is known from the Consideration of its Powers.

§. 1088. And these Powers are known by the Effects which they manifest in the Patient.

§. 1089. And these Effects are the Performance of the remaining Functions not yet destroyed.

§. 1090. But are carried on by the *Circulation* ¹ of the Humours through the Vessels and Viscera.

¹ Entire Life is nothing more than an equable Distribution of all the vital Humours thro' their respective Vessels ; for if a healthy Person, furnished with every thing necessary for the Support and Continuance

tinuance of Life, remains but a short time immerged under Water, then Health and Life itself perish together, barely from the Suppression of the Motion or Actions of the Heart and Lungs, tho' every thing else remain unaltered.

§. 1091. In which therefore is required a *due* ¹ Quantity of healthy Humours to be continually moved through their respective Vessels.

¹ That is to say, the Blood which enters the Heart must be replenished with a due Proportion of all those Juices which are requir'd to fill the several Vessels throughout the Body.

§. 1092. The Action of the Vessels depends entirely on the *Contraction* ¹ of their Fibres, which being distracted by the impelled Humours and distended into a greater Arch, shorten themselves again, dispose themselves in right Lines, and approximate their membranous Sides towards the Axis of their Cavity, so as to propel forward their contained Humours; and this is what we are properly to understand by the Force of the Vessels, to be determined variously according to their Figure.

¹ But this Power of Contraction cannot subsist without the Motion of the Humours urged forward by the Heart; nor can the Motion of the Humours subsist without the Elasticity of the Vessels. This contractile Force is nothing more than an Endeavour of their Coats to approach to their former Diameter or Capacity, which is necessarily

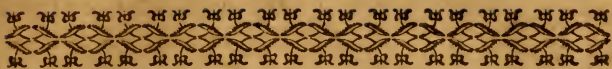
supposed to be dilated or enlarged by the Humours ; nor can one subsist without the other, but both of them are equally dependant upon the Cause, which sees every thing at once ; and therefore the human Body is not built so mechanically without the Assistance and Superintendency of the Omnipotent Being, who sees and makes every thing at once.

§. 1093. But it is evident, that this Action requires an elastic and contractile Power in the *Fibres* ¹, to resist their Distraction or Dilatation.

¹ *Lewenboeck* and *Ruyfch* demonstrate that the larger Vessels are composed of Membranes, which Membranes have their Vessels, and those Vessels again their Membranes and Vessels, continuing in that manner down to the smallest or least Vessels known in the Body, namely, the small Nerves.

§. 1094. And it is also evident, that an *Influx* ¹ of a most thin Humour into the smallest nervous and other Vessels which compose the Membranes of the larger, is necessary to be made alternately for the Propulsion of the grosser Humours through the larger Vessels.

¹ The Design is for the Humours to arrive in the same Quantity and Quality as is necessary for the Performance of every Motion, and for the Vessels to be elastic, so as to return or impress a due Quantity of Motion again upon the Humours.



Of Cordials and Diet of the Patient.

§. 1095. **S**INCE the Heart is the principal Cause of all the Motions which give a just Estimate of the vital Powers, therefore the Remedies which satisfy the vital Indication are properly called *Cardiacs*¹ or Cordials, even though they are not immediately subservient to the Heart alone.

¹ They have not this Name upon the account of their acting immediately upon the Heart, but because their Effects obliquely increase the Force of the Heart, and preserve Life. The *Latins* use the Name of Cardiac to signify a Disease of the Stomach; and *Horace*, speaking of a covetous Man who would not allow himself Victuals, says,

Non est Cardiacus.

§. 1096. A Variety of things will be found to come under this Denomination; but yet they may and ought to be reduced to the following Classes; such as 1. those which *restore*¹ a due Quantity of healthy Humours in the Body, or Juices which may be easily formed into such (§. 1091.); 2. such things as infuse Power or *Strength*² into the Fibres, and give them a due Elasticity (§. 1092, 1093.); 3.

those which increase the Quantity and Motion of the nervous Juice, that by filling the smallest Vessels the larger may be strengthened as well as the esser (§. 1094.); and lastly, 4. such things as *stimulate* ³ the moving Fibres, and by that means agitate the sluggish Vessels, and forward the *stagnant* ⁴ Humours.

¹ A Person who has lost almost the whole Mass of Blood by a Wound, will die inevitably unless new Blood be supplied like the former from suitable Nourishment.

² If the Humours indeed are in good Condition, and only Strength is wanting in the Heart and Arteries, the Humours may from thence cease to move, and the Patient will either perish or faint away.

³ There is a certain almost inexplicable Power in our Bodies, by which every Part is violently contracted from the Application of something acrimonious; if but a Drop of Vinegar happens to fall into the Eye of the stoutest Man while he is in Combat with an Enemy, neither his Strength nor Care to preserve his Life can prevent him from shutting his Eye contrary to his Inclination.

⁴ If a Person just drowned is taken out of the Water, and such a Force applied as will cause the Diaphragm to contract, the Person seemingly dead will return to Life; that is, the Person must be violently shook and agitated, and Air must be forcibly impelled through the Nose and Mouth, according to the Custom used in *Africa*; as I learnt from a Manuscript, and which is agreeable to the Experiments of *Hooke*. *Phil. Transf.* N^o. 28.

§. 1097. To the first of these Classes, I therefore refer those Liquors, which are, 1. endowed

endowed with a Faculty of nourishing the Body of the Patient; and which are, 2. so prepared before-hand, that they do not *require* the Actions of Mastication in the Mouth, and Digestion in the Stomach and Intestines, which are either deficient, or too slowly performed in weak and exhausted sick People; 3. those which consist of a Matter not easily inclined to a spontaneous Putrefaction, whilst the expulsive Force of the Viscera is too weak to expel the same in due time, or whilst they are mixed with some morbid or putrid Humour, whether Saliva, Bile, or any other; and lastly, 4. they ought not to be of such a Disposition, as to afford Humours like those which are already diseased in the Patient's Habit, whence they might increase the Malignity, or stir up the Cause and Symptoms of the Disease.

These Actions are oftentimes so weak, that the Patient can neither digest nor expel the ingested Aliments, which are sometimes also corrupted by mixing with other putrid Aliments or Humours already lodged in the Way. Thus if putrid Bile lies in the Stomach, Eggs and Flesh will not be convenient, because they putrefy by mixing with putrid Humours. When rancid and ill-smelling Vapours are discharged by breaking Wind upward from the Stomach, the Patient ought strictly to abstain from oily and fat Aliments, &c. but such Aliments are to be given, as are fitted to take a direct Course through the Mesentery and lacteal Vessels to the Blood; where, with very little Preparation, they may be able to circulate freely

through the small Vessels of the Lungs and other Viscera. When the vital Indication is therefore urgent, all these Causes ought to be considered, in order to determine what kind of Cardiac will be most convenient.

§. 1098. Such Cardiacs as these (§. 1097.) are called for when the vital Powers are weak, and attended with the Signs of Inanition or Emptiness of the Vessels of any kind. But a Weakness of the Powers frequently arises from a Plethora only; and in that Case, Abstinence and Evacuations may be esteemed Cardiacs.

§. 1099. But the Materials proper to compose such Cardiacs (§. 1097.), may be determined by the Physician from carefully enquiring into the peculiar Nature of the morbid Humours, which predominate and offend in the Patient; for then such Materials must be chose as are opposite to the known *Depravity*¹ of the Humours; which we have already described in treating on the Signs of Diseases (§. 909, to 920.).

¹ According as either a saline, oily, bilious, alkaline, or acid Acrimony offends, which are always to be opposed by their Contraries; but the Signs by which we may discover the Nature of the predominating Acrimony are mentioned in the Place here cited.

§. 1100. When therefore the Humours incline to an alkaline Acrimony (§. 725, 757. 911.)

911.) then the cardiac Materials (§. 1096. and 1097.) are best derived; 1. from a Decoction of soft mealy Seeds or Grain perfectly ripe, and previously dry'd, or as it were roasted upon a Kiln, prepar'd by long boiling with pure Water, so as to form thence a light Ptisan or Drink, a thicker Decoction, a Jelly or *Cream*² still thicker; or lastly, a more consistent Pudding; or the like Preparations may be made from the Crumb of *Bread*² with Water, such as the *Panada* or *Panadella* of the *Italians*, differing likewise in Degree of Consistence or Thickness; or the like may be made from *Oatmeal*³ or Barley prepared, greatly used and recommended among the Inhabitants of *Britain* and *Germany*: For the same Purposes may likewise serve all kinds of mealy Grain or Seeds prepared as mentioned before (§. 53. and 1034.) and formed either into an Emulsion or Decoction with Almonds, Pistachio Nuts, Poppy Seeds, &c. 2. From *Fruits*⁴ perfectly ripe, pleasant, fresh gathered, and abounding with a sweet and acid Juice, either preserved with Sugar, or converted into Jellies, or boiled with Water, and with a small Quantity of Bread boiled in it before it is prepared. Among Fruits fit for this Purpose, are the four and cyder Apples, ripe Quinces, China and Seville Oranges, Pears abounding with an acidulous and vinous Juice, Peaches, Apricocks and Plums, especially those which are ripe and dried under the Name of Prunes from *France* and *Spain*, Damsons, tart and sweet
Cherries,

Cherries, Mulberries, Grapes, Currants, Raspberries, Brambleberries, Elderberries, Strawberries, &c. 3. From soft *pulpy Fruits*⁵ dissolved in Water by the like continued boiling, and then rendered more agreeable to the Taste by candying with Sugar; for which Process are fitted Apples, Cucumbers, Gourds, Melons, and the Heads of Artichokes, &c. 4. From milky, soft, and acidulous Potherbs, such as red Cabbage, Colworts, Endive, Chicory, Purslain, Sorril, Vipers-grass, Goatsbeard, Pease, &c. 5. The *Milk*⁶ of Animals feeding only upon Herbs, the Whey thereof, skimmed Milk, Cream, Butter-Milk, sour Milk, and the like.

¹ When a very weak Patient is afflicted with a Pleurisy so that he can hardly breathe, while the acute Fever in the mean time continues to rage, there is no Possibility of giving Cordials with any Safety; nor was it the Practice of *Hippocrates* to give any thing more than Water, in which parched Barley had been boiled, but so that the Decoction might not exceed the Thickness of Whey. After the Fever is abated, it may be made thicker than the Whey of new Milk, rendering it a more consistent Aliment, 'till it at last acquires the Nature of a Pudding. These Aliments were given thicker and thinner in Consistence, according to the different Circumstances of the Patient and Disorder.

² The *Italians* boil Bread instead of Barley, because it affords an Aliment less flatulent.

³ The *English* feed almost wholly upon Flesh, and their young People are generally florid; but
nothing

nothing is more wholesome for them than Water-gruel, or a Decoction of Oats, which easily turns sour, subdues the Alcali, and dilutes the Blood, without ever putrefying. Such Aliment, Nature herself seems to crave; for if the most delicate Fowl be offered to a Person in a Fever, they will be sick at the Smell; but if you offer in the room of it, Cherries, Butter-milk, or the Juice of Oranges diluted with Water, it will be taken with an eager Appetite. I recommend Oats in this Place as proper for acute Diseases, because it is their Nature to incline much to Acidity; for Oats boiled in the Morning will be sour as Vinegar by Noon in warm Weather. But likewise Barley, Rice, and other sorts of Grain may be used for the same purpose.

* All ripe Summer Fruits are here convenient, when they have been dressed by Fire so as to expel the Air, and afterwards mixed with some Crumb of Bread and Sugar. This is what I frequently allow my Patients in many acute Diseases, in which it proves extremely pleasant. There is no Aliment so convenient for hot Countries as Garden Fruits, especially in the most Southern Parts of *France*, *Spain*, &c. where the Inhabitants have their Humours inclining to an alkaline Disposition; for here Nature has liberally furnished Garden Fruits as Aliments and Medicines; but these always acquire greater Maturity where the Climate is hottest, and seldom thrive in the colder Countries. These Fruits are likewise supplied and coveted most in Summer time, when the Humours are most inclin'd to Disorders from Putrefaction, or an alkaline Acrimony. Thus you see Nature acts the Part of a Physician, not only by supplying them with what is most convenient, but likewise by giving an Appetite to them at a time when they are most wanted.

These

⁵ These pulpy Fruits turn sour, ferment, and temperate the Humours. In my opinion, nothing tends more to temperate the Bile, and cool in ardent Fevers, than Cucumbers; for which I can see no reason to forbid the Patient in so strict a manner as is rigidly adhered to by some.

⁶ Milk likewise easily turns sour, and Whey much sooner, but Butter-milk is already sour. The Whey of Milk turned by boiling with Butter-milk, and straining through Flannel, is the thinnest and finest of any. No Drink is so convenient as this in ardent Fevers, Peripneumonies, Measles, Small-pox, &c. or else Milk or Whey with three times as much Water, and a little Sugar to prevent it from souring.

§. 1101. The Choice, Preparation, preserving or candying, Quantity, *Method*' of using and administering of all which (§. 1100.) are directed by the Age, Sex, Constitution, Way of living, and Circumstances of the Patient, with the Cause, Stage, Continuance, and present or future Effects of the Disease itself, and the several Symptoms; to which add the Season of the Year, the Weather, and the like, which have any relation to, or Effects upon the Patient.

▪ No Rules can be here given proper for all Cases indifferently. It is very rarely convenient to give those Fruits crude which breed Flatulencies, whereas dressing them by Fire expels the Air. I therefore order Apples to be first boiled in Water, and then to be mixed with a little Wine, Citron-Juice and Sugar; and this with Oats boiled in sour Whey, affords a very convenient Aliment in the most putrid Diseases.

§. 1102. But if the acid Indisposition of the Humours (§. 912, 760, 725.) is found to predominate, then these nourishing Cardiacs (§. 1096, 1097.) are to be taken from the Class of *Animals*¹ (§. 1034. N^o 5.) of any Kind, provided they are healthy; as also from the solid Parts of Animals, which by a long and gentle boiling dissolve in Water, and form thin Broths, *Jellies*² or Soups, differing in degrees of Strength or Richness; to which add Eggs, and the various Compositions which may be made from hence. And in this acid Distemperature of the Humours, those Animals are best for Food which feed upon other Animals.

¹ Especially Birds or Fowls which feed upon Worms: nor is there any thing which more powerfully resists Acidity than Eggs, which putrefy sooner than any thing; and after these, come ravenous Birds, Partridges, Quails, Fish and their Milts.

² But care must be taken not to offer such strong Soups to weak Stomachs, for they can only be digested by great Strength of the vital Powers, without which they turn to a morbid Gluten. It is a vulgar Error, that these strengthen more, as they are stronger of the Flesh to the Taste; whereas they would certainly be infinitely more serviceable to a weak Stomach, when diluted with ten times as much Water.

§. 1103. In the Use of the Aliments before mention'd (§. 1102.) all the like Cautions are

to be observed, which we enumerated before (§. 1107.)

§. 1104. If a *muritic*¹ Acrimony predominates (§. 913, 760.) it will be convenient to use the Aliments before-described (§. 1100, 1102.) free from Salt or Seasoning.

¹ In this Case Garden-Fruits and Vegetables are to be more plentifully used, and the Flesh or Meat should not be salted.

§. 1105. But when an oily Acrimony offends in the Humours (§. 761, 762, 765.) the like Aliments (§. 1104.) will be most convenient, after being plentifully *diluted*¹, and perfectly freed from their Fat or oily Parts.

¹ Such as may be made with the expressed Juice of ripe Cherries mixed with Water and a little Sugar. A Decoction of Oats is likewise here serviceable. I cannot imagine how Honey and Sugar came to be reputed bilious, since both of them dissolved in Water do by moderate Heat degenerate into the most sharp Vinegar. I am not indeed ignorant, that there is a black kind of Honey of a poisonous nature in some parts of *Asia*; but then this Quality is derived to it from the Plants out of whose Flowers the Bees gather it.

§. 1106. From what has been said, it is likewise easily apparent which of these kinds of Aliments will be most convenient in too thin and *fluid*¹, or too thick and gross a Disposition of the Humours.

· If the Humours are too fluid, the Fruits should be subaustere; or if they are too thick, I find them all dissolvable almost to the Fluidity of Water, only by the Use of Must, or the lately expressed Juice of ripe Grapes.

§. 1107. To the second Class of Cordials (§. 1096.) are judged to belong those things, which (1.) being applied to the too flaccid Fibres, adhere with their Particles so as to render them more firm or rigid; for which purpose are recommended every thing abounding with a moderately astringent Force; such as chiefly Apples, Pears, Quinces, Pomegranates, the mild austere Fruits of the wild Cherry-tree, Strawberry-tree and Medlar; with the several kinds of Myrobalans, Acorns, Barberries, Myrtleberries, Acacia, Roses, Services, Hypocystis; the five-leaved Grasses, Tormentils, Docks, Plantans, Houseleeks, Pimpernels, Bistorts, &c. the Flowers of Granats and Roses, the Barks of the former, with the *Peruvian* and *Tamarisk* Bark; the Roots of Capers and Myrobalans, the Juices of Acacia, Sloes, unripe Grapes, Mastic, Frankincense, Dragon's Blood, Lacca, and rough Wines; earthy or mineral Substances; the several kinds of Bole, Ruddle, Chalk, Allom, Vitriol, Steel.—(2.) Such things as by their Austerity constringe and compact the Fibres when relaxed, or separated from each other, reducing them into *one Mass*¹; of which nature are all the preceding, more especially such as are very rough to the Taste, whether from Vegetables or austere Fossils, unripe Fruits,

Fruits, calcined Vitriols, or Bones and Horns violently calcined: all which are more especially effectual when assisted by Exercise and Frictions, &c.

▪ In this manner the Juice of Quinces do in a moment dry up all the Saliva of the Mouth by constringing the Vessels, and forcing out their Humours by shortening the Fibres, and causing them to contract with a greater Force. Thus also a Diarrhæa is produced by a plentiful eating of ripe Grapes. The Vessels are thus strengthen'd, because the dissolved and separated Fibres are by the Use of these compacted together into one Mass. Tobacco-pike Clay when calcin'd adheres so firmly to the Lips, that it cannot be separated without pulling off the Skin; for by drawing out the Humours, the Fibres of the Vessels approach closer together. The like Effect has very cold Iron when applied to the Tongue, as Children have sometimes experienced. But all these things ought to be used with Prudence, since they may be very mischievous.

§. 1108. These Corroborants (§. 1107.) are indicated to be necessary when there is a great Weakness throughout the whole Body, with a Paleness, Coldness, Laziness, serous Defluxions and Flaccidity of the Solids.

§. 1109. But in the Administration of these Remedies, *Prudence* ¹ and Caution are required agreeable to the several Circumstances mentioned before (§. 1101); and more especially is Caution required, when from the Consideration of the Effects of them, we know
that

that austere Substances act too powerfully upon the *Primæ Viæ*, and at the same time produce little or no Effect internally in the small Vessels and Fibres of the whole Body.

For even the best Medicines may by an imprudent Use become mischievous. The Use of austere Substances is commonly recommended in leucophlegmatic Disorders, when at the same time they constrict the absorbing Vessels in the Stomach and Intestines, so as to prevent their Passage into the Blood, and therefore exert their Action only in the *Primæ Viæ*; or if they penetrate into the Blood, they obstruct its Course through the smallest Vessels. But muscular Motion and Frictions much better restore the languid Elasticity of the Fibres, and at the same time operate upon the Humours in like manner as on the healthy Vessels. This Method justly deserves the many Praises given to it by *Galen*, who has left us a Book professedly upon Frictions.

§. IIII. But the third Class of Cordials (§. 1096.) seems to consist chiefly in the most subtile Parts of healthy Animals which are young and vigorous, plentifully taken into a weak Body, in which such Parts are deficient. This seems to be performed (1.) by drawing in the Exhalations or Vapours perspiring from such *healthy Animals*¹, when they are applied like a Fomentation to the Patient's Body; (2.) by sucking Milk warm from the *Paps*² of healthy Women; (3.) by breakfasting upon Broth made by boiling Flesh in a *close Vessel*³; (4.) by odoriferous and pleasant Vapours, as

of Saffron, Jasmin, Citrons, Oranges, Balm, &c. (5.) by fragrant Wine which is clear, sweet, *volatile*⁴ or well fermented, and not composed of too gross Parts.

¹ Weak People breathe better when they are in Company with many young Folks, than when they sit alone.

² Thus the alimentary Juices are prepared by a Woman into an healthy Humour, which being thus sucked from the Pap, is replenished with those Spirits which would exhale, if it was exposed to the common Air. By this means *Capivaccius* restored a certain Prince from a Consumption, who was the only remaining Branch of a noble Family, by ordering to suck Women who used a certain Diet; which succeeded so happily, that now two Centuries having passed since that time, the ancient Family survives and flourishes.

³ Namely, in one of *Papin's* Digestors, to prevent the spirituous and volatile Parts from escaping.

⁴ When the best mature Wine is exposed to the Air in a large Plate, it exhales a volatile Odor different from that the same Wine affords while it is drank; the remaining Part being vapid and disagreeable to the Palate and Stomach, after having been thus exposed. But we ought to be cautious how we breathe in this Vapour; for the Exhalations of Rhenish Wine, of Jasmin, and of the Sea, being breathed for a considerable time, do in a manner fix the Spirits, and render them immovable.

§. IIII. These Cordials are known to be necessary, when the Powers appear *deficient*,

and at the same time there are evident Signs of Weakness and Aversion to all muscular Motions or Exercises; and while in the mean time the Exercise of the Senses seems much impaired, especially if these are attended with evident Signs, that there are due Quantities of the grosser Humours contained in the other larger Vessels. From the same Considerations it may also be determined when the other kinds of Cordials are necessary.

• In an ardent Fever where the Humours circulate too swiftly, these are all prejudicial; but they are chiefly useful when there is a Languor of the Nerves, as when a Person faints away at the Sight of a Wound, though the Vessels at the same time continue strong, and replenished with Humours and Spirits, only wanting a due Motion: in this Case therefore only the Aspersions of cold Water, or the Application of Spirit of Wine to the Nostrils will suffice to recover the Patient. They who have been extracted from the Water after they have been drowned near a Week, have been sometimes known to recover, by rubbing the Spina dorsa, rolling the Body about, and inflating Air by the Mouth and Anus, as *Pecklin* testifies.

§. III 2. But the fourth and last Class of Cordials (§. 1096.) is found so large and extensive, that it therefore deserves to be subdivided into several more, in order to be better understood and consider'd.

I. Such as the fresh Juices of all those Fruits in which there is a pleasant, acid, and penetrating Taste, with a refreshing, sweet, and

fragrant Smells, together with a nourishing Quality. The principal of this Kind are Oranges, both *China* and *Seville*, but especially the *Shaddock*' Oranges, ripe Granates, fragrant Pippins, the Pine-apple, Melons, the best tasted Cherries, Strawberries, Mulberries, Rasberries, musked Grapes, black Currants, Prunes, Peaches, Apricocks, and the like; which are the most refreshing Cordials in Weakness with Heat and Driness.

II. Hitherto belong also the diffused *Odors*^s of fragrant Vegetables, which are pleasant to the Smell; such as 1. the mild smelling, (and esteemed grateful almost to every one) the Rinds of Oranges, Citrons, and Lemons, the Flowers of Borrage, Betony, Bugloss, Saffron, Jasmin, Lillies, Maudlin, Bawm, Myrtle, Meadow-sweet, Sasaphras, Elder, tuberous Hyacinths, Rhodium, &c. or, 2. Of the *warmer*^s and more sharp or spicy Vegetables, such as Southernwood, Wormwood, Amomum, Lignum-aloes, Dill, Angelica, Anice, Mugwort, Acorus, Cyprus, Calamint, Ground-pine, Cummin, Wall-flowers, Caraway, Coriander, Cinnamon, Cloves, Cardamoms, Dittany, Galengals, Hyssop, Juniper, Lavender, Masterwort, Laurel, Mastic, Mint, Marjerom, Mace, Nutmegs, Bazil, Pennyroyal, Rue, Savin, Sage, wild and Garden Thyme, Lemon-thyme, Ginger, &c. to which may be added the ferulaceous Gums, Ammoniacum, Bdellium, Elemi, Galbanum, Myrrh,
Opopa-

Opopanax, Olibanum, Sagapen, Afa-foetida, Camphire, Styrax, liquid Amber, &c.

III Some Odors which are indeed *singular*⁴, and in many Instances endowed with a wonderful stimulating Force, as we find in Ambergris, Benjamin, Caster, Musk, Styrax dry and liquid, Civet, &c.

