# VAN SWIETEN'S

# COMMENTARIES

## ABRIDGED.

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Fellow of the Society of ANTIQUARIES.

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Quidquid præcipies, esto brevis ; ut cito dicta
Percipiant animi dociles, teneantque fideles.
HORAT. de Arte Poeticâ.

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# PREFACE.

VAN SWIETEN, in his Commentaries upon the Aphorisms of BOERHAAVE, has undoubtedly proved himself a consummate master of his subject, and shewn an extensive reading; but then he has fallen into a prolixity, which, tho' luxuriantly learned, may be tedious to the experienced practitioner, and frequently disgusting to the young student, who is easily frighted at the sight of voluminous writings:

men, like children, muſt be ſometimes cheated, and imperceptibly led into knowledge: inſtruction is moſt impreſſive, where it is leaſt incumbered.

This conſideration induced me to attempt an abridgment: I do not mean, however, to diſengage the attention of the ſtudious from purſuing their journey through that field of medical learning; in imitation of the *Spaniards* returning from their firſt *Indian* conqueſts, I produce a few rich materials, in order to incite them to a more narrow and cloſe inſpection.

It is *eight years* ſince the learned AUTHOR of the Commentaries publiſhed

liſhed his third volume; in the preface to which, he gave us room to hope, the interval between that and his fourth and laſt volume, would not be as tedious as the preceding ones had been: We are ſtill left in impatient expectation; neither has VAN SWIETEN as yet informed us when we are to be obliged.—This delay called upon me to print the abridgment, which, though *incomplete*, is, however, not *imperfect*: my readers may depend upon having the remainder as ſoon as the fourth volume comes out, and my avocations will permit me to go on.

Though I confeſs vanity had ſome ſhare in my undertaking this com-

compendium, it was not that of appearing in the light of an *author*, but of a perſon who moſt ardently endeavours and wiſhes to be of uſe to the beſt of his abilities. If I have ſucceeded in theſe intentions, my pains will be ſufficiently rewarded, if not, I hope I may have leave to ſay,

*Vitavi denique culpam;*
*Non laudem merui.*

VAN

# E R R A T A.

P. 1. l. 3. for *in whom there was nothing amiss*, r. *in whom nothing was deficient*. p. 1. l. 6. for *we undergo so many alterations every day from the change of the air which surrounds us*, r. *for we daily undergo so many alterations from the circumambient air*. p. 1. l. 11. for *in a looser signification*, r. *in a looser sense*. p. 1. l. 12. for *and for this reason, I apprehend*, Galen *has defined health in this sense*, r. *and this, I apprehend, is* Galen's *meaning in his definition of health*. p. 3. l. 1. for *the name of the animal functions, &c. (in the first paragraph)* r. *the animal functions are those changes of the human body, which either disturb our ideas, or are disturbed by them*. p. 4. l. 8. for *whereof the privation*, r. *the privation of which*. p. 4. l. 20. for *into a putrid water*, r. *into a putrid colluvies*. p. 7. l. 10. for *effaces all our humanity*, r. *will cause a stupid insensibility*. p. 7. l. 12. for *lose the memory of*, r. *forget*. p. 10. l. 1. for *single observations*, r. *observations only*. p. 15. l. 18. for *approved of in all the ages which passed since*, r. *approved of in all ages since his time*. p. 38. l. 2. for *the first character of humanity*, r. *the first character of human nature, as it were*. p. 64. l. 24. for *obinate*, r. *obstinate*. p. 67. l. 2. for *give pills*, r. *given in pills*. p. 67. l. 15. for *putrid water*, r. *putrid culluvies*. p. 70. l. 7. for *beset with a thin liquor*, r. *besmeared with a thin liquor*. p. 86. l. 22. for *situation*, r. *situation*. p. 101. l. 2. for *whether any thing of putrefaction is confined*, r. *whether any thing putrid be confined*. p. 112. l. 6. for *a*, r. *an*. p. 139. l. 21. for *ædema cal-* r. *ædema ca-* p. 161. l. 1. for *drawing out*, r. *extracting*. p. 178. l. 25. dele *puff-ball*. p. 178. l. 26. dele *fungus*. p. 171. l. 1. dele *fungus*. p. 211. l. 5. for *peat*, r. *pent*. p. 240. l. 2. for *as discharge*, r. *as they discharge*. p. 265. l. 7. for *coloured note*, r. *colour denote*. p. 295. l. 19. for *the whence*, r. *whence the*.

# THE INTRODUCTION.

IT would perhaps be a very difficult taſk to find a man perfectly in health, in whom there was nothing amiſs, either in the ſolids, the fluids, or in the motion of the fluids through the ſolid canals; for we undergo ſo many alterations every day from the change of the air which ſurrounds us, the affections of the mind, the greater tenacity, or larger quantity, of food we take down, &c. that we cannot but in a looſer ſignification, be ſaid to be in health; and, for this reaſon, I apprehend *Galen* has defined health in this ſenſe. "No perſon, ſays he, "can properly ſpeaking be ſaid "to be perfectly in health; but we uſual-

" ly ſay ſuch perſons are in health, as " have no particular complaint, and are " able to diſcharge the common offices " of life."

Now health injured is diſeaſe. But for the greater regularity of enquiring into diſeaſes, phyſicians have reduced the functions of an healthful body into three kinds, which they have named *vital*, *natural*, and *animal*. Thoſe functions are named vital which are abſolutely neceſſary to life, and without which there is no life. The natural functions are all thoſe which are inſtrumental in repairing the ſeveral loſſes which the body ſuſtains, and making good the ſeveral deficiencies both in quantity and quality.

Nature (φυσις) the old word uſed by *Hippocrates*, meant nothing more than the aggregate of all the phyſical conditions, which are required to that moſt conſtant, durable, and, at the ſame time, active power of moving, wherein life conſiſts.

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The name of animal functions is given to all the changes wrought in the body of a living man, which occaſion a change in the thoughts of the mind, or are produced by a thinking mind.

The chief end of all knowledge in the art of phyſic is to reſtore health to the ſick.—Practice is that part of the ſcience of phyſic which teaches how to find out, by undoubted natural ſigns in the patient, when there is a diſeaſe, what that diſeaſe is, in what ſtate, whether in its beginning, increaſe, height, or declenſion, and by what method and means this diſeaſe now found out may be carried off.

A phyſician therefore muſt know what the diſeaſe is before he can cure it; for a diſeaſe is the diſorder of ſome function requiſite to health: how then ſhall he know what is amiſs in this function who is not acquainted with all that is requiſite to the due diſcharge of it?

The firſt part of the practice of phyſic takes in the diſcovery of diſeaſes, the

other teaches how a diſeaſe, when found out, may be cured.

But to this cure is required the true knowledge of all that we have mentioned above; for a cure is ſuch a change of the body, as removes the ſtate which was termed a diſeaſe, and reſtores the ſtate, whereof the privation occaſioned the diſeaſe.

It would be a reproach to an artiſt not to know the inſtruments of his own profeſſion; and ſuppoſing a phyſician to have clearly diſcovered what ought to be changed in the body to produce health, yet if he knows not by what means to effect the change, he will do no ſervice.

How is the nature of medicines changed by their various preparations! The *Syrian Scammony* given pure diſſolves the humours into a putrid water, and then carries them off by ſtool; yet the ſame medicine, by being expoſed to the vapour of burning ſulphur, as in making the *Diagridium Sulphuratum*, is rendered almoſt inactive.

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The root of *Rhubarb* infuſed in hot water forms an innocent purge for every age and ſex; but, by long boiling, loſes both its fragrancy and virtue.

A phyſician ought alſo to be acquainted with the different methods of uſing his drugs.—*Reſin of Jalap* given alone, and by its tenacity adhering to the folds of the ſtomach and inteſtines, has frequently brought on an *hypercatharſis*; but if this quality be corrected by pounding it with a little ſugar, or the yolk of an egg, it may then be uſed with far more ſafety.

*Hippocrates* uſed to drop the very acrid juice of *Tythimal* into figs, that it might not injure the throat in its paſſage.

All medicines, when applied to a living body, are brought into action by life, and frequently produce different, and ſometimes oppoſite, effects, in different ſubjects, from a particularity of conſtitution; nor can this ever be determined beforehand, but is only to be learnt from experience.

The ſame medicine ſhall produce a different effect in ſickneſs and in health. The bile exalted by violent ſummer heats, if irritated by ſome gentle purge, ſhall frequently bring on an enormous quantity of ſtools; whilſt ſix times the doſe given to a man in a dropſy ſhall not occaſion a ſingle motion. Five grains of *Mercurius vitæ* given to a woman in a maniacal caſe wrought no effect; though before ſhe was afflicted with this diſeaſe, a few grains of ſcammony threw her into fainting fits, through the violence of its operation.

In chronical diſeaſes, when the viſcera are almoſt tabid, and ready to fall to pieces, how dangerous is it to give even the mildeſt vomit of *Ipecacuanha ?*

In diſeaſes, nature ſo often endeavours by unknown means, to expel the latent morbid matter, whether it be the cauſe of the diſeaſe or its effect; that he who would imprudently diſturb her in theſe good beginnings by oppoſite remedies, muſt always do miſchief.

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The whole power of medicine consists in nothing more than making such a change in the body, as to amend the injured action of the mind that is united to it; for it is often a very slight disorder in the body which oversets the whole mind. Thus ideots are always observed to have mishapen heads from the birth. So a single ounce of blood extravasated under the skull effaces all our humanity. A boy of eight years old, during a hot season, used to lose the memory of all that he had learned, but two or three days cooler weather would restore it again, and with the hot weather the same calamity returned.—Innumerable other instances confirm this matter. It is very possible the cause of a disease may be removed, and of course the disease itself, and yet several of the functions may be left depraved by the preceding disease. A man labours, for example, so long under a severe autumnal quartan ague, till by the repetition of the fits, the solids are so weakened, and the fluids so dissolved, that a dropsy en-

ſues. Give him the Peruvian bark, the fever is cured, but the dropſy remains. This, however, will warrant no ſuch concluſion, as that by taking away the cauſe of the diſeaſe you have not taken away the effect; for the Peruvian bark has ſo ſubdued the courſe of the ague, that its effect, the fever, is gone; but the fever has ſo changed the body as to make it dropſical; and though the fever be removed by the bark, yet thoſe cauſes remain from whence the dropſy followed as an effect, namely, the too great weakneſs of the ſolids and diſſolution of the fluids.

We have a two-fold method of removing diſeaſes, either by acting directly on the diſeaſes themſelves, without changing the reſt of the body, or, by changing the whole body, to deſtroy and expel the diſeaſe.

A quartan ague, which had been treated in vain with purges, vomits, ſweats, and which even kept its courſe in the midſt of a ſalivation, (as I myſelf

have

have ſeen) was cured by the Cortex Peruvianus, without producing any other viſible change in the body. This therefore we call a peculiar or ſpecific remedy, as, in carrying off the fever, it works no other change in the body. Opium ſwallowed down, and lying in the ſtomach, removes all ſenſe of pain, without diſturbing the body. A ſtone falls from the kidney into the pelvis, and thence into the ureter, and thence ariſes intolerable pain, with convulſions of the lower belly, nauſea, vomitings, &c. Now if the phyſician knew a remedy, by which to diſſolve the ſtone that is lodged there, this would be a preſent cure; but for want of this he is forced to change the whole body by fomentations, clyſters, bleeding, and the moſt emollient decoctions, that he may expel the enemy through the now relaxed and lubricated paſſages; and this is called a general cure.

There is no doubt but both medicines and the practice of phyſic were diſcover-

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ed by ſingle obſervations; for the firſt advances in phyſic ſeem to have taken riſe from men's adviſing others in ſickneſs to make uſe of remedies which they had found beneficial to themſelves or others, in hope they might prove ſucceſsful to them in like manner.

Such cauſes as jointly make up the proximate cauſe, are what are termed the pre-diſpoſing cauſes (προηγούμεναι) or (προκαταρτικαι) the occaſional.

A plethoric perſon, for inſtance, after violent muſcular motion in a very hot ſeaſon, by the rupture of an artery in the cerebrum, falls into an aploplexy. The remote pre-diſpoſing cauſe in this caſe was the plethora, the occaſional cauſes the heat of the air and the increaſed impetus of the blood by muſcular motion; but neither the heat of the air, nor the muſcular motion, would have brought on the apoplexy, if the man had not been plethoric.

The diſeaſe, however thus underſtood in its cauſes, in the progreſs of it, is chan-

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ging the ſtate of the body every moment, and doing ſtill further miſchief to the functions, and thus produces, as it were, new diſeaſes, which are called effects of the diſeaſe, or *ſymptoms*: for under this name are comprehended all theſe preternatural appearances which are ſeen in the patient from the diſeaſe as a cauſe; yet ſo as that they may be diſtinguiſhed from the diſeaſe and its proximate cauſe.

Thus, for example, a man in a pleuriſy, through the ſharpneſs of his pain, dares not dilate his breaſt in order to draw in his breath; by this means the blood paſſing with difficulty from the right ventricle of the heart, through the lungs, begins to be accumulated there, and forms a peripneumony. This now is a new diſeaſe, but ſpringing from the pleuriſy as its cauſe.

The phyſician obſerves all that paſſes during the diſeaſe; what does good and what does harm, and then forbids the one and preſcribes the other; this is the doctrine of things uſeful and hurtful, which

which is of ſo great account in practice, and which gave the firſt riſe to the art of phyſic.

Though a phyſician ſhould have done every thing according to the rules of art, yet ought he carefully to attend the event, and obſerve whether it does good or not. *Hippocrates* lays down ſome certain ſigns, whereby to judge whether a purging medicine that has been taken ſhall have done ſervice or no: "*If*, ſays "he, *the humours be voided which ought to* "*be carried off, the patient will be relieved,* "*and eaſily bear the diſcharge; but if not,* "*the contrary effect will follow.*"

What will be the idea of the beſt phyſician in future times we know not; but he is to be reckoned a good phyſician now, who makes uſe of all the aſſiſtance by which, through the happineſs of the preſent age, the art of phyſic has been improved.

When in the beginning of an exact quartan, there comes on that ſurpriſing coldneſs, aſcending from the loweſt degree

gree (to ſenſe, like that of a cool air,) to ſuch an extreme rigor as to make the limbs all ſtiff and inflexible, and frequently to take away all ſenſe, ſo that the perſon affected ſhall burn his legs to the bone without feeling it; with what variety of knowledge does this furniſh the phyſician? for it is demonſtrated in phyſics, that cold is the abſence of fire, or its not being determined to a particular place; and from the known laws of the human body, it is now certainly known, that coldneſs is the effect of a diminiſhed circulation: now in the beginning of a quartan, we evidently find that the circulation is diminiſhed; the heart indeed beats more ſwiftly, but not being able to overcome the increaſed reſiſtance, it cannot propel the vital blood to the extremities; theſe extreme parts therefore firſt grow pale, the tip of the noſe becomes very pale, the nails, and extremities of the fingers, and ſo the lips. And as the cold contracts all the parts, the veins alſo being conſtringed, propel their humours towards

wards the right ventricle of the heart with the greater force; the left ventricle of the heart, in the mean time, is not able to throw out the whole quantity of blood contained in its cavity, into the contracted arteries, by which means the blood is accumulated about the heart and lungs, and occasions that astonishing uneasiness, panting, and struggling, by all the force of respiration to throw off the oppressing load. Hence we conclude, that there is at this time great danger of death, and reason to fear, lest the blood, which almost stagnates in the larger veins, should run into polypous concretions, which are often not to be dissolved again during the remains of life.

He therefore is not to be esteemed a good physician, who only takes notice of the phænomena of diseases; but he that weighs them, and is able to point out what are the necessary consequences following from them.

Nor yet is this sufficient; but it is farther requisite *that he compare them all*

*with*

*with each other*: for the extreme cold of a quartan will be followed by a heat gradually increaſing, till it comes to be extreme: but heat diſtends, lengthens all the ſolids, and increaſes the bulk of the fluids: the ſolid fibres therefore, which were ſhortened by the preceding cold, will be lengthened by the ſubſequent heat; but nothing weakens the frame of the ſolids more than this alternate change of contraction and relaxation: hence it is we ſo often ſee ſo great a debility following after a ſtubborn quartan ague, and the many other evils ſubſequent upon it.

The wiſe *Hippocrates*, in his *Prognoſtics*, has deduced preſages which have been approved of in all the ages which have paſſed ſince: he there directs us to conſider well the *face* of the ſick, whether it be like that of a perſon in health, but eſpecially if it be like what it formerly was; and ſays the worſt ſtate of it is, when it is diametrically oppoſite to an healthful countenance; when the *noſe is ſharp*,

*ſharp*, the *eyes hollow*, &c. deſcribing that kind of countenance which has been ſince called by phyſicians the *facies hippocratica*. He compares the manner how his patients lie in bed with their uſual cuſtom of lying when in health, and ſo far condemns the former as it departs from the latter; ſo he condemns a quick anſwer from a man that had been of a cool temper before, &c.

All thoſe appearances in a diſeaſe, where it is known to be different from a ſtate of health, are called *ſymptoms*: now theſe are *individual* and *proper*, and conſtantly occur in every deſcription of the ſame diſeaſe, and can never be ſeparated from it: thus for inſtance, in a pleuriſy, the *ſharp pricking pain*, which is felt more violently upon drawing in the breath, attended with an *acute continual fever*—theſe are called *pathognomonic* ſigns: beſides theſe, there are ſuch as are common to this diſeaſe, with many others; thus, in a pleuriſy, the pains of the head, loins, &c. which do alſo occur

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in a thouſand other diſeaſes, are therefore called common. Now all theſe are to be ſet down in their proper order, as they mutually ſucceed each other, otherwiſe the end of the deſcription is loſt: thus to ſay, that in the ſmall-pox the patient was delirious, would be to ſay nothing from whence any certain preſage could be formed; for there is a wide difference, whether the delirium comes on before or after the eruption. If phyſicians in former times had not obſerved this, how could they have foretold what would happen on the *ſeventh day*, from what appeared on the *fourth*?

*Hippocrates* ſays, "*Paſt things muſt* "*be learnt, preſent known, and things fu-* "*ture be foretold.*"

## Diseases *of a ſimple ſolid Fibre, and a weak lax Fibre.*

THE moſt ſimple fibre conſiſts of very ſmall parts adjoining to each other length ways; theſe parts, which are not diviſible into leſs, are called the elements of the fibres.——It is a combination of the elementary particles, that conſtitutes a fibre. The ſolid parts of animals, after being deprived of all their more volatile parts by a chemical analyſis, yield an earth.——Putrefaction ſhews this, which perfectly ſeparates the earth from the other principles.—It is this earth which gives ſtability to theſe principles.—Bones calcined and made very brittle, if dipped in oil, will cohere again. A certain and determinate degree of coheſion is required in the fibres,

which if encreaſed or diminiſhed will conſtitute a diſeaſe. We are always to conſider whether the diſeaſe is to be left to nature, or whether any aſſiſtance is to be given by art.

If a pleuritic perſon in the firſt ſtage of the diſeaſe coughs up a mucous yellow matter ſtreaked with blood, and finds relief in every ſymptom, we know from the faithful obſervations of the ancients, that if this expectoration can be kept up, he will be well in a few days; for which reaſon we are not to diſturb this ſalutary attempt of nature, by bleeding, or any other remedy; but are only to throw in ſuch very ſmooth decoctions as may ſerve to ſupport this expurgation. But if, in a pleuritic patient, we obſerve a violent fever, a burning heat, or dry cough, attended with a dryneſs of the tongue, and no ſign appears from whence we may learn that nature is aiming at any ſalutary change, we then know, that if things go on in the body as they do, either a mortal gangrene will follow, or if the diſeaſe be

be of a milder nature, a ſuppuration; which is *always a good circumſtance where the ſuppurated matter can be diſcharged outwardly*; there would be danger otherwiſe, that the purulent matter, when formed, would be diſcharged into the cavity of the thorax, and deſtroy the patient with a fatal *empyema*: here then we conclude that nature is not to be left to herſelf, but the diſeaſe is to be ſo changed by the powerful aſſiſtance of art, as to prevent either a ſuppuration or a gangrene.

Gentle friction preſſes the veins only, whereas a ſtronger preſſes alſo the arteries. By preſſing the veins, it accelerates the motion of the venal blood towards the heart, and by this means the motion of the heart is quickened, and of courſe the blood is propelled with a greater velocity through all the veſſels.

A weak man ſhould not ride on a full ſtomach; but either before dinner, or after the digeſtion is finiſhed.

The more a fibre is diſtended, the more it is weakened; whatever therefore hin-

hinders the ſtretching out of the fibre, removes the cauſe which weakens it. Now bandages or cloths drawn tight to the body, ſupply the veſſels with that ſupport, which the ſolids were too weak to do; that is, they hinder the too great dilatation. The cure of ſome diſeaſes ſhould be promoted more by means of bandages than by all other methods whatſoever.

I remember I once had under my care a young lady of diſtinction the moſt violently relaxed in her nerves I had ever attended. The leaſt noiſe, or the letting in upon her too ſtrong a light, would immediately throw her into convulſions; the abdomen at the ſame time being drawn into a variety of ſtrange motions, and feeling as if it were tearing aſunder. Neither the ferulacious juices, nor the powerful virtue of *caſtor*, ſo ſerviceable in nervous complaints, were here of benefit; but when her legs, thighs, and the whole abdomen, were bound round with proper bandages, this troubleſome diſorder preſently abated, and then by the uſe

of

of proper remedies ſhe recovered. Thus ſhe lived for ſeveral months, wrapped up like an Egyptian mummy, and by no means to her diſſatisfaction, as ſhe preſently found ſo much relief from the application. We ought to uſe the utmoſt caution in giving fermented ſpirits; for they are capable of producing abundance of miſchief, both as they inſpiſſate the liquids, and contract the ſolids, if uſed imprudently. In the dead body of a woman addicted to dram-drinking, the ſpleen, pancreas, liver, lungs, were all found dry, ſcirrhous, and in a manner partly petrified; all the glands, internal and external, were become nearly as hard as ſtones.

Steel diſſolved in the milder acids is commonly preferred to all others, becauſe it acts not only by its auſtere aſtringent virtue, but becauſe by the wonderful ſtimulus of its metallic ſulphur, which is ſo friendly to our nature, it raiſes the vital powers.

The ſtrength of the greater veſſels ariſes from three cauſes—— 1. From the ſtrength of the fibres — 2. From the collapſed or compreſſed veſſels growing together into membranes.— 3. From the veſſels concreting with the liquids they have contained.

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## *Diſeaſes of weak and lax Viſcera.*

A Viſcus, or bowel, is commonly defined to be an organical part of the body, which by its ſtructure very much changes the humours brought to it, and ſo as to make this change ſubſervient to the life and health of the whole body.

There are two cauſes which produce the motion of our liquids through the canals. 1. The power of the heart diſtending the veſſels by the blood impelled into them. 2. The ſtrength and contractility of the veſſels, which when the motion of the heart ceaſes, propel the

the blood that was thrown into them by the heart; when therefore this contractility of the veſſels is deficient, the liquids ſtagnate.

*Hippocrates* obſerves, "*that what is* "*done by degrees is ſafe at all times, but* "*eſpecially when the tranſition is from any* "*one ſtate to a ſtate quite different.*" This general rule is more eſpecially to be obſerved in the cure of weak veſſels and viſcera. Should any one in this caſe imprudently accelerate too much the motion of the humours, through the veſſels, either by ſtimulating medicines, or an increaſe of the muſcular motion, the too weak veſſels and viſcera would generally break, as unable to ſuſtain the additional force; and, inſtead of relief, death would be the conſequence, through the wretched miſtake of the phyſician.

Exerciſe of different kinds are ſerviceable, becauſe, 1. As the pendulous viſcera receive ſtrength from theſe agitations, (from ſwinging on a rope with a ſlow oſcillatory motion, a litter, chaiſe, coach,

coach, or riding on horſeback,) and the ſeveral concretions formed in the humours are partly broken by the concuſſions and partly by the encreaſed powers of the veſſels and viſcera. 2. As the remaining fæces of the laſt digeſtion are hereby diſcharged from the *primæ viæ* in ſuch perſons, as would otherwiſe retain them, through want of power in theſe viſcera to diſcharge them; for which reaſon exerciſe is particularly adviſeable, an hour or two before a meal: 3. As the force and efficacy of the air on the veſſels of the lungs is hereby increaſed, and the ſurrounding atmoſphere, which preſently grows warm with the heat of the body, is continually renewed; which more eſpecially is obtained by riding on horſeback.

*Diſeaſes of too ſtrong and rigid Viſcera.*

ALL the new liquids that paſs into the body enter always by the veins, whether they are conveyed through the mouth in our meat and drink, or are drawn in by the abſorbent veſſels, which are ſpread over the whole ſurface of our body; as the veins eaſily dilate and admit them all. But when they have paſſed from theſe into the arteries, if theſe arteries are ſtronger than is required to health, the introduced liquids are preſently carried off. For which reaſon we plainly ſee, why lean and ſtrong men oftentimes eat more than twice as much as fat and idle men, and though they have but few ſtools, do notwithſtanding not grow fat. The food they take indeed enter the lacteal veins, and is thence conveyed to the *vena cava*, and the right ventricle of the heart, but is ſo attenuated in paſſing through the pulmonary arteries, and afterwards through the whole

whole arterial ſyſtem, as to be preſently carried off by the perſpiring veſſels, and ſo vaniſhes into nothing. It is carefully to be obſerved, that though the power of the arteries be encreaſed, yet they do not therefore preſently bring on a greater reſiſtance to the heart than is requiſite: for the ſtrength of the heart encreaſes with that of the artery, as the influx of the venal blood into the cavities of the heart, the circulation of the arterial blood through its ſubſtance, the influx of the ſpirits into its muſcular villi, are the cauſes upon which its muſcular motion depends. But when the *aorta* contracts itſelf with greater force, it drives the blood more ſwiftly through the coronary arteries into the ſubſtance of the heart, whereby it applies the blood with more power to the *cerebrum* and *cerebellum* by the carotid and vertebral arteries; from whence follows a larger ſecretion of ſpirits; and conſequently it encreaſes the velocity of the blood flowing from the arteries into the veins, and by this

encreaſed

encreaſed velocity occaſions a greater irritation of the heart. So that all the cauſes of the muſcular motion of the heart are encreaſed by the ſtrength of the arteries. While this equilibrium continues, the food is moſt perfectly and ſpeedily converted into our nature; a great degree of ſolidity is given to the blood, and as yet no detriment done to health: but when the ſtrength of the arteries increaſes ſo far as that they are ſcarcely to be dilated, then follows all the miſchief.

There is but little hope of curing a confirmed polypus. There are many remedies cried up as effectual, but very ſeldom do good. All that can be hoped for is to dilute the blood, and ſo throw it into a ſtate moſt remote from concretion; *i. e.* to introduce by art that cacochymy which conſiſts in the blood's being too thin, to the end the polypus may not be encreaſed by the oppoſition of new matter, but by degrees be worn away, by the conſtant attrition of the blood, which is every moment paſſing by it.

The blood of a healthy man always exceeds the denſity of water, and if it begin to degenerate into the thinneſs of water, his ſtrength decays, as we ſee in hydropical patients.

Emollients are of the ſame claſs with lenients, except that theſe relate to the ſolids only,—lenients to both ſolids and fluids. Watery diluents reſolve all mucous, glutinous, gummy, ſoapy concretions, and yet many others are not to be reſolved by water; blood is not to be kept from coagulating by being put into warm water.

In the earlieſt part of life a man is moſt liable to all the diſeaſes of the nervous kind; becauſe, as we learn from obſervation, the brain and its productions, *i. e.* the *medulla ſpinalis*, and the nerves, are larger in proportion to the reſt of the body the nearer a man is to his original. Add to this, that as the brain is leſs firm at that age, the nerves, which are produced from the brain, are ſofter and more eaſily affected, beſides

that

that the integuments are thinner; hence it is, that children are ſo apt to fall into convulſions, for a child can ſcarce have the ſlighteſt fever, but it is attended with a convulſion.

Another ſource of diſeaſes in the tender age of children, is the quantity of humours being more than proportioned to the powers of the ſolids. In our infancy we are all diſpoſed to be turgid and moiſt; and from hence ariſes thoſe eaſy and wonderful changes of the cutaneous humours, which ſo frequently ſhow themſelves, in a manner as yet not well underſtood. This appears in the ulcers of the head, the herpes, the excoriations behind the ears, the armpits, &c.

Afterward, about the time of puberty, the whole body ſuffers wonderful changes in both ſexes; in the male, tumours of the teſticles, varicous inflations of the ſeminal veſſels, which are eaſily cured by gentle friction, whilſt expoſed to the vapour of lighted amber, and at the

the ſame time giving lenient purges.— In the female, ſurpriſing diſeaſes do often both precede and attend the firſt eruption of the menſtruous flux.

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## *Spontaneous Diſeaſes from an acid Humour, and Diſeaſes from a ſpontaneous Gluten.*

AN acid is foreign to the body; for no animal humour, properly ſo called, ever grows acid of itſelf.

The cauſe why flatulency ariſes from an acid is twofold; from the irritation, by which the fibres of the inteſtines being drawn into a ſpaſm, keep in the included air; and from the elaſtic matter, which is generated in all liquids that are apt to ferment; on both which occaſions thoſe who ſuffer under an acid are ſo ſubject to flatulencies. Of all the humours that are not excrementitious, the bile is the moſt acrid, and ſooneſt liable to putrefy; and for this reaſon it is, that dead bodies ſooneſt putrefy near the liver.

All

All perſons that have a predominant acid look pale. This ſhews a deficiency of the moſt ſolid red part of the blood; and where this fails, the aſſimilation of the crude humours is never carried on ſo well as it ought to be, and they more eaſily degenerate into a ſpontaneous corruption. All ſharp humours, when they arrive at the ſkin, will occaſion itchings, obſtructions between the ſcales of the ſkin, puſtules, &c. In the jaundice the bile, when carried to the ſurface of the body, ſhall often raiſe an intolerable itching. If the humours, infected with an acid acrimony, flow to the ſame part, the ſame effect will be produced. By eating unripe and crabbed fruits, the children of country-people often labour under diſeaſes of the ſkin, attended with a moſt violent itching. In the firſt ſtage of life infants are often afflicted with ſurpriſing eroſions of the ſkin.

No animal tends to acidity of itſelf, but always to putrefaction.

A glutinous ſubſtance is, as it were, of a ſemiliquid nature, but has ſuch a lentor in its parts, that when moved they, in a manner, ſtill ſtick cloſe together.

The internal ſurface of the windpipe and bronchial veſſels is entirely overſpread with a very ſmooth mucus, which covers and defends the nerves that are there diſperſed, and are ſo apt to be affected by the leaſt irritation; but in an healthy young perſon, that breathes well, and is active, this mucus is diſſipated after it has done its office; or, collecting in a larger quantity after ſleep, is eaſily thrown off by a little coughing and hawking. And yet in old men this mucus is gradually collected, and grows ſluggiſh and viſcid, and incapable of being thrown off by the weak action of their lungs and ſtill weaker action of their ſides; ſo that it occaſions a *ſtertor* and hiſſing noiſe in the part of the lungs where the air is lodged, till at length, with much coughing and difficulty, it is brought up. From the conſtant ſupply of this mucus, ariſing

from

from the diminution of the concoctive powers of the lungs, the greater dilatation of its veſſels, and relaxation of the mucous cells, proceeds that aſthmatick cough incident to old men. " Hoarſeneſs " and colds in old men do not paſs regu- " larly off," ſays *Hippocrates*. For which reaſon, whatever is of uſe to attenuate this viſcid mucous matter, and at the ſame time revive the languid powers, is in this caſe more particularly ſerviceable to old men. For ſuch a collection of mucus is not only to be found in the lungs, but in the ſtomach and inteſtines, and even in the bladder; for which reaſon old men ſo frequently make a pituitous urine. Weak people, when dining upon mealy ſubſtances not well fermented, find themſelves ſubject to a difficulty of breathing within a few hours after, from the viſcid chyle's paſſing with greater trouble thro' the lungs.

All ſecretions are made from the blood: in order therefore that theſe be duly

performed, it is neceſſary that the blood ſhould be good.

It is a vain attempt to cure a perſon labouring under a pituitous indiſpoſition by food and phyſic, unleſs you can prevail upon him to caſt off that ſluggiſhneſs which is natural to this diſeaſe, and to uſe exerciſe even almoſt beyond his ſtrength. And yet the motion muſt not be too violent at firſt, leſt this mucous matter ſhould be thereby thrown upon the lungs, which could not happen without very great danger: this often happens, when the glutinous matter collected in the winter is ſuddenly liquified by the heat of the ſpring; and, mixing with the blood, is ſtopped in its paſſage thro' the very minute veſſels of the lungs, by which means the patient is ſuffocated at once; but the motion muſt be gentle in the beginning, and increaſed by degrees; and if the body is too weak to uſe exerciſe, friction ſhould be ſubſtituted in its room.

The effect of ſtimulents does not always depend upon the figure, weight, and ſtiffneſs of their particles; and it ſuffices, for the phyſician's purpoſe, that he knows what particulars, applied to the body, ſhall increaſe its motion, though he does not know the manner whereby they act.

Children whoſe bellies ſwell thro' theſe glutinous obſtructions, are generally relieved by having them rubbed with rough cloths; this ſhould be done in a morning after ſleep, and faſting; for when the ſtomach is full, they cannot eaſily bear it.

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## *The Diſeaſes from a ſpontaneous alcaline Cauſe.*

OF all the liquids of the body in health, except ſuch as are excrementitious, the *bile* is the moſt acrid, and ſooneſt inclines to putrefaction.----- When mixed with the chyle in the *duodenum*,

*denum*, it impreſſes upon the food, what may be called the firſt character of humanity, and changes the acid or aceſcent part of it into an oppoſite nature.-----If this bile either exceeds in quantity, or begins to putrefy, it brings on an univerſal corruption, and gives riſe to the moſt acute putrefying diſeaſes.

The want of motion in our fluids, or an exceſs of motion in them, will both produce putrefaction; and thus two directly oppoſite cauſes will produce the ſame effect.

Thirſt is the conſtant attendant upon any putrid fomes in the human body. This appears evidently in hydropical perſons, who are ſeldom thirſty in the beginning of the diſtemper, but as ſoon as the water begins to ſtagnate and corrupt, and to continue long in the body, then follows an unquenchable thirſt. *Hippocrates*, for this reaſon, reckons the want of thirſt a very promiſing ſymptom.

Every kind of acrimony may irritate the nerves diſperſed through the inteſ-

tines,

tines, from whence may follow their ſpaſmodic contraction and inflammation; eſpecially when, by the ſoapy virtue of the acrid bilious matter, the mucus is abraded that defends the very fine extremities of the nerves, which are ſpread over the internal coat of the inteſtines, and cauſes them to become much more ſenſible.

A coheſion in our humours ſeems neceſſary for the nouriſhment of the body; but this is deſtroyed by putrefaction. In diſeaſes ariſing from ſome putrid matter lying in the body, all the humours are diſſolved, nutrition fails, and the patient dies of a ſlow conſumption. This is evident in phthiſical caſes, where the night-ſweats, the colliquative and putrid diarrhœa, atrophy, and death, ariſe from the blood's being too much diſſolved.

In very acute fevers the quick and difficult reſpiration, the very ſwift, and oftentimes unequal pulſe, ſhew plainly that the *vital* functions are diſordered; the extreme weakneſs, delirium, drowſineſs,

ſineſs, &c. indicate the ſame in the *animal* functions; the loſt appetite, the thirſt, nauſea, and vomiting, as plainly point out the diſorder of the *natural* functions.

Whatever is acrid may cauſe an inflammation, either in the whole body, or in any particular part, by its ſtimulus.

The juice of ripe fruits needs no preparation; it allays thirſt, cools, relaxes the belly and urinary paſſages, and affords the greateſt relief, when the ſtomach ſuffers from a putrid bile. Wine itſelf is good in theſe diſeaſes, *even in the moſt acute*, eſpecially the acid ſorts; but then they muſt be well diluted with water. Vinegar is reckoned by all, among the beſt prophylactic medicines to keep off the plague, as its ſmell is ſo reviving in all putrid diſeaſes.

When there is either a diſſolution of the humours from putridity, or there is reaſon to apprehend it coming on, the acid ſpirits drawn by fire from *ſea ſalt*, *nitre*, and *vitriol*, will then be of the greateſt ſervice; theſe moſt powerfully reſiſt all pu-

tre-

trefaction, at the ſame time not diſſolving, but rather coagulating the humours. The ſpirit of ſulphur *per Campanam*, as it is called, is ſingularly ſerviceable in this caſe, being the pureſt foſſile acid, without any metalline ſubſtance intermixed with it.

Emulſions and decoctions, by reaſon of the water they contain, dilute, and by means of the ſoft oily gluten reſiding in them they inviſcate whatever is acrid, and render it inactive; and therefore are given to advantage.

Medicated earths or boles reſiſt all putrefaction by their latent acid, and are by their innocent mildneſs extremely demulcent; hence their excellency in putrid dyſenteries, if given in a due doſe.

They who die of a ſuppreſſion of urine have all the functions of the brain firſt diſordered, and at length go off quietly in a fatal ſleep, though ſometimes they are convulſed before the cloſe of the laſt ſcene.

The

The ſtrongeſt broths are perfectly glutinous, and oppreſs a weak ſtomach without encreaſing ſtrength, but the thinner ſorts afford a good nouriſhment. Calves feet given to phthiſical people in decoctions or jellies, with a view to nouriſh them, frequently do injury, becauſe they oppreſs their already weakened lungs with too tenacious a chyle.

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## *Of the Diſeaſes that ariſe ſolely from the exceſs of the circulatory Motion.*

THERE ſcarce are any two liquids found ſo much alike as the ſerum of the blood and the white of an egg.

The blood of an healthful perſon is very prone to concretion, and this may be increaſed by the increaſe of heat: this blood thus coagulated is not eaſily ſolveable.

Whatever cauſes the venal blood to move more ſwiftly towards the heart, increaſes the motion of the heart; hence it

it appears, how a very high fever may be raiſed by too violent muſcular motion, or by violent frictions. Who can explain the nature of the ſtimulating power in a drop of variolous matter, applied in a freſh inciſion made by inoculation? or, who will point out to us the manner how ſound humours changed by the variolous contagion, ſhall aſſume a poiſonous nature, and, at the ſame time, acquire almoſt an infinite power of multiplying the poiſon?

An increaſed motion of the blood ariſes from the more frequent and violent contractions of the heart. The dilatation of the arteries muſt be increaſed in a proportion compounded of the increaſed ſtrength and frequency of thoſe contractions, the arteries, when they are diſtended, are in a violent ſtate; and hence their ſides endeavour to approach nearer to their axis, by their elaſticity and muſcular action, and ſo repreſs the diſtending blood; for, unleſs the arteries, by being

ing contracted through their own ſpring, were to expel the blood which diſtends them, the heart would not be able, the next ſyſtole, to throw the blood contained in its cavities into the arteries that are already diſtended; the blood would conſequently by degrees be accumulated within its cavities, and the circulation ſtopped. The ſtronger therefore the action of the heart is, which diſtends the arteries, the greater will be the power of that force by which the arteries endeavour to contract their cavities; and the oftener the heart is contracted in the ſame ſpace of time, the more frequently will the contracted arteries re-act upon the blood that diſtends them. Heat ariſes from the attrition of the parts with each other, and the ſides of the veſſels. As ſoon as the blood is at reſt, all heat ceaſes; which encreaſes again upon motion: this made *Hippocrates* obſerve, that "the blood is "not hot by nature, but grows hot."

The urine, which is the true lixivium of the blood, grows more acrid and fetid,

tid, as the circulation becomes more violent; the motion of the blood being increaſed, the ſalts of the blood become more acrid and volatile, and the oils thinner and leſs mild; theſe again will form a freſh ſtimulus to increaſe the circulation, from the increaſe whereof they deduced their origin. And thus the effect of a diſeaſe will increaſe the diſeaſe itſelf.

Health ſeems, in a great meaſure, to conſiſt in every veſſel's containing its own proportional liquid.

The quickneſs of the pulſe ſhews, that the heart is contracted more frequent than it ſhould be, in the ſame ſpace of time; its hardneſs points out the fullneſs of the arteries, that the blood is very compact and denſe, and that with difficulty it gains a paſſage through the minute veſſels, by means of its inflammatory viſcidity.

All the blood thrown out of the right ventricle of the heart, ought to paſs through the lungs before it can return into the

the left; but as the right ventricle would not ſuffice to propel all the blood thro' the narrow paſſages of the pulmonary artery, by its own muſcular force alone, there is farther required, the concurring action of inſpiration to dilate the lungs, and thereby open a free paſſage to the blood that is thrown from the heart. In proportion, therefore, as the right ventricle of the heart, in a given time, contracts oftener and ſtronger, ſo much the more frequent and ſtrong the inſpiration is required to be. Thus we ſee, that whenever the motion of the blood is increaſed by running, or any other violent exerciſe, the reſpiration increaſes in proportion, and is performed with greater difficulty. And thus, the reſpiration is greater, merely from an encreaſe of the velocity of the blood which paſſes thro' the lungs; but when, beſides this, thro' the greater motion, the blood begins to aſſume an inflammatory ſpiſſitude, the reſpiration will then be much quicker and more difficult; for this ill quality in the

the blood, of its not being able to circulate, firſt ſhows itſelf in the lungs; and, for this reaſon, in acute diſeaſes of the inflammatory kind, a ſhort and difficult reſpiration is reckoned a bad ſymptom.

A diminiſhed circulation is always attended with a relaxation and fullneſs of the veins.

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## *Diſeaſes from a Defect of the Circulation, and of a Plethora.*

THERE is no fermentation without air, and putrefaction comes on far more ſlowly when the air is excluded.

By a plethora is not meant every increaſe of the humours, but only an increaſe of the quantity of good blood.

If the viſcera, whoſe office it is to change the aliment into chyle, be firm and ſtrong, a large quantity of chyle is drawn from the food we take down. And if the heart and arteries be equally ſtrong,

ſtrong, this large quantity of chyle is converted into good blood; and as the veins are always naturally of a laxer nature, they will eaſily give way to the diſtending liquid, and admit this ſuperfluous quantity, unleſs they are emptied by motion and exerciſe. For the leſs motion there is in the veſſels, the more the humours are aggregated in the veins; whereas the greater the motion is, the more the arteries are filled, and the veins emptied. When hard drinkers pour down ſuch vaſt quantities of liquor, they would be ſuffocated, if the veins were not capable of giving way and receiving the ſuperfluous part of it; and therefore it is that theſe people have their veins ſo much inflated. If then much chyle and blood be formed in the ſeveral viſcera ſet apart for this purpoſe, and the laxity of the veins at the ſame time be proportionably greater, the quantity of good blood muſt of neceſſity be accumulated.

Men uſed to frequent bleedings ſuffer the ſame inconveniencies at their accuſtomed

tomed times of bleeding, as women do by the retention of their menſes, till at length they become quite as lax as women.

Rarefaction alone is capable of producing a plethora; for if the blood be rendered twice as rare as it was, it is the ſame thing with reſpect to the veſſels, as if there were really twice the quantity of blood contained in them.

Medicine never cures diſeaſes better than when it imitates nature.

Hard working people, though they eat voraciouſly, are ſeldom known to be plethoric, becauſe labour carries off that which would otherwiſe be retained in a ſtate of idleneſs, and gives ſuch a firmneſs to the ſolids as not eaſily to yield to the filling liquors. Exerciſe ſhould never be preſcribed till the veſſels are firſt emptied by bleeding; the veſſels elſe, by being too much diſtended, would be apt to break.

*An Obſtruction.*

AN obſtruction ſeems chiefly to take place in the veſſels, and very ſeldom or ever in the larger receivers.

This may ariſe from three cauſes; 1. Either that the liquid which is to paſs is grown more viſcid, while the capacity of the canal remains the ſame; 2. or, The canal is grown narrower whilſt the liquid remains as it was; or, 3. The narrowneſs of the canal and the viſcidity of the liquid are joined together.

The particles of all fluids cohere with a certain degree of force. Now, in order that the fluids may paſs thro' the ſmalleſt extremities of our veſſels, it is requiſite, that they paſs ſingle and freed from their coheſion with the reſt; the powers therefore that carry the humours thro' the veſſels, muſt be able to overcome this coheſion. Should therefore the coheſion of the elementary particles be ſo encreaſed, as not to ſuffer themſelves to be divided

vided from each other by the action of the heart and veſſels, ſeveral of them will remain inſpiſſated, which ought to have paſſed ſingly through the extremities of the veſſels, and ſo form an obſtruction.

All tumours muſt ariſe, either from the fluids diſtending the veſſels beyond their natural bulk, or from their being extravaſated, or from the veſſels being concreted with their inſpiſſated liquids. When the arteries and veins which are charged with red blood, are ſo diſtended by the quantity they contain, as to compreſs the ſmaller veſſels that lie near them, they may do much miſchief.—The effects of this kind of tumour are eſpecially ſeen in the damage it does to the actions of the brain; for the cranium being always entirely full, and no red blood being any where to be found but in the *pia mater*, and the large red arteries diſperſed through the medullary ſubſtance of the brain, and ſurrounding the *medulla oblongata*, the cortical ſub-

ſtance naturally containing none, it follows, that when theſe red blood veſſels are diſtended, as the hard boney part of the cranium cannot give way, the other veſſels of the cortical ſubſtance and the medulla muſt be compreſſed; by which means, all the functions of the brain will be diſordered, only the cerebellum, being much firmer than the cerebrum, will in this caſe be leſs affected.

Tumours attended with pain are called *phlegmones*; if without pain, and hard, *ſcirrhi*; if without pain, and ſoft, they are then properly called *oedemata*; which are applicable to tumours ariſing from the *membrana celluloſa* only. The matter of them is generally water, as in the anaſarcous dropſy; or ſome other more viſcid pituitous liquid, as in a leucophlegmatia. Now the *membrana celluloſa*, which is the true ſeat of theſe tumours, ſurrounds all the veſſels; the tumours ariſing thence are conſequently capable of leſſening the areas of the veſſels, and frequently of producing very ſurpriſing dif-

diſeaſes, which ſhall be entirely owing to this ſingle cauſe.

Varices happen more particularly to women with child, and that more eſpecially in the legs, becauſe, when the womb is diſtended, and preſſes upon the iliac veins, it prevents the veins of the thighs and legs from diſcharging the blood they contain ſo expeditiouſly as they ought.

A callus is a membraneous part, increaſed in bulk, attended with hardneſs and inſenſibility, ariſing from the veſſels being concreted together, and chiefly by an external compreſſion. Its proximate cauſe is the compreſſion of the veſſels, the expreſſion of the liquid they contain, and the concretion of their ſides.

The proximate cauſe of all obſtructions is only one, which is always ſimple and the ſame; *i. e.* the greater bulk of the matter that is to be tranſmitted above the capacity of the canal that is to tranſmit.