IV. Medicines taken internally from all or any of these Simples, and operating that way upon the whole Body.

V. To these may be added the numerous Tribe of Substances which abound with thin, volatile, acrid, and stimulating Particles which wonderfully affect the Nerves; such as, 1. those abounding with a volatile Acid, as Wines (especially *Rhenish* and *Moselle*) and *Vinegars*⁵, both simple and compounded with Aromatics; 2. the Liquors commonly called Spirits, such as all the Spirits of Vegetables prepared by Fermentation, and rectified either simply by themselves, or saturated with Aromatics; 3. simple, volatile, alkaline Spirits, and these united either with Alcohol Vini, or with aromatic Oils; 4. Aromatic Oils procured either by Distillation or Expression; 5. and lastly, the innumerable Compositions which may be made up from the several fore-mention'd Simples at the Pleasure of the Physician, as Epithems, Liniments, medicated Drinks, Fumes, distilled aromatic Waters simple and compound, sweet-smelling artificial Balsams simple and compound, Elæosacchara of various Kinds, Confections or Electuaries

particularly denominated cordial from their principal Ingredients, compound aromatic Spirits, Oils and Cordials, volatile oily Salts aromatic and spirituous of various Kinds, Tinctures made from the most fragrant Aromatics with Alcohol or rectified Spirit of Wine; with many other Preparations of the like nature contrived agreeable to the Fancy and Intention of the Compounder.

¹ I never found so good Effects from the Oriental, Occidental, or Porcupine Bezoar, as from the express Juice of this Fruit, which, if applied fresh to the Nostrils of a Person in a Swoon, suddenly recovers the Strength

² Such as being volatile exhale in a short time, and lose all their Efficacy. Among these, some that swell more intensely sweet, as the *Indian* tuberous Hyacinth, are too strong or hurtful to the Nerves of weak Men and hysterical Women, who have their Spirits not too sluggish, but easily moveable, and their Nerves too easily affected by Irritation; whereas foetid Smells are profitable to such, nor is there any thing better in these Cases than *Assa foetida* formed into small Pills, and given three times every Day. I knew a certain great Physician who highly esteemed as a Secret small Pills made of *Assa foetida*, with a little Camphire, Castor, and a good deal of Mastic made into a Mass with a little Turpentine: and when a Woman fainted away, or was taken with hysteric Fits, he gave one of these Pills of about five Grains, repeating it at small Intervals to the Number of fifteen with great Success; for they made a powerful Cordial, affording a permanent and lasting Stimulus. The same Pills were also
found

found useful to Orators, and those obliged to speak with a high Voice in Public.

³ Among these Angelica is the principal; but all of them exhale a volatile Vapour, which, as long as it lasts, denotes that the Simples are efficacious.

⁴ Musk is tolerable to Men, when it is insupportable to Woman even in Health. Civet is a wonderful kind of Excrement: for I have seen that in the Chambers at *Amsterdam* where this Animal is kept, they who first enter them are almost suffled; and if a Woman of a tender or delicate Make enters, she suddenly faints away. The like is also true of Ambergrifs. Hitherto may be referred the Doctrine of the Adepts, who teach, that the Nature and Efficacy of Simples lies in a wonderful Spirit, especially in Vegetables taking up the least imaginary Bulk, which being taken into our Bodies, stimulates our Spirits to operate more briskly; but if taken in too great a Quantity, they dissipate and extinguish the Spirits like the Flame of a Candle in the Sun.

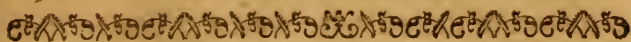
⁵ For fainting Fits during a Woman's first going with Child, I know nothing better than the Vapours of boiling hot Vinegar held under the Nose, which is a very safe and certain Restorative.

§. III 3. Great Caution is necessary in the Use of all these Medicines (§. III 2.) since, if they are given inwardly to People whose Humours are not disposed to flow easily through the Vessels, they excite a febrile or inflammatory Motion, which tends to a *Destruction*¹.

Very often in Adults weakening the Patient is the greatest Cordial, as I have frequently but never enough intimated. A healthy young Man who is plethoric and given to Wine, begins at length to fall into a Weakness, so that he cannot stand upon his Legs; and if you give him the Cordials before-mentioned, you increase his Weakness, but if you bleed him two or three Pounds his Strength always returns. For in this case the Weakness arose from too great a Motion of the Spirits. Thus two contrary Winds meeting and destroying each other make a Calm, and cause the Barometer to rise high as before a Tempest; but so soon as the North Wind has overcome that of the South, then the more cold and heavy Air rushes forward with a considerable Force over the Regions of its Adversary.

§. III 4. These Sorts of Cordials (§. III 2.) are called for when there is a Deficiency in the circulating Motion of the Humours, arising only from an Inactivity of the Fibres, the Humours being in the mean time free from Acrimony, and disposed to pass freely through the Vessels: but which of these several Kinds are to be chose, must be determined from considering the Nature of the offending Malady, and of the Cordial to be used.

§. III 5. From what has been said may also appear what kind of Diet or Regimen will be most convenient and necessary for the Cure of a Disease (§. 1097, to III 5.)



Prophylaxis Therapeutica, or the
Preventative Cure of Diseases.

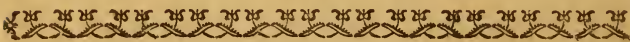
§. IIII 6. **T**HE Causes of Diseases (§. 787, to 801.) being accurately known by their respective Signs, (§. 871, to 1012.) indicate their Removal. If therefore they reside in the solid Parts, it will be necessary to remove the external, injuring, or destructive Cause. to procure an Union of Parts disordered by Separation; to separate Parts which are united by Disease; to remove superfluous Parts; or lastly, to supply the Deficiencies of Parts lost.

§. IIII 7. The Disorders indicating these Intentions (§. IIII 6.) in the larger sensible Parts of the Body, require to be relieved by Surgery, which is altogether employ'd in answering the five last mention'd Intentions by Instruments, manual Operation, and topical Remedies, in the manner described more at large by the best Writers; as *Parey, Hildanus, Solingen, Dionis, La Motte, Heister, &c.*

§. IIII 8. But if these Disorders are seated in the *interior Parts* of the Body, they are to be opposed by other Remedies, though like the former in their Operation; and as Poisons are

are the principal things which produce such Disorders in these Parts, we are first to treat of them.

¹ A Wound inflicted upon the Psoas Muscle, or one penetrating any of the Venters, does not differ in its Nature and Way of Cure, only the Matter being confined makes it more dangerous, when it would be salutary in an external Wound. What then am I to do in such a Case? It is not practicable to apply an Emplaster, which in an external Wound would retain the Lips together, and it is hardly possible to suppress the Hæmorrhage. But in these internal Cases, Nature herself does what we usually expect from Emplasters externally; namely, she supplies a Dew or Moisture like that which we perceive upon the Skin confined by an Emplaster; and this keeps the Solids in a Disposition fit to unite and heal the Wound.



Of ANTIDOTES.

§. III9. **T**HE strong or *quickly* ¹ acting *Poisons* ² (§. 796.) whether taken into the Body, or applied externally, making the Causes of Diseases by their own proper Force, or by first introducing some morbid Change or Corruption in the Parts themselves infected, indicate, 1. a Removal of the poisonous Cause; 2. a Correction of that which is already received, or which cannot be avoided; 3. or that its Expulsion is necessary out of the

the Body; 4. to mitigate the several Symptoms; 5. to fortify the Body against the Force of the Poison which is taken in, or applied to the Body.

¹ There are some Poisons preparable by Art so as to kill in the instant they are given, their Effects being hardly capable of being prevented by any Art. There was a certain Lady of Quality who invented a Powder of this kind in the Reign of *Lewis* xiv. by which a great many gained the Estates of others by killing the true Heirs, whence it acquired the Name of Succession Powder. But the Members of the burning Chamber put an End to this Scene, for which Purpose they were instituted; though it was from hence that I first took occasion to enquire attentively into the Nature of these Substances.

² I have taken much Pains and Trouble about this Article, having read all the Writers who have wrote upon Poisons in any Language, and made an Extract of their Observations: I disposed them under the following Classes, and compiled a small Treatise concerning those Poisons; so that if there is any Part valuable in this Book, this is certainly so, in my Opinion, which treats upon Poisons. I learned much concerning poisonous Plants from the Writers on Botany; and could have added many Particulars, which I thought it better to suppress, as the Knowledge of them might conduce more to the Mischief and Detriment than any Benefit to Mankind. I could have mentioned Poisons with which I am acquainted, that kill a Person in the twinkling of an Eye without any previous Notice. But to pass these by, I define Poison in general, every thing which being taken into, or applied to the Body, excites such a morbid Change,

Change, which Nature herself cannot get over; whence the Poison may be termed quick or slow, in proportion to the time in which its Effects appear. A Poison differs from Aliment, inasmuch as the Parts of the latter are mutable by the Powers of the living Body into healthy animal Humours; whereas a Poison or a Medicine are not thus mutable; the two latter differing from each other only, as the Change made by the one is destructive, and by the other salutary to the living Animal; whence it is plain, how easily a Medicine may become a Poison. Glass of Antimony given in a small Dose purges upward and downward, and recovering the Patient is a Medicine; but if the same be administer'd in too large a Dose, it may kill the Patient, by exciting such a vomiting and purging as can end only in Death. Thus it appears, that many Substances are both Medicines and Poisons according as they are used.

§. 1120. The Cause spreading and communicating the Poison to the Body, or mixing its Contagion with the Air, or being immediately applied to and taken into the Body by the inhaling Vessels, may be easily removed when it is known and *evident*¹ to the Sense; 1. by taking away or destroying the poisonous Substance itself, and especially by burning it with large Fires or *Flames*²; by correcting the Air which brought or communicated the poisonous Effluvia, which is best done by the Vapours of dense Bodies burnt or made hot, and known to possess a Power opposite to that of the Poison. Thus the Fumes of *Vinegar*³, Spirit of Salt, and the firing of Gunpowder are serviceable

serviceable in destroying the caustic, alkaline, and *putrid*⁴ Fumes; but acid poisonous Exhalations are corrected by the Odours of *alkaline*⁵ and oily Spirits. It may be again removed by changing, dissipating or renewing the Air by an artificial Wind, more especially if the Air can be made to pass through large Fires, agreeable to the Art and Direction of *Hippocrates*⁶. It may be again avoided by flying to some other Part of the Country, by passing over high Mountains. Lastly, the Cause may be avoided by correcting the poisonous Matter itself, which has been already taken in, or applied to the Body.

¹ If the Nature thereof becomes manifest to the Senses, it may always be destroyed by Exhalations of an opposite kind.

² Thus the *Greeks* being visited by the Plague in the *Trojan* War, burnt all the dead Bodies; for all known Poisons losing their Force in the Fire, therefore the infected Air likewise deposits its poisonous Effluvia by passing through Fire or Flame, whence the Antients justly denominated *Phæbus* the Expeller or Corrector of Poisons. Hence perhaps arose the ancient Custom of burning the dead Bodies, which has prevailed through *Asia*, and is no doubt an effectual way to prevent any pestilential Contagion from Putrefaction. But besides this, all the Cloaths and Instruments ought to be destroyed by Fire, which have at any time been used by People infected with the Plague; for the Fumes raised by burning pestilential Bodies are not hurtful. But the Fumes of burning Arsenic taken in by the Mouth are not thus harmless, but certainly kill the Person.

³ When the pestilential Venom spread through the Air is of such a Nature that it excites gangrenous Sores or Boils, Vinegar ought to be sprinkled about the House, and a Sponge dipped in it ought to be held under the Nose, that no Air may be inspired without being corrected by the acid Vapours. Hence also the firing of Gunpowder is so useful upon the same occasion; because the extremely acid Spirit of Nitre and Sulphur, which is generated in the Deflagration, flies abroad and is dispersed through the Air. I knew several Families preserved in time of Pestilence by firing a Dram of Gunpowder several times in a Day within the House, after the Windows and Doors have been well closed. A certain Well which by its Damp killed a great many Workmen at *Paris*, was purified by throwing into it a Fire-ball or Hand-granade. And certain it is, that a Chamber in which so much Sulphur is burnt, that the Air and Fumes may be tolerable without exciting a Cough, must be an excellent Preservative in the Plague. Sulphur therefore justly deserves the Name of something Divine in the Plague, as *Hippocrates* termed it.

⁴ Of this kind are the Vapours and Exhalations sometimes met with in the Church-yards or Burying-places in *Italy*; and I have myself experienced the like from the Vapours of Urine after a long Putrefaction.

⁵ At a certain time when I was distilling Spirit of Vitriol with a most intense Fire, so that there came over a kind of dry and blue-coloured Phosphorus, I made an Attempt, according to the Direction of *Helmont*, to remove the Receiver: but in doing this, the acid Fumes entered my Lungs in breathing, so that they would probably have suffocated me in a Moment, by causing a Constriction

striction or Collapsion of the pulmonary Air-vessels and Cells, if I had not been luckily provided with some Spirit of Sal Ammoniacum at hand.

° *Hippocrates* made great Fires about the Walls of the City for this Purpose, that all the Air which was brought to the City by the Winds might pass through the Fire; for certain it is, that all the Air which passed through the Fire must be highly purified: he therefore first ordered the Passages to be stopped up betwixt the Mountains of *Illyria*, through which the pestilential Air might pass into *Greece*, well knowing that the pestiferous Vapours did not rise very high above the Earth; and then he built Fire-places, &c.

§. 1121. The present known Poison itself is prevented by the Application of such things as are capable of destroying its Qualities, and rendering them *unactive*¹, so that they may not hurt the Body.

¹ Even the viperine Poison is rendered unactive by Digestion in the Stomach and Bowels, so that it will not afterwards exert its sad Effects upon the Blood; for a whole Ounce of the viperine Venom taken by the Mouth will not kill an Animal, when at the same time a small Needle only dipped in the same Juice, taking up perhaps no more than the hundredth part of a Drop, and then thrust into the Blood-vessels of the living Animal, almost infallibly kills.

§. 1122. Which Qualities are as yet *not known*¹ in a great many Poisons, except only by the deleterous Effects manifesting themselves, rarely but by the *death*² of the infected Person;

Person; 2. in others again they are discovered by *wonderful* ³ Appearances hardly to be explained; 3. in *others* ⁴ again, they appear by Symptoms which occur in other known Diseases; 4. and lastly, in some Cases these Qualities are understood *a Priori* ⁵, *i. e.* from the known Texture and Composition of the Poison as the Cause, from whence the Nature and Effects thereof may be easily foreseen.

¹ A poisonous Substance or Body is commonly not poisonous throughout the whole, but there is only some more spirituous or active Part of it endowed with the Nature of a Poison: thus it is in mercurial and arsenical Fumes, for the arsenical Part being removed, the rest is not injurious to the Body.

² A Viper being enraged by the Members of the *Tuscan* Academy, and then suffered to bite the Nose of a strong Bull, the Animal died in a short time, and being opened by the most accurate Anatomists, no uncommon Alteration could be found either in the solid or fluid Parts of the Beast. An Air infected with pestilential Contagion immediately begins to destroy a Person in Health as soon as it enters the Nostrils; as we had formerly an Instance from some Goods opened at the *Royal Exchange* at *London*, where the People suddenly expired. Lard, or any thing else infected with the corrupt Matter taken from one dead of the Plague, and applied to the Skin of a healthy Person suddenly kills; as we are taught by Instances at *Vienna*, where the thieving Bearers who carried out the dead, did by this means destroy many, and were for their Wickedness buried alive. There is a Method of writing poisonous Letters, with a
Venom

Venom which does not escape through the Paper; but when the Letter is opened, the Poison flies into the Reader's Face and suddenly kills him.

³ Thus the whole Panniculus adiposus of a Person who has been bit by the Sepe, swells and mortifies before Death, according to the Accounts which I have had from *Asia* and *Africa*, where that kind of Serpent is at present sometimes found.

⁴ Corrosive Sublimate and Arsenic produce Pains, Inflammations, Gangrenes, &c.

⁵ Such as are known to destroy the animal Machine by the Texture and Disposition of their constituent Parts; as the Powder of Diamond or Glass, eroding the Intestines.

§. 1123. The former of these (§. 1122.) which hurt the *whole* Substance of the Body, require and indicate opposite Remedies, whose Efficacy and Effects are equally known and understood with those of the Poisons. These Remedies are properly termed Antidotes, Alexipharmics, Alexiterics, Theriaca, &c. and can only be known by Experience and the History of Poisons.

¹ The Ancients called these Substances directly contrary to human Nature, in saying which they explained nothing. It is not therefore easy to determine a Remedy for the Effects of any Poison, the Causes of which, and the Symptoms, do not agree with any thing that we yet know. Such Remedies are to be searched for, as by their whole Substance resist the whole Disease; as Vipers bruised and applied to the Wounds which they have inflicted make a Cure; or as Scorpions are said to heal the Wound which they make with
Y
their

their Tail, only by bruising and applying them without any other Addition. Toads taken alive dried and formed into Pastills, being applied to the Body, or hung about a Person ill of the Plague, are esteemed a very powerful Antidote.

§. 1124. The second Class of these (§. 1122.) which operate by an *unknown* Quality, require the like extraordinary Remedies, which are termed Specifics, and which are hardly to be discovered but by Accident and Experiment; to be treated of in the History of Poisons, which you are therefore to consult.

• Which are only curable by surprizing Alexipharmics, of which we understand nothing, except that they succeed by Experiment. Thus the Serpent Hæmorrhous which was formerly, and is now found in *Africa*, does by its Bite occasion a profuse Hæmorrhage from the Lungs. But the Force and particular Nature of this Poison could not be known by any but from Experience.

§. 1125. The third Class of Poisons (§. 1122.) as they corrupt the Fabric of the Body in the same manner as certain *known Diseases*, require the Application of such Remedies and Antidotes, while they are producing the Effects or Symptoms of such Diseases, and before they kill the Patient, as are known from Observation and Experience to be successful in the like Diseases, which distinguish themselves by Effects or Symptoms simular to those of the Poisons.

• The Dipsas kills with Thirst not to be allayed by any Art; but I being acquainted with the Causes of Thirst in other Diseases, and with the Remedies proper to extinguish it, do therefore administer a very sour Drink, or Mixture of Vinegar and Water; or if the Person was bit by the Seps, I apply Spirit of Vitriol diluted with Water to his whole Body, that it may be drank in by the inhaling Vessels and Pores of the Skin, and I should then much wonder if the Patient was not cured.

§. 1126. But if any of the Poisons of the Fourth and last Class (§. 1122.) are applied now, or to be hereafter, to the Body, then those Medicines ought to be used, which have an immediate or *ready* ¹ Power of correcting and destroying the known Malignity; and these having commonly an opposite Malignity of great Strength, would therefore equally hurt the Body, if the first Poison was not *taken* ² into it.

¹ For frequently Poisons act with very great Celerity, and therefore require immediate Help.

² If a Person has swallowed an Ounce of Mercury sublimate, or Spirit of Vitriol, I know well the Consequences which will follow from such a concentrated Acid, and therefore I dissolve two Ounces of Oil of Tartar in a Pint of Water, and give the whole at once; and thus the Alcaly will destroy the corrosive Acid, and turn the Mercury sublimate into an yellow inoffensive Precipitate: But unless the Person had taken such a Quantity of Mercury sublimate, so great a Dose of Oil of

Tartar would have been equally as destructive and fatal, by causing a Gangrene in the Stomach.

§. 1127. Hence we see that the Nature of the Poison is to be known from the *natural*¹ and medical History of Poisons; which joined with a *mechanical*², chemical, and *anatomical*³ Knowledge, will enable one sufficiently to see and understand the Effects thence following; and such a Knowledge of the Effects, and their Connection with the Causes, indicates or points out the proper Remedies.

¹ It has been customary with the Physicians, but very wrongly, to reduce Poisons only to one Class; for some of them act by a known Force in the *Primæ Viæ*, corroding and destroying the soft Parts by the mechanical Configuration of their Substance, as the Powder of Diamond or Glass; others again exert their Virulence upon the Lungs, as the Vapours of Arsenic, Spirit of Vitriol, &c. *Nicander* has, indeed, behaved better in this respect, by dividing Poisons into several Classes, some of which he has explained, and described their Symptoms, and of others he has only remarked their fatal Events. *Diascorides*, more especially, has illustrated the History of Poisons, who being a Soldier, spared neither Cost nor Labour, to attain the Knowledge of the *Materia Medica* throughout all the known Parts of the World; and he has therefore left us an Account almost of every Antidote or Counter-poison.

² The Powder of Diamonds operates only by the rigid Edges, Points, or Angles, of its Fragments like Glass, which cut and irritate the soft
and

and sensible Membranes ; nor does it hurt by its Coldness, as the Antients imagined, but only inasmuch as it produces the Effects of a great Number of wounding Instruments. Related to this in Action, we find the Hairs cut off from the Nose of a Tiger, which being cut small and given in the Food, do by their Rigidity, insinuate into the fleshy Membranes of the Intestines, where causing an Ulceration, they kill slowly, and with a Consumption ; nor can any Medicine be given in this Case, since we know not of any capable of dissolving Hairs.

³ But notwithstanding all our Skill in these Particulars, there is too much of the Nature of many Poisons still unknown to us: For who will pretend to say in what manner the Particles of pestilential Poison are modified ; as also in the Rabies canina, and many more contagious Diseases ? The Effects indeed, we know, but are ignorant of the manner in which they are brought about by the Operation of the Poison.

§. 1128. And by the Indication derived from this Knowledge (§. 1127.) we are directed to the Remedies for correcting these destructive Materials ; and we are also thence acquainted with the Preparation, Dose, Application, and Regimen, proper to be observed.

§. 1129. But the principal and most common Antidotes against almost every Poison, and which are therefore of the greatest Use, when we know Poison to be given, without understanding its particular *Nature* and Action, are chiefly these following: Pure Water, made

a little warmer than the healthy Heat of one's Blood, injected as a Clyster, drank plentifully, and continued for a long time, as also externally applied; next to this comes a mild *Lixivium*², made of common Water and Venice Soap, used in the like Quantity, Manner, and Length of Time, as the former; or else common Water may be rendered saponaceous with Oxymel, and used as before; to these add soft *Oils*³ lately expressed from Milk, oily and farinaceous Seeds, immediately drank in large Quantities for a considerable time, also injected, and applied externally, or the like fat Oils lately prepared by boiling from *Animals*⁴ with a great deal of Water, and not too long continued upon the Fire; and lastly, in many quick Poisons the like Use of Vinegar; and finally, of *Opium*⁵. But a *general*⁶ Antidote, or preventative Counterpoison effectual in all Cases, we are as yet altogether ignorant of, nor is it reasonable to believe a Possibility of there being any such.

• When I know from the irregular Symptoms appearing that a Person is poisoned, without being acquainted with the kind of the Poison taken, which ought to direct me to the proper Antidote, and in the mean time, the urgent Maladies admit of no Delay, in that Case the common Antidotes must be instantly used; and therefore I continually administer warm Water in moderate Draughts to the Quantity of thirty Pounds, by which means I drown the poisonous or caustic Salts in the great Quantities

Quantities of diluting Liquor. The happy Effects of this Method appear from a notable Instance given us by *Sydenham* in the Servant of an Apothecary, who having swallowed a Quantity of Mercury sublimate, was cured by an immediate and plentiful drinking of warm Water, with warm Bathing, Fomentations, and watery Clysters. Nor ought we to desist from pouring in Water at every Part, without excepting the Pudenda muliebria, till we are certain that the Force of the Poison is sufficiently diluted, to prevent it from doing further Mischief. One Dram of Mercury sublimate is mortal; but the same being diluted in twenty-five Pounds of Water, may be taken without Injury: For Water takes off the Strength or Force of all Poisons which are disposed to dissolve or mix with that Menstruum; but then some Poisons which are sulphureous, as Arsenic, refuse Water, and dissolve in Oil.

² About one Ounce of Venice Soap dissolved in a Pint of Water.

³ Fresh Butter is a present Remedy for all sorts of Poison, as also sweet and fresh Oil taken in so great a Quantity as to loosen the Bowels; but more especially are these effectual against Arsenic. With this a certain Mountebank was well acquainted, who being to shew the Efficacy of his Orvietan or Counter-poison in Opposition to a Brother Antagonist, first prepared himself by devouring a great Quantity of Butter, which kept him from receiving any Injury by the Arsenic; but the other taking the Arsenic into his Body unprepared, and confiding in his Orvietan, miserably perished. This is also a principal Antidote against the Fragments of Diamond, Glass, Bristles of a Tiger, &c. by relaxing the Bowels, and defending them from the Asperities of these Substances.

4 Of this Nature is the Cream of Milk.

5 Opium does not indeed destroy the Action of any Poison, but it allays the Symptoms and convulsive Motions which the Poison has raised. Hence we read it so much recommended by *Dioscorides*. For we are to consider that no Poison is so in itself, nor does it prove mischievous farther than it is actuated by the *Vis Vitæ*; in the same manner as if I hold a thousand Lancets loosely in my Hand without any Motion, they do no hurt; but if I grasp their Points by moving the Muscles of that Part, they will immediately make a Number of Wounds on every Side. Thus therefore Opium may be an Antidote by quieting the vital Powers, and preventing them from putting the Poison in Action.

6 It is even ridiculous to attempt at, or search after, an Antidote to equally oppose all Poisons; which shall destroy the caustic Virulence of acid Spirits, and of strong Alcalies, as Oil of Tartar and Spirit of Vitriol; or which shall prevail against the Bite of the Viper, and the wounding Fragments of Glass or Adamant. It is true that Mithridate, Orvietans, &c. are usually sold for universal Alexipharmics; but these are rarely serviceable but for venomous Bites or Stings, and will avail nothing against the forementioned Caustics or wounding Fragments.

§. 1130. But in giving particular Antidotes, the greatest Judgment and Caution are necessary, since they have a singular Virtue of correcting this or that Poison only, and have otherwise, in their own way, as great or even more violent Effects than the Poison which they oppose. These Opposites therefore con-

curring

curring together in the Body, mutually destroy each other, and becoming unactive, offer but little Injury to the Body itself; whereas if given alone, they are often equally as *destructive*¹, as the Poisons themselves, which they are designed to correct.

¹ Many Compositions are serviceable and salutary, when the Simples given separate would be poisonous; thus Oil of Vitriol, and Oil of Tartar, do either of them alone burn up and destroy the Stomach by a Gangrene, but being mixed together, they compose an innocent vitriolated Tartar, very efficacious in chronical Diseases.

§. 1131. But all these Antidotes, whether universal (§. 1129.) or particular (§. 1130.) may, and ought to be so prepared, used, and applied, as to take a sudden and speedy Course, without altering their Powers, into the Parts themselves where the Poison is *lodged*¹, and there to *correct*² it: And therefore the Physician ought always to have in Remembrance the whole *Class*³ of these several Applications; of which the principal are, Fumigations of the Air, dry or moist Vapours conveyed to the Lungs, Draughts, Glisters, Epithems, Baths, Fomentations, and Injections, for the Uterus, Bladder, Fauces, &c.

¹ The Remedies ought always to be applied by those Ways through which the Poisons entered; as if their Vapours have penetrated the Brain, the Antidote should be applied by the Nostrils; if it is taken through the Mouth into the Stomach, Alexipharmics are to be swallowed the same Way.

² All Acids, except Vinegar, injected into the Veins of a living Animal, coagulate the Blood, whence a Peripneumony and Death follows. If therefore I know that an acid Poison has penetrated into the Veins, (as if too great a Quantity of Oil of Vitriol has been externally applied to suppress an Hæmorrhage) then the safest Antidote would be to make a Ligature upon the Vein above the Part where the Poison was infused, that its Virulence may not penetrate to the Heart; and after the Vein has been thus secured by Ligature, to make an Opening below it by the Lancet, to evacuate the next succeeding infected Blood. In this Case Antacids taken by the Mouth would have no Effect, because they would be changed and altered in their Nature through the long Course which they must take with the Humours, Chyle and Blood, before they could arrive at the Part to which they are destined.

³ If I know a Person has taken Arsenic, I enquire at what Time or Hour; and if I am told that it was six Hours before, I attempt nothing, being assured that the Case is past all Remedy: but if it was taken only a few Minutes before, I cause the Patient to swallow several Pints of sweet Oil, and afterwards give a large Dose of Vitriolum album to enter the Stomach. But if I should be called half an Hour after the Poison was taken, and find by the Gripes and Distension about the Navel, that the Disease is extended into the Intestines, I then order large Quantities of Oil to be injected in the way of Clyster.

§. 1132. The *received* Poison is expelled from the Body, 1. By lessening the Resistance in that Part, through which it may be most safely

safely evacuated with the least Injury to the vital Viscera, and where it may have the quickest Passage; under which Circumstances it may be drove to, and expelled at such a Part by the Force and Efficacy of the vital Powers assisted by proper Medicines. This Method was formerly taken with great Industry by the incomparable *Redi*, by sucking with the Mouth, which was the Province of the *Marfi*, and *Psylli*, whose Bodies were said to be Proof against Poisons; but at present it is performed by the Application of large Cupping-glasses frequently renewed, and well evacuated of the Air, by applying them with much Flame, as also by the Application of warm and very emollient Fomentations, with Leaches, Scarifications, Frictions, Emplasters, and external Warmth. 2. By a *magnetical*³ Attraction with Bodies drawing forth the Poison by a particular Virtue, and freeing the Patient in the Manner we are told, of the Flesh of the poisonous *Beast*⁴, of the Stone Serapis, and of the Serpent or Toadstone, &c. 3. By the Use of all Medicines which powerfully dilute and move the Humours; such as speedy Vomits, quick Purges, strong Sudorifics, and perhaps diluent Diuretics; whence *Diascordium*⁵, Mithridate, Theriaca or *Venice Treacle*, the Orvietans and Opiate Confections are found serviceable, though they cannot safely be trusted to as universal curative or preventative Antidotes. 4, and lastly, By a very speedy *Removal*⁶ of the Part itself poisoned, that it may

not

not infect the rest, and which is best done by the actual Cautey.

¹ The Poison is received and spread always by the Veins, and not by the Arteries, in which the Course and Direction of the Humours resist the Entrance of any kind of Particles.

² The *Greek* and *Roman* Armies marching into *Africa* met with Legions of poisonous Animals, whereby more of the Soldiers were destroyed than by the Enemy. In this Case they applied to a Set of People called *Marsi* and *Psylli*, to whom they gave Salaries for recovering the poisoned Soldiers by sucking the injured Part 'till it swelled and looked red, by which means the Diseased commonly recovered, and were certain to perish if this was neglected. From hence these People were reputed to be an Antidote in themselves, it being the prevailing Notion, that Poisons which kill by Bites or Wounds, would also kill when taken by the Mouth. But *Cato*, being wiser than this, and convinced by the Experiments of the *Marsi*, when the Soldiers durst not drink of a Fountain, because they were frighten'd at the Beasts which perhaps lay concealed therein, cried out to them,

*Morsus virum habent & fatum dente minantur
Pocula morte carent.*

L U C A N.

and was the first, contrary to the usual Custom, who took a Draught of the Water out of his Helmet. This Opinion of *Cato* is confirmed by the Experiment of *Jacobus Cozzy*, who at the Court of the Great Duke of *Tuscany* licked up with Intrepidity a whole Dram of the poisonous Juice expressed from the Jaws of a Viper without any consequent Injury; when at the same time it is certain,
that

that if only the hundredth Part of a Grain had enter'd into the Blood without Alteration, it would have caused speedy Death.

³ There are enough Writers who refute all this; but in *Italy*, where there are abundance of Scorpions, one cannot enter an Inn, but the Host shews you a Vessel full of the Oil of Scorpions, with which the Wound made by that Beast is always anointed, and the Danger of Death by that means prevented. I have in my own Possession a small Stone brought from the *East-Indies*, concerning which they who sent it affirm, that if this Stone is applied to a Person bit by that most dangerous Viper called *Cobra de Capello*, by the Natives *Brill-slang*, it adheres to and draws out the Poison from the Wound; with which being saturated, it falls off spontaneously, and will discharge its Poison by infusing it in new Milk; and if applied, will adhere and suck 'till the Patient is out of danger; whereas it will not in the least adhere to the Skin of a Person who has not been bit. Thus also dried Toads do by a kind of Sympathy attract the pestilential Contagion. It signifies nothing here to change the Words, which we easily may for the worse.

⁴ Such as the Flesh and Grease of Vipers, and the Theriaca Andromachi, in which Viper's Flesh is an Ingredient.

⁵ These are efficacious when the Poison being volatile and moveable requires to be expelled from the Center to the Circumference, and to be that way discharged through the Skin by exciting a Fever. But these Medicines would be very improperly used against the more fixed mineral Poisons, which would by the Use of such Remedies be render'd more moveable and fierce in their Action.

Nothing

4 Nothing is a more present Remedy either for the Bite of a mad or a venomous Animal, than instantly to cauterize the Part with a hot Iron, which is a Practice so highly recommended by *Hippocrates* for removing the Gout in the Hip; or else the bitten Part may be burnt up by the Application of Oil of Vitriol, or else amputated, except the Poison should be extremely swift and apt to spread; as the Poison which was possessed by a certain *Indian King*, with which he gave a notable Instance to the *Spaniards* how dangerous an Enemy he might be: for he did but just puncture the End of one of the Toes of a healthy Youth with the Point of an Arrow, and then order'd the Surgeons present to instantly amputate the Leg at the Knee; by which it appeared to the *Spanish* Ambassadors, that this was not sufficient to prevent the Effects of the Poison, which they saw nevertheless immediately destroyed the unhappy Youth.

§. 1133. The cruel Symptoms and sensible Effects of Poisons may easily be reduced into Classes, according to the Doctrine of Pathology before given; and then each of them may be treated as if they were particular Diseases, as we shall hereafter explain.

§. 1134. The Body may be armed or defended against any Poison to be applied thereto, chiefly 1. by the plentiful Use of the *general* and particular Antidotes, which are only safe when the Nature of the Poison is first known, that one may thence previously understand what is to be applied; 2. by anointing the Part of the Body where the Poison is feared

feared with Remedies mild and *oily*²; 3. by keeping all Parts of the Body in an *equable*³ Perspiration. But there is not yet any *universal*⁴ Antidote known, which can be safely relied upon, as we before observed (§. 1129.) though a great many have boasted of such.

¹ When you are to enter any Place which you suspect poisonous or infected, it is adviseable to drink first as much Hydromel or Mead, as will almost make one dropfical.

² One who is to visit Patients in the time of a Plague, cannot secure himself better, than by first anointing his Body naked with Oil before a Fire, and then breathing the Air through a Sponge which has been dipped in the best Wine Vinegar; by which means the Pores will be closed or filled up, and the Ingress of a putrid or contagious Air prevented from taking up its Seat in the Lungs, Saliva and Stomach. But as to a preventative Diet in this Distemper, I hardly know any; but am apt to believe, that keeping the Stomach empty will give a better Opportunity of discharging the pestilential Virus at times by a gentle Vomit, as it is chiefly swallowed with the Air and salival Humours of the Mouth.

³ Nothing keeps the Body more secure from pestilential Diseases, than by frequently bathing it all over with Salt, Vinegar and Water, and keeping up a copious Perspiration. *Sylvius* was concerned in three Plagues, and preserved his Health in all of them, only washing his Mouth with Vinegar in a Morning, and always carrying a Sponge dipped in Vinegar under his Nose: (it might be also useful to moisten the outer Garments with Vinegar, according to the Advice of *Diemerbroeck*);
but

but he having once forgot his Vinegar, was infected with the Plague, though he escaped, according to his own Relation.

⁴ *Mitbridates*, in whose Time Arsenic was not known, easily found a Remedy for animal Poisons, which only he feared ; but his Alexipharmics used against Mercury sublimate, Arsenic or Salt of Tartar, would rather increase than mitigate their Violence. These Acids are to be allayed by Alcalies or Bole-earths ; and the Alcalies are to be allayed by the Use of Acids and Oils.

§. 1135. What has been hitherto said of Poisons (§. 1119 to 1135.) may be likewise understood of the Plague, Contagion, and other particular Poisons ; which yet may be better understood from the following short, but just Account of the principal Poisons, and their Antidotes.

§. 1136. Some Poisons may be referred to a manifest Acrimcny of a particular kind, which is inflammatory, caustic, and productive of a Gangrene with Putrefaction : such are chiefly Cobalt, yellow Arsenic, red Arsenic, white sublimed Arsenic, Realgar, *Armenian Stone*, *Lapis lazuli* ¹. These applied either externally or internally, inflame, corrode and excite Pains, inflammatory Heats and Driness, first in the Part affected, and then throughout the whole Body ; hence follow the most acute inflammatory Diseases in the Fauces, Oesophagus, Stomach, and Intestines, whence Nauseas, Vomitings, Dysenteries, Cholera morbus,

bus, iliac Passion and Inflation of the Bowels, a Paleness and *livid Colour*² of the Face and Skin, Vertigoes, Convulsions and Death ; or if that is avoided, a Paleness, Palsy, and Contraction or withering of the whole, or particular Parts of the Body. These indicate the Use of warm Water a little acidulated or mixed with Honey, used freely and *plentifully*³ for a long time, for drinking, injecting and bathing. But if it can be ejected by *Vomit*⁴ and Stool, it is so much the better, and those Evacuations ought to be the more freely encouraged. Fat Broths, Milk, Oils, Butter, and oily Substances are next useful ; and then it will be necessary to continue a long time in the Use of Laxatives, emollient, oily and acidulous Liquors drank internally, and used for bathing externally.

¹ This Stone I see in a Book published under my Name, by a monstrous Error prescribed to the Quantity of a whole Dram, for a Dose to purge Melancholy, when in reality I always taught with the utmost Caution, that it should never be given to above half a Grain. The Poisons here mentioned, are by a certain *Italian* termed *Venena Germanica*, and excite such Symptoms as plainly point out to the Physician what is necessary to be done for their Cure, and they likewise give time for the Use of Medicines ; for they inflame the Throat, Œsophagus, Stomach and Intestines, and burn up the Skin into a Scab wherever they are applied ; but the same Author observes, that the *Italians* have their Poisons of this kind much

more powerful and volatile in Fumes, whence they are called Superlativa.

² Arsenic more especially does usually make a livid Circle about the Mouth and Eyes.

³ If I am called to a Person who has swallowed Arsenic, and find him already livid, I order twelve Pints of warm honeyed Water to be drank every Day for three Days successively; and Clysters of the like kind are to be used. If this Method is not taken, the Disease will stick by the Patient as long as he lives: but when the Patient is past the danger of Death, the remaining Disorder may be treated at leisure. But the Acrimony of these Poisons, usually leave behind them Effects varying according to the Nature of this or that Viscus, which they have more particularly injured.

⁴ Half a Dram of Vitriolum Album is to be exhibited for a Vomit, working it with warm Water; and then the Patient must be continually pouring down more warm Water or a watery Drink.—This is a sure and never-failing Method, without which the Patient cannot be saved; for Theriaca and all the other Alexipharmics as yet known, are mere Trifles in such Cases.

§. 1137. Vegetable Poisons like unto the Nature of the former, (§. 1136.) are principally the *Aconita*, ¹, *Anacardium*, *Anemone*, *Apium risus*, *Apocynum* ², *Arum*, *Azedarach*, *Cataputiâ*, *Chamaelaea tricoccos*, *Chamaeleon niger*, *Clematitis*, *Colchicum*, *Corona Imperialis*, *Cyclaminum*, *Dracontium*, *Elaterium*, *Esula*, *Euphorbium*, *Flos Africanus*, *Grana Nubiæ*, *Helleborus albus*,
niger

niger & viridis, Hermodactyli, Hyacinthi, Laureola, Mezeraeum, Mel venenatum, Napellus, Nigella sylvestris, Oleander, Ranunculi, Ricinus, Scammoneum; oily Seeds rendered rancid and acrimonious by corrupting and long keeping; to which add, Tithymali, Thapsia, &c. The Effects and Indications of all these are much like the former, (§. 1136.) and therefore require the same Treatment.

¹ All these greatly dissolve the Blood and inflame the solid Parts. The Aconitum produces in the Fauces a Quinsy, and in the Stomach a Phlegmon, which generally terminates in a fatal Gangrene.

² Honey is a sort of Sugar gathered from Flowers; but if the Bees prepare their Honey from the Apocynum Syriacum, which usually kills Flies, then the Virulency of the Flowers will be lodged in the Honey, and shew its Effects, more especially while the Honey is new; for as this Virulency is altogether volatile, it exhales and leaves the Honey as it grows old.

§. 1138, There are (2.) also *other* ¹ violent and sharp Poisons, but such as being at the same time viscous, adhere to the Stomach, and by Consent affect the Brain and nervous System in a particular manner. Such are Chrysomela, *Cicuta* ² major, minor Petroselinum similis, & aquatica Gesneri; Huc ob aliam causam refer crocum; Datyra, Hyoscamus, Nux vomica, Oenanthe apii folio, succo viroso, Opium, Solanum, & Melanocerasos: from whence follow Vertigoes or Giddiness,

with a Loss of Sight, Deliriums, *Ravings*³, Nauseas, Vomitings, Dysenteries, horrid Convulsions, Apoplexies, and Death. These indicate the immediate Use of powerful Vomits, and the speedy drinking of large Quantities of watery, oily, honeyed and acidulated Drinks, frequently repeated as a Drink, and applied in the way of Clyster and as a warm Bath. When the Distemper is by these means allayed, it will be convenient to Sweat frequently and plentifully, by the Use of the several sorts of *Theriaca*; and the Patient must be kept up to an emollient and thin Diet.

¹ These Poisons are really wonderful. When the strongest and wisest Man, upon whom alone sometimes depends the Happiness of a whole Kingdom, has taken but a little of one of these Poisons, his Senses are destroyed, and he is thrown into Convulsions throughout the whole nervous System, as soon as ever the Poison begins to touch the Membranes of the Stomach; nor is there any extraordinary Disease but what some Poison or other can produce.

² From hence the *Solanum Maniacum* takes its Name.

³ I saw eight Children who had eat Hemlock; they were delirious, almost suffocated with a Quinsy, vomited and convulsed every one of them. I immediately gave them *Vitriolum Album*, after which all those who vomited were recovered. But when People are so convulsed in this Case, that they cannot swallow, one ought to have a flexible metalline Tube, made like the flexible Catheter, which being conveyed over the
Tongue

Tongue close by the Membrane which lines the anterior Face of the Vertebrae, may be thrust from thence into the Stomach, where by such a Tube a Vomit or other Medicine may be conveyed. As soon as the Patient vomits he usually comes to himself; for the Disorder is in the Stomach, altho' the Symptoms seem to declare it a Disorder in the Head.

§. 1139. There are also (3.) sharp Poisons with a manifest Acidity; such as namely, the Spirit of common Salt, of Nitre, Aqua regia, Aqua fortis, Spirit of Sulphur, of Alum and Vitriol.—All these Acids may be again joined with metalline Bodies, and by that means *form* some of the most rank Poisons; such as the Solution of Gold and its Crystals, the Solution of Silver, its Vitriol and Lapis infernalis, the Solution of Copper and its Vitriols, the Solution of Quick-silver in Spirit of Nitre, Sea-salt, Aqua fortis, Aqua regia, or Oil of Vitriol, with the several Preparations thence made; as the red, white, and green mercurial Precipitates, the corrosive and sweet Sublimate, Calomel and Turbeth, the Impregnation of Antimony with Aqua regia, and the escharotic or caustic Calx thence made. From the taking of these Poisons follow the most horrid Tastes, acid and foetid Smells and Belchings, Inflammations, Erosions, gangrenous Scabs, Nauseas, Vomitings, Dysenteries, Cholera morbus, the most cruel Gripes, Heart-burnings, Colics, iliac Passions, Tumors of the Glands, a cadaverous Smell, Salivation,

Z 3

Syncofes,

Synopes and Death. These Poisons require to be diluted by *watery Liquors*², to be obtunded by Oils, and to be corrected or altered in their Nature by lixivial or saponaceous Medicines, or such as are moderately *alkaline*³, with the more powerful *Absorbents*⁴ of Acids; and when the Violence of the caustic Poisons has been thus allayed, frequent Use must be made of *Oil*⁵, fat Broths, and Emulsions of the like kind.

¹ All these are produced by the Acid concentrated in the metalline Substances. The Metals are in themselves for the most part inoffensive, but with Acids they degenerate into the most rank Poisons; as Silver which is in itself insipid, being dissolved in Spirit of Nitre, forms the most infernal caustic Stone, which being applied to the Body, corrodes and destroys every thing even to the Bones. But the Poisons produced from each of these Metals have their particular Effects; those from Mercury cause a Salivation, those from Copper Vomiting, and from Silver colliquative Diarrhæas.

² The Effusion of warm Water only upon the caustic Oil or Butter of Antimony, which is a most strong caustic Poison, changes into a Calx, and so dilutes the Strength of its Acid, that it becomes inoffensive.

³ Which have the Property of discharging the Acid from the metalline Substance.

⁴ These Absorbents stop the Progress of the Disorder; and then it only remains to remove the Inflammation which the Poison has excited.

⁵ These are useful to cure the Eschars made by the caustic Poison, which is commonly so acrimonious

monious as in a little time to burn up the fleshy Parts into a Scab, or gangrenous Crust.

§. 1140. There are also (4.) other Poisons which are known to act by a manifest Alcalý ; such as the Ashes of burnt Vegetables, lixivial Alcalies thence made, or a Composition of them with Lime into a caustic Stone ; Eggs, animal Humours and Flesh perfectly rotten, the volatile Salts thence separated, and rendered still more *fiery* ¹ by a Sublimation from a fixed Alcalý, from Lime, Lapis calaminaris, Chalk, Iron, &c. All which very speedily create the most violent and burning Inflammations, Erosion, Gangrene, and Pains of the most severe Burning, with intense Thirst, Convulsions, most acute Fevers, a cadaverous Stench, a Dissolution of the Texture of the Humours, a Putrefaction of them and the Viscera, and even Death itself. But these require in order for a Cure, to be diluted with watery emollient Liquors, to be obtunded by Medicines oily or fat, and those of a fat, earthy Nature, to be corrected or neutralized by volatile and dilute Acids easily put in Motion ; and then continuing a long time in a Diet of acidulous, oily and emollient Aliments.

¹ The Alcalý which is prepared from the Ashes of burnt Wood, and combined with Lime made of Stone, will corrode even the Flesh of a dead Body, especially by the Application of warmth externally. At *Venice* there was a Soap-boiler's

Man who fell into a Copper of boiling Lixivium made of Pot-ash and Quick-lime; but by the time they could get him out, all the soft Parts of the Body were dissolved, and they extracted nothing but a Skeleton. I have known some wicked Men, who to destroy a Person have injected Clysters of the caustic Oil of Salt of Tartar.

§. 1141. There are some Poisons again, (5.) which are often mortal by a peculiar kind of Acrimony, which hardly shews itself but by the deleterious Effects thence produced; such as Brass or Copper, *Æs ustum*, or the Calces of that Metal made by Corrosives, the *Flos Æris*¹ or distilled Verdigrease, and Scoria of that Metal, the Crocus of *Antimony*², or the Calx and Glass of it prepared by Calcination, or the simple Flowers thereof, made only by Sublimation *per se*, or with an Addition of Sal Ammoniacum, and afterwards edulcorated by Ablution. These being taken into the Body create Nauseas, Vomitings, Dysenteries, Cholera morbus, over Purgings, most excruciating Pains of the Viscera, Cramps, Convulsions, Syncopes, most severe Anguish or Anxieties, and Death itself. They require for a Cure, a plentiful and long continued Use of diluent, emollient, and *obtunding*³ Medicines, and *Drinks*⁴, mixed with mild Acids and Honey, speedily applied and long continued, both as Drinks, Clysters, and Baths; after which, Recourse must be had to Opiates and oily Medicines.

¹ The Flos *Æris* used for a long time will certainly destroy the Patient.

² *Crocus Metallorum* offers no Injury or Uneasiness to the tender Parts of the Eye, or of a Wound; but if half a Grain only thereof be taken into the Stomach, it causes most severe Vomitings; though Horses will bear an Ounce thereof. Glass of Antimony given to four Grains, will kill a Person who is not of a very strong Habit. To remedy the Violence of these Substances nothing is better than to drink plentifully of Oxycrate, for a long time together.

³ *M. Homberg* has given us the Proportions of Acid and Alcaly in the several sorts of Spirits, and has pointed out to us the Quantity of Acid necessary to subdue or neutralize an Alcaly.

⁴ Water is the universal Remedy of Nature, with which all these Poisons are rendered unactive, and without which they must inevitably destroy the Stomach and other soft Parts, with which they are contiguous.