There are two cauſes that diſtend the arteries, the force of the heart propelling the blood, and the quantity of blood already contained in the arteries; if the force of the heart be leſſened, the whole circulation proceeds ſlowly; if the quantity of the diſtending liquid be diminiſhed, the fault lies in inanition. But the capacity of all the veſſels depends on two oppoſite cauſes, the force and quantity of the liquid which is moved in the veſſel, and the contractile power of their ſides, which reſiſts the diſtending cauſes; as ſoon therefore, as the diſtended cauſes are leſſened, the contractile powers will produce the ſame effect, or which is the ſame thing, the veſſels will be made narrower. When the particles of our fluids loſe their ſpherical figure, they muſt of conſequence loſe the poſſibility of an uniform tranſition through the veſſels; for ſince by the motion of the heart and arteries, every particle of the blood has a different motion and ſituation every moment, it was requiſite to make this motion uniform,

form, that they ſhould be of ſuch a figure as might enable them to paſs thro' veſſels in any ſituation; which is the caſe of a ſpherical figure only.

The denſity of the particles of the blood is always proportional to the power of the heart and arteries. The ſhape of the elementary particles of our fluids, ſo far as we can diſcern by the help of inſtruments, is ſpherical; and this is obvious, if we conſider that the blood is thrown, by the great force of the heart, into a conical veſſel, that is reciprocally dilated and contracted, and incurvated as ſoon as it comes from the heart; it is plain therefore, that no particle of blood can keep the ſame direction for two moments together; and conſequently, that the particles muſt be continually ſtriking againſt each other: ſo that if any angular part ſhould ſtick out in any elementary particle, that point muſt ſuſtain the rotation of all the reſt; and therefore, will ſoon either be beat off, or ſmoothed down. Add to this, that the extremities of the arteries, if cut tranſverſely,

have a circular ſection, and ſo may give their figure to ſuch particles as are of a flexible nature.

The ſtronger a man is, the greater is the danger of concretion, if his blood be at reſt in the veſſels. And therefore, thoſe faintings, which weakly girls are ſo ſubject to fall into upon every ſlight occaſion, are ſeldom ſo dangerous, as their blood is in too diſſolved a ſtate, and ſcarce ever, or at leaſt, very ſlowly concretes, though it remain unmoved. The ſerum of blood will turn to ice, when expoſed to the twenty-eighth degree of cold marked in Fahrenheit's thermometer; ſo that it requires a greater degree of cold than water, and probably becauſe it is enriched with ſalts.

If blood be taken away on the firſt day of the ſmall-pox, it ſhall look well to the eye; if on the third or fourth, it ſhall be covered with an inflammatory cruſt, becauſe the moſt liquid parts being carried off by the fever, and the thicker parts more cloſely compacted, the par-

cles

ticles of blood begin to cohere more firmly together; for whilſt there is a large quantity of thin liquid interpoſed between the thicker parts, the preſſure of the veſſels will not change their figure; but when this is carried off, the thicker parts of the blood becoming contiguous, will be forcibly compreſſed by the action of the veſſels, loſe their ſpherical figure, touch each other in many points, and run into concretions. For when the veſſels are very ſtrong, ſo as to compreſs their fluids with great force, the fineſt part will be carried off, and the thicker parts united by this compreſſion.

All acids do not coagulate the blood, for the acidulous wines, juices of ripe acid fruits, vinegar, butter-milk, &c. rather diſſolve it; but the foſſil acids that are prepared from ſea ſalt, nitre, &c. will coagulate it. Alum, and the various ſorts of vitriol, produce the ſtrongeſt coagulations.

Alcohol, applied to the bleeding mouths of divided veſſels, puts a ſtop to the

moſt

moſt violent hæmorrhages, by coagulating the blood. The ſerum of the blood itſelf will preſently become hard by pouring alcohol upon it. How dangerous therefore, is the exceſſive uſe of ſpirituous liquors!

No obſtruction can be poſſibly formed in canals, through which, during the courſe of life, the liquids are carried by a perpetual motion, unleſs the direction of the motion be from a broader orifice to a narrower: that obſtructions may ariſe in conical veſſels, through which the liquids are moved in a direction, leading from the baſis to the apex, is certain; for, the particles of the fluids arrive at a narrower ſection of the cone every moment; and that which eaſily paſſed at the baſis, may eaſily ſtick in the extremities of this converging canal; and then the liquid behind will always preſs the unpaſſable maſs, into a ſtill narrower paſs, and ſo increaſe the obſtruction; but in the veins, where the direction of the motion tends from the apex of a conical canal, to its baſis, an obſtruction

ſeems

ſeems not poſſible, unleſs by the external compreſſion of the veſſel; for whatever has paſſed the narrow orifice of its vertex, will eaſily paſs the other ſections of the canal, which are continually growing larger: and though the particles of the fluid be ſuppoſed to unite into ſtill larger particles, yet as theſe are not ſupported by the diverging ſides of the veins, they will eaſily be carried along by the impetus of the ſubſequent liquid.

In a peripneumony, it is a bad ſymptom if the blood drawn from a vein be too dilute, and ſcarce diſpoſed to coagulate, becauſe it ſhews, that the thinner parts only paſs through the lungs, while the thick are accumulated.

It often happens, that acute inflammatory diſeaſes of the head ſhall leave behind them an incurable deafneſs or blindneſs during life; the reaſon of which is probably this, that when the greater veſſels were obſtructed by the inflammation, the leſſer one derived from them, being compreſſed and collapſed, were

were by this means grown together. When in an apoplexy the brain ceaſes to perform its functions, it is ſeldom cured; ſome defect or other of the functions always remaining, which for the moſt part proves incurable.

When the ſtomach is diſtended with a large quantity of meat and drink, and preſſes the deſcending trunk of the Aorta, the turgid face, the red eyes, the encreaſed pulſations, and the quicker reſpiration, all ſhew the quantity of blood to be encreaſed in the upper parts, and that it flows with greater celerity through the veſſels; hence it is that we meet with ſo many inſtances of perſons who have died of an apoplexy immediately after a full meal. If a confirmed ſcirrhus or a malignant cancer, that will not admit of extirpation, are the cauſe of an obſtruction, he muſt be a bold man that in ſuch a caſe will preſume to promiſe a cure.

The paſſions of the mind are capable of very ſuddenly and very powerfully increaſing the contractility of the ſolids.

I have

I have ſeen a woman in perfect health, who upon a ſudden fright had a tumour immediately riſe in her breaſt, which, tho' very properly treated, hardened into an irreſoluble ſcirrhus. Warm water will ſoften the harder parts of the body: but when turned to vapour, will more effectually diſcharge this office; the joint of the elbow, grown immoveable from an obduration of the ligaments, was rendered intirely flexible, in two months, by being expoſed for two hours every day to the vapour of warm water. Where this can be conveniently directed to the part, it is moſt undoubtedly to be preferred to all other methods. Warm water dropping from an higher ſituation on the part affected, has done wonders in topical diſeaſes; chronical and ſtubborn tumours of the knee, have been often cured thereby.

Bleeding often is uſeful in obſtructions ariſing from the encreaſed contraction of the fibres; for thus emptying the large veſſels, the leſſer veſſels which form their ſides are leſs compreſſed, and the force by which

which the liquid is impelled againſt the obſtructed place is diminiſhed; and in caſe the quantity of blood taken away be large, ſo as to endanger ſwooning, the preſſure of the vital liquid from the baſis of the veſſel to the vertex being by this means removed, the ſmaller veſſels will be enabled to contract and repel the liquid which obſtructs them in the larger veſſels. A callus, if pared off from the ſkin, will grow again, although no vital liquid flow through it: and this ſeems to ariſe from the concreted extremities of the veſſels being gradually protruded by the vital liquid; as alſo becauſe the open extremities of the veſſels that are next the callus are compreſſed by it.

Animal motion encreaſes the velocity of the circulation, and renders the ſolid parts more firm.

Frictions are of great uſe in reſolving obſtructions. I have ſeen an indurated parotid gland, after many good applications have failed, reſolved by being well rubbed with woolen cloths for an hour toge-

together, twice a day, after having been expoſed to the vapour of warm water and vinegar. The ſame has been effected in the glands of the neck, which have been ſtrumous.

Muſcular motion alſo is of ſingular ſervice in this caſe; as the motion of the venal blood being accelerated thereby, it occaſions the heart to contract oftner and ſtronger, increaſes the circulation, and more frequently diſtends and contracts the veſſels alternatively in a given time.

Sea-ſalt, ſal gem. ſal ammoniac. being much alike in many of their qualities, have alſo a reſembling power of attenuating. The two former, when given inwardly, mix indeed with our humours, but paſs off by urine in a great meaſure unchanged; for which reaſon, though they paſs through moſt of the veſſels of the body, yet they undergo no alteration from their action. Now whatever is taken down, and cannot be changed by the powers of the body, will conſtantly excite

cite a greater motion, and thus will act alſo as ſtimulants.

But ſal ammoniac. which is lighter than the other two, and more like the native ſalts of the blood, is more capable of being changed by the power of the body, and of a very penetrating nature; and is therefore generally preferred before the reſt, and juſtly commended as one of the greateſt deobſtruents both in acute and chronical diſeaſes.

The action of theſe ſalts ſeems to conſiſt in this, that when they are mixed with the humours, diſſolved, and conveyed to the obſtructed places, from a kind of conſtant attrition by the action of the veſſel againſt the obſtructing maſs, they divide it by their weight and figure, and thereby make it paſſable through the veſſels; at the ſame time encreaſing the action of the veſſels by their ſtimulating property.

When the veſſels under the unbroken ſkin are ruptured by a contuſion, and the blood concreted into a maſs, which is

ſtill

ſtill entire, theſe ſalts diſſolved in water, and applied to the part, will moſt happily diſſolve it. Thoſe who indulge themſelves too much in eating large quantities of ſea-ſalt, ſhall have their blood ſo diſſolved, that it can ſcarce be retained in its veſſels; hence oftentimes will ariſe very violent hæmorrhages, partly from the blood's too great diſſolution, and partly from the too great acrimony of the humours which erodes the veſſels.

The modern nitre ſeems quite different from that of the antients; for there it appears to have been of an alcaline nature, or perhaps, it was the ſal ammoniac. to which they gave this name.

Modern nitre is of a nature ſtrangely ambiguous, between vegetable, animal, and foſſile. If free from ſea-ſalt, it remains dry in the air, diſſolves entirely in water, and is the lighteſt of ſalts, is a very great attenuant, and of great uſe where there are obſtructions from an inflammatory denſity in the blood.

Borax is a very wonderful ſalt, whoſe nature is not well known; and its hiſtory confuſed, even in the beſt writers.

It is commended much as a deobſtruent, and uſed in the moſt obſtinate diſeaſes, as it acts partly by its wonderful ſtimulus, and partly by its attenuant ſaline power.

All ſoaps contain an oil ſo accurately mixed with a ſalt, as to be capable of being diſſolved in water without ſeparation; the more ſubtle the oil and the ſalt are, of ſo much the more excellent uſe is the ſoap which is made from them.

Pills of ſoot gilt over, to prevent their giving offence, in viſcid diſeaſes, have often done great ſervice, from their ſoapy attenuant nature.

That bile has a diſſolving power is moſt evidentin thoſe diſeaſes where, by being hindered from paſſing in its uſual courſe, it regurgitates backward into the blood, for then it turns it all to water; and for this reaſon it is, that obinate jaundices are almoſt conſtantly followed by a dropſy.

The

The bile kept inſpiſſated in the ſhops in form of an extract, is give pills; if this inſpiſſated bile be rubbed on the ſwollen bellies of children, it will diſſolve the concretions formed in the inteſtines, and carry them off by ſtool.

It is ſufficient if a phyſician knows the effects of quick-ſilver, when applied to the body, though he be not acquainted with its particular *modus operandi*.

The virtue of other remedies is no leſs obſcure to the enquirer. Who has ever explained the manner by which ſcammony carries off the blood by ſtool, after it is converted into a putrid water? Whoever has throughly underſtood the wonderful properties of antimony, and its ſeveral preparations?

Bleeding will ſucceed better in a pleuriſy, if the ſide affected be gently rubbed at the ſame time that the blood is flowing from the vein; or if the patient move the affected part, by frequently drawing in his breath as hard as he can, or by coughing.

Inflammatory diſeaſes are more eaſily cured in men of lax habits, than in ſtrong men who have been accuſtomed to hard labour.

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## *Of Wounds in general.*

IF the orifice of a wound be of the ſame ſize with the inſtrument which inflicted it, it is a ſign that it was thruſt ſtrait forwards in the wound; but if a broad ſword makes a round orifice, it is a ſign the weapon was turned round in the wound.

When the aponeuroſis ariſing from the tendon of the biceps muſcle in the arm is accidentally injured in opening a vein, the ſevere ſymptoms which follow do not reſult from the ſlight wound or puncture in the part, but from its tenſity and connection with adjacent parts.

Wounds are more or leſs dangerous from their ſituation; for if a ſmall branch of one of the intercoſtal arteries, for example,

ample, be wounded, ſo that the pleura is perforated at the ſame time, the extravaſated blood will then eſcape into the cavity of the thorax, and be productive of much miſchief. Thus alſo a wound is much more dangerous when inflicted in the interior, than in the exterior part of the thigh, becauſe of the great blood-veſſels which are ſeated in the former.

A ſlight fever happening in the inflammatory ſtate of wounds, does not often prove hurtful, but is rather ſerviceable, by forwarding the formation of *pus*, or matter, in the wound; and when the pus is formed, the fever generally vaniſhes. When this ſlight fever ariſes about this time, after cutting for the ſtone, amputating of breaſts, or in the like wounds, it is always a good preſage.

Pus is never formed in wounds, unleſs they are ſecured from air, either by the natural cruſt formed on the ſurface of wounds, or by plaiſters and dreſſings, &c. ſo that the matter is not formed

within, but out of the veſſels in the cavity of the wound, from the juices there extravaſated, digeſted and changed by the heat of the body. For if all the matter be cleanſed from the ſurface of a wound with ſoft-ſcraped lint, within an hour after it will appear all over beſet with a thin liquor, inſtead of matter; but when the wound has been covered with a plaiſter for four and twenty hours, upon removing the dreſſings, plenty of matter appears.

A gangrene is termed that affection of the ſoft parts, in which they tend to death or mortification, from a deprivation of the vital influx and efflux of the juices by the arteries and veins. If a gangrene therefore follows the total diviſion of a large nerve, it muſt hinder that vital influx and efflux of the juices: yet we know the arteries and veins are here entire, and their contained juices in a healthy ſtate, and the nerves only appear divided; but if we again conſider that the motion of the arterial fluid

reſults

reſults from two cauſes, i. e. the force of the heart, and the action of the arteries; and alſo remark, that the force of the heart is ſpent chiefly in dilating the arteries, it will thence follow, that the principal cauſe moving the fluids in the arteries, muſt be their contraction, which is performed partly by their elaſticity, but principally by the action of their round muſcular fibres, by which the dilated arteries are again contracted; but we know from phyſiology, that the action of a muſcle, or muſcular fibres, requires that the nerve thereto belonging be ſound or entire: and as we know that the nervous trunks give branches to the adjacent arteries, it is thence evident that the nerve being wounded or deſtroyed, the muſcular force of the artery propelling the contained juices, muſt alſo periſh; ſo that the blood will move it in ſuch an artery only by its remaining elaſticity, and the impetus received from the heart. In the veins again the blood goes on with

the velocity which it had in paſſing into them out of the arteries, which is again accelerated by the motions of the adjacent muſcles, ſwelling in their contractions, and preſſing the adjacent veins, ſo as to promote the courſe of their contained blood; but the nerves being divided, the ſubjacent muſcles become paralytic, and loſe all their power of motion Thus the impetus of the blood being diminiſhed, in paſſing from the arteries through the veins, for want of the protruſive action of the adjacent muſcles, it will therefore ſtagnate, or move ſlower in the veins, and be there accumulated; from whence again will ariſe a greater reſiſtance to the arteries, whoſe muſcular contraction is now much weakened: from which cauſes the vital motion of the juices through the arteries and veins into the parts below the wounded nerve, will at length be totally deſtroyed; that is, a gangrene will be the conſequence.

If, on the pricking an aponeuroſis of the biceps muſcle in bleeding, long red ſpots

ſpots appear externally in the ſkin, it is almoſt conſtantly reckoned one of the very worſt ſigns.

There is not a better remedy in the puncture of a nerve or tendon, than the black *Balſamum Peruvianum*, made a little warm, and then dropped into the wound.

Wounds ſhould be waſhed with warm water mixed with a little honey, wine, and ſea-ſalt; that, by removing all the clots of blood, the whole ſurface of the wound may be clearly viewed, and the hæmorrhage be reſtrained, which may eaſily be done in the extremities or limbs, by compreſſing the trunks of the veſſels with the tourniquet, or a proper ligature. In other parts of the body, if the injured veſſels are not very large, the hæmorrhage may be reſtrained with warm alcohol vini.

If a great weakneſs of the vital functions immediately enſues, after a wound that has penetrated into the cavity of the abdomen, attended with a ſwift palpitation

tion of the heart, a ſmall, quick, and unequal pulſe, paleneſs of the face and lips, and coldneſs of the extremities, we may then conclude, that a large quantity of blood is extravaſated into the cavity of the abdomen, from a wound in ſome of the larger veſſels. If a wound be inflicted in the neck, without any conſiderable hæmorrhage, and afterwards is attended with ſymptoms like the preceding, there is then reaſon to fear that the recurrent nerves are injured, as they deſcend through this part, to their diſtribution in the vital organs. If the like ſymptoms follow a wound of the head, there is reaſon to believe that the cerebellum is injured or compreſſed by the extravaſated juice; or if a wound of the head is followed with a loſs of all animal actions, we have then great cauſe to apprehend, that the brain itſelf is in like manner hurt. If again we obſerve, after a wound has been received in the back, that all the parts below the wound are deprived of ſenſe and motion, we

may

may then reaſonably conclude the Medulla Spinalis to be injured.

If blood be diſcharged of a ſcarlet or frothy colour, either by the mouth, or from the orifice of a wound of the thorax, we may know thence that ſome pulmonary veſſels are divided. But if after a wound of the abdomen, any of the chyle is diſcharged from thence, it denotes that the ſmall inteſtines have been injured; but if any of the fæces come out, it plainly indicates the great inteſtines have been wounded. If any blood comes away with the urine, we are then to conclude that the kidnies, ureters, or bladder have received injury.

If the ſpinal medulla be wounded pretty deeply in its upper part, its ſoft ſubſtance will be deſtroyed, and the action of the brain and cerebellum will be aboliſhed from the parts below, at leaſt ſo far as they were dependent on the continuity of the medullary fibres wounded; for the eighth pair of nerves, the

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*par vagum*, with the intercoſtal, ariſe much higher from the medulla oblongata within the cranium; and their branches go to moſt of the vital viſcera. Hence then a perſon does not die haſtily after ſuch a wound, though he will inevitably periſh ſooner or later, according as the medulla was more deeply wounded, or in a higher part; the reaſon of which is very evident, for the brain and cerebellum ſecrete from the arterial blood, that very ſubtile liquor which is afterwards continually ſent to all parts of the body, by the medullary fibres of the encephalon continued through the nerves; ſo that if the quantity of blood brought to the ſecretory organ remained the ſame, then the number of the canals, which ought to contain and carry the ſecerned liquor to the reſpective parts, will be diſturbed, and at length deſtroy the actions of the ſecretory organ itſelf; but it generally happens that large blood-veſſels are injured, at the ſame time that the medulla ſpinalis is wounded; whence the

the extravaſated juices having firſt filled the cavity of the vertebræ, eaſily re-aſcend afterwards into the cavity of the cranium.

The divided lips of a wound will form a larger hiatus, the ſtronger the coheſion of the parts was before.

An aneuriſm proceeds from whatever cauſe which deſtroys the coheſion, or diminiſhes the force of the coats of an artery in any part.

An aneuriſm may be known and diſtinguiſhed from other tumours, by its manifeſt pulſation ſenſible to the touch; and when the tumour diſappears, or greatly diminiſhes by a ſlight preſſure, it returns again when the preſſure is removed. Again, in compreſſing an aneuriſm, eſpecially one that is large and near the heart, the patient will be in great danger of ſuffocation, unleſs it be done very gently and gradually; for the concreted blood returned out of the ſacculus of the aneuriſm gives ſo great a reſiſtance to the blood in the aorta from the heart, as to deſtroy the motion of this laſt very ſuddenly:

ſuddenly: or, if a large aneuriſm be compreſſed by the hand, the preſſure muſt not be taken off all at once, but by degrees, otherwiſe the patient faints, from the ſudden return of the blood into the cavity of the ſacculus; and therefore the patient always complains of an intolerable anguiſh or oppreſſion in the thorax, when a large aneuriſm is thus compreſſed. But when any aneuriſm lies concealed in any of the viſcera, or more internal parts, it is much more difficult to diſcover; but if the known cauſes of an aneuriſm have preceded, the patient perceives an unuſual pulſation, the heart palpitates, or is diſturbed in its motion, and ſuffocation almoſt follows, from quickening the blood's motion, either by exerciſe or any other cauſe; theſe circumſtances will give us room to ſuſpect an aneuriſm in ſome internal part of the body.

As aneuriſms in the internal parts of the body are inacceſſible to the hand, there are but ſmall hopes of a cure: all that can be done for the patient, is to abate

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the impetus and velocity of the blood's circulation, by a thin diet, and repeated phlebotomy; by which the aneurism may be prevented from encreasing as much as possible, provided the patient be ordered to refrain from all emotions both of body and mind. When the aneurism is accessible to the hand, and not yet encreased to any formidable size, there may be some hopes of relieving it by a prudent compressure; in making which it will be also of no small service to keep a moderate pressure upon the artery above the aneurism, to abate the impetus of the blood, and prevent it from easily regurgitating back towards the heart. When we can hope for little or no benefit by compressure, or when it has proved ineffectual, there then only remains the operation of extirpating the aneurism, the safety and success of which we are taught by experience.

Every thing which encreases the resistance to the blood's motion from the heart, may occasion a preternatural enlargement

largement of its ventricles: ſuch as too great a redundance of juices in thoſe who are plethoric; a too great velocity of the blood in acute diſeaſes, or an obſtruction of its paſſage through the arteries, from an inflammatory diſpoſition, or from polypous or atrabilious matter, &c. a defect in the arteries, through which the blood's free courſe is impeded, as when they become too tough or callous, or degenerate into a cartilaginous, aneuriſmatic, or bony ſubſtance, &c. all which conſtitute the principal cauſes from whence the cavities of the heart are uſually dilated beyond their natural dimenſions. The heart, though that is a rare caſe, has been found greatly diſtended in its cavities by air.

That this diſorder is either preſent, or at leaſt to be feared, may be known from the violent palpitations of the heart, attended with the ſigns which denote that the free courſe of the blood is obſtructed through the lungs; eſpecially if the pulſe be full and hard, with an intolerable anguiſh,

guiſh, increaſing upon exerciſe; for we may then reaſonably conclude that ſome obſtruction is about the aorta.

It is of the utmoſt conſequence to diſtinguiſh the true from the ſpurious aneuriſm; the ſigns therefore of this laſt ought to be particularly known. A ſpurious aneuriſm may ariſe from any cauſe deſtroying the continuity of the ſides of the artery, the ſkin at the ſame time remaining entire, or at leaſt ſo cloſed, that the blood cannot have a free paſſage through it from the wound, whence it is accumulated and diſtends the cellular membrane. It is partly diſcovered by this means, more eſpecially from violent contuſions, and from the ſudden formation and encreaſe of the tumour, which happens much ſlower in the true aneuriſm. The tumour here is alſo more irregular, or not ſo diſtinctly limited or circumſcribed, becauſe the blood ſpreads all ways in the cellular membrane; whereas in the true aneuriſm the tumour is limited by the dilated coats of the artery. Add to this,

in the true aneurifm there is always a manifeft pulfation correfponding to that of the artery, efpecially towards its firft formation before it has obtained a formidable bulk; but in the fpurious aneurifm, the pulfation is lefs fenfible, though this circumftance is not altogether to be depended upon. In a true aneurifm that is not very large, the tumour wholly difappears by compreffure from the diftending blood returning into the artery: but then this does not happen in the fpurious aneurifm; for that being preffed in any part yields, indeed, but then the tumour encreafes in the adjacent parts. Laftly, the colour of the fkin is feldom or never altered in the true aneurifm, at leaft in the beginning of it; but in the fpurious aneurifm, the blood, being extravafated under the fkin, makes it appear of a black, livid, or other preternatural colour.

Every vifible nerve which is wounded fuffers not only as it is a nerve, but alfo as it is a compofition of membranes and veffels of all orders, whofe continu-

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ity and action are alſo injured by the wound.

The utmoſt caution is required in dangerous wounds, to determine whether heterogeneous bodies ought to be extracted or left in the parts. If from duly conſidering all the circumſtances, it ſhall appear that the patient may live the longer or the eaſier by their removal, it ought doubtleſs to be done; but if, from an anatomical knowledge of the parts and their functions injured, the nature of the wound appears to be ſuch, that a removal of the bodies will threaten a certain or ſpeedy death, they ought then deſervedly to remain; ſince deſperate caſes are beſt let alone, leſt any blame of the patient's death ſhould be imputed to the phyſician or ſurgeon. If the ſurface of a wound appears dry, and of a deep red colour, affording very little matter, the ſurgeon may conclude the wounded veſſels reſiſt too much the impulſe of the juices, and deny them a paſſage. But if every part of the wound

appears equally moiſt, and moderately red, the bottom of it riſing gradually every day, and the ſides encreaſing all round towards the centre; theſe ſhew that the veſſels are lax enough to admit the impelled juices, and be thereby elongated. Yet if the wound diſcharge a great deal of moiſture, and fills up unequally round the ſides, it is a ſign the veſſels are too lax; and therefore require to be treated with contrary medicines. Our aliments do not nouriſh, till they have been firſt changed from their own nature into that of animal juices, by the ſtructure and action of the proper parts.

We ſhould be careful not to let a wounded patient want drink, ſince thirſt denotes a dryneſs of the body, and that the juices are either groſs and impervious, or mixed with acrid particles, all which muſt be highly pernicious to the wound, ſince it requires to be ſupplied equally in every point, with mild or taſteleſs, and pervious juices; a moiſt

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and cooling diet therefore is here neceſſary, to dilute the juices, open the veſſels, and render them eaſily pervious; alſo to diſcharge the acrimonious and offenſive parts of the blood, in the form of urine and ſweat.

Diet ought to be proportioned to the courſe of life. An expert ſurgeon will preſently obſerve a change in the condition of a wound for the worſe, after a patient has eat fat ſubſtances, ſuch as bacon, or pork, &c. for this oily matter, being carried to the wound, obſtructs the ſmalleſt veſſels, and becoming rank or acrid by ſtanding, excites an inflammation not eaſily to be removed.

Want of freſh air is remarkably hurtful to thoſe who are wounded in the head.

It is an obſervation of *Sanctorius*, and all others who have wrote *de Statica Medicina*, that joy cauſes perſpiration, and renders the body light. *Balſams*, eſpecially the natural balſams, all retain a thick adheſive quality, with a mild aromatick

joined with an acid, both which resist putrefaction, and at the same time are not offensive by their acrimony, because enclosed in a soft oil. This we know from a chemical analysis, which procures an acid liquor, with a thin, fragrant, and aromatick oil, from all natural balsams; while the thick resinous part remains behind, in the bottom of the retort. When these balsams are gently warmed, and applied in a moderate quantity, so that they may spread equally over the whole surface of the wound, they not only cover and defend the extremities of the tender vessels, so as perfectly to exclude the air, and prevent the parts from drying, but they also preserve the extravasated juices from putrefying.

*Nature* herself is the only real *sarcotick.*

It is highly necessary to be well acquainted with the situation of the parts when in a state of rest, especially during the time of sleep; for at that time all voluntary motion ceases, and the parts of the

the body, being left to themselves, assume the most easy and natural figure. We then observe, that none of the limbs are extended, but that all of them are a little inflected: so that in a healthy person sleeping, the fingers are never stretched out, nor does the leg form a right line with the thigh; all these joints make obtuse angles: for the muscles, bending the limbs, are generally found stronger than the extensors; so that when neither of them are in action, the natural contractile power in the fibres of the flexor muscles will overcome that of the extensors, so as to make the limbs always appear in a posture somewhat inflected during sleep or rest. What has been said is also very apparent in palsies of the limbs, when all the voluntary actions of the muscles cease; so that when, for example, the whole arm is become paralytick, the fingers are always found and continue inflected, insomuch that it is often impossible to extend them after the palsy is cured, from a rigidity of the

connecting ligaments in the joints, and from a contraction of the tendons of the flexor muſcles, which ſhrink by their own natural contraction, and for want of being ſtretched or elongated by the action of the extenſors: thus the flexor tendons become ſhortened, ſo that the extenſor muſcles cannot overcome their reſiſtance. "The "patient, ſays *Hippocrates*, ought to be "found by the phyſician lying down on "his left or right ſide, with his arm, "neck, and legs, a little inflected, and "his body even with the floor, for in "that manner lye moſt people in health."

When this circumſtance is neglected in the care of wounds, the parts grow together in a different manner from what they naturally were in before, and frequently a great deformity ariſes from the diſtortion of the parts, or a deprivation of their natural motion. This caution muſt be duly regarded at the firſt dreſſing of the wounded parts, which, being freſh, ſpeedily unite; ſo that it will be difficult to correct the miſtake once committed, unleſs

leſs by laying them open again, after they have united. Cauſticks, ſtypticks, or aſtringent applications ſhould be avoided, when we intend a handſome cicatrix; becauſe thoſe remedies either deſtroy the living veſſels, or ſo contract them, as to render them incapable of tranſmitting their fluids, and the dead, or obſtructed extremities of the veſſels will ſuppurate, whence follows a loſs of ſubſtance, a conſumption of the fat, and a more or leſs deep and unſightly ſcar. It is alſo hence evident how much an equable compreſſion may contribute to the neatneſs and uniformity of a cicatrix, by preventing the too great diſtention and protuberance of the veſſels,

## *Of Hæmorrhage, Pain, and Convulſions.*

THE word hæmorrhage literally and originally means, a large and forcible flux of blood, though it is underſtood now of any diſcharge of blood from any part. When occurring alone in *Hippocrates*, without any mention of the part of the body, it then only means a bleeding from the noſe.

Hæmorrhages are reſtrained either by contracting the orifices of the divided veſſels, or by coagulating the blood, or by both together, ſo as to obſtruct its courſe.

A gangrene follows upon pain, more eſpecially when a violent fever and inflammation are preſent at the ſame time; for then the impetus of the circulating juices being increaſed, ſpeedily deſtroys the parts.

When a phlegmon or inflammatory tumour has diſtended the ſkin and ſubjacent *panniculus adipoſus*, ſo as to diſtract

ſtract the cutaneous nerves, and excite ſevere pain, even when it cannot be diſcuſſed, but tends to ſuppuration, ſo as not only to continue but encreaſe the diſtracting cauſe; in this caſe, the conſtant application of an emollient cataplaſm will ſo relax the nervous fibres as to eaſe the pain, ſo that they are either more eaſily ruptured, or elſe continue to be diſtracted without danger of breaking. Thus all ſoft expreſſed oils, taken in large quantities, happily relieve iliac, colick, and nephritick pains. The vapours of hot water, and every thing that mollifies and relaxes, are therefore uſed with ſucceſs in all pains. When intenſe pains ariſe from the puncture of a nerve, the moſt expert ſurgeons foment the parts day and night with the moſt emollient medicines. Hence all emollient and relaxing ſubſtances afford an univerſal remedy for eaſing all pains, becauſe they remove the proximate cauſe of pain in the nervous fibres, viz. their danger of breaking; whereas all other applications

tions act only upon the remote causes of pain. Even when the particular cause of the pain is unknown, these remedies may be always safely and successfully used: and they have also this advantage, that while they remove many of the remote causes of pain, they do not increase those causes of it which are not removeable. When they have relaxed the vessels, the distending and impervious juices will then have a ready passage, and its acrimony will be at the same time obtruded. But every thing which augments the strength and contractile power of the solids, while the distending cause continues to act upon the fibres, will always increase the pain. Hence pleurisies are observed much severer in strong and laborious people, than in those of a more lax and weak habit. Luxations are also reduced with much more ease, and with less pain in these last, than in persons of a robust habit, and even in some, the ligaments are so easily elongated, that their limbs may be disjointed without any pain.

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When executioners have violently extended almoſt all the limbs of criminals by way of torture, they know that by pouring cold water upon them, the pain becomes ſtill much more intenſe: whenever therefore, the action of laxative and emollient remedies can reach the ſeat of the pain, they will always have the deſired effect. If, for example, a ſtretched nervous fibre becomes painful in the middle of a tooth, that pain cannot eaſily be relieved by emollients; and the ſame is true, when intolerable pains ariſe from an affection of the medulla of the bones; and alſo in the worſt ſpecies of the paronychia, where the ſeat of the pain is in the tendons of the flexor muſcles of the fingers, confined by their cartilaginous capſules. It may alſo ſometimes happen, that though the pain is very ſevere, yet the uſe of relaxing and emollient remedies, may be prohibited by the other ſymptoms: thus emollients would be pernicious in a latent or ulcerated cancer attended with extreme pain, becauſe they

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would greatly augment the putrefaction, and the fungous excrescence which attends the disorder. But in almost all other cases, the emollient and relaxing remedies are of universal service for easing pains.

All pain supposes life residing in the part; and if the pain arises from some impervious humour distending the obstructed vessels, it will always be the more severe, as the *vis vitæ* is more powerful and active. Hence in pleuritick fevers the pain is almost intolerable, because the fluids are violently urged into the obstructed parts, and by dilating the vessels, they very forcibly distract the nervous fibres composing the coats of those vessels: every thing therefore which abates the impetus and velocity of the circulating juice will ease pain.

Every convulsion is a disorder of some muscles; and is at present used to signify a violent, involuntary, and alternately repeated contraction of a muscle.

## *Of Wounds in the Head.*

A Vertigo, noiſe in the ears, bilious vomiting, ſleepineſs, a depravation or abolition of ſome or all of the ſenſes, &c. in wounds of the head, are always of bad import.

The ſymptoms which appear ſoon after the infliction of a wound are leſs to be feared than thoſe which happen afterwards, or continue a long time, whether they are fevers or other ſymptoms.

If the wound be ſlight, but attended with contuſion, many bad conſequences are to be apprehended; for we may ſay a part of the body is contuſed, when many of its ſmall veſſels have been broke or deſtroyed by the violent preſſure of ſome obtuſe inſtrument; and therefore contuſion is always joined with a laceration of the veſſels, and extravaſation of their contained humours, and a conſequent corruption of them from their ſtagnation. Since the hard bones of the

ſkull

ſkull are placed beneath the integuments of the head, unleſs the wounding inſtrument was ſharp, it muſt always occaſion ſome degree of contuſion; more for this reaſon in the head than in other parts of the body. But ſince the ſkin of the head is very thick, and the ſubjacent *panniculus adipoſus* very thin and eaſily dilatable, being reſiſted beneath by the hard bones, it is evident that extravaſated juices corrupted by their ſtagnation will eaſily force themſelves a paſſage through the non-reſiſting *panniculus adipoſus*, and deſcend by their weight. And thus they may preſs to the back part of the head, and there irritate the large muſcles, which are inſerted into the os occipitis, ſo as to excite malignant ſymptoms. In the ſame manner the corrupted juices may alſo deſcend to the temporal muſcles, and to the forehead and eyes, and there produce the like bad conſequences. That the extravaſated juices may thus eaſily pervade the cellular membrane, is evident from inconteſtable obſervation; for when a contuſion in the ver-

vertex of the head has eſcaped unobſerved; on the next day, the forehead and eyelids themſelves have been often found ſwelled and livid, from the extravaſated blood filtrating through the cellular membrane to thoſe parts; and therefore *Hippocrates* juſtly condemns wounds of the head inflicted by blunt inſtruments. "They "contuſe, lacerate, and corrupt the ſoft "parts. And beſides that, wounds of "this kind are rendered more purulent "and moiſt, and are ſinuous about the "ſides, and in ſome meaſure all round, "and they take up more time in deterg-"ing and healing them; for contuſed "and lacerated fleſh muſt of neceſſity "turn into matter, and be therefore con-"ſumed." Another bad conſequence to be feared from ſuch wounds is a contuſion of the perioſteum, or the bone itſelf, or its being injured, by the extravaſated humours; from whence a caries of the bone, and its uſual bad conſequence, may be expected: for a bone of the cranium may be contuſed,

and at the ſame time ſeem to be in its natural ſtate; and the contuſion may extend more or leſs into the ſubſtance of the bone, though the degree of injury cannot be judged of by the eye, as *Hippocrates* himſelf prudently obſerves. From whence it is evident, how deſervedly contuſed wounds of the head are ſuſpected by prudent ſurgeons; ſince the moſt malignant conſequences may follow a long time after, when every thing is believed to be well. Among the many obſervations which confirm this, we ſhall only bring one inſtance cited by *Bohnius* from *Paw*. A certain perſon drinking in company with another, was ſtruck by his companion with a pewter-pot over the right parietal bone, nor could any fiſſure be perceived in the bone: he walked, and was ſeemingly very well; till ten months afterwards he was taken with a vertigo in walking, and expired in a little time. Upon opening the cranium in the affected part, the bone and the dura mater were found perfectly rotten and fetid.

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An eryſipelas is a ſuperficial inflammation, almoſt conſtantly reſtrained to the ſkin, of a reddiſh yellow colour, ſeated chiefly in the ſmaller veſſels, which are leſs than thoſe that convey blood, occurring in no part more frequently than in the head and face, and almoſt conſtantly denotes ſomething malignant in injuries of the head.

It is remarkable that the cellular membrane is more eaſily diſtended, as it is thinner and leſs replete with fat; whence it is that this membrane about the eyelids is ſo eaſily inflated, and that about the ſcrotum and penis it is ſo eaſily diſtended to an uncommon bulk in an *anaſarca*, becauſe in thoſe parts the cellular membrane contains no thick fat, but, if any thing, a ſort of mucilage; except in caſtrated animals, in which a vaſt quantity of fat is accumulated in this membrane. Tumours thus formed are properly enough termed *emphyſemata* or inflations, which *Gorræus* defines to be a collection of a flatulent ſpirit or air in

ſome void ſpace of the body.—Wounds of the head ſhould never be thought trivial, even though they appear but ſlight, ſince they have very frequently been attended with fatal conſequences.

Wounds of the head ſhould be ſeldom and then expeditiouſly dreſſed: for the whole intention here is to re-unite the divided integuments as ſoon as poſſible; and this is done by ſelf-ſufficient nature only, art barely removing the impediments and aſſiſting her action. When all the ſymptoms therefore denote that the cure goes on well, of what ſervice will it be to undreſs the wound frequently, and expoſe the tender growing veſſels to the injurious contact of the air? And beſides, that vain ſhew of diligence by frequent cleanſing and wiping the wound with lint, abrades what laſt grew up. It will be therefore ſufficient to dreſs the wound ſeldom; for if any thing is amiſs, or if there is ſo much matter as requires to be cleanſed, it may be perceived by the heat and ſlight itching that will affect the

parts:

parts: and the ſmell will eaſily diſcover whether any thing of putrefaction is confined; or if any malignant ſymptom ariſes, it will indicate what more is to be feared or done: *the ſeldom dreſſing of wounds in the head cannot be too often inculcated.*

Whenever a contuſion, joined with a wound of the head, requires the uſe of fomentations, we ſhould always uſe wine, leſt a liquor altogether watery ſhould too much relax the parts. For the ſame reaſon too, all oily or fat ſubſtances are to be avoided in wounds of the head, ſince they offend not only by over-relaxing, but alſo, by their rancour and tenacity, they obſtruct the ſmall veſſels, and render them imperſpirable.

A contuſion ſuppoſes a rupture of many veſſels, and an extravaſation of their humours, which being afterwards collected in the cellular membrane, often occaſion very ſurpriſing tumours: and unleſs the wounding inſtrument was very ſharp, wounds of the head are almoſt conſtantly

attended with ſome degree of contuſion. It is therefore neceſſary here for the extravaſated juices to be either diſcharged, or elſe diſpoſed to be abſorbed again by the veſſels; and the ruptured veſſels are to be reſtored to their former continuity. If now the contuſion is light, and the extravaſated humours are ſtill pervious, they may be then ſafely diſperſed; which may be happily procured by fomenting the parts with ſuch remedies as dilute and attenuate the animal juices, and at the ſame time prevent their putrefaction, without over-relaxing the ſolids. The urine of a healthy man, with the addition of a little ſea-ſalt or ſal ammoniacum, and ſome wine, compoſes an admirable remedy for this purpoſe; with which the tumours ariſing from contuſions in the heads of children are very frequently and ſucceſsfully diſperſed. The like fomentations are alſo prepared from rue, ſcordium, and the like plants, which have a particular antiſeptick quality, and prevent putrefaction, at the ſame time that they powerfully

powerfully attenuate or diſſolve ſuch juices as are concreted.

Where the dilating a wound be neceſſary, the knife is far preferable to ſponge, &c. which is generally pernicious, by obſtructing the mouth of the wound for ſome hours, ſo that nothing can be diſcharged; whence an emphyſema and other tumours are frequently formed: beſides, they encreaſe the contuſion and inflammation in the lips of the wound, which will require the ſuppuration to be continued longer before the wound can be healed.

When new dreſſings are to be applied, it ſhould be done as expeditiouſly as poſſible; firſt, let the matter be cleared away with ſoft pledgets of lint, then apply your dreſſings, and cover up the wound; for a too long or exact inſpection of theſe wounds, as alſo an imprudent or exact and rough handling of them, abrades the ſoft mucus, of which are formed the ſmall growing veſſels. It will be ſtill more ſerviceable, if before the wound is

undreſſed, you place a ſmall tile on each ſide of it, with ſome live coals, upon which ſprinkle ſome maſtich, amber, olibanum, or the like fumigating ſubſtances; thus will the warm atmoſphere, full of grateful and corroborating aromatic fumes, cheriſh and comfort the wound on all ſides.

A fracture of the ſkull differs from a fiſſure, becauſe in this laſt the continuity or coheſion of the bone ſtill continues in ſome meaſure; but a fracture ſuppoſes an entire ſeparation of the parts.

In order to diſcover a latent, narrow, hair-like fiſſure, *Ægineta* propoſes ſome liquid black medicine, or ink. But the antients uſed the juice of the cuttle-fiſh, and perhaps other liquors, for ink; at leaſt the ink which is now in common uſe, ſeems not ſo proper for this purpoſe, unleſs very much diluted, ſince it conſiſts of galls, granate-peels, or the like aſtringents mixed with vitriol; which, applied to the tender veſſels of the naked bone, would ſo contract them, that the lamella

lamella of the bone, its veſſels being deſtroyed, muſt neceſſarily exfoliate.

If the bone (which in its natural colour ſhould in general be reddiſh, or a little inclining to blue) is beſet with white ſpecks, it is a ſign the ſubjacent veſſels, which coloured the pellucid lamellæ of the bone, are become mortified, and are no longer pervious to the juices they ought to tranſmit; and therefore an exfoliation muſt be expected of the bony lamella, deſtitute of its ſubjacent veſſels.

The famous Ruyſch, who was a perſon of a very large as well as many years moſt extenſive practice in a populous city (*Amſterdam*) ſays, that in real fractures of the ſkull, where the ſymptoms are neither violent nor increaſe, we ought not to proceed immediately to inciſion, or the trepan, but that we ſhould firſt endeavour to undertake the cure by bleeding, and frequent applications of warm cephalick fomentations; and he adds, that he had by theſe methods only, very happily relieved many patients, when the knife

knife was almoſt ready to be applied.

Fragments adhering to the living parts ſhould be permitted to remain, ſince there is ſome hope that they may again unite with the reſt of the bone; but if this does not ſucceed, and it appears from ſome ſymptoms that the ſeparated fragments begin to corrupt, they will always either caſt off ſpontaneouſly, or be removed by art. Whence alſo it is evident, that it is injurious to be too exact in examining wounds of the head, in order to remove the bony fragments which do not immediately come into view; ſince, if they adhere to the adjacent living parts, they may unite again, or caſt off ſpontaneouſly, if they cannot unite; and that nature is of herſelf ſufficient for the cure in theſe caſes, will appear from the following hiſtory: A girl of about nine or ten years old, received, among other wounds in her body and arms, about eighteen cuts in her head, all which entered her ſkull, and ſome parts of the bones were

cut

cut off down to the diploe; and in other parts ſome of the ſkull was cut off cloſe to the dura mater. The parts thus miſerably wounded, were properly dreſſed, and the dreſſing renewed only every two days. In every dreſſing, fragments of the bone came eaſily away, adhering to the pledgets; and thoſe fragments yet adhering to the cranium grew again to the bone, and the ſpaces were readily filled up, where portions of the whole ſkull were cut off cloſe to the dura mater; ſo that in the ſpace of five weeks this girl was cured of ſo many dangerous wounds.

A fiſſure is difficult to diſcover, and often eſcapes the ſtricteſt examination till it is too late; eſpecially when ſeated near the ſutures, or when it ſplits the internal table of the ſkull, without affecting the exterior plate, or when it invades the bone in a part diſtant from the ſeat of the wound itſelf. Add to this, that when the fiſſure appears viſible to the eyes, yet it often runs to a greater length

length than can be ſafely laid open by raiſing the integuments. Another reaſon why fiſſures are eſteemed dangerous, is the uncertainty of knowing how deep they penetrate, whether into the diploe, or deeper. If the fiſſure of the ſkull extends to the diploe, there will be very conſiderable veſſels wounded; and the extravaſated humours will not be able to diſcharge themſelves through the narrow fiſſure of the bone; whence they will corrupt and deſtroy the tender cellular ſubſtance of the bone which conſtitutes the diploe, and by the gradually ſpreading of the malady betwixt the two tables of the ſkull, it may corrupt them alſo: and when once the internal table of the ſkull is eroded, the encephalon may be affected, ſo as ſuddenly to deſtroy the patient, at a time when it is thought there is no latent danger; but after death the whole bone is found corrupted.—A ſimple vertigo denotes a ſlight compreſſure of the brain only; but a caliginous vertigo ſhews an encreaſe of the diſorder.—That there is a remarkable conſent of parts between

tween the head and præcordia, ſo as to be mutually affected, is certain; but how this is brought about, is not eaſily or readily to be accounted for.

A palſy is always a bad ſign when it follows upon wounds of the head, becauſe it denotes that the very medullary ſubſtance of the brain is injured or compreſſed.

Suppurations may be formed in the cavity of the ſkull, and the patient notwithſtanding recover. *Ambroſe Paré* gives a very remarkable inſtance of this. A lad had ſo violently hit his head againſt a ſtone pavement, that he was immediately deprived of all ſenſe; a fever, delirium, and other malignant ſymptoms enſued. On the ſeventh day a copious ſweat and ſneezing appeared, and he diſcharged a large quantity of matter from his mouth, noſe, and ears, to the great abatement of all the ſymptoms; and afterwards recovered.

Many caſes in ſurgery will prove, that, after dividing the cranium and dura mater, the ſubſtance of the brain will dege-

nerate

nerate into a ſurpriſing excreſence, or tumour. One or two examples will ſuffice.

A lad of fourteen years old was ſtruck in play with a wooden ball, on the left ſide of the os frontis; he preſently tumbled down, had bilious vomits, and afterwards continued to bring up every thing which he took into his ſtomach. Continuing ſtill in a very bad way, the ſkull was trepanned about two months after he had received the hurt; a purulent matter immediately forced its way out through the opening, and afterwards the ſubſtance of the brain itſelf began by degrees to protuberate; nor could it be confined; the luxuriant part therefore was cut off by tying a thread round it. Soon after a like fungous ſubſtance aroſe again to the height, of three fingers breadth; which was again removed in the ſame manner. And this was ſo often repeated, that all the fungi together would equal the ſize of one's fiſt; yet the patient was afterwards cured.