§. 1142. There are also besides the fore-mentioned, (6.) other Poisons, whose Operations are merely Mechanic; such as the Fragments of Diamond, Mountain Crystal, Filings of *Iron*¹ and of Brass, *Alumen Plumosum*, beaten *Glass*², &c. which by pricking the Nerves and wounding the small Vessels, excite Convulsions, Hæmorrhages, Inflammations, *Ulcers*³ or Gangrenes, and the like. These indicate a speedy and plentiful Use of Oil, Butter, and other emollient, laxative Substances.

This

¹ This may act as a Poison if it does not meet with a dissolving Acid in the Stomach; for it may wound and injure the small Nerves and Vessels of the Intestines. If therefore Fragments of Iron be swallowed by any one, it will be convenient to administer Acids. I myself cured a Girl who swallowed a Needle, only by the Use of Vinegar diluted with Water, which dissolved and blunted the Point of the Steel Needle; and at another time I preserved a Maid Servant who had thrust a very large Needle into her Stomach. We are not to be afraid of the Use of Vinegar in these Cases, even though it should a little injure the Patient's Habit. The like Method is to be taken if the Needle or wounding Instrument swallowed, should be made of Copper.

² As these break into Fragments with sharp Points and Edges, they must necessarily wound and inflame the Coats of the Stomach and Intestines, against which they are rubbed by the peristaltic Motion; and therefore the best Antidote is to drown them in oil or fresh Butter.

³ Which being seated internally are almost incurable; nor should I be willing to undertake the Cure, or prescribe any Remedies for such an internal Ulcer caused by the Powder of Glass or Adamant, fixing itself like Thorns into the Membranes of the Stomach or Gula.

§. 1143. There are again (7.) other Poisons which quickly or slowly kill by constringing the Solids, incrassating the Fluids, and obstructing or drying up the Vessels; such as Quick-lime, or even that which has been extinguished, *Gypsum* ¹ or calcined Alabaster, Lead Ore, the Filings, Scales, or Calces of
Lead

*Lead*², *Cerrus* or white Lead, red Lead, Glass of Lead, Litharge, the Ashes of calcined Tin, Synopsis or red Oker, the Semen Pſyllii, the spongy or villous Substance of Hips, and the several sorts of Fungi, Agaric, Bird-lime, &c. which constringe and glew up the absorbing Vessels in the Stomach and Intestines, intercept the Course of the alimentary Juices, and after producing the most lamentable Disorders, with Weakness and Consumption, terminate in Death. These plainly shew the Necessity of Vomiting, Purging, and diluting, with the Use of Medicines spirituous, oily and alkaline, and all those of a saponaceous kind, which being timely used and repeated, should be persisted in for a long time.

¹ This being prepared in the Form of Meal, and boiled in Water, is extremely fatal in its Effects, even though it be destitute of Smell and Taste. So long as it continues fluid and suspended in the containing Liquor, it is not injurious; but it soon settles when the Liquor stagnates, and precipitates a stony, heavy Matter, which obstructs the absorbing Vessels of the Stomach and Intestines, by adhering to their small Orifices and sucking there in the same manner as when the Powder is applied to the Tongue. By this Fraud perished the Army of the Emperor *Conradus* by the wicked Contrivance of *Byzantinius*. It is true this may be dissolved by the Use of Acids, but then it scarcely affords any particular Signs by which one may know it has been taken.

² All these Poisons may be exhibited interchangeably, the one after the other, and as they always operate slowly and clandestinely, they can hardly be discovered by the unhappy Person who takes them; so that by proportioning the Quantity and Repetition of them, the most wicked Poisoners can prolong the Patient's Calamities and Death to a certain number of Days, Months, or Years. They who prepare white Lead or the Ore from whence it is separated, usually perish within the space of a Year. But the Disorders produced by Lead are very slow in their Progress, and their Causes often equally difficult to discover. A Woman who served those who glaze Tiles and *Delft* Ware, was all her Life-time afflicted with the most calamitous Disorders of the Nerves, with Anxieties, Pains, Asthma, &c. I ordered her Acids with a plentiful Use of Vinegar, by which the pulverized Lead was dissolved, and her Maladies relieved; but I could never cure such Patients in this manner entirely, when their Constitutions are so much reduced that the Use of Acids render them pale and cachectic. Hence it appears, of what pernicious Consequence the internal Use of Saccharum Saturni may be of to the Patient, in the way it is commonly prescribed; for it may be rendered so poisonous as to kill Dogs and Cats and make them run mad.

§. 1144. Add to these (8.) those anomalous Poisons which are directly repugnant to Life, and which kill when taken in, applied or infused into the Body by a Bite or Sting, though their Action or Operation and Effects are not yet well known or explained: such as Cantharides, Spiders, the Tarantula, Asps, Vipers, Serastes,

Serastes, Prester, Seps, Scorpions, the mad Dog, Toad, Buprestis, Stello, Salamander, *Lepus marinus*, *Pastinaca marina*, &c. which after producing various surprizing Effects *hardly explicable* ¹, kill the Patient. The Indication here if they are taken into the Stomach is to immediately evacuate them by Vomit, to dilute plentifully with watery Liquors, especially such as are oily, laxative, and emollient; by resisting Putrefaction with such as are spirituous, acid, and saline. If they are applied externally by Bite, Wound, or Sting, they call for an Extraction of the Poison from the infected Part by sucking, scarifying, cauterizing, and fomenting with oily and emollient Remedies; and after this to procure a plentiful Sweat by penetrating Antidotes well diluted, and averse to Putrefaction: and lastly, by correcting or weakening the Poison with acid, saline, or specific Antidotes.

¹ All these Animals abound with a wonderful kind of Poison, which being transfused into the Blood of other Animals, when the former are enraged, produce certain wonderful Effects, which often vary as the biting Animal is more or less enraged. The Asp causes a Sleepiness; the Serastes a Tetanos or Cramp of all the Muscles; the Toad a Swelling of the whole Body with Convulsions, 'till the Person is almost ready to burst; the Viper causes a Jaundice; the Seps a Gangrene; the Scorpion an acute Fever with Convulsions; the *Lepus marinus* a pulmonary Consumption; the *Pastinaca marina* disorders the Liver; the *Dipsas* inflames the *Œsophagus*, and excites perpetual Thirst; Cantharides,

Cantharides, to whatever Part applied, inflame the urinary Passages; &c. It is indeed true, that some endeavour to explain the Action of these last by a volatile Salt, with which they abound; but then why should this volatile Salt be so injurious to our Bodies and not at all injure that of the small Animal, in which they abound? Is it not thence evident that this Salt is poisonous with respect to human Bodies; and yet we see that all poisonous Animals live free from Injury by their own Poisons? I frankly confess for my own part that they do not seem to admit of an Explanation, at least none that is mechanical and demonstrative.

§. 1145. Lastly, (9.) There are some Things which kill in a Moment by suffocating in the Form of a Vapour, as the Fumes of burning *Charcoal*¹ closely confined, subterraneous Air long shut up, the Exhalations of fermenting Wine, the volatile Dust of poisonous Fungi, the Fumes of Sulphur, and many things of the like kind, which are better concealed than exposed to ill-designing People. The Effects of these on the Lungs and Nerves to which they are applied, are intelligible from what has been said before, and hardly admit of a Cure.

¹ Burning Wood or Charcoal suddenly extinguished in a close Room, within a little time insensibly kills all that are in it, of which we have many lamentable Instances in all Nations. To this Head belong metalline Fumes breathed into the Lungs, where, by constringing the Musculi Mesochondriaci, they instantly cause a Peripneumony and Suffocation, and this more especially is effected

effected by the Fumes of burning Sulphur, which may be corrected by the volatile Spirit of Sal Ammoniacum.

§. 1146. But the more remote Causes of Diseases being evident to the Senses, are more easily corrected or removed; since they indicate an Alteration or Change in the six Non-naturals.

§. 1147. But if these Causes (§. 1146.) lie *more concealed* from the Senses, to which they appear only by their Effects, they nevertheless indicate by those sensible Effects and Appearances the proper and respective Remedies.

Thus I know not the Nature and Manner of Action peculiar to the variolus Contagion, nevertheless from its manifest Effects I deduce a proper Method of Cure. If I remove the known Effects of any unknown Cause, I perfectly weaken or destroy the Cause itself. Thus if a Patient is afflicted with the Stone or Gravel, and by a proper Treatment I procure him a Freedom from all the Effects or Symptoms thereof, I shall have performed my Part as a Physician, and the Patient may for so long a time be said to be in Health.

§. 1148. The Progress of these Effects or Appearances (§. 1147.) being rightly observed, teach us by what Medicines, and in what time, order, way and manner Remedies are to be used to correct or expel the proximate Cause of the Disease in the Patient's Body.

§. 1149. An accurate Observation of the same things likewise teaches us what is *wanting*¹, and what is to be supply'd for the Patient's Recovery.

¹ Though *Hippocrates* understood not the Circulation of the Blood, yet by accurately observing the Effects of the Disease, which he look'd upon as an unknown Entity, and by remarking the Endeavours of Nature, by which the Disease tended to either Health or Recovery, did from thence deduce a proper Method of Cure, namely, by assisting the salutary Endeavours of Nature, and by resisting those of the Disease; and thus *Hippocrates*, ignorant of the Causes, cured Diseases as well as ourselves, stocked with so many Discoveries. It cannot indeed be denied that as this Method is founded upon Experiment only, a great many Patients may be lost at the Approach of any new Disease, before a proper and successful Course can be adjusted or assigned, as *Sydenham* observes.

§. 1150. And from thence also we know what Motions are to be excited, supported, quieted, or allayed in order to bring about the same End of the Patient's Recovery.

§. 1151. And therefore a regular Observation of these Appearances, and an exact Knowledge of their Effects excellently instruct us how to correct and remove the Causes.

§. 1152. From thence also we know that there are at present two ways to attain a Knowledge

ledge of the Cause in a Disease, the one being methodical and the other termed specific.

§. 1153. The methodic Physician in order to remove the proximate Cause of a Disease makes use of the following Helps and Means.

1. He accurately examines and ranges in order the several Symptoms (§. 1147, to 1152.), and carefully observes the Tendencies of *Nature*¹.

2. If Life appears too weak in performing those things which are necessary to expunge the Cause of the Disease, he then supplies strength by administering Cordials (§. 1095, to 1116.) or endeavours to remove the Impediments which oppose: for which end Medicines which evacuate the morbid Matter of the Disease are useful.

3. But when he perceives the vital Actions arise too high, so as rather to confound than extricate the Cause of the Disease, he then moderates those Actions and reduces their Violence to the degree required; and this is effected by watery Drinks, Evacuations, soft, laxative, emollient, and glutinous Remedies, Bleeding, Opiates, and Anodynes. 4. By *doing*³ or changing nothing at all but what appears necessary with the strongest Evidence from the clearest Indications.

¹ Suppose a Disease perfectly unknown with respect to its Causes, and Nature only manifests her Endeavours, and points out how much the Pulse, Respiration, and Actions of all the Viscera deviate from their healthy Condition; having remarked all these Particulars, I then range them into Classes according to the Stages or Times of the Disease.

In these Cases different kinds of Cordials will be necessary according to the different Cause of the Weakness; thus in the Plague Vinegar or Lemon Juice or Rhenish Wine may be as advantageously given as Cordials.

² The Fever itself ought not to be removed, only the Causes which excite it, otherwise the Patient himself will be extinguished, together with the Fever; as *Locke* wisely observes in his Verses prefixed to *Sydenham's* Works. But one ought to leave so much of the Fever as is sufficient to concoct or attenuate the morbid Matter, and to reduce the Fever from running too high.

³ I can affirm that no Disease is so obscure, but that according to these Rules one may in some measure judge what is necessary to be done; but then it must be remembered that all Diseases are not curable, and that others only require to be moderated or kept within Bounds by the Physician; as in an ardent Fever with great Driness, Heat, and Thirst, I give Oxycrate, Jelly of Elder-berries, Honey, and the like; being certain by this means to temperate the Heat.

§. 1154. But the specific Method before-mentioned removes the Cause of the Disease barely by the Application of such Things as are known to be efficacious only from *Experience*¹, without attending to the four particular Considerations last mentioned (§. 1153.) This Method therefore only requires the Name of the Disease and of the Medicine; as in the Cure of an intermitting Fever by the *Bark*², of Pains by the Use of Opium, and of every particular kind of Poison by its proper and known

known Corrector or Antidote, to attract or expel the same.

▪ An old *Dutch* Physician tells me, that if any one is bit by a mad Dog, and salted Herrings are applied to the Wound, and again renewed after they have lain twenty-four Hours if they are become putrid, the Patient will be thus cured, or at least will certainly not be troubled with the Hydrophobia, or Dread of Water. He could not tell in what manner these Herrings acted, but he had known them succeed; and this is the Nature of a Specific.

² This Bark directly removes the Fever so far as it is a Fever; and in a tertian Fever, without any other Disorder of the Humours and Viscera, it is truly a Specific, as much as Opium is to allay a too violent Motion of the Humours arising from the animal Faculties. But this Method of curing Diseases requires great Caution; for if there was another Disorder joined with the intermitting Fever, the Bark would be so far from curing it, that it would become much worse, whether it were a Cacochymy, or a Weakness in the Viscera. But Pretenders to Physic no sooner hear the Name of an intermitting Fever mentioned, but they are immediately for administering the Bark at all Hazards, or under any Circumstances.



Curative Indications in Diseases of the
S O L I D S.

§. 1155. **I**F the Disease itself lies in the simple or similar solid Parts of the Body, the Knowledge of it readily points out the necessary Indications.

§. 1156. For if the Disorder be a Solution of Unity in these parts, it requires (1.) the *Removal*¹ of all extraneous, dead, or foreign Bodies, interposed betwixt the Parts separated; (2.) the Reduction and Retention of the divided Parts mutually together in their natural Situations; (3.) to keep them quietly united together in that manner without any Disturbance; (4.) to preserve the Vessels supplied with their natural Moisture, Softness and Warmth; (5.) to conglutinate or unite them together again, by the means of natural and liquid Nourishment conveyed thither with a moderate Force, and in a healthy Condition.

¹ No one living could ever by Art occasion a Fragment of the Tibia to join together with the rest of the Bone, which is entirely the Work of Nature; and all that Art can effect, is to remove the Impediments, while Nature performs the rest. When a Bone is dislocated,, one Part of the Ligament

§. 1157. *Indications of the Solids.* 357

ment is extended, while the other is relaxed; whence the Circulation of the Humours will be impeded in the former; whence Pain, Inflammation, Tumor, &c. which immediately vanish, as soon as the Bone is replaced by the Surgeon; so simple are the Assistances which we afford to Nature.

§. 1157. The three first Intentions are performed by the Dexterity of the *Surgeon*¹, but the fourth Intention is answered in some measure by the Applications of *Balsams*², Unguents, Oils of a soft and smooth Nature, and averse to Putrefaction; Balsams of Tolu, Peru, Palma, Capivi, Mecha, native Turpentine, Butter, Marrow, Unguents, Arceus's Liment or Balsam, Unguentum Basilicum, expressed Oil of Olives, Linseed, or the like Oils digested with the Flowers of balsamic Herbs; as the Oil of St. John's Wort, Mullen, Marsh-mallows, Agrimony, white Lillies, and an infinite Number of Compositions of the like kind. But the fifth and last Intention preceding, is answered by a proper Regimen and *Diet*³.

¹ Whose Office is to remove every thing preternatural, and to reduce the Parts to their just Positions, and to retain them so afterwards.

² Which Balsams contain a Resin and acid Spirit, and which in reality differ in nothing else from mere Oils.

³ That healthy Humours may be conveyed to the wounded Parts to unite them, or supply the lost Substance.

§. 1158. Too great *Rigidity* ¹ or Stiffness appearing in the solid Parts, indicate a Relaxation of them; which may be obtained 1. by the Use of Baths, Fomentations, Drinks, Injections, Vapours, and warm Water; 2. the Application of a Decoction of emollient Vegetables in the same manner, as Marsh-mallows, common Mallows, Mullen, Brank-Ursine, Pellitory, Mercury, Fenugreek Seeds, Linseed, Mallow Seeds, Quince Seeds, Barley, Oats, &c. 3. All these applied in the same manner, boiled or infused in some soft Oil (§. 1157.) 4. By moderate Motion or Exercise frequently repeated.

¹ Nothing is more powerful in these Maladies than warm Applications, which insinuate themselves under the Form of Vapours, from whence I have often seen happy Effects. I even remember a Countryman whose Knee was stiff with an Anchylosis, which was cured by ordering him two Hours every Day into a vaporous Bath; afterwards rubbing the Joint well, first dry, and then with Oil. by the frequent Repetition of which he recovered.

§. 1159. Too great Flaccidity or Relaxation of the solid Parts being known, indicates or calls for strengthening of them; which is obtained, 1. by those Cordials before described (§. 1107); 2. by greater Exercise of the Body, and Motion of the Humours by Frictions, riding, and bodily Exercise in order to render the soft Fibres somewhat more callous, compact,

part, or dense; 3. by a drying *Heat*¹; and lastly, 4. by Diet and Air of the like kind.

¹ When Heat is excited internally, while at the same time the Patient is carried through a dry Wind, this causes the nutritious Parts of the Humours to be applied and compacted into the Solids.

§. 1160. From whence it is also evident what Method must be taken to remedy too great Elasticity or Weakness in the smallest Fibres; what must be done when the Fibres are too fragile or easily broken; and what when they are too much contracted, or else distracted by Elongation.

§. 1161. Disorders in the organical solid Parts, and consisting in their Bulk, Figure, Position or Cohesion perverted, indicate the Remedies before-mention'd (§. 1116 to 1119.)

§. 1162. But for the rest of the Diseases seated in the solid Parts, they depend chiefly upon the Disorders of the *Fluids*¹, as may appear from the Doctrine of the Causes of Diseases before proposed. We shall therefore next proceed to the Consideration of the Fluids.

¹ The Hyperfarcosis, Scirrhus, and other Tumors, which are commonly reckoned Diseases of the solid Parts, are so far from being produced by an Increase of the Solids, that very often in these Cases the real solid Fibres and Vessels are even diminished, and the Tumor produced only by the stagnant Fluids concreting and putting on the

Form of a Solid, as we see in Scirrhi and incysted Tumors. Nor do I in this Place consider the Stenochoria or Contraction of the Vessels and Thlipfis, or Compression of the Vessels (§. 709.) that I might not be obliged in these Accounts to draw in the Consideration of the Fluids.



Curative Indications in Diseases of the F L U I D S.

§. 1163. **T**HE Humours or fluid Parts of the Body being known to offend in Diseases, indicate their Correction or *Evacuation*¹; and this either throughout the whole Body, or only in the Part itself affected.

¹ From these two Indications arise the first and principal Division of Medicines into Alterants and Evacuants, agreeable to the most received Distinction of the Ancients,

§. 1164. A vitiated Humour confined only to one *particular Part*¹, always supposes too great a Tenacity or Grossness of the Humours, and an ill Condition of the containing Solids; and therefore it indicates such an Alteration to be made both in the solid Vessels and fluid Juices, as may render the latter pervious, and fit for Motion.

Such

Such is the Nature of the healthy human Body, that an Obstruction cannot be formed in one Part, but the Disorder will be proportionably communicated to the whole.

§. 1165. The Humours become too gross or tenacious in any Part, are render'd fluid and moveable, 1. by the Use of watery Diluents applied warm, either in Form of a Drink, Fomentation, Vapours, Bath, or Injection, adapting the Form and Use of them so as to penetrate as much as possible immediately into the affected Part; 2. by saline *Resolvents*¹ used in the same manner; the principal of which are Nitre, Sal Prunellæ, Sal Polychrestum, Nitrum Stibiatum, Sal Gem, Sea Salt, Sal Ammoniacum, Flores Salis Ammoniaci cum Sale Alkali fixo, Borax, Sandiver, or the Salt which is scummed off from Glass, calcined Ashes of Vegetables, fixed and volatile alkaline Salts, Tartarus solubilis, Tartarus regeneratus; 3. by the Use of *saponaceous*² Resolvents composed of an Oil and Alkali combined together; the chief and most powerful of which are those made of an expressed Oil and fixed Alkali, of an expressed Oil and a volatile Alkali, of a distilled Oil and a volatile Alkali; to which add the *Bile*³ of Animals, and the saponaceous or absterfive Juices of some Plants, as of Lettuce, Gum-succory, Sow-Thistle, the lesser Hawkweed, Dandelion, Scorzonera, Goats-beard, Succory, Endive, Soapwort, &c. 4. by those Remedies which are diametrically opposite to
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the inspissating or coagulating Cause in the Humours; as of mild Alcalies against a coagulating Acid, and of saponaceous Substances against an inspissating oily Glue; and the Use of attenuating Salts and Saponacea, when the Humours are thickened by too much Rest; and finally, the Use of nitrous Salts, and Juices of the saponaceous *Herbs*⁴ before-mention'd, if the Humours abound with a coagulating phlogistic *Tenacity*⁵; 5. and lastly, by the Use of proper *Cordials*⁶ (§. 1112.) saline, aromatic, oily and spirituous, so far as they *stimulate*⁷, divide, and urge forward the Humours.

¹ That is, such Medicines as being put in Action by the vital Powers, dissolve, and restore such Parts as were once fluid to their former State of Fluidity; or which dispose the constituent Particles of the Blood to move easily by the Sides of each other, and not to run into Concretions.

² These are more especially useful in a glutinous Tenacity of the Humours; but Care must be taken not to administer Sopes, when they are disposed to an alkaline Putrefaction, for then Garden Fruits are of the greatest Efficacy.

³ The Bile of Animals, though little used in Medicine, is one of the most efficacious, if not absolutely the best Attenuator of the animal Humours with which we are acquainted.

⁴ There is no chemical Liquor, nor even does Mercury itself so powerfully fuse the Blood, as the Oxymel of *Hippocrates*, or the Juice of Fumatory taken in a considerable Quantity with Milk for a long time together.

⁵ For a Coagulation of the Humours may be likewise introduced by a morbid Alkali, as we see
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by mixing Alcalies with Milk and with Blood; and then they are best dissolved and attenuated by a spirituous Acid sheathed, and as it were render'd saponaceous by an oily Spirit, such as the Spirit of Nitre, Vitriol, and common Salt dulcified with Alcohol.

⁶ Which Cordials by increasing the Action of the Vessels and Motion of the Humours, promote the dissolving Efficacy of the saponaceous Attenuants.

⁷ Resolving Medicines of any kind have no Action upon the Blood, so long as they are at rest; but when they are actuated by the Motion of the Heart, Lungs, and Contraction of the Arteries, then it is that they begin to dissolve the concremented Humours; whence it follows, that a mechanical Concussion of the Juices, and not the dead Action of the Medicines only, gives and maintains their healthy Degree of Fluidity.

§. 1166. The Passages or Vessels being stopped up or rendered pervious, 1. By opening their Cavities, by Drinks, Fomentations, Vapours, and Baths made of warm Water, with emollient, saline, and temperating Medicines; by a moderate external Warmth, and by warm Frictions either dry or moist. 2. The same is also brought about by fomenting, *softening*¹, and agitating the impacted Matter together with the obstructed Vessels, or else by procuring a *Suppuration*² or Putrefaction of the same Matter, so as to dissolve the whole morbid Part into a Fluid, or laudable Pus or Matter; as may be done by the Use of Cataplasms, Ointments and Plasters, composed of the soft
claminy

clammy Meals of Wheat, Rye, Oats, Linseed, Beans, Pease, Vetches, Fenugreek, &c. the emollient Roots of Mallows, Marsh-mallows, white Lillies, roasted Onions; Flowers of Mallows, Mullen and Melilot; the Leaves of Mallows, Marsh-mallows, Mercury, Pelitory; to which add Figs, the Yolks of Eggs, and the sharp, aromatic or ferulaceous Gums, Ammoniacum, Galbanum, Opopanax, Sagen, fresh Butter, &c. which may be variously compounded into the Cataplasms, Ointments and Plasters above-mentioned. 3. and lastly, By opening a way for the discharge of the Matter thus formed in the Part, either by making an Incision with the *Scalpel*³, or by the Application of a Caustic.

¹ For there is no other way to enlarge and open the Vessels.

² This is the common Method by which Nature purges herself; namely, when a Vessel is obstructed and concreted with the obstructing Matter, so as to become impervious or useless to the Circulation; then Nature or the *Vis Vitæ* urging behind the Obstruction there, breaks off the obstructed Part of the Vessel, and then dissolves it together with the obstructing Matter into an uniform cream-like Substance, called Pus or Matter; but the remaining sound Part of the Vessel still continues pervious to the Humours, which being urged forward, and applied by the *Vis Vitæ*, restore and elongate the Vessel, till it is almost extended to its former Length. It is therefore evident how wrongly *Paracelsus* and the Chemists always condemned Suppuration; for those who attempt to disperse

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Humours which are already begun to suppurate, will dissipate the more fluid Parts, and dry up the rest, so as to form a Scirrhus or Cancer, and sometimes a Gangrene.

³ So soon as a white and uniform Matter appears on the Part, the Tumor ought to be opened by the Scalpel.

§. 1167. The Disorders of the Humours vitiated in their whole Mass, being first discovered and understood, agreeable to the Doctrine of Signs before described, (§. 910 to 919.) indicate Medicines of a contrary Nature.

§. 1168. Namely, too great a *Fluidity*¹ of them requires Inspissation or thickening, to be procured 1. by the Use of Jellies and gelatinous Aliments taken from Animals and Vegetables; 2. the drinking of watery, mealy, and unfermented Liquors; 3. by increasing the Actions of the Viscera, by the Means before-mentioned (§. 1159.); 4. by the proper Use of the several Cordials before-enumerated (§. 1107.)

¹ All our Aliments when formed into Chile, are lighter than the Blood, but have their Parts gradually rendered more compact by the Action and Compression of the Vessels and Viscera. Hence a Consumption cannot be cured, but by giving the Blood a more compact or firm Texture by a due Motion from the Solids. But the Effect of this Motion upon the Humours when too weak, dissolves them, whereas a greater Motion longer continued, renders the Humours too compact and solid, or inclinable to Inflammation.

§. 1169. But if the Humours offend by too great *Thickness* ¹, they require Attenuation to be procured, 1. by feeding upon Aliments which are fluid and mild of Digestion, such as Flesh-broths boiled with Pot-herbs moderately attenuating, as Endive, Succory, Chervil, Smallage, Cabbage, and Bread well fermented; 2. by the *sharper* ² kinds of Pickles, Mustard, Rocket, Water-mint, Water and Land-crefes, Garden and Horse-radish, Dittander, Scurvy-grass, Capsicum pickled, Onions, Leaks, Garlic, and the several Sorts of Spices from the *East* and *West-Indies*, &c. 3. by Drinks strong, fermented, old, *spirituous* ³, and aromatic, as Ale, Wine, Brandy, &c. 4. by diluting with Drinks, Fomentations, Baths, and Injections, of *watery Liquors* ⁴ made warm, and assisted with Exercise of Body, Running, Frictions, Riding on Horse-back or in Carriages, &c. 5. by the Use of stimulating Sudorifics, Diuretics, Purges, Vomiting, Blistering, mercurial and aromatic Medicines, of which we shall speak more hereafter (§. 1189. N^o 5.); 6. by the Use of strong Resolvents, as fixed and volatile Alcalies, saponaceous Salts and Medicines before-mentioned (§. 1165.), with the several Compositions which may be thence formed.

¹ Sometimes a Tenacity or Thickness too much prevails throughout the whole Mass of Humours, and in that Case, the Use of Soap with Honey and Sugar, may be looked upon as an universal Remedy

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medy for dissolving almost every kind of Tenacity; but the Use of these ought to be continued for a long time, till the Patient finds himself much weaker, and even reduced by a Diarrhæa or temporary Diabetes. I have myself cured the most stubborn Disorders of the abdominal Viscera, agreeable to the Direction of *Hippocrates*, by the Use of Honey only, but given plentifully, and for so long a time, as to induce a Laxity of the Solids, and a Dissolution of the Fluids, so as to make the Humours run off abundantly by all the Emunctories. The same Effect also has Must, or the fresh Juice expressed from Grapes, which being given plentifully to one not accustomed thereto, will easily relax every Part, and dissolve the Fæces, so that they cannot be retained by the Influence of the Will.

² Which are excellent and approved by repeated Experience, for they increase the Motion of the Blood and Humours, and by that Means effectually attenuate at first, but afterwards they compact both the Fluids and Solids; nor ought they to be used for too long a time, otherwise they thicken and render the Blood more dense than it ought to be.

³ Thus Mum being drank, disposes the Body to bear most severe Cold for many Hours, which otherwise could not be endured. Such things therefore may be taken into Use, whenever the Attenuation of the Humours is opposed by Cold.

⁴ Nothing more powerfully dissolves Concretions than Water, assisted with Heat and Motion, as when there is a fall of hot Water upon a diseased Part, especially if Frictions are made use of at the same time. At *Aix la Chapelle* or *Achen*, there is a famous Pump, by which warm Water is poured down from any given Height upon a diseased

diseased Part, so that by the Force of the Water, and its Heat insinuating into the obstructed Vessels, it removes even Scirrhi; as we are assured, from the most faithful Accounts of wonderful Cures; which may be made by other Thermæ or warm Baths as well as these, assisted by the same Artifice, unless the Patient rather chuses to take his Cure from thence.

§. 1170. But too much, or violent Motion of the Humours through the Vessels, which are destined for the Circulation, Secretion, and Excretion of the Humours, indicates an *Abatement*¹ thereof to be made, 1. by removing the particular Stimulus which irritating the Fibres, excited that increased Motion, or else by correcting that *Stimulus*² with opposite Remedies, more especially by discovering the particular Acrimony, and correcting it immediately by the Means following (§. 1172. to 1178.); 2. by diminishing the whole Mass of *Fluids*³; or lastly, 3. by *quieting*⁴ them with Anodynes and Opiates.

¹ When a Diarrhæa follows from an acid Cause, it is very easily suppressed by the Use of *Armenian Bole*. In the Diarrhæas of Infants, I always enquire after the Colour of the Stools; for if they are green, they proceed from an acid Cause; and therefore I order in that Case, a Dram of Chalk dissolved in Water to be given by the Mouth, and the like to be injected in the way of Clyster. It is therefore evident, in these Cases, one need only determine the particular kind of Acrimony, which will direct the proper Method of Cure.

² In the Small-pox and Measles, the Fever can hardly be cured until the wonderful and unknown morbid Stimulus be first discharged. Every thing taken into the Body to which we are unaccustomed excites a Fever; whereas every thing which approaches the Nature of our Humours, and to which we are accustomed, excites not the least Disturbance.

³ This Remedy succeeds often, but not always; for we have an Instance of a Fever in a Prince of *Spain*, which became worse after forty Bleedings.

⁴ That the Motions of the Muscles, Strainings, Calling out, and Coughing, may not obstruct the intended Cure.

§. 1171. But when this circulatory Motion is too low and sluggish, it must be raised and excited to a greater Impetus, 1. by removing the impediment, or correcting it with proper Remedies; and, 2. by the Use of Attenuants (§. 1169.) and by Cordials (§. 1095: to 1115.)

§. 1172. The Acrimony of the Humours in general being known (§. 910.) does in general also indicate a Reduction of the Acrimony to a greater Mildness or Inactivity; which is performed, 1. by feeding constantly upon those Aliments which are almost insipid, farinaceous, gelatinous, and replenished with a soft Oil; especially Milk and Bread, taken with something to prevent it from turning sour; Flesh-broths lately made of young Animals by boiling, Flesh-meats, and Fish not stale, Wheat-bread well fermented or raised,

and thoroughly baked, sweet Almonds no old, Cocoa-nuts brought from both the *Indies*, with their Milk, Pistachia-nuts, sweet-tasted and perfectly ripe Garden Fruits; 2. by the drinking of *Water*¹; 3. by Rest and Composure of Body and Mind; 4. by mild, watery, mealy, and somewhat oily Ingredients prepared in form of a Ptisan, Emulsion, Fomentation, Bath, Clyster, or Injection; and lastly, 5. by the Use of Opiates and Anodynes.

¹ Nature has furnished us with nothing more opposite to Acrimony than Water; for this is never changed by any Art, nor ever becomes acrid of itself, but allays and reduces all Acrimony, except perhaps the sulphureous Metalline and arsenical Acrimony, with that of beaten Glafs, Diamonds, &c.

§. 1173. But acid Acrimony (§. 912.) requires to be more particularly corrected, 1. by feeding upon Eggs, Flesh, Fish, and somewhat oily Food, together with such Pickles or Seasoning as determine the Humours to be Alkaline (§. 1169. N^o 2.); by watery and somewhat oily or fat Drinks, as the several kinds of Ale, especially the *Brunswick Mum*¹, among Wine, *Malmzy*, *Canary*, *Spanish Wine*, and strong old Mead, &c. 3. by keeping the Body *at rest*² as long as there is any great Acrimony predominating, introducing Exercise afterwards by degrees, till at length it may be made sufficiently robust, keeping up a chearful

ful Mind at the same time; 4. by the Use of Medicines which either absorb Acids, as the Powder of Crab's Eyes, Crab's Claws, Fish Bones, Oyster or other Shells, Pearl, Coral; Chalk, *fat Earths*¹, *Armenian Bole*, *Lemnian* and sealed Earth, Blood Stone, Sanguis Draconis, Filings of Iron, Tin, and the like, attenuated and prepared by Fire or Trituration; or else such Things as neutralize or convert an Acid into a compound Salt of a mild Nature, easily dissolving; such as the fixed and volatile alkaline Salts, and saponaceous Remedies; or else such as obtund or sheath acid Acrimony by their emollient, soft, and oily Nature (§. 1157, 1158. N^o 2. and 3.); or lastly, the soft watery Liquors which dilute Acrimony (§. 1172. N^o 2. and 4.)

¹ The several sorts of Ale and Wine, which from the Abundance of their Oil, are found to keep good, even under the Equator; such as Mum, *Spanish Wine* and *Canary*, all which hardly ever turn sour from the Abundance of their Oil.

² Because Motion alone would only make the Acrimony more active and destructive; but after the acid Acrimony is removed, then Exercise pulls up the Disorder by the Roots.

³ The Antients highly recommended these Earths in the most acute and putrid Diseases, inasmuch as they sheath the Acrimony by their Oiliness; and even *Galen* himself took a Journey into the Island of *Lemnos*, only to see the celebrated Bole which is there dug up; and many Ages after him, *Paracelsus* went into the Islands of the *Mediterranean* with the same View. These Earths dissolve in the

Mouth, with a soft Oiliness like Fat or Butter, and have peculiarly the Property of sheathing all sorts of Acrimony.

§. 1174. But if again any of the Acrimony is discovered to be alkaline (§. 911.), it will require 1. the Milk of Animals feeding upon soft Herbs, the Whey thereof, skimmed Milk, Butter-milk, Garden fruits, and acid mealy Vegetables, or such as are easily inclined to Acidity (§. 1100.) are also proper; 2. Drinks watery, mealy, subacid, or but lightly fermented; 3. by keeping the Body at rest or moderately cool; 4. by Medicines which neutralize, absorb or dilute Alcalies; of the first kind, are those which convert Alcalies into a mild, middle, or compound Salt, easily dissolvable and disposed for Motion thro' the Vessels; such as almost every kind of Acid, particularly from Animals, sour Milk, sour Whey and Butter-milk; from Vegetables, Meadow-sorrel, Wood-sorrel, sour Trefoile, acid Cherries, Currants, Elder-berries, Barberries, Juice of Oranges, Citrons, Lemons, and ripe Grapes, Mosell and Rhenish Wine, Vinegar or its Spirit, Rhenish Tartar and its Cream or Crystals, Tamarinds, Juice of Acafia, &c. from the Fossils, Spirit of Sulphur, of Vitriol, common Salt and Nitre, either dulcified with Alcohol, taken *per se* with Water, or mixed with some other Body so as to form a third, as the Nitrum Nitratum, or Sea Salt, acidulated by their acid Spirits, &c. Those

Medicines

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Medicines which obtund or absorb acid Acrimony are also numerous, as the viperine Troches; all fat and soft Earths which are esteemed Counterpoisons, whether brought from *Malta, Armenia* or *Lemnos, &c.* to which add, all soft and fresh expressed Oils, Brimstone and its Flowers, which sheath or obtund Acidities; and lastly, the emollient, soft and diluting Remedies before mentioned (§. 1172. N^o 2, 4.)

§. 1175. If the Acrimony is discovered to be muriatic, (§. 913.) it indicates 1. a Diet perfectly fresh or without Salt; 2. the drinking of Water a little acidulated with some spirituous Acid; 3. the Use of emollient, mealy and diluent Medicines, with *Lime-water*¹; 4. and lastly, the Use of those things which in general obtund and remove all sorts of Acrimony (§. 1172.)

¹ Salted Flesh which will not deposit its Salt, even by three times boiling, and Bacon which retains its Salt after boiling and twenty-four Hours Maceration, readily become fresh with only once boiling in Lime-water. Hence we learn, that the muriatic Scurvy arising from an intimate Conjunction of the Sea-salt combined with our oily Humeurs, cannot be more easily cured by any Medicine than by Lime-water.

§. 1176. An oily, aromatic, bilious, adust, putrid or *rancid Acrimony*¹, requires 1. a Diet of tasteless, fresh, and mealy Aliments, Pot-herbs,

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herbs, tart Fruits, and Meats moderately acidulated; 2. a Drink made of *Water*² and Oxymel well diluted, or a Decoction of Fruits; 3. by keeping the Body at rest and moderately cool; 4. by saponaceous Medicines a little inclined to Acidity, as Honey, Manna, Sugar, Cassia Pulp, fresh expressed Juices of Garden-fruits perfectly ripe (§. 1100. N° 2.) with certain Pot-herbs (§. 1165. N° 3.) Oxymel, Soap, &c. 5. such things as are used in general against all sorts of Acrimony, (§. 1172.)

¹ Such a rancid Acrimony as frequently arises from feeding much upon Salmon, and other fat Fish; whence saponaceous and acidulous Substances mixed with Water, are, in such Cases, highly serviceable.

² For Water alone repels any thing that is oily, and refuses to act upon it as a Menstruum; and therefore Water is to be qualified by mixing Honey with it, or mild Acids, when there is a Tendency to Putrefaction; and hence *Hippocrates* prescribes the Use of Oxymel in almost every acute Disease.

§. 1177. An Acrimony which inclines to be acid and *austere*¹, indicates the same Method of Cure as before, (§. 1173. 1169.)

² The antacid saponaceous Medicines are here useful, especially *Venice Soap*, or the Soap of Tartar contrived by *Starkey*, which infringe the Acid by their Alcalý, and at the same time dissolve and attenuate by their saponaceous Force.

§. 1178. Whoever has well considered and understood the Principles hitherto mentioned for the Methods of healing, and who has carefully read the Works and learned Cures made by *Hippocrates* and *Galen*, such a one must be perfectly acquainted with the Remedies necessary to excite, promote, govern and finish the *Concoction* and Crises, both in acute and chronical Diseases.

† This seems to be no easy task, since the Concoctions are as various as the Crudities themselves, and these again as various as their proximate Causes; from whence proceeds that infinite Variety in the Method of healing. Yet in general is this Matter comprized in a few heads which are simple enough; for all that Nature does by Concoction, is to attenuate the Humours inspissated, to obtund those which are acrid, relax the Fibres and Vessels which are rigid, &c. But if Nature excites too much Motion in the Humours, they are to be quieted; if an inflammatory Spissitude offends, the Vessels are to be relaxed, and the Humours to be attenuated that they may freely circulate.

§. 1179. For these Intentions consist only in attenuating what is too *thick* †, (§. 1169.) in obtunding what is acrid (§. 1172, to 1178.) in opening obstructed Passages (§. 1166.) in corroborating the weak and lax Solids (§. 1159.) in relaxing the rigid (§. 1158.) and in moderating the Motions (§. 1170, 1171.) as will readily appear to one conversant in the Writings of the antient Physicians.

¹ In a Coryza the thin Humours are to be inspissated; in a Pleurisy the Vessels are to be relaxed, the obstructing Matter attenuated, and the vital Powers moderated, so as to concoct or digest it without urging too violently.

§. 1180. From the same Principles we may also determine what one ought to think concerning the boasted *Panacea*¹, which has been at all times cried up, and especially by the Chemists; for if we attentively consider the following Axioms, it will appear,

1. That a Panacea does not act by its own Virtue upon a dead Body.

2. But that it requires the Action of *Life*² remaining, to excite it to exercise the Power and Qualities which it is supposed to possess.

3. It does not therefore act upon any Part of the Body perfectly *mortified*³, but adhering to the whole, whether sphacelated, dried up, or converted into Pus or Ichor.

4. But the Extent of its Virtues terminates within the Parts yet living.

5. It cannot therefore of itself restore the vital Humours lost.

6. Nor can it restore those Humours to their natural or healthy Disposition, which have been once corrupted; as for Example, Pus, Ichor, putrid Matter, or *cancerous Acrimony*⁴.

7. No more can Medicine restore the *solid*⁵ Parts once lost or extirpated, nor Vessels, Viscera, or Limbs perfectly consumed.

8. It is also evident, that many and very different Diseases may arise from one and the same simple Material and efficient Cause⁶, if it is applied after a different manner to different Parts of the Body.

9. And to instance only an irregular Motion of the animal *Spirits*⁷ differently varied, may produce, maintain, and increase a great Number of Diseases, with various Symptoms.

10. Nor is the Variety of Diseases less, which may be produced from *Obstructions*⁸ only, with the Action of Life remaining.

11. And lastly, almost infinite is the Variety of Diseases arising only from Spasms, Flatus, small Stimuli and Poisons.

¹ By this Name we are to understand Medicines which instantly remove all manner of Diseases, such as formerly the Chemists, and some of the Antients have affirmed they possessed: But I can even find Arguments sufficient to disprove the Possibility of a Panacea, from the Writings of those who have favoured it most, as *Paracelsus* and *Helmont*. For *Paracelsus* in his Surgery, which he wrote a little before his Decease, plainly confesses, that there are an infinite Number of Diseases not curable by his Panacea: and *Helmont* the elder asserts, that no one, though possessed of all the Secrets in Nature, could possibly cure all Diseases; in which they shew themselves wiser than their Readers.

² *Helmont* tells us, that he could cure many Diseases only by touching the Tongue with *Butler's Stone*; this I do not deny, having seen something of

of the like Nature; but even then the Medicines must be allowed to act by the vital Powers.

³ No one ever yet pretended to be able to convert Matter again into the solid Vessels, by whose Dissolution it was formed. If you apply a Medicine to a sphacelated Part, its Action will be extended to the very Edges of the Parts yet alive, and forward their Separation from those which are dead, yet will they not act any farther than the living Parts.

⁴ *Paracelsus* promises that he could cure a Cancer by arsenical Medicines; but happy is our Age which can foresee the real Effects of such Medicines before they are applied.

⁵ I know this has indeed been affirmed not to be out of the Power of Chemistry, because the Claws of Crabs grow again, or are perfectly renewed after they have been broke off; because Crabs are often found with one Claw exceeding small, and the other large. But at present it appears from a certain Observation, that Crabs chuse to themselves certain Places to nest in, where they cast off their stony Shells, and become soft and naked, till they are again incrustated with a new Shell; whence it follows, that the Skin indeed, but not the Claws of the Crab, are renewed, in the same manner as our Cuticle, being abraded, grows again; but a Finger or other Limb amputated, is not regenerated in the same manner.

⁶ Thus the Blood being confined within its Vessels, and agitated with a due Motion, maintains Life, as when it perfectly stagnates it makes Death; but if this Stagnation of the Blood should be in an Artery, it makes an Aneurism, in the Vein a Varix, under the Skin a Bruise; or if it should burst forth from the Vessels of the Nose, it may excite a salutary Hæmorrhage, but if in the Vessels

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sels of the Brain, it will produce an Apoplexy, in the Vessels of the Lungs an Hæmoptoe, and lastly, in the Cavity of the Thorax an Empyema, &c. and yet this may be healthy or good Blood, only producing innumerable Diseases by a change of Place. But as from one Humour all others are derived, it may be granted, say the Chemists, that one Medicine may cure them all. Thus the same Medicines which taken inwardly will remove an Inflammation in the Finger, will likewise remove an equal degree of Inflammation in the Kidneys, Pleura, and other internal Parts.

⁷ The Spirits direct or govern all the Sphincters and Anastomoses throughout the whole Body, whence follow an infinite Number of Disorders from a Disturbance of the Spirits. Hysterical Women often become paralytic or apoplectic from slight Passions. As all these Disorders lie in the same Humour, and the Physician cures them with Opium; yet it cannot be thence justly concluded, that therefore Opium will cure all Diseases: the nervous Juice or Spirit is indeed the Governor of the whole, yet it cannot from thence be esteemed always a Panacea, according to the Opinion of Dr. *Phelips*, Physician to the Prince of *Conde*.

⁸ Most chronical Diseases arise from Obstructions; but Obstructions, so far as they are such, all give way to the Power of Mercury.

§. 1131. He that attentively considers all that has been here advanced with the greatest Truth, will likewise see that many Diseases are often removed by one Remedy, but never *all* Diseases.

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¹ One who pretends to cure a Rupture of the Aorta in the Thorax, or with the same Remedy to correct and cure Diseases, both from an Acid and Alcaly, from too great a Thickness or Thinness of the Humours, which are diametrically opposite, must appear an Impostor in the Eyes of all considerate People.

§. 1182. But the Remedies hitherto known to be most universal, are *Water*¹, *Fire*, *Mercury*², and *Opium*³.

¹ This, not by its own Mobility, but by the Heat and Action of a healthy Body, is a wonderful Dissolver and Deobstruent.

² This is indeed a kind of Water, but fourteen times heavier than the common, and so penetrating as to enter Passages which Water can never reach, whence it is of all things most admirably disposed to dissolve and attenuate the several Humours throughout the whole arterial and nervous System. Hence it is, that this Remedy alone cures almost one third Part of Diseases, and those of the most stubborn and incorrigible Nature, all sorts of Ulcers and scabby Disorders, &c. and by this only, *Carpus* acquired so much Fame by curing the most desperate Ulcers and other Disorders, that he was said to be assisted by the Devil.

³ This remedies all Disorders of the Spirits. A King of *Great-Britain* who was no Stranger to Physic, said once to Dr. *Lower*, If I take the Scalpel from you, you have Water, if I take away Water you have Opium, and even deprived of that you have Mercury, after which comes Fire.

§. 1183. And indeed by the skilful Use of these Means kept private to themselves, many have acquired very great Fame, having been reputed by the Vulgar to possess an *universal Medicine*¹.

¹ *Helmont* placed his universal Medicine in quieting the Archeus or disturbed Spirits; and his Secret for this Purpose was communicated by his Son to Mr. *Boyle*, to be nothing more than Opium fermented with the Juice of Quinces, which is not in the least more efficacious than the Opium crude. *Paracelsus* acquired to himself great Fame by the Use of Laudanum, the Physicians in his Days not daring to make use of Opium; and to this he added the use of Mercury, 'till that Time not known in *Germany*, which he gave under the Denomination of Turbith; to which add his Elixir Proprietatis. One possessed of the Knowledge of so efficacious Medicines in such an Age of Ignorance, might well acquire to himself the Reputation of an *Æsculapius*. But even *Paracelsus* himself acknowledges, the principal of his Medicine to be Turbith Mineral, washed with Spirit of Wine.

§. 1184. And from hence again it is also evident, which Medicines may be justly said to be the best in any Diseases; and whether or no, there are any that can be generally relied upon in all Cases.



Curative Indications in evacuating the
FLUIDS.

§. 1185. **T**HE morbidic Matter, or that which is indicated to be discharged by Art for relieving the Disease, may be evacuated two ways; either, 1. by the natural Emunctories or Outlets of the whole external Skin, Nostrils, Mouth, Fauces, Oesophagus, Stomach, Intestines, Bladder, and Urethra; or, (2.) by *artificial Evacuations*¹ made by the Lancet in opening the Blood-vessels, as Phlebotomy, Arteriotomy, Scarifications, Leaches; and in the lymphatic Vessels by Caustics and Vesicatories; as also both from the sanguiferous and serous Vessels together, by Issues, Setons, Ulcers, and Fistulæ.

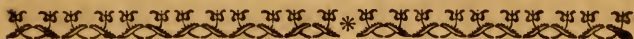
¹ These either act upon the sanguiferous Vessels by discharging pure Blood, or upon the Lymphatics by procuring a serous Discharge.

§. 1186. Hence the first Distinction of evacuating Remedies is taken from the different *Emunctory*¹ through which they discharge the morbidic Matter.

¹ When the Matter to be evacuated is to be discharged through the salival Vessels, then the evacuating Remedy is termed a Sialogog; when
upwards

upwards from the Stomach, a Vomit; when down by the Anus, a Purge, &c.