A lad of ſeven years old received a violent wound upon the right parietal bone by a fall from a horſe. On the fifth day, a fungus grew out of the fractured bone to the length of a thumb, and the thickneſs of a finger; the parents were unwilling to permit an accurate inſpection of the wound, or to ſuffer an elevation of the depreſſed ſkull; and continually affirmed, they had rather their ſon ſhould die with little pain, than undergo the torture of a cruel operation, the event of which was uncertain. Hence the phyſician and ſurgeon were obliged to uſe hardly any thing but deſiccatives to remove the fungus. And thus the fungus continued almoſt unaltered for three whole months; but in the mean time the ſymptoms, which at firſt were very malignant, were now become very mild and almoſt removed: all the animal, vital, and natural actions of the body were reſtored, inſomuch that the child grew luſtier, and ſpent his time in play as uſual. About the beginning of the fourth month,

month, the fungus encreaſed very much, but was taken down by ſprinkling on a powder *ex euphorbio & alumine uſto*; but within the ſpace of twenty-four hours, another fungus grew up to the bigneſs of a hen's egg, with an encreaſe of all the bad ſymptoms. In this fungus was perceived a ſtrong pulſation of the artery, and by roughly handling, it bled very copiouſly. In vain was the reduction of this luxuriant fungus attempted by corroſives, and therefore the ſurgeon tied a thread round the narrow neck of the tumour; but then there aroſe ſo violent a pulſation in the arteries of the fungus, that the whole body of it ſeemed to leap up. But this method of conſtriction by ligature was continued, and the greateſt part of the fungus dropped off with the ligature, ſmelling intolerably; the remains of the fungus appearing black, ſordid, and quite corrupted, afforded a lamentable ſight, and was followed with convulſions, tremblings, and a palſy of one ſide. Yet did this corrupt part of the fungus ſepa-

rate

rate in a few days after; but then another fungus of an aſh colour aroſe to the ſize of a walnut, without giving any pain; and a manifeſt pulſation was perceived in the arteries diſperſed through the ſubſtance of this fungus, which, emerging out of the wound, ſeparated ſpontaneouſly in a few days, and left a large ſinus or cavity behind, in the ſubſtance of the brain. In two days afterwards, the cavity was in one night's time filled with a new fungus; and in a few days after, the miſerable child being terribly convulſed and diſtorted for two whole days, then expired in the fourth month after the wound had been received; but all the ſenſes, ſpeech, and reaſoning faculties continued even till death.

This ſurpriſing hiſtory teaches us that fungous excreſcencies of the brain are vaſcular, dilate ſurpriſingly to a conſiderable bulk, and ariſe again very ſuddenly even after they have been removed. In the body of this child, it was obſerved that the cortical ſubſtance of the brain was

quite consumed in the place wounded, and all its surface was covered with a large quantity of matter.

Large wounds of the head, in which there is a fracture of the skull sufficient to discharge the extravasated humours, are often less dangerous than small wounds of the head, where the extravasated humours are confined under the skull. *Hippocrates*, enumerating the signs of malignity in wounds of the head, joins these three symptoms together, viz. a *dimness*, *vertigo*, and *falling down*. And in another part of his writings, he admonishes us in all considerable wounds of the head to ask whether the patient tumbled down and fell into a deep sleep, or stupefaction; for if any thing of this kind happened, the greater care will be required in the cure; he then adds as a reason why this question is necessary, not that it always denotes the brain to be wounded, but because the encephalon is then in some degree sensible of, or injured

by

by the wound—τὸ εγκεφαλὸ εσακουσαντος τε τρωματος.

The dura mater firmly adheres to every part of the ſkull; but then its adheſion is found ſo ſtrong in the ſutures, that they can ſcarce force it up by the interpoſition of an iron wedge. It is therefore evident that if the trepan was to be applied upon a ſuture, the round piece cut off from the bone could not be removed without greatly lacerating the dura mater, which might produce intenſe pains, convulſions, and other malignant conſequences. Hence, by the conſent of all authors, the ſutures ſhould ever be avoided, and the perforation of the bones rather made on each ſide the ſuture than on the ſuture itſelf.

A wound will hardly ever be brought to cicatrize which has penetrated into the frontal ſinus.

Extreme hot air and freezing cold are always highly pernicious in wounds of the head; but the temperature of the ſpring is moſt ſerviceable.

## *Of Wounds of the Thorax.*

IN all wounds of the thorax the firſt enquiry ought to be, whether they have penetrated into its cavity or not? or whether the air ruſhes impetuouſly through the wound; which the ſurgeon may eaſily know by compreſſing or cloſing the lips of the wound with his thumb or fingers, ſo, as that no air can enter or return by it: he then orders the patient to inſpire as much air as he well can, and to retain the inſpired air in his lungs by ſhutting the larynx; and then before the patient breathes out the air, he places a wax candle oppoſite the wound, and ſuddenly opens its lips; if now any air entered into the cavity of the thorax, it will be forcibly blown out through the wound, ſo as to move the flame of the wax candle.

A thin dew or moiſture is continually exhaled every moment of life from ſmall arterial ducts, which open throughout the whole

whole ſurface of the lungs and pleura, and prevent the concretion of one with the other. This circumſtance is beautifully obſerved by *Hippocrates*, when he ſays, "Every part of the body which is not "ſolid or grown together, but lined ei-"ther with ſkin or fleſh, is hollow in a "healthy ſtate, repleniſhed with va-"pours, but in a morbid ſtate contains "ichor." If water injected into the mouth of a wound with a ſyringe excites a cough, and is diſcharged through the wind-pipe, we may know the wound has entered the lungs, without penetrating into the cavity of the thorax.

The beſt dreſſings for wounds of the thorax are flat pledgets of lint, ſpread with ſome vulnerary balſam, or ſoft digeſtives, according to particular circumſtances; over theſe to apply a plaiſter not too tenacious, and perforated with ſeveral ſmall holes, applying at the ſame time a convenient bandage, if neceſſary; being cautious however not to compreſs the mouth of the wound by the compreſſes

and bandage, ſo as to hinder the diſcharge of the extravaſated humours.

Great caution is neceſſary to determine whether the wound has penetrated into the cavity of the thorax; for the cavity aſcends much higher before than behind, where it deſcends lower; groſs errors have been thence committed, when, thinking a wound to have penetrated the thorax, it has in reality entered the cavity of the abdomen.

Emphyſematous ſwellings denote the lungs to be injured; for in that caſe the blood flowing from the wounded blood veſſels into the air veſſels of the lungs, by mixing with the air it will become frothy, and therefore frothy blood will be coughed up from the wind-pipe, or elſe the ſame blood will run in ſpurts from the external wound.

The patient's lying eaſieſt on his back, it being very uneaſy for him to lie on the wounded ſide, and impoſſible for him to lie on the ſound ſide, is a ſymptom of very great moment: for the diaphragm

phragm deſcending, or being continued lower on the back part of the body, much encreaſes the capacity of the thorax; ſo that the blood extravaſated within the capacity of the thorax will naturally ſubſide to the lower and back part of the thorax when the patient lies down; and the back part of the diaphragm will deſcend more eaſily, for the middle of it is tendinous, to which the broad baſis of the pericardium ſtrongly adheres, and therefore cannot eaſily be depreſſed; from whence it is evident, that the extravaſated blood will be lodged eaſier in this poſture than in any other. But when the patient lies on the injured ſide, the poſture of the body will be more painful, though tolerable; but if the patient lies on the ſound ſide, the weight of the extravaſated blood will preſs the mediaſtinum and pericardium towards the other ſide of the thorax, whence its capacity will be diminiſhed, and the difficulty in reſpiration encreaſed; which the patient in this poſture no ſooner perceives, but he immediately changes it, or turns

himſelf even againſt his inclination, to avoid being ſuffocated.

When we know the ſeat of the wound, and the courſe of the wounding inſtrument through the parts, we can then tell from anatomy whether or no any large artery or vein be injured. Thus the larger trunks of the intercoſtal arteries run near the lower margin of the ribs; thoſe of the internal mamillary are placed near each ſide of the ſternum, at about the diſtance of a finger's breadth from that bone, behind the cartilages of the ribs; the large vena azygos is ſeated on the right ſide of the vertebræ of the back, &c. From a thorough knowledge of all which, the wound is determined more or leſs dangerous.

The diaphragm aſcends higher in the right ſide of the thorax; therefore when the paracenteſis of the thorax is made on the right ſide, it is uſually performed betwixt the third and fourth ribs. But when on the left ſide, between the ſecond and third of the ſpurious ribs, the

opening

opening ought to be next made with a knife, or ſome cutting inſtrument, not with a pointed one as in the paracenteſis of the abdomen, which is made by a ſteel bodkin included in a ſilver canula, becauſe there would be great danger of wounding the lungs by ſuch a puncture.

It appears from phyſiology, that it is neceſſary there ſhould be no air in the cavity of the thorax, in order for the free expanſion of the lungs by inſpiration: now this diſcharge of the air may be procured either by ſuction, or by the method following, which is the beſt of any. Let the lips of the naked wound be preſſed together by the fingers in ſuch a manner as that no air can enter, and then let the patient draw in a large quantity of air into his lungs by a deep and long inſpiration, and let him retain this air as long he is able: now the air thus retained being rarified by the heat of the parts, will expand the lungs, and compreſs the air lodged betwixt the lungs and the pleura. If then the lips of the wound are open-

ed,

ed, or drawn aſunder, a great part of the air confined in the thorax will be expelled: after this the lips of the wound are to be immediately cloſed again, before which the patient muſt not expire. By repeating this method ſeveral times, the whole quantity of air may be entirely expelled from the cavity of the thorax, and the patient will directly perceive, that he can breathe much more commodiouſly. All the air being thus expelled, let a ſticking plaiſter be immediately applied at the inſtant when the patient retains the inſpired air in his lungs; at which time the lungs being diſtended, and contiguous to the pleura, will obſtruct the paſſage of the air about to enter through the wound. This plaiſter is to be continued upon the parts for a very conſiderable time; and when it is neceſſary to renew the dreſſings, another ſticking plaiſter of the like kind is to be applied with the ſame precautions. And if the ſeldom dreſſing of a wound is ever uſeful, it muſt be certainly ſo in theſe wounds of the thorax.

*Of*

## *Of Wounds of the Abdomen.*

ALL wounds injuring the containing parts of the abdomen without dividing the peritoneum are called not penetrating, as thoſe which have perforated the peritoneum are ſaid to penetrate into the cavity of the abdomen.

Wounds not penetrating the abdomen have a circumſtance peculiar to themſelves, which, being neglected, has often produced an ugly train of bad conſequences; for the diaphragm being depreſſed at every inſpiration, all the contents of the abdomen are thereby compreſſed, and again, in expiration they are repreſſed by the abdominal muſcles; whence it is evident, that the contents of the abdomen receive a continual preſſure from the diaphragm and muſcles of the abdomen. If therefore the equality of this preſſure be removed in any part, by a wound in the integuments extending almoſt to the peritoneum, that membrane being

being eaſily dilatable, will be extended by the force of reſpiration ſo as to form a ſacculus, into which the inteſtines, omentum, &c. may enter, and form an hernia, which is no more than a dilatation of the peritoneum in ſome part, into which the contained viſcera of the abdomen may prolapſe and enter; for it is very rarely, if ever, that a hernia is formed by a rupture of the peritoneum, but almoſt conſtantly from an expanſion of that membrane into a ſacculus, notwithſtanding *Celſus* ſeems to have been of another opinion; and we are taught by moſt certain obſervations, that ruptures may be formed in any part of the abdomen where the equable preſſure is removed from the peritoneum.

Narrow and deep wounds of the integuments eaſily degenerate into fiſtulæ; and therefore care muſt be taken by an artificial preſſure, and a proper poſture of the patient, to prevent the confined humours from forming ſinuſſes in the panniculus adipoſus. But the broader ſort of wounds

in

in the integuments very much endanger ruptures; whence it will be proper to unite them by ſuture, and to ſecure the weakened part by an artificial application of compreſſes and bandages, that the contents of the abdomen being preſſed there may not dilate the peritoneum. Wounds of the meſentery, without injuring any other parts, cauſe the moſt excruciating pains of the abdomen, and generally prove fatal in two or three days; it appears to be probable that theſe ſymptoms ariſe from the nerves of the meſentery being injured.

A diſcharge of bile from a wound of the abdomen is a very bad ſign.

It has been obſerved that no ſtench (which is the ſign of incipient putrefaction) is perceptible any where more than in the cæcum, colon, and rectum; but never in the ſmall inteſtines. When the fæces therefore are diſcharged thro' the wound, or when their fetid ſmell emits through it, we may conclude the large inteſtines to be wounded.

## *Of Contusions.*

ALL the disorders which follow in consequence of contusion are reducible to three heads; from a rupture of the solids, and an extravasation of the fluids, which destroy the functions resulting from the determinate motion of the juices through the uninjured vessels; from the pressure of the extravasated humours, collected in some natural or præternatural cavity of the body, and by their bulk disturbing or abolishing the functions of the adjacent parts; or, lastly, from the putrefaction of the stagnating and extravasated juices, which may acquire an acrimony sufficient to corrode and destroy the circumjacent parts.

When the pressure of the atmosphere on the surface of the body is either diminished or wholly removed from any part either by suction, the application of cupping glasses, or the like, the blood then rushes into the vessels of the part

less

less pressed, and distends them, so as to enter many of the smaller dilated vessels, which did not naturally contain any red blood; and the red parts being impacted in these vessels, without being able to return, give the appearance of a red, livid, or often of a blackish spot. Such a spot being formed in any part by suction, the part is said to be blood-shotten; but when a part being bruised with a hammer has its blood vessels suddenly compressed by the stroke, the blood being pressed forward into the lymphatic or serous vessels, will change their colour and produce a very considerable spot of this kind. Blood-shot therefore differs from an ecchymosis, inasmuch as the blood is strongly pressed into the serous vessels without any rupture in the former; but in an ecchymosis the vessels being ruptured, the blood is extravasated into the adjacent spaces; whence the former of these takes place, rather about the circumference than in the middle of the contused part. But it is very evident, that

both

both blood-ſhot and ecchymoſis may both of them follow after violent contuſions; whence they are frequently confounded by authors without diſtinction.

The viſcera contained in the cavity of the thorax are on all ſides ſecurely defended by the arched ribs, the ſternum, and ſpina dorſi; the abdominal viſcera are more liable to be injured by contuſions, ſince they are for the moſt part covered only by the ſoft integuments and muſcles of the abdomen; and tho' the ſpleen and the largeſt partof the liver, are defended by the falſe ribs, yet have theſe viſcera been ſometimes ſo violently cruſhed by contuſions, that death itſelf has ſpeedily followed; nor will this appear wonderful, if it be conſidered that the ſubſtance of the liver and ſpleen is ſo tender, that, unleſs great caution be uſed, they cannot be taken whole out of the dead body; hence it is, that violent contuſions of the abdomen ſo often prove ſuddenly fatal.

Among

Among ten cases where the breasts are scirrhous or cancerous, nine of them arise probably from contusions. If no inflammation nor any great pain appears in the contused part, gentle frictions are extremely useful; for by this gentle agitation, the concreted blood is attenuated and divided, so as to be capable of returning through the small mouths of the bibulous veins.

Recourse ought not to be had immediately to amputation, since we find disorders, though seemingly altogether desperate, have sometimes been happily cured without it: therefore, it seems to be most adviseable always to try every other methods where it may be safely done; and we are furnished with several remedies, by which the parts, tho' even mortified, may be so preserved, that the putrefaction will not easily spread; we may safely wait a few days to see whether nature will attempt a separation, or whether any symptoms appear of life returning again into the part.

## *Of Fractures.*

SURGEONS usually distinguish fractures into three species, viz, *simple*, *compound*, and *complicated*. A simple fracture is said to be, when a single bone is only fractured in one place, without any considerable injury of the incumbent or adjacent parts. But when such a fracture happens in any part of the body, where two large bones lie close on each other, as in the cubitus, if the radius only be fractured, without injuring the ulna, that species of fracture is then termed incomplete by some surgeons: because the situation of the parts is not then much disturbed, and the limb retains its proper length; but when the ulna and radius are both fractured together, or the tibia and fibula in the leg, they then call the fracture complete, or even compound; though it would seem that a fracture may be termed compound,

pound, where a ſingle bone only is fractured in ſeveral places. But when a fracture of one or more bones is alſo attended with ſymptoms that require a diſtinct treatment, ſuch as a wound, ulcer, &c. it is then termed complicated, becauſe a particular regard muſt be then had to thoſe concomittant diſorders, during the cure of the fracture.

A fracture in the upper part of the thigh-bone, near the hip is ſeldom curable, without leaving ſome defect in the motion of the limb; but when the ſame bone is fractured in the middle, or towards the knee, there are much greater hopes of obtaining a happy cure. This ſeems to follow, becauſe the higher the fracture of the femur, the greater number of muſcles draw up the lower part of the bone; and as thoſe muſcles are very ſtrong, they require a very forcible extenſion, in order to reduce the fractures, which are then alſo very difficultly kept in contact.

The moſt diſagreeable accidents that uſually happen in conſequence of fractures ſeldom proceed from the injury of the bone itſelf, but from the injury offered to the adjacent ſoft parts, which are compreſſed or wounded by the fractured bone.

That kind of fracture is of all the beſt, which is termed tranſverſe or raphanoide; eſpecially if the fragments as yet ſuſtain each other, and are not quite diſplaced. But the cure of an oblique fracture is much more difficult; becauſe in that caſe the fragments do not mutually ſuſtain each other, and they are very eaſily diſplaced or removed from their contacts by the contraction of the muſcles faſtened to the bones; nor is it eaſy to ſecure the parts ſo by bandage, as that the fragments ſhall continue in their proper places after they have been reduced. *Celſus* very judiciouſly obſerved this. "Of "theſe fractures, the moſt tolerable is "the ſimple and tranſverſe, but it is "worſe when the fracture is oblique, and "when there are fragments; and the worſt

" worſt of all, when thoſe fragments are
" ſharp pointed.

*Hildanus* ſays, that the conſolidation of fractured bones ſucceeds very difficultly in women with child; for nature being fully employed in forming and perfecting the fætus, in a manner neglects to form a callus.

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## *Of Luxations.*

A Luxation has by cuſtom been reſtrained to ſignify only the diſplacing bones from their articulation where they naturally reſided. *Ægineta* gives an excellent definition of it. " It is, ſays he,
" the ſlipping out of the head of a bone
" from its proper cavity, into ſome im-
" proper place, whence the voluntary
" motion thereof is obſtructed."

There is a threefold humour in the cavities of the joints, the univerſally perſpiring vapours, the medullary oil, and the mucilage ſeparated by the glands

there ſeated; from all which, mixed together, ariſes that lubricating liniment, which being attenuated by the warmth and mutual attrition of the bones, is returned, or abſorbed in the ſame quantity in which it was ſent into the joint: but if the return or abſorption of this liniment be impeded or diminiſhed, by any cauſe, the ſecerning and expulſive cauſes ſtill remaining, the liniment will be then ſo accumulated as to diſtend and weaken the ligamentary capſule of the joint; whence the prolapſion of the articulated head of the bone from its proper cavity may eaſily ariſe.

The chief ſigns of a luxation are a præternatural tumour from the head of the bone being diſplaced into ſome other part with an unuſual cavity in the place where the head of the bone was naturally ſeated. But that the diagnoſis may be more certain, both theſe ſigns ſhould be preſent; for either of them alone is often found fallacious.

Reſt

Reſt is always neceſſary to reſtore the ſtrength of the over-ſtrained ligaments, or to procure an union of them if they are broken; but care muſt be taken not to let the ligaments become rigid by too long a reſt, nor to give riſe to an ancyloſis by an accumulation of the mucilage of the joint, which may become inſpiſſated for want of motion. Hence it is adviſeable to gently move, and rub the joint, for ſome days after it has been diſlocated, provided all the pains are abated, and there is no danger of an inflammation, as *Hippocrates* very carefully remarks, in treating of the cure of a luxation of the humerus. And *Celſus* obſerves, that this caution ought more eſpecially to be taken notice of in a diſlocation of the elbow: "The dreſſings are to "be ſpeedily and often removed, the part "is to be well fomented with warm wa-"ter, and to be rubbed for a conſiderable "time with oil, ſalt, and nitre; for a "callus is ſooner formed in the cubitus "than in any other joint, whether it

" remain displaced, or reduced to its
" proper situation. And if it should
" grow by too long rest, the flexibility of
" the joint will be afterwards destroyed."

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## *Of Inflammation.*

THERE are two concurring causes, which together constitute the nature or existence of inflammation, namely obstruction, with an encreased velocity of the blood flowing into the obstructed vessels; for the blood stagnates in an inflammation, and cannot pass through the smallest vessels, even though it be urged forward by the impulse of the succeeding blood.

A true phlegmon is almost constantly seated in the smallest sanguiferous arteries, or else in the serous arteries dilated. In the blood there is always a tendency towards concretion, which is the stronger in proportion to the stronger action of the

the veſſels upon their contained blood; for the blood of ſtrong men taken from a vein immediately congeals, and after ſtanding a while at reſt, exhibits much cruor or craſſamentum, and but little ſerum: the contrary of all which we obſerve in the blood of a weak girl. But all this depends on the more or leſs powerful action of the veſſels upon their contained blood. But by an encreaſed motion, the action of the veſſels in a given time is more frequently and ſtrongly repeated upon the contained fluids, by which means they acquire a greater condenſation or compactneſs. Beſides this, by an encreaſed motion the moſt fluid parts are diſſipated, becauſe a greater quantity of blood is applied in a given time to the organs, which from thence ſeparate and diſcharge the thinner juices: and from hence again the tendency of the blood to concretion will be augmented. Add to this, that an encreaſed motion is followed by an encreaſe of heat; from whence likewiſe the blood may be

ſo

ſo inſpiſſated, that it can no longer paſs through the narrow extremities of the ſmaller arteries. And therefore in acute diſeaſes, when the heat is much encreaſed, the injured function of the brain and the difficulty of reſpiration immediately denote that there is ſuch an inſpiſſation of the blood, that it can no longer paſs freely through the narroweſt paſſages of the ſmaller arteries in theſe viſcera.

The ſaliva does not concrete with the heat of boiling water; hence it appears to be thinner than the ſerum of the blood. A copious diſcharge by ſpitting will therefore drain off a great part of the thinner juices in the body, which the blood being deprived of, is rendered by that means leſs pervious or fluid. Thoſe who by an ill cuſtom or an abuſe of tobacco, daily diſcharge great quantities of their ſaliva, are for that reaſon ſo often afflicted with the worſt kinds of obſtructions in their abdominal viſcera.

The

The ſeat of a true phlegmon is moſt generally in the membrana adipoſa.

An eryſipelas and a phlegmon differ only in the magnitude of the obſtructing particles; for in a phlegmon the red part of the blood is accumulated in the obſtructed and diſtended veſſels; but in an eryſipelas, the ſerum of the blood, mixed with a little cruor, becomes impervious in the ſame manner: beſides, the ſeat of a phlegmon is chiefly (as was ſaid before) in the membrana adipoſa, whereas an eryſipelas invades either the external integuments of the body, or the internal membranous parts: the dilating veſſels admitting a larger quantity of the red blood, and ſpreading the diſorder into the adipoſe membrane, may change an eryſipelas into a phlegmon.