§. 1187. But the other Distinction of the evacuating Medicines is taken from the Difference of the Humours, or Matter evacuated from each particular Part.



Of SUDORIFICS.

§. 1188. **I**N the first place therefore from the Body by the Emunctory of the Skin are discharged the perspirable Matter and Sweat; but the Medicines which promote Perspiration only, are termed *Diaphoretics*¹, as those which promote Sweat are termed *Sudorifics*; there being no great Difference betwixt them, except in the greater or less Degree of their Force and Action. Of this kind are (1.) all those Medicines which powerfully move the Humours throughout the Body (§. 1171.); (2.) those which at the same time *diminish*² the Resistance of the exhaling and other Vessels in the Skin.

¹ Diaphoretics differ from Sudorifics only in degree of Strength; the former exciting only an Increase of the invisible Vapours which exhale from the Skin without being observed by the Eye.

² Any Person who is perfectly in Health, may be thrown into a Sweat only by relaxing the Skin with an external Warmth.

§. 1189. Sweat is promoted chiefly (1.) by plentiful drinking of watery Liquors very warm; (2.) by the Use of *fermented*¹ Acids, *Vinegars*², and especially distilled and prepared from Vegetables, or the highly attenuated fossil Acids dulcified with Alcohol, or subtilized by repeated Distillation (§. 1174. N^o 4.); more especially if these are mixed and drank with warm Water. (3.) The Use of Alcalies both volatile and fixed, well diluted in warm watery Liquors. (4.) All compound or neutral *Salts*³, as they are termed (§. 1165. N^o 2.) dissolved in the same Liquors; to which may be referred Soaps (§. 1165. N^o 3.) the Crystals of Metals, or their Salts joined with the forementioned, or their metalline Particles themselves highly attenuated, and not too violent or acrid, as the common diaphoretic *Antimony*⁴, and that of *Helmont*; the fixed Sulphur of Antimony of *Tachenius*, Bezoar Mineral, Mercurius diaphoreticus, *Aurum diaphoreticum*⁵ *Crollii*, Cinnabar, and many of the like kind, which upon Examination are found of little or no Action, whence they are termed Diaphoretic; or if they happen to unite with some *saline Acrimony*⁶, then they often excite Sweat. (5.) By the Use of Aromatics abounding with an acrid and subtle Stimulus, such as Absinthium, Abrotanum, Ageratum, Apium, Asparagus, Anisum, Angelica, Asarum diu coctum, Asclepias, Acorns, Aristolochia, Ammoniacum gummi, Bardana, Beçabunga,

bunga, Betonica, Carlina, Carduus benedictus, Calamintha, Caltha, Cardiaca, Caryophyllata, Carum, Caryophilli, Centaurium minus, Cinnamomum, Crocus, Chamæmelum, Capilli Veneris, China, Dictamnus creticus, Dictamnus albus, Eupatorium, Erysimum, Eruca, Galenga, Gentiana, Hyssopus, Laurus, Levisticum, Marrubium, Matricaria, Melissa, Mentha, Nasturtia, Origanum, Porrum, Pulegium, Rosmarinus, Ruta, Sabina, Salvia, Sanicula, Sarsaparilla, Sassafras, Satureja, Scabiosa, Scolopendria, Scordium, Serpillum, Tanacetum, Thlaspi, Thymus, Veronica, Virga aurea, Urtica, Zedoaria; with various Compositions from these, with the Addition of Theriaca, Mithridate, Diaiscordium, *Orvietans*⁷, and many more of the like nature, agreeable to the Experience and Choice of the Physician.

¹ Rhenish Wine made warm is a certain Sudorific.

² There is not any Sudorific more powerful than one Ounce of Vinegar mixed with twenty of warm Water.

³ Almost every kind of Salt when dissolved in Water, so as to pass through the Vessels of the Body, excites Sweat by stimulating the Fibres and Vessels.

⁴ All these act by the same Power in a less Degree, as that by which they excite vomiting, if warm Liquors are drank afterwards. For every mineral Emetic weaken'd, excites an Uneasiness or Anxiety, with Sweats throughout the whole Body, provided warm watery Liquors are drank. Nor

even will a Dram of Theriaca excite Sweat, unless assisted by the drinking of about twenty Ounces of Water, or some other warm Liquor.

⁵ This is a Species of the Aurum fulminans, which given in an increased Dose is a Poison, causing Gripes, Convulsions, &c. as *Hoffman* testifies.

⁶ This may likewise possibly be said of Cinabar.

⁷ These have been highly esteemed as Mysteries and Secrets, 'till being commonly known they have lost their Reputation.

§. 1190. But the latter (§. 1188. N^o 2.) is promoted chiefly, (1.) by keeping the whole Skin perfectly clean with Vapours, Lotions, Baths and Frictions; (2.) by relaxing all the cutaneous and subcutaneous small Vessels; which is most happily procured by the Vapours of hot *Water*¹ applied to the whole Skin, except the Head; (3.) by increasing the external Heat round the naked Body by the Warmth of the Bed, a vaporous Bath, or the burning *Spirits of Wine*². By all these means (§. 1189, 1190.) acting in a less degree, insensible Perspiration, or a Diaphoresis, is promoted instead of Sweat.

¹ When a Sweat cannot be raised by any Medicine, the naked Body covered only with a Cloak ought to be placed over warm Vapours, by which means the whole Body will run down in a little time merely from a Relaxation of the cutaneous Vessels. Nor is there any Diaphoretic more powerful than warm Vapours.

² In the Venereal Disease which has spread its Roots into the Bones, there remains no other Method of Cure than to fill the Body with a Decoction of the Woods, especially Guaiacum, till it is become almost dropfical; and then including the Patient in a Box with only his Head out, Spirits of Wine are to be burnt within the Box, that the ascending Vapours may come round his Body, which will then run down with Sweat. When this Method of treating the Patient is accompanied with plentiful drinking, so profuse a Sweat may be excited, that I have seen in two Hours time the most thick Scabs separate and fall off from the Forehead, and every thing drank immediately ran out through the Skin. But this Vapour of burning Alcohol, as I have demonstrated in my Chemistry, is nothing more than Water, if it be caught in a Receiver: it loses indeed about a sixteenth Part, which is perhaps of a saline and airy Nature. Hence it appears, that in this Case Alcohol operates as Water, into which its Elements or constituent Parts are converted by Deflagration.

§. 1191. The Body is prepared to facilitate the Operation of these Means, if necessary, (1.) by a previous Attenuation (§. 1169.) and Dilution of the Humours; (2.) by *relaxing*² the Vessels (§. 1158.) and by opening them (§. 1166.)

¹ In the Cure of venereal Patients, I order the Body to be first well rubbed with warm, rough Flannels, and afterwards for them to drink plentifully till they are saturated with the Decoction.

§. 1192. Perspiration and Sweat are indicated in Diseases :

1. By the Appearance of an incipient, gross, *critical*¹ and relieving Sweat, mitigating the Disease.

2. From the Tenuity of the morbid Matter, which either is or must be dispersed thro'out all the Vessels ; as in the Plague, venomous Bites, and in some kinds of the *Pox*², where the Virus is subtle, and not yet fixed.

3. From the particular *Habit*³ or Disposition of the Patient to encourage this kind of Evacuation.

4. From the known *epidemical*⁴ Constitution or Nature of the Disease.

5. From the Abundance and Variety of Obstructions throughout the whole Body to be resolved ; especially in cutaneous Diseases, as the Itch, Mange or Scab, *Leprosy*⁵, and the Pox, with Ulcers or Scabs.

¹ Hence Sweats, which in the Beginning of the Disease, would have proved fatal, are salutary towards the latter End.

² When a Person is troubled with venereal Ulcers and Tumors under the Skin, I enquire whether or no there are any Pains in the Bones, or at the Pubis ; if I am answered in the Negative, I then perceive that the morbid Matter tends outward, and will be more easily cured by Sweats than by Salivation, and therefore I pursue the former Course.

³ For there are some Patients extremely difficult to sweat, as well from the natural Texture of the Skin, as the Disposition of their Humours.

⁴ In the first beginning of the Plague, I believe the Patients might be cured, if they were sweated in a Box by burning Alcohol under them, provided they drank plentifully of acid Ptisans in the mean time. For that the Plague may be cured by sweating is acknowledged by every one, only the Difficulty lies in procuring a Sweat; but there is no Method of exciting a Sweat more powerful than that afore proposed.

⁵ By this Method I once cured a Girl of Quality that was perfectly Leprous; and I have seen others much relieved by it, though the Disorder has returned again.



Of Apophlegmatisms, or Sternutatories.

§. 1193. **A**LL the Parts of the *Schneiderian* or Pituitary Membrane are evacuated into the Nostrils, though the Membrane itself is of large Extent, distributed through various Cavities (§. 494.) and secerns a Mucus (§. 497.) commonly, but falsely esteemed a *phlegmatic* Excrement of the *Brain*²; and into the same Cavities of the Nostrils, are likewise discharged the Liquor which naturally moistens the Eyes and the Tears (§. 913.); as also the liquid or serous

Humours which flow in a Coryza or Cold ; as also the thicker Humour in a phlegmatic Catarrh, or Defluxion ; from whence it is evident, that a great Quantity of Humours may be evacuated by this Emunctory, as well by the Force of Nature in Diseases, as by the Power of Medicines.

¹ By this Term we understand the Mucus of the Nose, Œsophagus, Stomach, Intestines, Fauces, &c.

² Because the Brain is relieved by the Discharge of this Mucus, inasmuch as it makes a Derivation from the Branches of the external carotid Artery.

§. 1194. This Evacuation is indicated to be made,

1. By a cold Coryza, Catarrh, or sneezing Disorder, a Discharge of purulent Matter through the Nostrils, and Disorders of the Eyes, wherein the Tears abound.

2. From the *Disposition*¹ of the Patient, receiving much Ease or Relief from this kind of Evacuation.

3. When a Revulsion is necessary to be made from the Lungs, in the Disorder called Branchus, in a *Peripneumony*², Phthisis, or Defluxion from the Lungs from a Cold.

¹ For there are some Habits in which the Humours purge themselves almost entirely by Mucus ; and therefore this Excretion is so serviceable in these Habits, that a Coryza often prevents and turns off approaching Diseases. There are many healthy
healthy

healthy People who scarce ever ail any thing, but are troubled with such a Defluxion about once in a Month; and in such, this Evacuation ought to be maintained and encouraged.

² *Hippocrates* directs us in Disorders of the Lungs, when there is Danger of a Consumption following from the Discharge of salt Mucus, to make a Derivation of the Matter this way; and I always hope myself to make a Cure of a Phthisis, when I am able to keep the Schneiderian Membrane sufficiently lax.

§. 1195. This Evacuation is excited by the Use of Fomentations, Vapours, or Decoctions snuffed up the nostrils; as, 1. *Warm Water*¹, in which emollient Ingredients have been boiled a long time, 2. the same Decoction rendered a little sharper, by adding a small Quantity of Honey or Sugar; 3. by a Decoction of the Herbs and Flowers of Betony, Lavender, Marjoram, Pennyroyal, Rosemary, and Rue, with Honey; 4. the forementioned green Herbs contorted and thrust up the Nostrils; 5. by the snuffing up of every thing which is *sharp*² and stimulating, as Sugar, common Salt, sal Ammoniacum, Powder of Antimony, &c. or such as are in some Measure caustic, as strong Tobacco, nigella Sylvestris, Hellebore, *Euphorbium*³, to which add Errhines, Ptarmica, &c.

¹ Nothing is better for this Purpose than Water boiled with Mallows, snuffed up the Nostrils out of the Palm of the Hand, and likewise taken in by the Mouth: for this will relax the whole

pituitary Membrane, without ever exciting any Pain in the Head, as those are apt to do which are more acrimonious. By this Means, even the Ozæna itself has been sometimes cured. Water and Honey is still more acrid, and irritates the Parts so as to make them weak. So sensible are these Nerves, that they are irritated by many things which will not affect others; namely, by Odours and foetid Smells.

² Sugar beat to a Powder and snuffed up the Nostrils causes Sneezing, and promotes this Evacuation.

³ So powerful is the Action of Euphorbium, that Mr. *Boyle*, in his Treatise on the Usefulness of Experimental Philosophy, testifies, that he had twice known Cataracts removed in each Eye by the same Empiric; and in another, he tried the Experiment with Turbith Minereal, which he ordered to be snuffed up the Nostrils with Sugar, which in a little time excited such a Discharge by spitting, Urine, Vomiting, and Purging, as astonished every one. Almost a like Method of Cure is used by those who deal in Horses, for the farcy Worm; for after making an Incision through the nervous and sensible Skin, they insert Hellebore; or, as Dr. *Willis* tells us, they perforate the Cranium, and insert Hellebore to remedy this vertiginous Disease, the Staggers. For the Medicines which are applied to this Membrane, communicate their Force almost immediately to the Brain itself.

§. 1196. If this Evacuation is too great, or accompanied with too violent Sneezing, or a Distillation of a sharp Humour, it may be lessened or *suppressed*,

I. By

1. By new *Milk*² boiled with Mallows and snuffed up the Nose warm.

2. By the healing Fumes or Vapours raised from the Gum Benjamin, Mastic, Olibanum, Amber, Frankincense, or the milder Aromatics, as Marjoram, Herb Mastic, Pennyroyal, &c.

Lastly, If this Evacuation be exercised too constantly, it may induce a *bad Habit*³, so as to cause a perpetual *Draining*⁴ of the Humours this way.

¹ For Sneezing too long continued, may even occasion an Epilepsy.

² There was a certain School-master very fond of Roses, to whom the mischievous Boys gave some Roses sprinkled with Hellebore, by smelling to which he was thrown into such violent Convulsions, that he would certainly have perished, if I had not relieved him with a Decoction of Mallows in Milk. Such a powerful Influence has these Nerves over the whole System, that upon irritating them with a Feather in the Nostrils, the Sense is communicated even to the Fingers, Toes, and most extreme Parts of the Body. In the present Practice, this kind of Evacuation is commonly neglected, but the Ancients made use of it with very great Success.

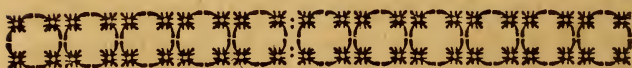
³ Such People have upon every slight Alteration, a Discharge of the redundant Humours this way made, whence follows a perpetual and uneasy blowing or wiping of the Nose.

⁴ The Lymph which distils in a Coryza is so sharp as to excoriate the Lips, and it may be capable of corroding the Lungs. This may be relieved by drawing up the Fumes of burning Amber

ber for three or four Hours together through the Nostrils ; but this must be done with Discretion, for sometimes it dries up the Membranes too much and causes the Head-ach.

§. 1197. But since the Nostrils (§. 1193.), salival Ducts (§. 65.) Tonfils and *Schneiderian* Membrane, all discharge themselves thro' and into the Mouth ; therefore the Indications here, with the Remedies, Cautions, and Antidotes, are the same as before (§. 1194. to 1197.) and therefore to this Place also belongs Apophlegmastisms and *Gargles* ¹.

¹ By this Name we understand washing the Mouth with four watery Liquor retained for a considerable time ; the several Particulars of which differ hardly at all from the preceding: For they are applied to the same *Schneiderian* Membrane, which lines the *Cæsophagus*, Nostrils, Wind-pipe, Fauces, and back Parts of the Mouth.



Of SIALOGOGS.

§. 1198. **A** Plentiful and artificial Evacuation of the Saliva is indicated,

1. By a Crisis made this Way.
2. From the particular Nature of the Disease being lodged chiefly in the *Glands* ¹ and *Membrana*

Membrana Adiposa; but more especially for the venereal Disease.

3. From the epidemical Nature of the Disease.

• The venereal Disease is not cured by a Salivation, upon the Account of a plentiful Discharge of the Saliva, which in melancholy People often proves of no Service; but because the Mercury in the same Manner exerts its Efficacy, and clears the Passages of all the other Glands, dissolving the Blood into a putrefying Liquor, like that which we see comes from the salival Glands, which is far from the Nature of healthy Saliva. But we chuse to make the Discharge of this putrid Humour by the Mouth, because it may be there deposited without inducing any worse Disorder. I am informed of a Method which now prevails at *London*, of curing the venereal Disease without Salivation; upon which Treatises have been published by *M. Chiconeau* and *Mr. John Douglas*; but I have not had any Experience of this Method to justify it.

§. 1199. The Body is best *prepared* for this Evacuation by a previous, plentiful, and long continued Use of attenuating Decoctions, which are diluent, lenient, and actually warm, made of Scabius, Pellitory, Burdock, China, Sarsaparilla, Sassafras, and Sanders, which are here the chief.

• When I order a Salivation, I direct the Patient's Body to be first well filled for a Week with Decoctions of Burdock, till the Body is rendered almost dropical.

§. 1200. This Evacuation is *excited* ¹,

1. By Mouth-washes or Gargles (§. 1197.)
 2. By a slow and continual *Mastication* ² or chewing of some tough Matter, as Mastic, Wax, and Myrrh, especially when mixed with something sharp or biting, as the Radix Pyrethri, Leucanthemum, Canariense sapore Pyrethri, Ginger, Pepper, &c.

3. By drawing in sharp Vapours or Fumes which irritate, as of Tobacco, Sage, Rosemary, Marjoram, Thyme, both garden and wild, &c.

4. But this Evacuation is still more powerfully excited by the Action of those Medicines which create a slight, but long continuing Nausea; such as the Stibium nitratum not perfectly fixed, nor perfectly *emetic* ³, with a little common Vitriol taken at the same time.

5. Lastly, by all those Remedies which intimately dissolve the Parts of the Blood into *Lymph* ⁴, and give them a Tendency to run off by the salival Glands; such as crude Mercury, Cinnabar, Mercury dissolved in Aqua fortis, white and red Precipitate, Turbith Mineral, a Solution of Mercury sublimate, &c. though the first of these will answer best, assisted with warm Fomentations of the Head, Neck, and Face.

¹ By these Remedies may the Saliva be discharged to any Quantity agreeable to the Pleasure of the Physician; but it is more especially useful
 in

in Leucophlegmatia, where a thin Serum is required to be this way discharged.

² Gum-mastic is here the principal, more especially when compounded with Aromatics; for there is something in this Gum of so irritating a Nature, and at the same time so closely confined in the Gum itself, that it will continue to excite the salival Discharge for eight Hours after it has been worked betwixt the Teeth.

³ All mineral or metalline Bodies which abound with a slight Acrimony excite a Nausea, powerfully open Obstructions, and excite the salivary Discharge. For when a Person is about to vomit, the Saliva flows plentifully; and *Hippocrates* tells us, that a plentiful Flux of Saliva into the Mouth denotes a Vomiting will ensue; and these Remedies being used to remove Obstructions seldom fail.

⁴ Mercury dissolves the red Globules of the Blood into yellow serous ones, and these last again into Lymph, so as to leave hardly any Blood remaining; all the Humours being for the most part discharged by the salival Ducts under the Form of a putrid Liquor. Yet does Mercury act only by the *Vis Vitæ*, nor will it kill Worms of itself, without being assisted by the Force of Life, as it is reported to kill Worms in Trees, and destroy Bugs in *England*.

§. 1201. A too copious Salivation is suppressed or moderated at least,

1. By a plentiful and constant Use of some warm emollient Drink, as a *Decoction* of Mallows and Liquorish in Milk and Water.

2. By quieting the Violence of the Sialogog by soft and oily Emulsions, with the Addition

dition of Anodynes and Diacodium, or *Opi-um*² prudently used.

3. By making a *Revulsion*³ towards other Parts by any large Evacuation, more especially by an Hydrogog or strong Purge by the Intestines. But in the Use of these, the greatest Prudence is necessary, lest the Violence of the Matter put into Motion, which is always acrimonious in this Case, might fall upon other Parts with greater Danger; and therefore he will command safely in this Case, who justly proportions his Remedy, by dividing it into several Doses to be taken at small Intervals.

¹ A Person in a Salivation, even regularly carried on, is in great Danger, and is sometimes attacked with such violent Symptoms, as seem to threaten nothing less than Death. In such a Case, the Salivation ought to be moderated by a Decoction of this Kind, which will at first increase the Violence of the Discharge, but afterwards will diminish its Effects or Symptom. Nothing is better for this Purpose than Milk and Water boiled with Mallows and drank plentifully.

² This is a heavenly and most certain Remedy in quieting a too violent Salivation. As for Purges, though commonly applauded, I cannot recommend them; for when they draw the acrid Matter to the Bowels, and it there takes up its Residence, Death is by that Means hastened.

³ This must be cautiously performed, for the putrid Lymph, by irritating the Nerves of the Intestines, will excite colicky Pains in the Bowels, and sometimes kill the Patient by that means in a little time; or if it attacks the Brain, it produces as wonderful and sudden Effects as a Poison.



Of E M E T I C S.

§. 1202. **V**OMITS are indicated,
 1. From the Foulness and Bitterness of the Mouth in a Morning, from foetid *Belchings*¹, Sickness at Stomach, Heart-burn, a gradual Loss of Appetite, without a concomitant *Fever*², or other manifest Cause.

2. From a spontaneous *Vomiting*³ and great *Easiness*⁴ of this Evacuation to the Patient.

3. From the known Nature of the mor-bific Matter, as being either moveable or *fixed*⁵.

4. From the Part affected with an Ob-struction and Distention below the Dia-phragm; and more especially when this is the primary Disorder, without being attended with any other thing contra-indicating.

5. From the general or epidemical Nature of the Disease.

6. From the Constitution or Season of the *Year*⁶.

¹ This is taken notice of by *Hippocrates*.

² For if a Fever attends, there may be an In-flammation in the Stomach, and Vomiting may be hurtful; but if there is no Inflammation, a Vomit generally relieves.

³ Care must be taken to observe that this Vomiting does not arise from an internal Cancer, or a Scirrhus in the Stomach itself.

⁴ Such People are by *Hippocrates* termed good Vomitors, because they easily empty their Stomach upwards. But in fat People the Head-ach may be occasioned, or an Artery may be burst by Vomiting.

⁵ Vomits not only evacuate but dissolve and attenuate the Humours. In Parts obstructed near the Diaphragm, either in the Viscera of the Thorax or Abdomen, a Vomit alone will frequently relieve the Complaint; but then one ought to be satisfied that the Viscera are all sound, and not yet weakened or broken in their Structure.

⁶ According to which People are in general more or less inclined to such Evacuations; as for Example, in the Summer and Autumn, when, according to *Hippocrates*, People incline more easily to Vomiting; but more difficultly in the Winter.

§. 1203. But Emetics are *forbid*¹ by every thing contrary to the foregoing (§. 1202.)

¹ More especially when Blood is discharged either upward or downward from the Stomach and Intestines; in which Case a Vomit may excite much greater Disorders. People in an Apoplexy are most certainly raised by Vomiting with Vitriolum album in a Draught; but then this is a hazardous Operation unless cautiously managed, since by that means the Blood is more accumulated upon the Brain, and a new Extravasation may follow.

§. 1204. The Body of the Patient is prepared for a more safe and easy Vomiting,

1. By rendering the Matter to be evacuated moveable, by diluting, attenuating and resolving (§. 1169. 1165.)

2. By *relaxing*¹ the Passages, and lubricating them with emollient, soft and oily Remedies.

3. By *bleeding*² the Patient before-hand if Plethoric, of a strong Habit, or given to much Exercise.

¹ This is effected chiefly by the Use of soft oily Draughts, taken until the Stomach and Intestines are almost rendered paralytic. This whole Art of vomiting easily, is delivered by *Hippocrates* in his Treatise *de Helleborismo*, preserved and handed down to us by *Heurnius*.

² For frequently when this Evacuation is neglected, plethoric People have expired with an Apoplexy in Vomiting; as is evident from the Catalogues given us by *Patin*, of the Martyrs by Antimony or Stibium. For in the Operation of Vomiting, all the Blood is determined towards the Brain, as is evident from the Giddiness or Vertigo, and Appearance of the Face and Eyes, which last run down with Water; but in this Case, the tender Arteries of the Brain are very easily burst. It is therefore a prudent Caution of *Sydenham*, when he advises to premise Bleeding whenever there is occasion for Vomiting in Disorders with Fulness.

§. 1205. Vomiting is excited,

1. By irritating the Spirits, with raising some Idea in the Mind capable of exciting a

great Nausea or Aversion; or by agitating them with some unusual Motion, as by swinging, tossing upon the Sea, &c.

2. By irritating the Fibres of the Fauces and Pharynx with an oiled Feather, or some such other Body.

3. By drinking a great Quantity of *warm Water*¹ without Salt, and mixed with Oil, Honey, Sugar, or the like.

4. By every thing which abounds with acrid, stimulating and viscid Particles intermixed, as the Flowers and Seeds of Dill; the Leaves of Asarabacca; the Root and Seeds of Orrach, or the like Parts of the more violent Plants, as of Catapusia or Spurge, Roots of Sow-bread; Flowers, Juice and Bark of dwarf Elder; Flowers, Seeds, and Roots of Broom, and both kinds of Hellebore; Seeds of the Nasturtium, Ricinus, Thymelæa and Cnicus; Roots of Briony, Iris, and Tithymal; Leaves of Hedge-hyssop and *Tobacco*², &c.

5. By *antimonial*³ Preparations, as the Saffron or Liver, Glafs, Flowers and Regulus, either in Substance or Infusion, with Draughts of some Liquor, Syrup, or emetic Wine; mercurius Vitæ, emetic Tartar, and the like; which by the different degrees of their Force, produce various Effects.

6. By *Mercurials*⁴ rendered acrid by Acids, in which one may also distinguish a very great Variety, according as the Acid is more or less abundant or powerful, and more intimately or loosely combined.

¹ There is a Tree growing in *Paragua*, whose emollient Leaves are very much in Uſe with the *Americans*, in the form of Tea or a Decoction for Vomiting, as our common green Tea is uſed without Sugar for the ſame Purpoſe, with many of our *Europeans*. The native *Americans* were followed in this Cuſtom by the *Spaniards*; and I know ſome young Men who formerly invited themſelves to drink the *Paragua* Tea, with which they all vomited together into one large Veſſel, as was formerly the Cuſtom in vomiting throughout all *Europe*; but this kind of Vomit was laid aſide, as too much weakening the Stomach. But the mildeſt and moſt certain Method of exciting a Vomit, is by irritating the Fauces and Gula with a Feather.

² An Infuſion of Tobacco in Water, is a ſtrong Vomit which never fails, but cauſes too great a Diſorder and Uneaſineſs in the Stomach.

³ This peculiar Operation has Antimonials, which *Hoffman* aſcribes to an arſenical Sulphur; but for the moſt part, as far as I can perceive, it depends in a great meaſure upon the way of preparing and uſing them. Glaſs of Antimony applied to the Eye will cauſe no Uneaſineſs, unleſs by its mechanical Roughneſs; but the ſame being taken only to the Quantity of half a Grain by the Mouth, excites the moſt ſevere Vomiting, as ſoon as ever it reaches the Stomach.

⁴ The Operation of theſe depends intirely upon the acrid Matter combined with the Mercury; ſince a whole Pound of crude Mercury is often ſwallowed in a twiſting of the Guts without any Alteration or viſible Effect; but if only one Grain of Mercury be joined with or diſſolved in an Acid, it becomes a ſtrong Vomit, adapted for the Diſcharge of thick Pituita or Phlegm.

§. 1206. The Choice, Dose, Form and Time of administering the forementioned Vomits, are indicated from the Nature of the Disease, and Matter to be evacuated.

§. 1207. The Operation of them is promoted by the *plentiful*¹ drinking of some emollient watery Liquor warm, after each Endeavour or Fit of Vomiting, and repeated till the Operation is over.

¹ Namely, by drinking a little more watery Emulsion than is discharged by Vomiting, and repeating the same Draught after every Fit, which is a very good Rule. If the Body is phlegmatic, a moderate Quantity of Sea-salt may be added. And by this means the Vomiting may be prevented from doing any Injury to weak People, or even to Infants themselves; for I have given Vomits, above an hundred times to rickety Children about two Months old. But when the Stomach being irritated and convulsed by the Vomit, is at the same time dry and empty, it causes great Pain and Injury.

§. 1208. The same Vomiting (§. 1207.) is *allayed*¹ by some mild, oily Draughts with Opiates, Aromatics, grateful and corroborating Acids, taken internally or applied externally.

¹ Fresh expressed Oil of sweet Almonds here gives present Relief; but Opium with Vinegar hardly ever fails. But if these should not succeed, large Cupping-glasses must be applied; and if these
neither

neither are useful, it is a Sign that the Convulsions have disturbed the whole Mixture of the Blood, and Course of the Spirits, whence the Disorder will prove fatal, as *Hippocrates* presages of the Convulsions excited by Vomiting with Hellebore.



Of CATHARTICS.

§. 1209. **V**ARIOUS are the Humours which *may be*¹ evacuated into the Intestines, and by that way discharged out of the Body; such as the Saliva and Mucus of the Mouth, Fauces, Oesophagus and Stomach, the cystic and hepatic Bile, the salival Juice of the Pancreas, with the watery and mucous Liquor of the Intestines, the atrabiliary Matter of the Blood and Viscera seated in the Hypochondria, the serous Juices of the Blood redundant in Dropsies, and the purulent Matter therein, from any critical, symptomatical or original Abscess, or morbid Suppuration.

¹ It is a great Error to suppose that purging Medicines act no farther than the Stomach or Intestines; for they disturb the Course of the Blood, and excite a Fever even before they act upon the first Passages; and then they determine the Effects of the Fever towards the Bowels. Hence we may understand why some People are not to be purged but by the strongest Cathartics,

§. 1210. This Evacuation from the Bowels is indicated,

1. From a Flux or Looseness which is *not colliquative* ¹.

2. From the Nature and *Seat* ² of the offending Matter.

3. From the Part filled or *obstructed* ³ being under the Diaphragm.

4. From the particular, general and epidemical Nature of the *Disease* ⁴.

5. By the necessity there is for making a Revulsion from other Parts above or adjacent.

6. From the Signs of *Concoction* ⁵ in the offending Matter to be thus evacuated.

7. Lastly, from the Condition or Habit of the *Patient* ⁶, with respect to this Discharge.

¹ For a colliquative Diarrhæa ought rather to be suppressed by Opiates, than promoted by Cathartics.

² As in the Liver, Spleen, Stomach, Gall-bladder, &c.

³ For the Effects of Purges lie more immediately in dissolving or evacuating the obstructing Humours.

⁴ Epidemical Dysenteries are sometimes most happily cured by convenient Purgatives; and in every Disease one ought to encourage the Discharge of the morbid Matter this way, when it is attempted by Nature, or even to procure it by Art when the Disorder will allow it.

⁵ For *Hippocrates* justly forbids Purging in the Stage of Crudity in Diseases.

° Some Patients easily bear Purgings, and others very difficultly, not without Faintings, or other violent Symptoms.

§. 1211. Purgings is forbid by the *Opposites* ¹ to the several forementioned Particulars (§. 1210.)

¹ More especially Purges are prohibited when the Stomach and Intestines are too sensible or liable to Irritation, as when they are inflamed, or when a Scirrhus or Cancer is lodged near them; for Purgings, in such Cases, will be repented both by yourself and the Patient.

§. 1212. The Matter this way evacuated, is to be prepared for it when necessary, by the same means as in Vomiting (§. 1204.)

§. 1213. The intestinal Evacuation itself is excited,

1. By the plentiful drinking of Liquors which are *diluent* ¹ and gently stimulating, taken upon a fasting Stomach, and keeping the Body moderately cool; such as the Mineral Waters, both chalybeate, sulphureous and saline, the Whey of Milk, and the fresh expressed Juices of ripe Garden-fruits.

2. By such as lubricate, and at the same time stimulate, but with an easy Acrimony; such as the soft expressed and recent Oils, fat Broths, emollient Decoctions or Extracts, Sugar, Honey, Cassia, Manna, Colophony or Turpentine, pale Roses, solutive Syrup of Roses, Juice of pale Roses, Gum Ammoniacum,

niacum, Galbanum, Opoponax, Sagapen, &c. taken in a moderate Dose.

3. By such as are moderately *acid*² and composed of more gross or consistent Parts, whence their Action is principally confined to the first Passages; such as Prunes, fresh Figs, Currants, Tamarinds, Myrobalans, Rhubarb, Tartar, Aloes, Mercurius Dulcis not too finely levigated, Polypodi, &c.

4. By such as are more acid and powerful, as the Leaves of Asarum, semen Carthami, Agaric, Mechoacan, Jalap, Turpeth, Hermo-dactyles, Senina, Soldanella, the internal Bark of Elder, and dwarf Elder, Scammony, Diagrydium, Peach Blossoms, &c.

5. By such as are the *most acid*³ and almost caustic, as the Helleborus niger, Veratrum, Iris, Gum Gutta, Esula, Gratiola, Elaterium, Lapis Lazuli, Euphorbium, Mezeræon, Crystalli argenti, Mercurius præcipitatus, albus, ruber, flavus, &c.

6. The various and almost innumerable Compositions, made up from these in the form of Pills, Electuary, Powder, Infusion in Wine, &c.

¹ These are the most gentle of all, insomuch that they are tolerable to a Wound or the naked Eye; such as the Bath-waters of *Aix la Chapelle*, boiled Apples, Mallows, &c. or even the Whey of Milk only drank plentifully, so as to keep the Bowels loose, frequently cures the most chronical and desperate Diseases. *Hippocrates* purged in chronical Diseases with Asses Milk. If these do
not

not operate sufficiently alone, they may be assisted or promoted in their Action, by a medial or neutral Salt.

² Such as are manifestly acrid to the Smell and Taste, to the naked Nerves in a Wound, and to the Eyes which they irritate.

³ Such as corrode and ulcerate the Skin and Nerves of the Stomach.

§. 1214. The Choice, Dose, Form, Preparation and Time of giving these, are agreeable with what was said before of Vomits (§. 1206.); and more especially must be directed according to the Nature of the Matter to be evacuated. Hence we have the various Denominations and Distinctions of these Remedies into Laxatives or *Eccoprotics*¹, *Cleanfers*² of the Bowels, *Cholagoges*³, Phlegmagogs, Hydragogs, Melanagogs, Panchymagogs, &c. the Origin of which Names is easily derived from the Humours or Appearance of the Matter evacuated.

¹ Which discharge the indurated Fæces, and cleanse the Bowels without wasting the Body, neither weakening the Powers nor discharging the Humours.

² Such as only evacuate what is moveable in the Bowels, without introducing any considerable Change in the Humours of healthy Bodies.

³ If there are no elective, yet there are distinct Purgatives, which more sollicit the Discharge of one Humour than another. For the Bile being the most moveable, may be easily dissolved by the mildest Purges; as Manna, Tamarinds, Juice of Roses, &c. But the Hydragogs are such as
dissolve

dissolve the Blood, and evacuate it under the form of a watery Serum; Melanagogs change the Body throughout, and are therefore the same with Panchymagogs, which scour off the Mucus of the Intestines, and cause a Tenesmus.

§. 1215. The Action of them is promoted by salted and fat *Broths*¹, new Whey, buttered Gruels, and the like.

¹ By this means their ill Effects or Symptoms may be avoided, by preventing the Body from being dry, by giving every Hour, during the Operation of the Medicine, two or three Ounces of thin Chocolate, or Flesh Broths, which will keep up the Patient's Spirits and prevent Fainting or other Accidents.

§. 1216. Violent Purging is suppressed and moderated, by the Use of soft oily Medicines and Emulsions, by *Acids*¹, Astringents, Opiates and spirituous Liquors, or lastly, by making a *Revulsion*² to other Parts.

¹ Even Hellebore itself given with Spirit of Sea-salt will not Purge; and Scammony is so tamed with the Fumes of Sulphur, as also to lose its purgative Force; so powerfully do Acids resist the Operation of Purging.

² Which ought to be attempted by the Application of Cupping-glasses to the Region of the Stomach, &c. and more especially in this Case, do I trust to a Clyster well charged with Theriaca, with the same Electuary spread in the form of a Plaster, and applied to the whole Abdomen.

§. 1217. Evacuations are likewise made from the Bowels by Clysters, which are indicated,

1. By the Nature and Vicinity of the Parts affected.

2. From the Nature and Condition of the Matter to be evacuated.

3. From the decayed Strength of the Patient, and the particular Habit of the Body, while at the same time there is an urgent Necessity for Evacuation.

4. From the Driness, Heat, and too great Motion of the Humours in *acute Diseases* ¹.

5. To procure a necessary *Revolufion* ², ease or relax the Fibres, and mitigate the acrid Humours.

¹ *Hippocrates* orders to relax the Bowels with a diluent Clyster every four Hours in all ardent or acute Diseases. I have, out of Curiosity, made the Experiment of injecting diluent and oily Liquors by the Anus, and have found that before they are discharged, the greatest part of them are absorbed, and conveyed into the Blood by the mesenteric and lacteal Veins, and therefore Clysters are useful for many Purposes, besides that of Purging.

² Only by the repeated Use of Clysters we may be able to excite an artificial, mild, and salutary Diarrhæa.

§. 1218. Clysters are therefore of various kinds; such as,

1. Diluents

1. Diluents of Water, Whey, or sweet Ale.

2. Emollient, relaxing, and easing ; such as of fat Broths, Oil, mealy Decoctions with Milk, Sugar, Soap, Syrups, &c.

3. Stimulating of the milder kind, are Salt Water, Water with Nitre, Urine, and Decoctions of the lenient Purgatives (§. 1213. N^o 2, 3.)

4. More sharp or active than the former, made of Decoctions of the strongest *Purges* ¹ (§. 1213. N^o 4, 5.)

5. Or lastly, such as hardly ever fail in the greatest Extremities, as the Smoke of *Tobacco* ² injected.

From what has been said may be understood the Nature, Composition, and Uses of *Suppositories* ³, acrid, stimulating and moving the Bowels, composed of Honey boiled to a hard Consistence, Sugar, Soap, and other acrid Ingredients combined together.

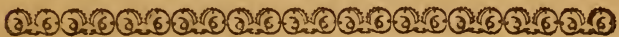
¹ All Medicines injected by the Anus produce the same Effects with those taken by the Mouth ; but then their Dose must be triplicate in Clysters to what is given by the Mouth. This is true of the *Peruvian* Bark ; four Ounces of whose Decoction being given by the Anus before the Fit of an Intermittent certainly removes it, as I have frequently experienced myself in Children, and has been often tried at the *French* Court. Even *Sydenham* was used to cure a Gonorrhœa by Clysters. There is therefore no room to doubt, that Clysters may answer the Uses of Purgatives, whenever Children, or People of a delicate Habit, are averse

to the Force or ill Taste of disagreeable Purgatives.

² When Nature is almost exhausted, and in a Lethargy in languid Diseases, she may be excited by the Smoke of Tobacco injected by the Anus after the manner of a Clyster; and by this means even the most obstinate Bowels will be excited to their Office.

³ Of the aloetic kind, which bring down the Piles in hypochondriacal People, after having first relaxed the Bowels.

§. 1219. In these again the same Cautions are to be observed as mentioned before in vomiting and purging (§. 1206, 1214.)



Of DIURETICS.

§. 1220. **A**N Evacuation by the uninary Passages is indicated,

1. By the Signs of Concoction in the Humours preceding.

2. By a critical Flux of the morbidic Matter through the Kidneys.

3. From the Nature of the peccant Matter being *saline*¹, saponaceous, scorbutic, purulent, or a subtilized Earth.

4. From a Consideration of the affected Part.

5. From the *epidemical*² Constitution of the Disease, and Season of the Year or Air.

6. From the Habit and Disposition of the Patient, favouring or being accustomed to this Discharge.

When

¹ When the morbific Matter consists in a watery Latex or Brine, the peccant Salts are then usually best discharged by the Kidneys; for as the Intestines are the Emunctory or Sink to the chylicative Viscera, so the Kidneys are likewise the Emunctory or Sink of the sanguificative Organs.

² For frequently many are cured of epidemical Diseases by the Discharge of scalding or acrid Urine on the critical Day; and in reality this is the most common Crisis in acute and epidemic Diseases.

§. 1221. The Use of Diuretics is forbid by the contrary Indications to those foregoing.

§. 1222. The urinary Evacuation is excited,

1. By the plentiful Use of Water, and *watery Liquors*¹.

2. By alkaline Salts both fixed and volatile, simple and compound.

3. By fixed, neutral or compound Salts; as Sea-salt, Sal Gem, Nitre, Borax, Alum, Tartar tartarised, Oyster-shell Powder dissolved with an Acid in the Stomach, or out of it; to which add the Juices of Shell-fish and Oysters, as also the Sal Ammoniacum.

4. The ascendent Humours taken from Animals, whether *sour Milk*², Butter-milk, or sour Whey.

5. By the milder *Acids*³ of Vegetables, as Juice of Oranges, Citrons, Lemons, Currants, Elder-berries; and thin Wines, as *Rhenish* and *Moselle*.

6. By acid Spirits, as of Vinegar, Nitre, common Salt, Sulphur, Alum, and Vitriol simple

simple and compound, or dulcified; to which add the Salt of Amber.

7. Those of the vegetable kind, as Smallage, Asarabacca boiled, Asparagus, bitter Almonds, Cherville, Daucus, Eryngo, Maudlin, Gromwell, Peach-kernels, Onions, Parsley, Pimpernel, Butcher's-broom, Saxifrage, &c.

8. The several and various Preparations and Forms of Medicines, which may be compounded out of all the preceding.

¹ Especially when these Liquors are determined to the urinary Passages by keeping the Body cool, and free from Sweat, or too copious Perspiration; for there is no Diuretic capable of operating by the urinary Passages, unless it be that way determined; and Water itself is perhaps the only true Diuretic. But if Water is charged with Sal Gem, or a Dram of vitriolated Tartar, it will excite Urine to such a degree, as to cause more Water to be that way evacuated than was drank; nor do I think it easy to find a better or more powerful Diuretic.

² Nothing is better for this Purpose than the very thin Whey of Milk, or that which is separated by filtrating Butter-milk through Flannel.

³ To these add the Juice of Lemons lately expressed and mixed with *Rhenish* Wine, which in many Cases form one of the best Diuretics.

§. 1223. The Operation of Diuretics is promoted by taking them upon an empty Stomach after a previous Concoction, after moderate *Exercise* ¹ of Body, and by the Use of a moderately cool Air; while at the same time the
Loins,

Loins, Regions of the Kidneys, Pubes and Peritonæum are kept *warm*².

¹ Chiefly by walking moderately in a cool Air, while in the mean time warm things are applied to the Loins and Region of the Kidneys; for the Kidneys ought to be kept warm to relax their Vessels, while the Humours are derived to them by keeping the other Parts cool.

² To this purpose Clysters which are not purging but emollient, and apt to be retained a long time, are extremely conducive.

§. 1224. The urinary Discharge is suppressed or moderated,

1. By the Use of the more viscid and gelatinous Emulsions.

2. By the adjunct Use of astringent and corroborating Medicines before-mentioned, (§. 1107, 1159.)

3. By the Use of Opiates.

4. By determining the Humours *to other Parts*¹, and more especially by exciting and continuing a Sweat for some time by Exercise or sudorific Medicines.

¹ Those who are troubled with a Diabetes are not easily cured without sweating in a Stove or hot House.



Of Emmenagoges and Aristolochics.

§. 1225. **T**HE Evacuation of Blood from the Womb, either menstruous or of lying-in Women, is indicated to be necessary,

1. From the Age of the Patient.
2. From a Plethora and its Symptoms.
3. From any Disorder caused by a Plethora and the Symptoms thereof, more especially in lying-in Women.

§. 1226. This Evacuation is excited by the Use of those Medicines, which

1. *Determine*¹ the Blood plentifully to the Uterus, as Fomentations, Baths, and Washes for the Feet and Legs; Frictions frequently repeated upon the Feet, Legs, Thighs and hypogastric Regions; Cupping-glasses applied to the Thighs and upper Parts of the Legs, and frequently repeated; by bleeding in the Veins of the Feet; and by the Application of Plasters of the foetid Gums to the Navel, Thighs and Legs.

2. By the Use of aperient *Medicines*², which open and relax the uterine Vessels, as Vapours, Baths, Fomentations and Injections; and internal Medicines of the same kind, as Birthwort, Mugwort, Calamint, Motherwort, Ground-

pine, Dittany, Lovage, Marjoram, white Hoarhound, Feverfew, Mint, Pennyroyal, Rosemary, Rue, Savin, Savory, Tansy, the fœtid Gums ; with Aloes, Myrrh, Saffron, *Borax* ¹, Steel, Amber, volatile alkaline Salts, and distilled aromatic Oils.

3. By the Use of such chirurgical, *dietetic* ⁴ and pharmaceutic Remedies, as are contrary to the Obstacles which oppose the particular Evacuation ; and which can only be determined from the particular Signs peculiar to each Case.

¹ Fomentations and bathing of the Feet frequently repeated 'till the lower Veins swell ; to which add Plasters of Galbanum applied to the Hams and Soles of the Feet, which are of excellent Use.

² The Use of which is however not without Danger, especially in Women of a dry Habit.

³ Which among the uterine Medicines is of excellent Virtue.

⁴ When the Menses are suppressed by the Use of Acids, they are then best recalled by alkaline Absorbents.—But in general we have no uterine Remedies but Sudorifics determined to the Uterus ; and the Menses are commonly suppressed for want of a due Laxity in the uterine Vessels. When these Remedies do not operate agreeably upon the Body prepared, they ought to be assisted in that Case by the Steams of hot Water conveyed to the Pudenda ; and if these Vapours are impregnated with Sal Ammoniacum, they will by that means be render'd extremely penetrating, insomuch that the Woman will perceive the Smell in her Nostrils, according to the ancient Observation of *Hippocrates* ;
and

and by this means, if possible, the *Menses* will be brought down. A *Semicupium* used Morning and Evening, with Frictions continued for half an hour upon the internal Parts of the *Legs* and *Feet* up to the *Knees* with warm coarse *Flannels*, are highly useful; and then at the full *Moon*, when the *Menses* are expected, it may be proper to open the *Saphena Vein* in the *Foot*.

§. 1227. The menstrual Discharge is suppressed or moderated when too profuse,

1. By a *Revulsion* of the *Blood* from the *Womb* towards the other *Parts*.

2. By astringing the *Vessels* with the *Medicines* before proposed (§. 1107, 1159.)

3. By the Use of *Opiates* ².

¹ Too great a *Flux* from the *Uterus*, is moderated by the Application of *Cupping-glasses* to the *Breasts*, in the same manner as *Inflammations* and *Swelling* of the *Breasts* are allayed by *Cupping* in the *Legs* and *Thighs*. In this *Case*, *Phlebotomy*, as a *Revulsive*, is a *Remedy* not to be trusted, since it weakens the whole *Habit* without giving the smaller *Vessels* any considerable *Tendency* to contract; but as long as they continue open, so long will the *Blood* continue to flow. Nor are *Astringents* always effectual; but *Women* in *Years*, who lose too much *Blood* by this *Evacuation*, very rarely recover; yet such may be assisted by the Application of *Ligatures* to the *Limbs*, &c. as directed more at large for profuse *Hæmorrhages* at §. 219. of my practical *Aphorisms*.

² In too profuse a *Discharge* of the *Lochia* from lying-in *Women*, *Opiates* only excel, and without them little or no *Relief* can be given to the *Patient*.



Of P H L E B O T O M Y.

§. 1228. **B**lood-letting within *Bounds*¹, so as not to diminish the Strength, has the following Effects :

1. It lessens the *Quantity* of Humours both in the Arteries and Veins.

2. And consequently it therefore lessens the Resistance to be removed.

3. And by this means it will lessen the Fullness of the Vessels, and the mutual Compression of the Humours and Vessels with respect to each other.

4. Thus it restores the over-distended Vessels to their former Contractions and Elasticity.

5. It *rarefies*² or thins the Humours.

6. It occasions their Parts to *cohere less*³ together.

7. It dissolves those Parts which are too gross or large.

8. It removes *Obstructions*⁴.

9. It promotes the Circulation, Secretion and Excretion of the Humours.

10. It makes a Revulsion from other Parts.

11. and lastly, It *cools*⁵ the whole Habit.

¹ That is to say, continued so long as not to alter the Powers of the Body ; but if it exceeds those Bounds, bleeding is proportionably hurtful.

It

² It relaxes the Vessels, and diminishes the Pressure of them against the Humours, and of the Parts of the Humours against each other; but the first or largest Order of Vessels being emptied, all the rest will be relaxed in proportion.

³ That is to say, if they are too much condensed or compacted together by a too strong Pressure of the Arteries, which is always as their Distension.

⁴ Namely, when Obstructions follow from too great an Expansion of the larger Vessels compressing the less,

⁵ And if it be excessive it cools even to the last degree, namely, by causing the Person to faint away first; and afterwards farther continued, it brings on a perpetual Coldness, or Death itself.