An inflammation ſeated in the ſmalleſt lymphatick arteries we call an *œdema callidum.* In this caſe there will always be danger, the thin lymph of the blood acquiring ſuch a coheſive diſpoſition, as may render it impervious and apt to obſtruct

ſtruct its ſmall veſſels; from whence the functions of the brain more eſpecially may be diſturbed, as they depend on a free circulation of the finer humours through the ſmalleſt arteries, whether this diſorder be originally formed either in the encephalon, or by a tranſlation from ſome external part inwards. If this diſorder is violent, the ſmalleſt veſſels being deſtroyed may incline the parts to a ſudden gangrene.

Two cauſes are obſerved to occur in every inflammation ſeated in any ſeries of the arteries; namely, an imperviouſneſs of the fluids, occaſioned by a narrowneſs of the veſſels, or a concretion of the particles; or elſe from an *error loci*, and the propelled humours being at the ſame time urged forwards with an encreaſed velocity into the impervious veſſels by the *vis vitæ* acting behind them. If theſe concur, an inflammation is preſent; but if there is only an imperviouſneſs of the fluid, it affords the idea of an obſtruction; which laſt is therefore the prediſ-

poſing

diſpoſing or proëgumenal cauſe of inflammation, while the procatartick or acceſſory cauſe is the encreaſed motion urging on the back of the obſtruction. But while theſe cauſes act, certain changes are produced in the enflamed part, which being obſerved, afford the true diagnoſis of a preſent inflammation.

Our blood when at reſt ſeparates into two parts, the one a red concrete, and the other a watry ſerum, in which the red part ſwims: but there are two cauſes in the body which prevent this concretion; namely, a continual motion, and the interpoſition of a thinner fluid betwixt the red globules, by which they are removed from their mutual contacts.

We perceive pain in an inflamed part, which was not there before, becauſe the blood thrown into the obſtructed arteries by the force of the heart, will ſpend all its force in removing the ſides and extremities of thoſe arteries; and from thence the ſides of the arteries will recede farther from their axis; and when the force of

the

the heart ceaſes, they will return or contract again with ſo much a greater force, in proportion as they were more diſtended. The pulſe will be therefore thus encreaſed in the inflamed part, and being raiſed in ſtrength and velocity beyond its natural action, it will be very diſtinctly perceived.

Thirſt, heat, watchings, &c. do not always attend every inflammation, but only when the whole maſs of blood has acquired ſuch an inflammatory ſpiſſitude, that it cannot paſs through the ſmalleſt veſſels.

A phlegmon is a red tumour, tenſe and ſhining, with a pricking pain, heat, and pulſation, accompanied with a fever, either in the whole, or at leaſt in a particular part of the body.

An encreaſed motion of the humours is not only prejudicial, inaſmuch as it may break the continuity of the obſtructed veſſels, but alſo as it compacts the obſtructed particles together with a greater force. But to diſperſe an

inflammation, it is required to resolve the obstructing concrete into those small particles, by whose combination the obstruction is formed: but the more the thinner humours are expressed which prevent the mutual contacts of the grosser particles, so much the more strongly will these last be united and pressed together, the more firmly will they cohere, and the more difficult will it be to dissolve them again. Hence it appears why the most skilful physicians despair of a resolution in a pleurisy and such like other diseases, in which a most violent fever has attended for above twelve hours time, and rather direct all their curative intentions to promote the concoction and excretion of the inflammatory matter.

When the most fluid parts of the blood are dissipated in the beginning of acute diseases, either by sweats, diarrhœa, or any other evacuation, there is always great danger of a fatal event: for the grossest particles of the blood are not prevented from concreting or touching each other

other but by the interpoſition of the more thin humours.

A ſuppuration is that ſalutary effort of nature, by which ſhe ſeparates every thing which is become unfit for receiving the vital circulation from the other ſound and living parts.

When the influx of the vital fluid into the arteries and its return thro' the veins is from any cauſe deſtroyed in ſome ſoft part of the body, it occaſions the death of that part; which from its beginning to its formation is termed a gangrene. This manner therefore of terminating an inflammation differs from a ſuppuration, inaſmuch as all the motion of the humours is entirely deſtroyed in the affected part, by a ſudden rupture of its ſmall veſſels; whereas in a ſuppuration, the obſtructed extremities only of thoſe veſſels are gradually ſeparated, by the motion of the vital humours preſſing on from behind.

Any very ſharp ſubſtance or liquor applied externally to the body, whether it be acid, alcaline, or of any other ſpecies of acrimony will cauſe a gangrene.

All

All inflammations are dangerous when attended with a violent fever. A ſudden ceſſation from pain in violent inflammations give great room to ſuſpect a gangrene. The moſt intenſe cold will intirely impede the circulation of the humours by congealing them, and by contracting the veſſels; whence a ſudden mortification of a part often happens in conſequence of a ſevere froſt: but when the *vis vitæ* is capable of removing the obſtructions in the benumbed part, then an intenſe heat ariſes from an attrition of the more condenſed humours through their contracted veſſels; which laſt is a thing frequently experienced by thoſe who have been rubbing their hands with ſnow, when the uneaſy ſenſation of cold is ſoon followed by an intenſe heat. Hence it is evident, that the application of cold things to an inflamed part muſt be prejudicial; inaſmuch as they totally interrupt the circulation, or inaſmuch as they excite a more intenſe heat afterwards in the parts which are already too hot. But ſometimes the ap-

plication of cold things may be ſerviceable, when the groſſer parts of the humours have entered the ſmaller veſſels by an *error loci*, as theſe veſſels, being contracted by the cold, may repel the matter back into the larger branches; and this more eſpecially when the diſorder is ſeated in the thinner fluids, ſince the red part of the blood immediately congeals in cold water, but the ſerum and thinner lymph does not. But it is eaſily apparent that no good can be expected from the application of cold things, when the diſorder is recent, and at the ſame time mild; for if the obſtructing matter of the inflammation be ſo impacted in the ſmalleſt extremities of the veſſels as to be quite ſtagnant, it will rather increaſe the diſorder. The uſe of revulſions in diſeaſes is confirmed by daily experience, as well as by reaſon; for ſo ſoon as the reſiſtance to the blood's motion is either diminiſhed, or totally removed in any part of the body, it immediately flows, or is derived into that part

part with a greater velocity. Thus if an artery, even but of a moderate ſize, be divided, all the blood will flow thro' that veſſel which does not reſiſt. When all the veſſels and viſcera of the abdomen are ſuddenly freed from a conſiderable preſſure by the birth of an infant, all the blood is frequently derived into thoſe veſſels ſo forcibly, that unleſs the flaccid veſſels and viſcera be compreſſed by ſwathing with a roller, the child-bed woman may ſuddenly periſh in a fatal ſyncope for want of the blood's due preſſure in the veſſels of the brain and cerebellum. The ſame thing alſo happens if the abdomen is not ſwathed, when all the water is diſcharged at once by paracenteſis in a dropſy. It is therefore evident, that by diminiſhing the reſiſtance in any part of the body, the blood will be derived thither more forcibly and plentifully. But the fulneſs of the veſſels, and the ſtrength of their coats, reſiſt the impulſe of the blood from the heart, which are impediments to their dilatation; and there-

fore every thing which leſſens the fulneſs of the veſſels, or occaſions their ſides to yield more eaſily to the diſtending blood, will derive the humours more powerfully and copiouſly into that part. If again we conſider, that the blood propelled by the heart is ſent partly upwards to the head, and ſuperior parts of the trunk, and partly downward to the lower extremities and viſcera, it will appear evident, that by diminiſhing the reſiſtance of the lower veſſels, or by evacuating them, the quantity and impulſe of the blood will then be derived more towards the inferior parts, and driven back from the upper. It is therefore poſſible to make a revulſion of the arterial blood from an inflamed part to any other; eſpecially when the part, towards which the revulſion is made, receives its blood from the ſame common trunks or larger arteries.

A cool air conduces much to moderate the ſwiftneſs of the circulation of the blood. But a dry air is to be preferred

ferred, *cæteris paribus*, before a moiſt air, which laſt, if cold, may cool the blood too much.

The more firm and elaſtic the veſſels are which have been diſtended by an inflammation, the ſooner do they return to their former ſhapes and dimenſions; and, on the contrary, more time is required to reſtore the ſtrength of the veſſels in proportion as the inflammation is ſeated in a leſſer ſeries of them.

A reſolution only can be properly called a complete cure of an inflammation, which it removes without inducing any other diſorder; whereas the other ways of terminating an inflammation cannot be ſaid to make a complete cure, ſince they introduce an abſceſs or ſcirrhus, even though they remove the inflammation; for in this caſe there is another diſorder introduced, which will require its particular cure, before the parts can be reſtored to their healthy ſtate. But when an inflammation terminates in a gangrene, or a ſphacelus, it does not

then conduce to a cure, but the death of the parts.

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## *Of Abſceſſes and Fiſtulas.*

INFLAMMATION is moſt undoubtedly beſt cured by reſolution. So long as the material cauſe of a diſeaſe continues of ſuch a nature, as to either continue or increaſe the diſtemper, it is termed *crude*; but when it has been ſo altered by the remaining *vis vitæ*, its own natural diſpoſition, or the uſe of proper remedies, ſo as to be leſs remote from the laws of health, and to produce leſs diſturbance in the functions of the body, it is then ſaid to be *concocted*. *Crudity* is known by the intenſity or increaſe of all the ſymptoms, but *maturation* by the remiſſion of them.

The maturation of all crude inflammatory matter into concocted pus, muſt be performed by the remaining *vis vitæ*; for, when that is languid or defective, no matter is formed; and there-

therefore *Hippocrates* reckoned the appearance of dryneſs in an ulcer, either before or in a diſeaſe, among the ſigns of death. It is alſo from a weakneſs of the vital powers, that the ſpitting is diminiſhed, or even frequently quite ceaſes in the latter end of a pulmonary conſumption; but the *vis vitæ* is eſtimated by the force of the circulating humours through the veſſels; and as the obſtructed ends of the veſſels with their impervious contained matter, are to be ſeparated by the impulſe of the humours acting from behind, it is evident that this ſeparation will be ſooner performed, if the ſtrength and ſwiftneſs of the blood's motion is increaſed through the veſſels of the part to be ſuppurated; for then the circulating fluid will ſtrike more frequently and ſtrongly, in a given time, againſt the obſtructed ends of the veſſels, and ſeparate them ſooner from their coheſion. But it is to be obſerved, that too great a velocity of the humours ſuddenly excites a rupture in the veſſels, and does

not procure a gradual ſeparation of their ends, in which caſe a gangrene follows inſtead of a mild ſuppuration. When clean and laudable matter is too long confined in an abſceſs, it loſes its unctuoſity and balſamick thickneſs, by which it almoſt reſembles the cream of milk, and is changed into a thin *ichor*; but this great tenuity, ariſing from putrefaction, is always accompanied with a greater acrimony; the whole internal ſurface, therefore, of the cavity in which the attenuated and acrid matter is confined, will be continually macerated and corroded by the ſharp *ichor*; the ends of the ſmall veſſels will be diſſolved, and their extravaſated humours acquire the ſame kind of corruption, ſo that the ſides of the containing cavity being continually eroded, the ſinus of the abſceſs will be always increaſing, and the quantity of matter enlarged by the humours derived thither from the eroded veſſels.

I have ſeen, for want of diſcharging the matter which was formed by a ſuppuration

puration of the parotid gland, that it has made itſelf a paſſage downward through the *panniculus adipoſus* of the neck to the ſhoulder, arm, and even to the bending of the elbow, inſomuch, that the ligaments which connect the articulation of the elbow were ſo corrupted, as to produce an incurable anchyloſis. An abſceſs was formed after a deep inflammation round the articulation of the *femur*; and as the pus concealed under the large muſcles could not be evacuated, it deſcended and formed a ſinuous ulcer, running through the whole length of the thigh and leg, whence the robuſt youth was deſtroyed by a purulent cacochymia, after ſuffering the moſt tedious affliction, and trying all means to no purpoſe. If now we farther conſider, that this matter collected in the cellular membrane attenuated by the warmth and ſtagnation, often lies under ſtrong muſcles, it is very evident, that being preſſed by the motion of thoſe muſcles, it may be propelled

through

through all the adjacent parts, and by that means produce ſinuſſes and fiſtulæ of the worſt kind, more eſpecially when the matter lodging in the *tunica adipoſa*, inſinuates itſelf betwixt the muſcles themſelves. Now as the *tunica adipoſa* is of a greater thickneſs, or as there are a greater number of ſtrata of muſcles lying over each other above the ſuppuration, ſo much the worſe ſinuſſes may be formed by the too long confined pus. And hence it is that ſuch troubleſome fiſtulæ and ſinuſſes are ſometimes obſerved in the abdomen, by reaſon of the great quantity of fat, ſeated and interpoſed betwixt the ſeveral ſtrata of the abdominal muſcles.

There is no part of the body in which there are worſe fiſtulæ and ſinuſſes formed, by matter being too long confined, than about the *inteſtinum rectum:* for as the groſſeſt fæces muſt paſs through that inteſtine in order for their diſcharge, it was neceſſary that it ſhould be capable of an eaſy dilatation every way; and therefore there

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is a large quantity of ſoft fat placed all round this inteſtine, into which the confined matter, which has been too long retained in an abſceſs, may penetrate and form ſinuſſes: if now the *rectum* itſelf is alſo corroded, the matter may ſpread itſelf through the cellular membrane, and mucilaginous cryptæ, &c. of that inteſtine, ſo as to produce moſt tedious maladies, which are ſtill much encreaſed by the ſoulneſs of the inteſtinal fæces which are to paſs this way.

A *fiſtula* differs from a *ſinus*, in that it is narrower and generally of a longer ſtanding, having its orifice and internal ſurface frequently covered with a callus.

They are generally ſeated in the *paniculus adipoſus*; it being not only continued round the muſcles and tendons, but alſo inſerted betwixt the ſubdiviſions of the muſcles into their leſſer portions, even as far as the eye can trace them. From whence it is evident, that ſinuſſes and fiſtulæ may often turn and wind in a ſurpriſing manner, and often penetrate

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to a very great depth from their opening, as has been frequently obſerved by ſurgeons of the moſt eminent practice and knowledge.

The cure of all fiſtulas and ſinuſſes requires in general, 1. That a free paſſage be procured to the matter, and to prevent its long ſtagnation, ſo as to corrupt in the ſinus or fiſtula. 2. To cleanſe or deterge the internal ſurface of the cavity of the ſinus or fiſtula, and to reduce it to the ſtate of a clean wound. 3. To bring the ſeparated parts, now clean, into contact, and retain them ſo as they may grow to each other.

If the orifice of the ſinus or fiſtula is ſo placed, that the humours contained in its cavity cannot diſcharge themſelves by their own weight, the cure is always difficult; for they will be accumulated, and increaſe the præternatural cavity.

The injection of deterſives are only ſerviceable, as they remove the ſordes, and conſume the calloſity of a fiſtula; but after the parts have been depurated, they will

will be rather injurious by preventing their union; the whole internal ſurface may be known to be clean, if it diſcharges a white, ſmooth, and uniform matter, without any ſanies or ichor, and without any fetid ſmell.

If we conſider the ſituation of the inguinal and ſubaxillary glands, they will appear to be well adapted to receive an afflux of humours, which ought to be diſcharged from the whole habit; for they are placed in the very ſoft adipoſe membrane, almoſt free from all muſcular compreſſion, having very large arteries, veins, and nervous trunks near them, from which they receive their branches. But theſe glands have ſo great a commerce or conſent with the other branches of theſe nerves, that when they are injured, theſe glands are often immediately inflamed and ſwelled. Thus have I frequently ſeen a very painful paronychia produce a ſudden tumour in the axilla, even though the diſorder was ſeated in the end of the finger. When a

woman

woman unfortunately run a needle up under her nail, ſo as to injure the nervous ſubſtance which is there ſeated, with the moſt acute pain, I was ſurpriſed to find that in a quarter of an hour after there was a conſiderable tumour in the armpit of the ſame ſide.

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## *Of a Gangrene and Sphacelus.*

SO long as the ſoft parts only are in a dying ſtate, or are actually dead, the caſe is called a *gangrene*, which has its ſeat principally in the *panniculus adipoſus*; but when the muſcles, the tendons, the ligaments, the perioſteum, or the bones themſelves, are abſolutely mortified, then the caſe is termed a *ſphacelus*. The cauſe which produces either of them, is, nevertheleſs, ſtill the ſame, namely, whatever takes away or deſtroys the influx, efflux, ſecretion, and excretion of the humours in any part of the body.

It is frequently a difficult matter to determine about the exiſtence of a ſphacelus;

celus; for the *panniculus adiposus,* if violently inflamed, oft becomes immensely thick, even in those places where there is very little fat; as, for instance, in the back of the hands and feet, and in the fingers and toes. If now a gangrene seizes on those parts, the instrument may be thrust down very deep, without any sense of pain. The *panniculus adiposus* also when distended, and confined within a whole skin, may so compress the parts underneath it, as to take off from the quickness of feeling, or even to make them insensible, though as yet they may not be quite dead, but capable of reviving again upon the removal of the pressure; so that we cannot conclude that there is an actual sphacelation, unless we be very sure, by the deepest punctures or scarifications, that no pain can possibly be produced: for if there be any life remaining in the parts which lie under the *panniculus adiposus* when gangrened, we may reasonably expect a separation of the part corrupted.

All ſkilful ſurgeons very juſtly ſuſpect the ſwift progreſs of the increaſing diſorder, and more eſpecially if the gangrene has aroſe from internal cauſes, without any external injury.

The winter ſeaſon is moſt prejudicial to gangrenes proceeding from the motionleſs ſtate of old age; and the ſummer heat moſt noxious, when the like diſorders follow after violent inflammations, or the putrefaction of humours, and more eſpecially if the conſtitution of the air be at the ſame time both hot and moiſt.

A gangrene of all the viſcera is not always abſolutely mortal; for if they happen to a ſolid and membranaceous ſubſtance, as the inteſtines for inſtance, where the ſeparation of the gangrenous corrupted parts, from the parts that are ſound, be not only poſſible, but capable of being conveyed out of the body, the patient ſhall frequently recover, of which many inſtances may be met with in practice.

If after violent inflammations, or any remarkable hurt of the bladder, by wounds,

wounds, dilacerations in drawing out a ſtone, &c. a gangrene follows, the event is always very bad; partly from the ſharpneſs of the urine; which, as it is continually falling upon the part thus affected, muſt increaſe the putrefaction already formed, and partly from the large quantity of nerves diſperſed over the bladder, by which means the brain and the whole nervous ſyſtem is ſurpriſingly affected.

If in an acute diſeaſe, either the humours, when grown impervious from their inflammatory denſity, or adhering by an *error loci* in veſſels which do not belong to them, ſo obſtruct the very tender veſſels of the brain, whereon life and being depend, as to take away all vital influx or efflux, the conſequence will be ſudden death; nor can ſcarce any ſenſible defect be poſſibly diſcovered, as the parts are too ſmall to fall under the notice of our ſenſes: neither is it a matter of importance, whether the diſtemper firſt ſeized on theſe parts, or the

inflammation originally begun in other parts of the body, and was tranſlated to the brain. Thus a pain in the thigh in a continual fever, which has ſuddenly diſappeared, was ſucceeded by a phrenitis, which carried off the patient in three days.

As this diſorder frequently ariſes from the ſcurvy, 'tis uſual to waſh the mouth often with ſpirit of ſcurvy graſs, treacle, and ſuch like medicines; but theſe are almoſt always diſſerviceable. If the caſe be ſlight, and in its earlieſt ſtage, (which is known by the redneſs, heat, and pain, and no fetid ſmell) ſal ammoniac, or nitre, diluted with a large quantity of water, adding to it a little vinegar or lemon juice, will be very beneficial, whether uſed as a gargle, or by dipping ſoft linen rags into it, and gently applying them to the part affected. 'Tis a wrong cuſtom, which has prevailed among ſurgeons, to dip a ſponge in a mixture of this kind and rub it roughly againſt the part; for this is conſtantly prejudicial, both as it increaſes the pain, and deſtroys the

the tender parts. But in caſe the diſeaſe begins to ſpread, and the parts grow fetid, theſe remedies will prove inſufficient; and we muſt endeavour to ſubdue the putrefaction with ſea ſalt. Twenty drops of this ſpirit, mixed with half an ounce of honey of roſes, gently rubbed over the part affected ſeveral times in a day, will anſwer very well, and if the putrefaction be very great, encreaſe the quantity of ſpirit of ſea ſalt: the ſpirit of ſea ſalt even alone, without any other mixture, may be applied with good ſucceſs when the caſe is very bad; for it will preſently ſtop the progreſs of the gangrene, and the gangrenous eſchar will be ſeparated from the living parts. I have never known this application to fail me, except where the gums being entirely putrified, the jaw bone has been affected, for then I could not prevent its becoming carious; but it will certainly anſwer our intentions, in radically removing the gangrene of the ſoft parts in the inſide of the mouth.

When this diſorder affects the lips, we have ſtill ſomething more to fear: for when the integument is eroded, which covers the ſoft ſubſtance of the lips, the nervous papillæ are oft expanded to an immenſe bulk, when freed from this confinement, and degenerate into a very bad fungous cancer. Or if the membrane, which lines the inſide of the noſtrils, be corrupted, the bones will be laid bare, and as they are very tender, they will not admit of an exfoliation, but conſtantly grow carious and fall off. If a gangrene, therefore, ſeizes on theſe parts, it muſt be evidently very difficult to cure.

It is ſcarce ever known that a ſpontaneous gangrene, happening in the toe of aged perſons, admitted of a cure.

A gangrene is produced in dropſical people, either becauſe the water that is collected by preſſing upon the parts extinguiſhes all motion in them, or becauſe when it is grown putrid or ſharp, it corodes the parts that are contiguous; in

both

both which caſes there are little grounds for hope: for if the waters remain, the diſorder will be increaſed, as the ſame cauſes which produced the gangrene will ſtill continue to act. And if by any means they are drawn off, the parts being grown flaccid, and well nigh tabid, and no longer ſuſtained by the uniform preſſure of the fluid, wherein they were ſteeped, will run together, the veſſels will burſt, and the death of the part affected, and of the whole corporeal ſyſtem, will be accelerated.

In conſumptive people alſo, who already labour under an atrophy, from a purulent ſtate of the blood, and which commonly ends in a very putrid diarrhæa that carries them off; 'tis very plain there can be no hope of recovery, if once a gangrene ſeizes upon any part of the body; for the vital ſtrength is continually decreaſing, and the nature of all the humours daily growing more acrimonious, ſo that neither the ſeparation of what is corrupted, nor the reſtoration of

what is left can here possibly be obtained.

It is one of the worst symptoms in a gangrene or sphacelus that has seized upon the extreme parts of the body, to have any signs of a disordered brain.

In all diseases, in which the circulatory motion of the blood is increased, a dryness arises from the exhalation of the thinnest juices; and on the other hand, in languid or chronical diseases, the body becomes turgid and swelled with accumulated humours, from the too great slowness and weakness of the circulation.

Scarifications of the gangrenous parts form, as it were, outlets, by which the corrupted humours may be expelled from within, and a passage given to those remedies which correct the present putrefaction, and prevent the future.

Cupping glasses have also a very good effect when applied to the living parts, which are near to the gangrenous, in order to increase the quantity and impetus of the vital humours flowing thither;

ther; and thus alſo the fibres, which connect the gangrenous with the ſound parts, are at the ſame time diſſolved, ſo as to procure a ſeparation of them.

Daily experience evinces that the fleſh of animals may be as well preſerved from putrefaction by vinegar as by ſalt. In the mean time vinegar has this good quality over ſalt, that it does not ſo much harden the fibres or veſſels, nor coagulate the juices, but rather diſſolves or attenuates the blood.

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## *Of Burns.*

THE heat of the human body ſeldom exceeds the ninety-ſixth degree of *Fahrenheit's* thermometer, even in the ſtrongeſt men; but when the heat of the body aſcends above the hundredth degree in diſeaſes, the blood and its ſerum then begin to be diſpoſed to coagulation; but if the degree of heat in the body is equal to the hundred and twentieth de-

gree of the thermometer, the ſerum of the blood coagulates. Heat therefore raiſed to ſo great a degree changes the diſpoſition of our juices, though the ſolid parts do not as yet ſeem to be much injured by it. But when the heat is raiſed equal to that of boiling water, which is uſually about two hundred and twelve degrees, then the ſolid parts are injured, many of them being diſſolved.

Water applied to a fierce fire, hardly heats beyond the two hundred and fourteenth degree, and when once the water has acquired this degree of heat, it cannot be heated to any greater degree, however much the fire be encreaſed beneath the water. But oil olive, and linſeed oil, or the like oils expreſſed from ſeeds or fruits, cauſe the mercury to aſcend in the thermometer to the ſix hundredth degree when they boil; whence we obſerve a great difference in the effects produced when any part is burned, by the application of boiling water or ſcalding oil.—And boiling pitch is ſtill more

dan-

dangerous than oil, becauſe by its tenacity it very firmly adheres to the ſkin, whereas oil much ſooner runs off.

It is a conſtant obſervation that when boiling water falls upon any part, it generally excites a gangrene in the place where it firſt touched; whereas the reſt of the parts are leſs burnt over which the water paſſes ſucceſſively after the former.

If any part of the body be burnt by actual fire, by gunpowder, boiling oil, or any other violent cauſe, the eſchar will be ſo thick and hard, as very often to require deep ſcarifications, in order to ſet them at liberty from the adjacent ſound or living parts: only the moſt emollient ointments can be in that caſe ſerviceable, with cataplaſms and fomentations of the like nature; and all deſiccative or aſtringent applications will be prejudicial. Even ſpirits of wine, which is much recommended by *Sydenham* and others for the cure of all burns, will, in this caſe, not only harden the

eſchars,

eſchars, but alſo retard the cure, and frequently augment all the bad ſymptoms.

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## *Of a Scirrhus and Cancer.*

ALL ſcirrhi are attended with hardneſs, without pain, and, according to *Galen*, even the worſt and moſt incurable ſpecies of them are inſenſible.

A ſcirrhus may often ariſe after inflammatory diſeaſes in parts which are not glandular, when by frequent bleedings, the vital powers are ſo much weakened, that the impulſe of the vital humours is not ſufficient to remove the obſtructing particles impacted into the narrow extremities of the converging veſſels, nor yet is it able to ſeparate them by a mild ſuppuration. Hence perhaps it is that we ſo often find the lungs adhering to the pleura, and in part rendered ſcirrhous after a pleuriſy; for the membranous parts have been obſerved to degenerate ſurpriſingly in this manner, after

after violent inflammations in them not well cured.

A ſcirrhus ariſes from no cauſe more frequently than from venereal buboes tending to ſuppuration, and opened before they are brought to maturation: or elſe from a too ſudden healing up of the ulcer left after ſuch a bubo.

A ſcirrhus may remain a long time in ſeveral parts of the body without injury, unleſs the adjacent veſſels be much compreſſed by it; but if once the old ſcirrhous matter, either naturally, or by an imprudent management, be put into motion, it ſoon degenerates into a horrid cancer.

Out of twenty women afflicted with cancers, fifteen of them are troubled with the diſorder betwixt the forty-fifth and fiftieth year of their age, or if in younger perſonages, their uſual menſtrual diſcharges were certainly ſuppreſſed.

In order to move the voluntary muſcles, a free commerce is neceſſary thro' the nerves betwixt the brain and muſ-

cles;

cles; if, therefore, the nerve which leads to a muſcle is compreſſed in any part of its courſe from the brain by a ſcirrhous tumour, that muſcle will become paralytic. If now a large trunk of nerves leading to ſome particular part of the body is compreſſed by ſuch a cauſe, a perfect palſy will follow in that member.

If we conſider the nature of a ſcirrhus, it will be ſufficiently evident that many bad conſequences may ariſe from it, if the humours are excited into motion thro' the circumjacent veſſels, from whatever cauſe that increaſed motion may be produced; for in a ſcirrhus the congealed or inſpiſſated matter is collected either in the cells, or in the complicated vaſcular fabrick of the gland, which may be therefore looked upon as a dead part: but the veſſels filled with this impervious matter, or the follicles diſtended with the ſame, have other ſound or living veſſels diſperſed through their membranes, which veſſels being compreſſed or obſtructed by the concreted or ſcirrhous

matter,

matter, will render the paſſage of the humours through them more difficult; for though the humours were able to paſs through them with a gentle motion, yet when the celerity of the circulation is increaſed, as, for inſtance, by a fever, thoſe veſſels compreſſed on all ſides by the ſcirrhus cannot be dilated, though at the ſame time there is a greater quantity of juices to paſs through them: hence follows an obſtruction, and from the force of the increaſed motion of the humours an inflammation. For as a conſiderable heat muſt follow, from the violent attrition in the compreſſed veſſels, a putrefaction will of conſequence ſoon follow in the concreted matter of the ſcirrhus, with all thoſe diſorders which are the conſequences of a cancer.

While a ſcirrhus is lodged in a part of the body, there muſt be extreme danger of its degenerating into a worſe diſorder, ſince all thoſe cauſes, which are ſufficient to change an indolent ſcirrhus into a malignant cancer, cannot be avoided by any art or prudence.

The

The ſcirrhous part may be expoſed, in perſons of a good habit of body, to the vapours of warm water twice a day, and then to uſe gentle frictions, applying afterwards an aromatic plaiſter, more eſpecially compounded of the ferulaceous gums, and thoſe of galbanum, ſagapenum, ammoniacum, &c. Fomentations and cataplaſms formed of the ſame ingredients may be alſo uſed for the ſame intentions; by this method continued for ſeveral months, I with pleaſure recollect ſeveral recent ſcirrhi of the breaſts happily cured. I have likewiſe ſeen much ſervice from a ſolution of *ſapo Veneti* in milk, which being reduced to the conſiſtence of a thin poultice, and laid on a ſponge, was applied to the ſcirrhous part, and ſecured by applying over it a hog's bladder oiled.

*Galen* very juſtly obſerves, that a ſcirrhus becomes ſofter by the uſe of relaxing medicines, but does not decreaſe, whereas they are conſiderably diminiſhed in bulk, by the application of ſuch remedies

medies as have vinegar in their compoſion; and he therefore recommends the alternate uſe of both.

There is, perhaps, no better internal medicine, or any of greater efficacy in the cure of ſcirrhi than vinegar, ſaturated with pure alcaline ſalt; or, if to a pint of Rheniſh wine be added half an ounce of the *ſal card. benedict.* or of bean ſtalks, &c. taking half an ounce of this mixture two or three times a day.

Mercury is often found ſerviceable for reſolving ſcirrhous tumours, as well by external, as by internal application; but then it muſt only be in a benign and incipient ſcirrhus; for when the concreted matter is compacted almoſt into a ſtony hardneſs, and the ſcirrhus begins to be malignant, no relief can be expected from the uſe of the ſtrongeſt mercurial preparations, nor even from a mercurial ſalivation itſelf; but rather that all things will be rendered worſe, and the motion of the humours being increaſed by theſe remedies, a ſcirrhus

will

will be the ſooner changed into a cancer by theſe means.

Large ſcirrhi very rarely continue long in the breaſts in an irreſolveable ſtate, before they infect the ſubaxillary glands in the ſame manner.

The ſcirrhus ſhould never be pulled imprudently while it is ſeparating; for the tenſion by that means made upon the nerves, will not only excite the moſt ſevere pain, but it may ſometimes even produce fatal convulſions even a conſiderable time after the operation has been performed. Equal care ought alſo to be taken not to irritate the ſurface of the crude wound with acrid ſtypticks or the like, which powerfully coagulate the blood; for the grumes of concreted blood lodged in the divided veins, may paſs inward through thoſe diverging veſſels to the heart and lungs, where they may give riſe to a polypus. But ſcraped lint preſſed upon the part with a ſuitable bandage, will be generally ſufficient to anſwer that intention; the puff-ball,

fungus, bovista, or puff-ball, is likewise of good use to suppress the bleeding. The impossibility of resolving a scirrhus may be known from its age, the colour of the integuments being changed into a red, purple, or livid, together with its stony hardness, and the roughness or inequality of the surface of the tumour. But when to all these an itching is also joined, there is much greater danger that the scirrhus may, in a short time, be converted into a cancer; for then the concreted parts of the scirrhus begin to be put in motion, and gently distended by the nerves dispersed through its substance, from whence an agreeable titillation follows, and at length a troublesome itching.—If a pain ensues soon upon this itching, the danger is still the greater. When mercurials are applied to a scirrhus, care should be taken to avoid a salivation, which might be unexpectedly raised, and would always be prejudicial in this case, since the motion of the humours would be increased by

that means, without a poſſibility of reſolving the ſcirrhous concretion; and the acrimony of the humours being thereby farther increaſed, a ſcirrhus would conſequently quickly degenerate into a cancer. Pain is the diſtinguiſhing ſign of a cancer.

So long as the integuments of a cancer are not yet eroded, but that it remains as yet confined in its proper integuments, it is ſaid to be an occult cancer; but when it is in ſuch a ſtate of malignity as to corrode the integuments, and diſcharge a ſanies or foul matter, it is then termed an open or ulcerated cancer.

Of all pains that is the worſt which feels to the patient like actual fire burning within the ſcirrhus; for then the integuments of the occult cancer are gradually diſtended by the increaſing of its bulk, and eroded by its greater acrimony.

*Galen* very juſtly obſerves, that putrefaction ariſes from two cauſes; either

ther from a weakneſs of the concoctive faculty, which is not capable of performing a better change in the humours, during their ſtate of putreſcence, or elſe from the great malignity of the humours, which cannot be conquered by the concoctive faculty, however ſtrong it may be. Now both theſe cauſes concur in a cancer; for the efficacy of the vital blood and humours, upon which *Galen*'s concoctive faculty depends, is here little or nothing, or at moſt but very weak, whereas the malignity of the matter to be overcome by this weak faculty is very great. They therefore delude the unfortunate patient with falſe hopes, who aſſert that the matter of a cancer may be brought to reſolution and ſuppuration, and reduced into pus by boaſted *arcana*.

Cancers of the uterus, eſpecially when they are ulcerated, are incurable.

## *Of the Diſeaſes of the Bones.*

HAVERS ſays, that in an *os femoris* he had ſeen the ſides in the middle of the bone, before any of the *lamellæ* were parted off, five times thicker than in the head of the ſame bone. But in a like *os femoris*, which I have by me curiouſly prepared, the ſides in the middle are at leaſt twenty times thicker than the thin boney covering, with which the head of the bone, the bigger *trochanter*, and the lower part of it that is articulated with the *tibia*, are inveſted. Hence it is evident, why the parts of the bone, which lie near the joints, are moſt frequently ſubject to the like diſeaſes with the ſofter parts: and for the ſame reaſon much worſe conſequences are apprehended in fractures, if they happen in the broader part of the bone nearer the joints, on account of the many veſſels that are injured, and the effuſion and corruption of the liquids.

The

The medullary oil contained in the veſicles, which are found in the cellular part of the bones, ſeems to have a two-fold uſe, viz. to lubricate the joints, and to diffuſe itſelf between the lamellæ, in order to prevent the bones from becoming too dry. For which reaſon, if either thro' diſeaſes, or old age, this oil ſhould chance to fail, the joints are moved with difficulty and grow apt to crackle; and the bones, being no longer lubricated by it, become more liable to be broken by every ſlight injury.

The uſe of the internal perioſteum of the bones ſeems to be, not only to convey the arterial veſſels into the medullary veſicles, and receive the veins returning thence, but alſo to ſupply the bone itſelf with life and nouriſhment, by the veſſels which it tranſmits into the ſubſtance of the bone, and likewiſe receives from thence. And does not this ſeem conformable to ſome ſurpriſing obſervations which have occurred in diſeaſes of the bones? *Ruyſch* has given the deſcription

and figure of a curious bone in the arm, which contained within its cavity a boney pipe, ſo intirely ſeparated from the external ſubſtance of the bone, as to be capable of being moved any way. In this caſe it ſeems not at all improbable that the internal part of the bone, which more immediately receives benefit from the internal perioſteum, was affected with ſome diſorder, that had its firſt riſe in the internal perioſteum, and that from thence the internal hollow part of the bone ſeceded from the external part that was left behind.

*Du Verney* has proved that there are nerves in the marrow. He plainly diſcovered a nerve paſſing to the marrow with an artery and a vein through the ſubſtance of the bone, and obſerved that theſe three veſſels are all included in one common ſheath, which is a production of the perioſteum. Beſides, he has demonſtrated by manifeſt experiments, that the marrow is ſenſible of pain. For in the hoſpitals, upon reviewing the dreſ-

ſings

ſings after the amputation of a limb, he frequently ordered his aſſiſtants to preſs ſomething againſt the marrow as it lay expoſed, and the patient always expreſſed a ſtrong ſenſe of pain. And to leave no room for doubt concerning this, he cut off the leg of a living animal before the members of the Royal Academy of *Paris*, and after waiting a while, till the cruel pain which attended the operation was over, he thruſt a probe into the marrow, and immediately the animal expreſſed a ſenſe of the moſt exquiſite pain. This experiment he tried frequently, and with repeated ſucceſs. Whatever impedes the motion of the medullary oil, will cauſe its ſtagnation. All oleaginous ſubſtances, however mild, are ſpontaneouſly diſpoſed to become exceedingly acrimonious, ſome ſooner, others later. The oil of ſweet almonds, which is ſo extremely mild when freſh drawn, will in the ſummer time turn ſo acrid within a few days, as to feel hot in the mouth while it is ſwallowed down. Butter

likewiſe is apt to turn in the ſame manner, though not altogether ſo ſpeedily. A caries is the worſt malady to which the bones are ſubject, and indicates an almoſt total corruption or eroſion of them; ſlighter diſorders of the bones are uſually cured by exfoliation, the corrupted lamellæ ſeparating from each other: a caries never can, but muſt be removed by inciſion or cauſtick, till you come to the ſound parts.

There is no queſtion but that the marrow may be injured by violent contuſions and fractures of the bones. But when, without any external injury, the medullary oil becomes corrupted from an inward cauſe, then the diſeaſe is generally termed a *ſpina ventoſa*; which diſeaſe was firſt deſcribed by the famous *Arabian* phyſician *Rhazes*, and ſo named, becauſe it conſiſted in a corroſion and corruption of the bone, and attended with acute pain and ſwelling.—But when a corruption of the bone, beginning externally, ſpreads inwards, even tho' it ſhould infect the marrow, we ſhall

ſtill

ſtill call it a caries of the bone. This corruption of the bone, which owes its riſe to the medullary ſubſtance being firſt affected, is no where to be found in any of the ancient *Greek* writers. It is greatly to be lamented, that this diſorder is frequently neglected ſo long, that the bone is entirely corrupted, and the tumour begins to appear in the fleſh and muſcles: for which reaſon great care ſhould be taken to endeavour at a diſcovery as much as poſſible, in the firſt beginning. 'Tis plain, indeed, that this muſt be extremely difficult, if we conſider how deep this diſeaſe lies within the bones. The following obſervations, however, may aſſiſt us greatly in the inveſtigation of it. If the patient is known to labour under ſuch an ill habit, as by experience we find is moſt frequently apt to affect the bones; ſuch, for inſtance, as the venereal diſeaſe, the ſcurvy, and the rickets in younger perſons, which laſt diſtemper often gives room to ſuſpect a latent venereal taint; from

from theſe particulars we may know, that the cauſes which prediſpoſe to this diſtemper, do actually ſubſiſt in the body. But we have ſcarce any other diſtinguiſhing ſign of the preſence of the diſeaſe, except that of an obſtinate, exceſſive pain, which lies very deep, and as the patients uſually expreſs it, is fixed in the bone, attended with a *gnawing pain.* This pain is farther increaſed by the warmth of the bed, by violent exerciſe, or the free uſe of wine or cordials; and yet though the part affected be preſſed or rubbed ever ſo hard, no increaſe of pain ſhall follow upon it; and we may the leſs wonder at it, becauſe the bone intervenes, and by its hardneſs prevents any external application from acting upon the place affected. Theſe are the ſigns of the diſeaſe in its firſt ſtages; but when the bone once comes to be eroded, and the external perioſteum to be affected, the pain increaſes, and grows much more intenſe upon the leaſt roughneſs uſed outwardly to the part; and then

then there ariſes a ſoft tumour in the muſcular fleſh; though generally before this the very ſubſtance of the bone ſhall riſe and ſwell, in which caſe the diſeaſe is eaſily to be diſtinguiſhed, though too late, becauſe the whole ſubſtance of the bone being corrupted, will either ſpontaneouſly fall off from the parts wherein there is life, or muſt be taken away by inciſion or cauſtick.

The mildeſt of all the diſeaſes to which the bones are ſubject, are thoſe which begin in the external perioſteum. Exoſtoſes ariſing from external injuries are ſeldom cured, unleſs they are capable of being removed by manual operation.—Thoſe ariſing from internal cauſes are often cured by a removal of the cauſe, or at leaſt are very much decreaſed in bulk.

An ancyloſis is always difficult of cure. If it ariſes from the callus of a bone broke near the joint, and has already acquired the hardneſs of bone, it is then incurable; as alſo if it proceeds from an

exoſtoſis

or concretion of the articulated bones. But if it owes its original to an inſpiſſation of the liniment of *Havers*, or the ſtiffneſs of the ligaments, there is reaſon to hope that it may be cured.

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## *Of Internal* DISEASES, *and of* FEVERS *in general.*

WE may almoſt venture to affirm, that no perſon can live without a fever, and that few have died without one.

The greateſt caution is neceſſary in ſearching out the very hidden nature of a fever. In this caſe we are not to aſſume any thing from hypotheſes, previouſly contrived, however ingenious they may ſeem; but we are only to conſider the appearances of the fever preſent in the body, and to weigh each of them apart, that by afterwards comparing them together, we may by juſt reaſoning be led from them to underſtand the proximate

cauſe

cauſe of a fever. Whilſt the moſt acute philoſophers indulge their ſpeculations in ſearching after the cauſes of natural things, they often entertain us with ſplendid theories, and wonderful productions of mere imagination, yet without doing any great miſchief; but when this method is taken to diſcover the nature of diſeaſes, the curative part may be founded upon a falſe hypotheſis, which would be turning a matter of the greateſt importance, and of the moſt ſerious conſideration, into joke and paſtime; namely, what relates to the life and health of ourſelves, and the reſt of mankind.

There are three ſymptoms only obſerved which are common to all fevers, namely, a *ſhivering*, a *quick pulſe*, and *heat*. A ſhivering is meant by phyſicians to ſignify that ſhaking of the whole body, which ariſes from a ſenſe of cold, as when a perſon being warm ſuddenly expoſes himſelf to the cold air. This ſenſe of cold is always obſerved to attend in every fever ariſing from internal cauſes.

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To denominate a fever acute, it is necessary that its swift course be joined with danger; but in order to denominate a fever slow, the small advance which it makes is sufficient, whether life be in danger or not. For a quartan hardly ever proves fatal, unless by some error in the patient or physician, and ought therefore to be ranked among diseases of a long continuance, as well as a hectic fever, from whence very few escape. *Celsus* therefore very properly defines diseases of long continuance to be those *sub quibus neque sanitas in propinquo neque exitium est.* "In which neither health nor death are near at hand."

Since epidemical fevers arise from some common cause, they have usually almost the same course and symptoms, and require the same method of cure in all: but particular fevers, arising from very different, and often opposite causes, require to be treated in a different manner in different people.—Even *Hippocrates* has

has taken notice of this diſtinction in fevers: but we much more frequently meet with acute fevers epidemical, and ſlow fevers more rarely, among which laſt quartans are the chief.

We may by conſtant obſervation diſcover in every fever, that the velocity of the pulſe is increaſed, and that therefore the heart contracts more frequently or ſwiftly; and thence again, that thoſe cauſes from whence the contraction of the heart reſults, are increaſed. But in what manner the cauſes act, which excite the heart to a quicker contraction, and after what manner, for example, an intermitting tertian is renewed every other day, when it afforded no action or appearances at all on the intermediate day, theſe are hitherto concealed from all of us; for all that we know of the nature of a fever, we diſcover only by its inſeparable effects and appearances; nor can human underſtanding proceed farther in her inveſtigation.

Since

Since the dilatation of the artery is ſynchronous with the contraction of the heart, the pulſe cannot be accelerated unleſs the contraction of the heart becomes quicker at the ſame time, as that is the only and entire cauſe of the dilatation of the arteries. For all that has been ſaid by ſome authors concerning ebullition, fermentation, of effervescence of the blood, &c. in the cavities of the heart, has been proved to be falſe, and contrary to experiment; and it appears moſt evident, that the cauſe propelling the blood from the heart into the arteries, does not reſide in the blood itſelf, but in the heart, which immediately receives the blood. A fever may be therefore deſervedly called a diſeaſe in the heart, ſince in every fever the action of that muſcular organ is changed, namely, by being brought into more frequent or quicker contractions.

It appears from the principles of anatomy and phyſiology, that the muſcular motion of the heart renders its own muſcular

muſcular fibres paralytic; and that by this means the whole heart is ſo diſpoſed, that a new contraction muſt follow the moment after; for the nerves ſent to the heart are ſo ſituated, that they muſt be compreſſed by the dilatation of the largeſt arteries diſtended by the blood expelled from the heart, the aorta and pulmonary artery, during the dilatation of which the venous ſinuſſes and auricles of the heart are likewiſe diſtended; and therefore the influx of the ſpirits through the nerves into the muſcular fibres of the heart, is thus impeded, while at the ſame time all the blood is expreſſed thro' the veſſels diſperſed through the ſubſtance of the heart; which therefore looks pale, during its ſyſtole. Thus are the two cauſes, abſolutely required to muſcular motion, intercepted or removed; namely, the influx of ſpirits and arterial blood. But in that moment of time, while the heart, as it were paralytic, has its cavities filled by the influent venal blood, the aorta is

contracted, and with great force urges the blood through the orifices of the coronary arteries throughout the whole ſubſtance of the heart, and at the ſame time the nerves are no longer compreſſed, as the arteries are then contracted, and the ſinuſſes and auricles emptied, whence they freely tranſmit the ſpirits ſent from the cerebellum through the cardiac nerves to the heart; and therefore the two cauſes of muſcular motion will be renewed, and thence the contraction of the heart will be inſtantly repeated.

A quartan is uſually accompanied, in the beginning of a fit, with a violent and long-continued coldneſs; but in the beginning of a fever of one day's continuance, there is often only a very ſlight ſenſe of coldneſs perceived.