§. 1229. Hence bleeding removes a great many, and those very different Diseases, while at the same time it works very *surprising* Changes.

¹ Hence when the Physician for the first time orders the Patient to be bled, he ought not to leave the Evacuation entirely to the Surgeon, but should be present himself, and carefully attend to all the Appearances observable in the Patient. For there are some People who faint by the Loss even of a single Ounce of Blood; and in others bleeding often increases the Disorder itself. In those who faint, you may plainly perceive the Blood return even back again to the Heart by the Arteries, the Eyes collapse, the Face looks pale, &c. while others bear a considerable Loss of Blood without any Alteration.

§. 1230. This Discharge is indicated to be necessary,

1. From too great *Redundancy* ¹ of Blood.
2. From the Humours making too great a Resistance to the Force of the Heart.
3. From an obstructed Circulation by too great a Distension of the Arteries, either from the Quantity or Rarefaction of the Humours.
4. From an incipient Obstruction of the Blood's free Course, from an *Over-distension* ² of the Vessels, by which their Elasticity or contractile Force is destroyed.
5. From the Blood being too thick or dense.
6. From its Parts being too cohesive.
7. Or from the Humours being too much inspissated with an *inflammatory* ³ Sickness.
8. By those things which are the Signs of an inflammatory Obstruction appearing considerable, and throughout the whole Body; and among these the principal are Pain, Tumor, Redness, Heat and Anxiety, while at the same time the Evacuation of Sweat, Spittle and Urine are much suppressed.
9. From too intense a Motion of the Humours through the Vessels; as also from a too slow Motion of them, proceeding from the Causes before-mention'd (N^o 1, 3, 4, 5, 6, 7, 8 of this Section.)
10. From too great a Heat throughout all the Vessels.

11. From

11. From too great an Impulse of the Blood moved violently towards some particular Part, as in *Hæmorrhages* ⁴ and Congestions.

12. From the known epidemical Nature of the Disease, Season of the Year, &c.

13. From the *Age* ⁵, Sex, Habit, and way of Life in the Patient.

14. From a *Cacochymia* ⁶, or ill State of the Juices.

15. From the Necessity of giving Medicines a Tendency into the Vessels, and to procure an intimate Mixture of them with the Humours; as also when it is necessary to excite the Action of those Medicines for the Accomplishment of great Cures.

¹ When there is so much Blood and Humours, that the Heart cannot propel them, as may be known from the Palpitation of the Heart, and great Turgescence of the Veins.

² As when I perceive the Artery extended under my Finger without contracting or lessening again.

³ In this Case bleeding ought never to be omitted, lest the Inflammation turns to a Suppuration or a Gangrene. But if in such a Case some other great Evacuation should appear, we ought to wait and see whether Nature will relieve herself.

⁴ As when, for Example, if the pulmonary Artery is ruptured, I apply Ligatures to the Arms and Legs, and bleed the Patient, that so small a Quantity of Blood may be sent to the Heart, as will not over-distend or break open the wounded pulmonary Artery, which by that means may have an Opportunity of closing up and uniting its Membranes.

⁵ Adult People bear bleeding better than those who are young, and Women bear it even better than Men. They who feed plentifully bear it better than those who live soberly; and for the most part it is hurtful to melancholy and phlegmatic People.

⁶ In this place bleeding must never be used profusely.

§. 1231. This Evacuation is best made,

1. With a large Wound, or Orifice by *Incision*¹.

2. In a large, *free*², or safe Vein easily perceived, and remote from Arteries, Nerves and Tendons.

3. By accelerating the Motion of the *Blood*³ with a strong *Respiration*⁴ while the Vein is bleeding.

4. By moving the *Muscles*⁵ near the Vein opened.

5. By bleeding the Patient in a *supine*⁶ or horizontal Posture.

¹ The Lancet ought not to be directly thrust into the Vein as in making a Puncture, or as is customary by striking a Fleam into it by a Filip with the Finger, as is practised in some Parts of *Germany*; for by this means both Sides of the Veins are easily cut through, and I have from this manner of Bleeding seen a large Ecchymosis or Extravasation of Blood into the Panniculus adiposus. But this may be avoided by raising the Point of the Lancet so as to make it cut.

² The basilic Vein sometimes cannot be opened without danger by reason of the adjacent Artery and Nerve; but in the Hand it is easier to bleed,
and

and still more easy to bleed in the Ankle or Instep, where the Veins are at Liberty, and not accompanied by any large Artery to be easily injured.

³ Less Blood gives more Relief when it is discharged in a full Stream, than twice as much Blood discharged by trickling down the Arm ; for the former makes a greater Revulsion, and suddenly changes the Artery into the Nature of a Vein.

⁴ When the Patient avoids breathing as much as possible to stun Pain, as in a Pleurisy, in that Case the Fumes of Vinegar should be brought near their Nostrils, which will oblige them to cough and accelerate the Blood's Motion, so as to make it flow more plentifully through the Orifice of the Vein. Thus three Ounces of Blood discharged instantly in a full Stream, will afford more Relief than ten Ounces distilling from the Vein in Drops.

⁵ It is customary with Surgeons to give the Patient a Stick, or something else to turn round in the Hand, that by the Motion of the Muscles pressing the small Veins, the Blood may be accelerated through the larger.

⁶ *Bellini* demonstrates, that a Person lying down may lose twice as much Blood without fainting, as he can in an erect Posture, which requires the Operation of the Muscles to sustain the Body.

§. 1232. The Preparation for the more happy Performance of this Evacuation is made,

1. By *Friction*¹, to render the Vein more conspicuous.

2. By a Fomentation for the same purpose.

¹ When it is necessary to open the saphena Vein in the Foot, it is previously required to bathe and rub the Feet in warm Water.

§. 1233. Bleeding is forbid,

1. In most chronical Diseases, in which many of the Vessels are obstructed, and very little fluid Blood remains in the Vessels.

2. From the *old Age*¹ or Weakness of the Patient.

3. From the Patient's Temperature or Habit.

4. From the known Nature of the Disease, whether epidemical or endemical.

5. From a Crisis already making in another Part.

6. From the *Scarcity*² or small Proportion of red Cruor in the Blood, with a *Weakness*³ of all the Powers from thence proceeding.

7. From a Woman's having lately *lain in*⁴.

¹ It is a very bad Custom, encouraged by some Physicians, to bleed old People after the Age of Seventy, for the Cure of a Plethora; for at that Age there is certainly but a small Proportion of red Blood, and instead of removing the Plethora, it is thus rather increased by weakening the Strength of the Vessels and Motion of the Humours, especially if the Patient lives freely upon a good Diet. *Lister* demonstrates, that the Calves which are often bled become extremely fat and white, 'till at length little more than the crude Chyle itself continues to circulate through the Vessels. It therefore follows, that bleeding ought not to be used in old People, but in case of urgent Necessity.

² *Botallus* even orders a Vein to be opened in a Dropsy; but I know not how he can vindicate this Evacuation so repugnant to Reason in that Distemper.

Very

Very often pale Girls are desirous to have a Vein opened without any good Reason; but in these the Condition both of the Arteries and Veins ought first to be examined, and if the Blood-vessels do not appear turgid with a strong Pulse, the Lancet ought not to be used. For it is usual with such to have very little Blood in the Arteries, while the Veins are distended with corrupt Humours. It is a great Error to suppose that all the Diseases of Virgins proceed from an Obstruction or the Menses; when, on the contrary, the Menses themselves are deficient, because the Solids and Fluids are diseased; but remove that Disease, and the Menses will return. Thus I have seen, by an improper Treatment, Girls brought into a Consumption.

⁴ For the Disorders which then invade, generally proceed from Inanition.

§. 1234. From what has been said, it is evident how much Benefit, and how much Damage may be offered to Mankind from *never*² having recourse to the Use of this Remedy; or else by applying it indifferently in all Cases, according to *Helmont* and *Botallus*.

² *Helmont* exclaims that all bleeding is Butchery. *Botallus*, on the contrary, cries it up in every Disease, and even in a Dropsy; but one will be safer who takes the middle way, since these Extremes are both equally extravagant.

§. 1235. Blood to be drawn from the hæmorrhoidal Vessels is indicated,

1. From the atrabiliary Temperature or Habit of the Patient,

2. From the Diseases being accompanied with an Injury of the Mind, or reasonable Faculties.

3. From a wonted Flux by those Vessels being suppressed.

4. From an Eruption of Blood by new Passages, which used formerly to be more happily evacuated by the hæmorrhoidal Vessels.

§. 1236. The hæmorrhoidal Flux is promoted,

1. By mollifying those Vessels with some warm emollient Fomentation composed of Water, Oil, Honey, and emollient Herbs applied in the Form of Clyster, Vapour, or Fomentation.

2. By opening them, by Friction with rough Bodies, or by the Application of Leaches.

3. By the Use of *aloetic* Medicines.

• Taken every Morning in a small Quantity, or applied in little Balls or Pessories of six Grains of Pil. Rufi, introduced several times in a Day. By this means I lately brought down the Piles in a few Days time, for a Patient who would not believe he could be cured by any other Remedy; but for my own part, I predicted the Evacuation would be useless, though to gain time I condescended to excite it.

§. 1237. *Scarifications* act both by stimulating and evacuating.

By

By Scarification is extracted the thinnest Parts of the Blood and Humours from the cutaneous Vessels. By this Operation one may discharge a very great Quantity of Blood, insomuch that the Eastern Nations, the *Chinese, Japanese, Egyptians, Greeks* and other Asiatics, use Scarification only, instead of Phlebotomy; and they tell us as a reason for this Practice, that it is not attended with those Inconveniences which follow the Injury of a large Artery; and that the Wound readily heals, which is very difficultly performed in Arteriotomy.

§. 1238. From what has been said likewise, the Action of *Leaches* may be well understood.

These we apply to Parts both for Stimulating and Evacuating. They have almost the same Effects with Scarification, and may be applied to the same Parts under the Arm-pits, behind the Ears, and to the Anus.

§. 1239. But *Setons* and Issues stimulate by a more gentle Pain, and affect the whole nervous System, evacuate the serous Humours, and give Vent to an Over-fulness.

Setons are made by drawing a Skain of Thread through the Skin and Fat, and changing it a little every Day, by which means a thin Ichor is discharged, and some Pain and Irritation is excited. These are useful when it is necessary to make a Revulsion of some acrid Humour from a tender and sensible Part, as in Diseases of the Eyes, &c. *Hippocrates* long ago observed, that every
Part

Part which swelled, grew hot and painful, attracted more Blood than other Parts, less hot, red and painful. But these are seldom indicated, or put in Practice, though Issues are frequently made, and conduce greatly to relieve an Hæmoptoe or Phthisis, by deriving and discharging the redundant and noxious Humours, as in natural Ulcers.

§. 1240. And from these Considerations (§. 1239.) it is evident when the Use of them is indicated to be necessary.

§. 1241. Stimulating Medicines act by giving Motion to the Nerves, and determining the Humours into the Part required, where they excite Pain, Heat and Redness.

§. 1242. By these means (§. 1241.) they produce an infinite Number, and those often the most desirable *Effects* ¹, which are likewise indicated from their known Necessity.

¹ By these stimulating Applications, we may be able to irritate and change the whole nervous System.

§. 1243. These are commonly referred in Medicine under (1.) *Dropaces* ¹ firmly adhering, and at the same time penetrating in the Form of a Plaster applied warm, and again, pulled suddenly off; which Operation is repeated 'till the affected Part looks red, swelled, and hot. The Materials for this Purpose are Pitch, Oil, Bitumen, Castor, Galbanum, Pepper, Pellitory of *Spain*, Sal Gem, Sal Ammoniacum,

cum, Sal Sarmentorum, &c. (2.) Mild *Sinapisms*² or Phænigmi applied in the Form of a Cataplasm, and left upon the Part 'till it looks red, itches, swells, and becomes painful or inflamed. The Materials for which are Mustard, Bryony-root, Garlic, Onions, Cresces, Squills, Euphorbium, Crow's-foot, deadly Carrot, &c. (3.) *Vesicatories*³, which are stronger than Sinapisms, applied in the same Form, but with more powerful Effects, the Materials being the same, only differing in the Proportion of the blistering Substances; as for Example, of Figs three Parts, and of the acrid Matter one Part, mixed together make a Phænigmus; of Figs one Part, and of acrid Matter the like Quantity make a Vesicatory; of Figs one Part, and the acrid Matter three Parts, is made a strong Vesicatory. To these may be added Cauteries, both actual and potential; the *potential*⁴ are applied in form of a Cataplasm, or with scraped Lint, and composed either of the Ranunculus, Esula, Tithymel, fixed alkaline Salts, Lapis infernalis, Mercury sublimate, volatile alkaline Salts and Spirits; and the Effects of them are an Inflammation, and burning up of the soft Parts into Eschars; and lastly, the *actual*⁵ Caution, or heated Iron.

¹ The Name Dropax was given by the Antients to Pitch spread upon Leather applied hot to the Skin, and then suddenly pulled off, and again repeated often till the Skin swelled, looked red,

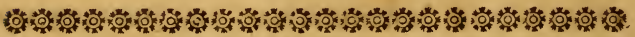
red, and became painful; and by this Irritation they endeavoured to cure the Itch, Leprosy, Palsy, &c.

² Applied in the form of a Cataplasm, and made up of Bread and Mustard-seed mixed into a Paste, till the inflamed Skin appears of a Blood or Rose Colour.

³ These Vesicatories raise the Cuticle, and affect the subjacent Skin in the same manner as a slight degree of Fire. They are much used in the Plague and Small-pox, and commonly are composed of Cantharides; but formerly they used Ranunculus, Tithymalus, Euphorbium, &c.--All these excite a Fever, and increase or keep it up; whence they are useful in Diseases arising from a Lensor, or Pituita.

⁴ Thus we call those Substances, which being applied actually cold to the Skin, do nevertheless excite the Effects of Fire.

⁵ Actual Cauteries are usually made of Iron, because that Metal commonly burns more violently than any other known Body; for it requires a greater degree of Fire to make it melt than any other Metal; and yet it is applied without leaving any malignant Effects, which are always exerted more or less by heated Copper.



The Palliative Cure, or Treatment of SYMPTOMS.

§. 1244. **B**Y mitigating the Symptoms, we likewise constantly remove something of the original *Disease* ¹.

§. 1248. *Of Palliative Cure.* 433

The physical Cause of the Disease differs not in the least from all the conjunct Effects taken together, and the Sum or Aggregate of the Effects together are equivalent to the Cause; for if you remove all the Effects, the Cause will be likewise removed; or if you remove only some of them, you will have likewise removed something of the Cause.

§. 1245. From what has been said, it follows, that curing all the Symptoms together, is almost curing the whole Disease.

§. 1246. But the principal Symptoms to be here considered, are Thirst, Pain, Over-watchfulness, and Faintings.

§. 1247. Thirst arising from too great a Driness of the whole Body, is allayed by plentiful and continual drinking of warm watery and mealy Liquors, rendered agreeably acid; such as the Decoction of Barley, Oats, Bread, Whey, Wine and Water, thin and fresh Broths of Mutton without Fat, with small well fermented Ale without Spices; to which add, Baths, Fomentations and Clysters, which are principally serviceable, and most commonly in Use.

§. 1248. But Thirst arising from Driness in some *particular Part* of the Mouth, Tongue, Fauces and Oesophagus, is relieved (1.) by the Use of the preceding Remedies (§. 1247.); (2.) by washing and gargling
F f frequently

frequently by the same Remedies; (3.) by opening the Glands and salival Ducts, by Epithems and Fomentations, of relaxing, moistening and aperient Simples. In this Case, Posca, *i. e.* Vinegar and Water, boiled with Crumbs of Bread, is of excellent Use.

¹ As the Tongue is dry in a Dropsy, while the whole Body is in a manner buried with Water; in which Case therefore, watery Liquors are to be applied to the Tongue itself: namely, the Mouth ought to be continually washed, and the Flux of the Saliva promoted into the Mouth by chewing Bisket.

§. 1249. Thirst arising from an acrid *lixivial*¹ Salt, or from an aromatic Acrimony, is removed by all these Remedies before-mentioned (§. 1247, and 1248.), so far as they are Diluents; but more especially when these are mixed with acids and nitrous Salts. Hence one may know how to allay that Thirst which arises from a muriatic Salt, which requires little more than watery Liquors.

¹ Thirst arising from a lixivial Acrimony, is best allayed by Spirit of Sulphur *per Campanam*.

§. 1250. But if the Thirst arises from Obstructions, or an *impervious*¹ Matter not capable of passing freely through the Vessels, it may be then removed by Diluents and resolving Medicines.

¹ Nature never ceases to admonish the Administration of Drink, so long as there is any Necessity
fity

sity for it; but if you drink ever so plentifully, Thirst will not be extinguished until the Blood is diluted and attenuated, which being once effected, the Thirst immediately goes off. For answering this Purpose, the fresh expressed Juices of Garden Fruits diluted with Water, more especially of Currants, and Oxymel with Water, are highly conducive.

§. 1251. Pain as a Symptom is relieved,

1. By *diluting* ¹ the acrid Matter; which may be done with warm Water and mealy Decoctions used as a Drink, Fomentation, Vapour, Clyster, or Bath (§. 1172.)

2. By diluting and attenuating the obstructing Matter by the preceding or the like Liquors, assisted with resolving Medicines (§. 1160.)

3. By *relaxing* ² the nervous Vessels by Drinks, Vapours, Fomentations, Baths, and Injections of moistening, relaxing, anodyne, and gently aperient Remedies before-mentioned (§. 1158 and 1166.)

4. By correcting the Acrimony itself with its proper Antidotes, agreeable to the Considerations before-given (§. 1172 to 1178.)

5. By freeing the obstructing and acrid Matter from too great a Pressure or Impulse, by the Motion of the Arteries and Blood (§. 1170.)

6. By dissolving or digesting the obstructing acrid Matter, together with the obstructing Vessels into Pus or Matter, and afterwards discharging it (§. 1166. N^o 2.)

7. By obtunding the Sense, by introducing a Stupidity with the internal Use of Narcotics, or the Application of them externally: Such as, 1. those of a mild Kind, the Flowers and Seeds of wild and garden Poppies, garden Lettuce, beginning to form a Head for Seed, and replenished with a milky Juice; 2. or those which are something stronger, as the ripe Heads of garden Poppies gathered before they are dry or withered, and discharging them of their Seeds; to which add the Milk distilling from the wounded Heads of *European* Poppies, when they are almost ripe; 3. or what is still stronger, the *Theban* or *Eastern* Opium; 4. or those of the very strongest kind, as Mandrake, Nightshade, the *Cicuta aquatica* of *Gesner*, the Stramonium, Henbane, Tobacco, and the like, which are Poisons to those not accustomed to them. To these, add all the Compositions which may be applied externally in the Form of Emplaster, Liment, or Fomentation; or internally in the Form of Drink, Tincture, Syrup, Powder, Pills, Conserve or Electuary, under which last come the great opiate *Confections*³, as the *Diascordium* of *Fracastorius* and *Sylvius*, *Thebriaca* of *Venice*, of *Andromachus*, and others; *Mithridate*, *Philonium* of various kinds, the *Trypheræ* of the *Persians* and *Arabians*, the *Requies* of *Nicolaus*, *Orvietan*, and many others.

³ The Pain in a Pleurisy is removed by taking off the Inflammation, by external and internal Applications

plications with Warmth, Drinks, Clysters, Asper-
sions, and Fomentations.

² Glass will not admit of being bent without breaking at the first attempt, but when the same Glass is drawn out into a very fine Thread, it may be twisted and turned almost into any Figure like Hair; for since the Particles of Bodies are broke or separated by altering their Cohesions, there will by this Means follow an easy Distraction without Pain; for Pain is that State of a Nerve in which it comes near to breaking, or in which it is upon the utmost Stretch. When the Hangman stretches the Limbs of a Criminal by way of Tor-
ture, the Pain is most excruciating, but goes off as soon as the Distraction is remitted; and thus when a tense inflamed Part has its Nerves and so-
lid Fibres relaxed by anointing with Unguentum nutritum, the Pain disappears.

³ These were by the Ancients termed the Hands of the Gods, and they act entirely by taking off the severe Sense or Impression of the Pain.

§. 1252. Too much watching arising from a Disorder which affects the Brain, is very difficultly allayed, and hardly at all, unless the Disorder itself in the Brain be first re-
moved, as is evident in a *Phrenzy*¹, Coma-
vigil, Melancholy, Madness, &c.

¹ Opium does not agree with phrenitic Patients, unless you first do every thing capable of removing the Cause of the Disease.

§. 1253. If those Disorders arise from too great a Driness of the Brain, they are relieved by a Diet, Drink, Fomentation, Bath, and

injections of watery, farinaceous, emollient, and relaxing Remedies and Liquors used plentifully, and for a long time; for which Purpose Leaves of Mallows, Violets, Lettuce and Succory are more particularly recommended beyond others.

§. 1254. But if they arise from any thing acrid and irritating in the Brain, they are to be removed by the Remedies recommended for the Cure of Acrimony (§. 1251. N^o 4.)

§. 1255. But if again they arise from too violent a Motion of the Humours, or from their being drove with too great Impetus upon the *Brain*^{*}, the Cure may be performed, 1. by the Quieters (§. 1170.); or, 2. by such as make a Derivation, as Fomentations, Baths, and Blisters, applied to the lower Parts, and composed of emollient and acrid Substances mixed together, such as the emollient and mealy Herbs mixed with Salt, Vinegar, and stale Yeast, with the strongest Aromatics, as Onions, Garlic, &c. also Fish or Flesh applied fresh or salted, are much recommended for the same Purposes. At the same time also making use of Repellents to the upper Parts, such as Vinegar, simple, or in an Infusion with Elderflowers, Roses, Violets, Oxycrate, Ung. Populeon, Rosaceum; anodyne Oils of Nightshade, Violets, Poppies, Henbane, &c.

* In this Disorder, the Ancients are accustomed to apply warm Things to the Feet, and sprinkle cooling

cooling Liquors upon the Head, as Vinegar. To relieve the insuperable Watchings in the Small-pox, the Patient's Feet should be kept in a warm Bath, while the Head is washed and bathed with Vinegar, which will incline him to sleep.

§. 1256. Internal Opiates are hardly to be used in this Case, unless the Disorder appears to consist only in too great a Motion of the Spirits.

§. 1257. In which Case, Evacuants and Diluents being first premised, Recourse may at last be had to these internal Opiates.

§. 1258. But the Excretions being too profuse, are moderated by those Things to which we directed in treating of the too powerful Action of evacuating Remedies (§. 1188 to 1228.)

§. 1259. Too profuse a Discharge of Blood from injured Arteries, or large Veins, is quieted by Compressure, Ligature, burning of the Vessels, Inspissation of the Fluids, and Contraction of the Solids; for which Purposes, *Alcohol Vini*¹, and the æthereal Spirit or Turpentine applied hot, are recommended as the chief.

¹ This is so powerful a Styptic, that it ought even to be carried in the Pocket of every Surgeon.

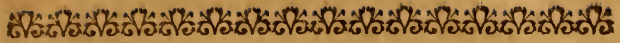
§. 1260. Faintings arising from a Stagnation of the Humours, and a spasmodic Anxi-

ety, are cured by diluting and *relaxing*¹; but if they proceed from a Dulness, or too weak Motion of the *Spirits*², then every kind of stimulating Cordial (§. 1112.) will be convenient; or if they proceed from Inanition, the Cure will be best effected by nourishing and filling the Vessels (§. 1097 to 1107.); or lastly, if the Fainting is from an hysterical Fit, fœtid and antihysterical Remedies will be most convenient.

¹ *Sydenham* observes, that many People have been reduced by acute Diseases to extreme Weakness, when at the same time all the Symptoms demonstrate, that the Cause of the Disorder consisted in a Compressure of the Vessels: And in this Case, a Rarefaction of the Humours, and warm Medicines, would increase the Disorder, when Bleeding itself, which is known to weaken the Strength in some Cases, would nevertheless remove the Fainting in this, by setting the compressed Brain at Liberty.

² These remove the Sense of the Disease, but not the Disease itself, only they stupify the Messenger who ought to report the Patient's Danger to the Physician. Narcotics ought not therefore to be used, but when one is certain the Disease arises only from the Spirits; as sometimes happens in very learned and thinking People, in whom the Humours have a strong Tendency to the Head, causing Watching; and in such a Case *Assa Fœtida*, *Camphire*, and the like, may be also used to good Purpose.

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