There very often is ſo great a weakneſs obſerved in the pulſe, during the cold fit of a fever, that the ſtroke of the artery is hardly perceptible to the touch, and this more eſpecially in old people afflicted with the quartan fever in the winter

winter time; and then alſo the quickneſs of the pulſe is ſo great, that it ſeems rather to tremble, than to be made up of a diſtinct dilatation and contraction. But where there is ſo great a celerity of the pulſe, as to be ten times quicker than what is natural, nobody can diſtinguiſh its numbers; but there is only a ſurpriſing undulatory motion perceived by the finger; and if the hand be applied to the breaſt, the heart ſeems to tremble, inſtead of beating powerfully againſt the ribs, as is uſual in health: and in this caſe, ſometimes the artery will dilate more powerfully, and then again appear extremely weak and quick; and ſometimes a true intermiſſion of the pulſe may be diſcerned in this caſe; and then the patient often complains in ſuch a fever, that his eyes are dim, or that he cannot hear, or ſcarcely feel. In this caſe the ſame thing happens as before death in the diſſection of living animals; for we then ſee that the

heart, being no longer able to expel its contained blood at each ſyſtole, trembles and evacuates only a part, not being able to dilate the arteries: in the mean time the auricles and venous ſinuſſes are greatly diſtended; and after a few moments become ſuddenly contracted, forcibly projecting their blood into the ventricles of the heart, which being then irritated by the quantity and impetus of the influent venal bood, is very powerfully contracted; then again it trembles and languiſhes until it be excited by the ſame cauſe, or till all motion ceaſes by the death of the animal. For the greateſt anxiety, moſt difficult reſpiration, and even the ſtruggles of life with death, ſeem frequently to attend at this time of the fever. Hence *Galen* juſtly pronounces, *In quartanarum principiis videbitur tibi arteria quodammodo eſſe alligata, atque ad interiora retracta, & prohiberi, ne inſurgat.* "That in the beginning of quartans, the artery will ſeem,

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in a manner, tied up, and drawn inward ſo as to prevent it from dilating. From what has been ſaid, it is eaſy to explain another paſſage in *Galen*, where he places the moſt certain ſign of an incipient quartan, in a ſlowneſs and ſmallneſs of the pulſe; for in the heighth of the cold fit, the artery is often agitated with a tremulous and obſcure motion; and then after a few moments one ſhall be able to perceive a ſingle and violent ſtroke or dilatation of the artery, which will then ceaſe and return again ſoon after: ſo that if one numbers thoſe violent pulſations, the artery will ſeem to beat ſlow, when at the ſame time, during the ſuppoſed intervals, it is extremely quick and weak in its motion. Add to this, that ſometimes for a few moments the motion of the artery entirely ceaſes, and a true ſyncope takes place. Hence it appears in how great danger the patient is at that time, and why death ſometimes happens in the cold fit.

The lively colour obſerved in a healthy perſon ariſes from the veſſels filled with red blood; ſo that when the force of the heart begins to be weakened from any cauſe, not being able to propel the blood to the extremities of the body, and the arteries at that time contracting by their own elaſticity, eſpecially towards their extremities, which are the leaſt urged by the force of the heart, the blood is by that means repelled from the ſmaller into the larger branches; therefore the ſubcutaneous arteries, which are ſome of the ſmalleſt in the body, will be in a great meaſure emptied, whence a paleneſs will ariſe.

It is evident that the parts are more flexile, in proportion to the greater abundance of humours, with reſpect to the ſolid parts; but in the beginning of a fever, the force of the heart being weakened, cannot fill the ſmalleſt veſſels in the extreme part of the body; and therefore theſe being contracted, and repelling back their contained juices into the

the larger veſſels, this will be one cauſe of the rigor or ſtiffneſs in the beginning of fevers. Beſides this, the cold which contracts every thing, will increaſe the coheſion of the ſolid parts, and conſequently augment their ſtiffneſs: the truth of this every one has experienced, whoſe hands have been much expoſed to the cold in winter time; in conſequence of which the fingers have been ſo ſtiff, as to be ſcarce able to take hold of any thing. Since therefore theſe two cauſes concur, it is no wonder that a very great ſtiffneſs ariſes in the time of the cold fit in fevers.

In intermitting fevers, if the patient is not very weak, or advanced in years, the hot fit is uſually ſo much the more intenſe, as the preceding cold was more violent.

It is one of the beſt ſigns if the febrile heat is equally diffuſed throughout the whole body, even to the extremities; for it denotes that the veſſels are pervious, and that the blood has a free circulation;

but in the worſt fevers, which are then commonly fatal, there ſometimes happens an intenſe heat perceived about the vital organs, while, at the ſame time, the extreme parts of the body are cold; and it then denotes that the circulation is deficient in the extreme parts of the body, and that the impervious blood begins to ſtagnate or accumulate about the vital viſcera; while, in the mean time, the heart being more ſwiftly contracted, propels the blood with a great velocity through the veſſels, which are yet pervious in the parts next adjacent.

It is a very dangerous diſorder when the ſtomach is extremely diſtended by too great a quantity of aliments rarefied by heat and ſtagnation; for then both orifices of the ſtomach have been obſerved to contract themſelves violently with a convulſive force; whence has followed intolerable anxiety, fruitleſs endeavours to vomit, and laſtly, a fatal apoplexy, while the trunk of the deſcending aorta being preſſed by the diſtended

ſtomach,

ſtomach, urges blood too forcibly, and in too great a quantity upon the encephalon; ſo that the veſſels being extremely turgid, are ſometimes burſt.

When in ardent fevers the blood, by an inflammatory tenacity, ſtagnates impervious in the ſmalleſt arteries, theſe laſt being diſtended, compreſs the adjacent ſecretory and excretory ſmall ducts; and hence the whole external ſkin, tongue, internal parts of the mouth, fauces, &c. are invaded with a burning heat; and when the patient recovers from theſe moſt dangerous diſeaſes, almoſt the firſt ſymptom of nature's overcoming the diſeaſe, is a return of moiſture into all theſe parts.

It is a general indication in every fever, ſo to moderate the force of it, that it may not, by deſtroying the ſolids, and thickening the fluids, produce inflammations, ſuppurations, gangrenes, &c. nor yet to let it ſubſide ſo low as to be incapable of attenuating, changing, moving, and expelling the morbific matter. Nor is it

poſſible ſufficiently to inculcate this general and practical rule, which is of the greateſt moment; becauſe many have too ill an opinion of the name of *fever*, and believe that it ought ever to be engaged with the moſt forcible methods; when at the ſame time it appears from the writings of the ancients, and obſervations of the beſt phyſicians, that a fever often moſt happily cures itſelf, provided it be kept under a due regulation or moderate degree.

A fever may terminate in health two ways; as when the morbific matter is ſo changed by the force of the fever itſelf, that being aſſimilated with the healthy humours, it may be freely carried through the veſſels, without any diſturbance to the equable circulation; or elſe, the ſame morbific matter being ſubdued, and rendered pervious by the force of the fever, is afterwards expelled out of the body, and this either by an inſenſible or a ſenſible evacuation.

*Sweats*, *vomiting*, and *diarrhœa*, are evacuations only ſerviceable, inaſmuch as

as they expel the febrile matter, either wholly or in part from the body; whereby the diſeaſe may be entirely removed, or at leaſt alleviated. The principal ſign whereby the uſefulneſs of theſe evacuations is known, is derived from their effects. But there is great reaſon to hope that a vomiting, ſweat, or diarrhœa, will be uſeful, if they happen after the concoction or height of the diſeaſe, when nature has got the better of the diſeaſe; for thoſe which happen in the increaſe of the diſeaſe, are rather ſymptomatical than critical evacuations, and often do more hurt than ſervice.

There are two principles upon which the diagnoſis of diſeaſes are founded; the firſt depends on a knowledge of the preceding cauſes, which are ſuch as appear to have produced the ſame diſeaſe before, and the ſecond is a knowledge of the diſeaſe in its own nature and preſent effects.

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We ſhould always remember the admonition of *Hippocrates, That a much more dangerous error may be committed in defect than in exceſs.*

Old people bear abſtinence the moſt eaſily; and this is indeed true while they are in health, becauſe they are nouriſhed neither for encreaſe nor ſtrength, but only to ſupport their being; and in theſe the cavities of a great number of veſſels are either entirely cloſed up or very much leſſened; whence a leſs quantity is required of humours to flow through them; add to this, that all the veſſels being now more rigid, yield leſs to the impelled liquids; and many of the humours being expelled from the body in fevers, will occaſion dryneſs from this diminution in the quantity of liquids: *Quia naturæ progreſſum qui eſt ad ſiccitatem, effugere non licet, ideo ſeneſcimus & corrumpimur:* "As we cannot a-"void the courſe of nature, which tends "to dryneſs, we therefore grow old, "decay, and die;" and therefore the

diſorders

diſorders happening in old age will be encreaſed by a fever, if the patient is not relieved by a ſoft and moiſtening diet. But here more eſpecially the food muſt be given often, and in ſmall quantities, becauſe the vital ſtrength which is weak in old people, would be deſtroyed by greater quantities; and they require but ſmall ſupplies, provided they are given continually; add to this, that abſtinence or faſting in great old age, often brings on a fatal ſyncope; becauſe the quantity of humours being leſſened, the rigid veſſels do not contract themſelves in proportion; whence there will be no action of the veſſels upon their contained fluids; and thus one of the cauſes of their circulation through the veſſels will ceaſe, whence a ſtagnation and death; for the heart, by expelling the blood from its cavities, dilates the arteries, but the very next moment the arteries contracting ought to promote the impulſe of the blood to continue the circulation; and to do this it is neceſſary for the ſides of

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the arteries to remain contiguous to their contained humours; but the veſſels, now rendered extremely rigid in old age, and the quantity of the humours being alſo diſſipated by the fever, it is evident that this effect cannot eaſily follow. And thus the reaſon is evident, why abſtinence is ſo prejudicial to old people in fevers.

In conſumptive people, whoſe lungs waſte away by a ſlow ſuppuration, there is a continual ſlight fever, which often encreaſes every day at the time when freſh chyle is plentifully ſupplied, and driven together with the blood through the lungs; ſome people therefore, believing this fever to be of the intermitting kind, have made trials of the virtues of the bark, but always with the moſt fatal ſucceſs; for the purulent cauſe remaining, the febrile motion muſt neceſſarily be ſuppreſſed, whereby the collected matter ought to have been expelled; whence the greateſt anxities, and ſometimes death itſelf has followed from that practice. For the whole cure of ſuch a

diſorder conſiſts in waſhing out, as it were, and deterging the purulent matter; and then to conſolidate the parts thus cleanſed from the matter, as in the cure of a clean wound.

The ſanguiferous veins being more lax may be always more eaſily diſtended than the arteries; but when theſe veins are filled with an encreaſed quantity of blood, the arteries will meet with more difficulty of diſcharging their blood into them; whence the arteries themſelves will become more diſtended. But ſince, in moſt parts of the body, the arteries and veins accompany each other, therefore the diſtended arteries will preſs upon the leſs reſiſting veins, and by that means propel the blood through them towards the right ventricle of the heart; from whence again it will ſoon be propelled into the diſtended arteries. Hence it is evident, that at length almoſt all the blood will be accumulated in the arteries of thoſe who are highly plethorick. But when the contraction of the heart urges

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the blood into the now very full arteries, the ſerous and lymphatic arteries, which ariſe from the ſanguiferous, will be ſo far dilated, as to admit the red blood, as appears evidently in the tunica adnata of the eye, and in the whole ſkin, which is often very red in plethoric people; and thence theſe veſſels alſo being dilated, will compreſs the ſmaller adjacent arteriolæ; but when this is alſo accompanied with a fever, the heat thence ariſing rarifies the blood, and therefore all thoſe evils will be conſequently encreaſed: thus we ſometimes ſee the whole body ſuffuſed with redneſs, while at the ſame time the roughneſs and dryneſs of the ſkin, tongue, fauces, and internal part of the mouth, plainly prove that the ſmaller veſſels are impervious, being compreſſed by a true θλιψις or ſtrangulation, from the larger veſſels being over turgid with too much red blood.

The more ſevere a cold fit is, in the beginning of a fever, ſo much the more dangerous it is; for this coldneſs denotes a dimi-

diminution of the circulation, and therefore the greater the coldneſs, the leſs the circulation, and the leſs the circulation, the nearer the diſeaſe approaches unto death, wherein the circulation wholly ceaſes; but if at length the vital powers overcome this coldneſs, being irritated by the ſame cauſe which produced the fever, they render the circulatory motion ſo violent or ſwift, and excite ſo ſtrong a heat, that the worſt conſequences of every kind may be feared: for the very tender veſſels of the encephalon and lungs cannot bear ſo great a force, without the greateſt danger; and the great heat following after the moſt intenſe cold may diſſipate the more fluid parts of the humours, and inſpiſſate the reſt; whence there is the greateſt danger, leſt the humours becoming impervious, ſhould adhere to the narrow extremities of the arteries, whence the worſt inflammation and gangrenes might be juſtly feared from ſo violent an impulſe of the humours urging from behind obſtructions in ſuch a fever.

The reaſon why a ſevere tremor is bad in fevers, is becauſe it denotes that both the nervous and arterial fluid are either deficient or impervious; and at the ſame time ſuch a violent trembling ariſing much in the beginning of a fever, denotes much ſtrength of the efficient cauſe which is capable of exciting ſo great a diſturbance, in a body which has been hitherto healthy; and likewiſe becauſe a great trembling ſuppoſes obſtruction oppoſing the circulation of the humours, therefore many bad conſequences are juſtly to be feared from thence. Moreover, tremblings which ariſe in the courſe of acute fevers or other diſeaſes, unleſs they proceed or accompany critical evacuations, are often of the very worſt import, becauſe they generally denote, that the matter of the diſeaſe inclines to the head, and there diſturbs the equable motion of the nervous fluid in the origin itſelf of all the nerves, that is in the medullary ſubſtance of the encephalon.

Anxiety

Anxiety arising in an acute disease always deserves the strictest attention, since it is often attended with so many bad consequences. Physicians often repeat too late the errors committed in this respect, when for want of caution, and through hurry of business, they have neglected the complaints from this symptom. A diligent enquiry ought therefore to be always made, after the cause of anxiety, and the part of the body wherein it is seated; for the greatest danger attends anxiety, arising from the course of the blood impeded through the pulmonary arteries: but that is less dangerous which proceeds from an obstructed passage of the blood through the *vena portarum*, though even thence the worst consequences may follow: but that kind of anxiety is of all the least dangerous which arises from flatulencies and a spasmodick contraction of the vessels, thro' an inordinate motion of the spirits, as is often observed in hysterical and hypochondriacal people.

The reaſon why a ſpaſmodick, or nervous anxiety, is but little dangerous while an inflammatory one is extremely ſo, is, that becauſe in the firſt caſe when the anxiety has ſo far encreaſed, as to bring on a fainting, the ſpaſm goes off, while the perſon faints by the convulſive anguiſh; becauſe the heart then cannot propel the blood with its due force to the encephalon, and therefore it cannot move the ſpirits through the nerves; whence the inordinate influx of them into certain parts will ceaſe and relieve the anguiſh. This is evident by daily obſervation in hyſterical women, when the muſcles of the gula being contracted with a cramp, retain the air in the tube of the œſophagus that was before received into it, where expanding by the heat of the parts it occaſions a tumour, and compreſſes all the adjacent parts with a ſenſe as it were of immediate ſuffocation; for ſo ſoon as the women begin to faint, the cramp ceaſes, and the confined air is diſcharged by

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ructus, with a conſiderable noiſe; whereupon the whole diſorder goes off.

But in an inflammatory anxiety, the impervious blood adhering to the extremities of the arteries, and the blood being driven by the heart againſt the obſtruction, expels the moſt fluid parts, and condenſes the reſt; whence the cauſe of the diſorder is increaſed every moment, and death ſoon follows, unleſs the inflammatory obſtructing matter can be ſpeedily diſſolved, which it often cannot.

Frequent fomenting, waſhing, and gargling the noſtrils, mouth, and fauces with warm watery, ſubacid, and nitrous liquors is of the greateſt moment in the cure of fevers; for then the thirſt often proceeds from dryneſs and impervioufneſs of the blood; and then there is the greateſt danger from ſuch a diſpoſition of the blood to be feared in the veſſels of the encephalon and lungs: when therefore the patient contains ſuch warm drinks in his mouth, they cleanſe the fauces, moiſten theſe dry parts, and

relax the lungs with a warm vapour; more eſpecially if the vapours of hot water are drawn through the noſe: but alſo at the ſame time the external branches of the carotid artery diſtributed through theſe parts, are thus relaxed, and by that means the impulſe and preſſure of the blood is turned off from the internal parts of the head; add to this, that the continual moiſtening of theſe parts moſt happily allays the thirſt.

The firſt paſſages are by the law of nature lined with a mucus from the mouth to the anus, which not only gives a lubricity to the internal ſurface of theſe parts, but likewiſe defends them from being eaſily injured by the rough bodies ſwallowed, or acrid ſubſtances taken into the ſtomach. The mucus having ſerved theſe uſes is by degrees deterged, and attenuated, more eſpecially by the ſaponaceous bile, till at length it is diſcharged together with the fæces by ſtool; but when this mucus is more tenacious than uſual, or the bile weaker or ſmaller in quantity,

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it is by degrees accumulated, oppreſſes the ſtomach, and excites an irritation; whence proceeds a troubleſome nauſea, which is often of long continuance. This diſorder is very familiar with men of letters, eſpecially thoſe advanced in years; for as theſe lead too ſedentary a life, the abdominal viſcera are leſs agitated by reſpiration; the bile becomes inactive, and is often ſo much inſpiſſated, as to be ſcarcely able to paſs out through the narrow neck of the gall bladder wherein it is confined; old people are for this reaſon, *cæteris paribus*, more ſubject to this mucus than young people.

There is a wonderful conſent betwixt the ſtomach and encephalon, inſomuch, that the one being diſturbed eaſily produces a nauſea and vomiting in the other. A putrid alcaline acrimony will ariſe from a nauſea too long continued. Vomits ſhould never be given where there is juſt reaſon to ſuſpect an inflammation in the ſtomach, or any of the adjacent viſcera.

Common air entering the human body conſtitutes the material cauſe of belching and flatus.

If a plenty of air, or ſuch ſubſtances as ſuddenly produce a great quantity of elaſtic matter, be confined in the œſophagus, ſtomach, or inteſtines, &c. and at the ſame time this elaſtic flatus is intercepted by a ſpaſmodick conſtriction of the fibres, either from ſome acrid irritation, or a diſturbed motion of the ſpirits, the conſtriction being ſo great as to retain the flatus from eſcaping; in this caſe the rarefaction will be increaſed by the heat and motion of the body itſelf, and more elaſtic matter of the ſame nature will be added to the firſt from the flatulent bodies which produced it; whence the confined membranes will be gradually more and more diſtended, and the moſt dreadful maladies will enſue. This diſtenſion of the parts being thus gradually encreaſed, will produce the moſt intolerable pains, at the ſame time alſo the blood veſſels diſperſed through the

the membranes, thus diſtended, being compreſſed or ſtraitened, will occaſion the moſt violent inflammation and ſuppreſſion of all the vital circulation of the humours; whence a ſudden gangrene, which ſo frequently proves mortal in theſe parts. Moreover, the inteſtines, a long time diſtracted by wind, may become paralytic, and then they never afterwards return to their natural contraction, but what is taken into the body will be accumulated as in a dilated bag, and being retained there a long time, will give riſe to new diſorders. Hence the iliac paſſion, or introſuſception of the inteſtines, when the low part, which is not diſtended, enters into the dilated part of the inteſtine immediately above. HIPPOCRATES therefore very juſtly obſerves, that iliac paſſions, griping of the guts, and other obſtinate diſeaſes, ariſe from flatulencies.

There ſeldom is any danger in cholics or gripes of the abdomen, if unattended with a fever.

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When we endeavour to remove the cauſes of flatus, we ſhould ever be mindful if a ſpaſm attends at the ſame time, that nothing be given which may increaſe it.

The motion of our fluids through the veſſels proceeds from two cauſes, namely, the heart impelling the blood into the converging arteries, and diſtending them; and afterwards the reaction of the arteries, whereby they reſiſt dilatation, and contract themſelves again at the time when the heart is dilating. But that quantity of the blood which is projected out of the ventricles of the heart into the arteries, would not be ſufficient to dilate them, even in the moſt remote parts of the body, unleſs the arteries were already full at the time when the blood is impelled into them by the contraction of the heart. When therefore there is ſo great a loſs of the fluids that the ſides of the arteries, when they are moſt contracted, do not come into contact in every point with their contained fluid;

fluid; in that caſe the blood expelled from the heart would fill the arteries without dilating them, and the moment after, when the heart is dilating, the arteries could not contract, becauſe they were not dilated; and therefore the blood contained in their cavities would ſtagnate and not be ſent forward, till by repeated actions of the heart it had expelled a ſufficient quantity of blood to fill them, ſo as to be dilated by the next ſyſtole of the heart. The natural motion, therefore, of the humours through the veſſels being thus weakened, there will be a deficiency of the quantity of the blood to be propelled through the veſſels of the encephalon, the preſſure will be diminiſhed whereby the fluids are urged into and through the ſecretory veſſels in the cortical part of the brain, and conſequently there will be a deficiency in the ſecretion of the ſpirits, and their equable motion thro' the nerves; whence weakneſs muſt neceſſarily follow. The red parts of the blood, conſiſting of

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the largeſt globules contained in our humours, and moved through the largeſt veſſels of the body, are the beſt diſpoſed to produce heat by attrition, and to retain the heat longeſt after it is once raiſed: for the more denſe the matter of which any body is compoſed, or the greater its bulk, and the more exactly ſpherical its figure, ſo much the more is it diſpoſed to retain fire or heat a longer time in itſelf. But all theſe properties are obſerved chiefly in the red particles of the blood, if we compare them with the other conſtituent parts or elements of our humours. For this reaſon the veſſels full of red blood are placed in thoſe parts of the body where the thinneſt fluids pervade the ſmalleſt veſſels, to ſupply the deficiency of heat in the latter. Thus we know there is a great number of blood veſſels diſperſed through the medullary part of the encephalon, encompaſſing the medulla oblongata, and diſtributed through the plexus choroides in the ventricles of the brain.

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The principal ſign of too great a maſs to be moved is a large and quick pulſe of the artery, while at the ſame time the veins are turgid, as if they were inflated; for then we know that all the blood veſſels are extremely full: for the pulſe of the arteries may be ſufficiently large and quick, though in the mean time there is no increaſed quantity of the liquid to be moved, namely, if the blood, thickened with an inflammatory denſity, paſſes with greater difficulty through the extremities of the arteries. —But then the veins are emptied, becauſe they receive leſs, and almoſt all the blood is accumulated in the arteries. But on the contrary, in languid diſeaſes, the humours are often accumulated in the veins, which are more eaſily diſtended, while in the mean time there is a leſs quantity of them flowing through the arteries. But when both the arteries and veins are turgid at the ſame time, we know for certain that the maſs of humours to be moved is increaſed. But

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for a greater quantity of humours to flow in the ſame time through a little number of veſſels, the celerity of the moving liquid muſt of neceſſity be increaſed; and therefore in this caſe there will be a quickneſs of the pulſe.

If the effects of heat be well conſidered, the reaſon will evidently appear why it may produce a great many and ſuddenly fatal diſeaſes: for the integrity of all the vital, natural, and animal functions depends on a free motion of the humours through the veſſels. But, by an increaſed heat, thoſe motions are diſturbed or entirely aboliſhed, whether this happens either from a rupture of the ſmaller veſſels, or from the larger veſſels diſtended with impervious matter, and compreſſing the ſmaller, &c.

When therefore theſe injuries happen from too great a heat in thoſe parts of the body upon which life more immediately depends, ſpeedy death enſues; and this moſt ſuddenly of all, if the ſerum of the blood begins to coagulate by the immenſe

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increaſe of the heat : for in a little time it will adhere impervious in the ſmalleſt veſſels of the lungs, and intercept all the paſſage of the blood from the right to the left ventricle of the heart through the lungs; whence a moſt acute and fatal peripneumony will ariſe. The ſame thing will happen if the fabrick of the cerebellum is either deſtroyed, or ſo ſtuffed up with impervious humours as to hinder the influx of the vital ſpirits through the nerves from the cerebellum to the heart. Many were of opinion that the intolerable heat of fevers ought to be aſcribed to putrefaction as the cauſe; but I believe it will appear to every one who conſiders it, that putrefaction is rather the effect of heat in our bodies, and not the cauſe of it; and even that putrefaction once formed does not excite heat by its own proper force, but only inaſmuch as the celerity of the humours through the veſſels, and conſequently their attrition, are increaſed.

It has been cuſtomary to underſtand by

by the name of præcordia all thoſe parts lodged in that ſpace which may be conceived betwixt the diaphragm and the perpendicular plane erected about the end of the diaphragm upon the loins, dividing the abdomen in two; and therefore the term præcordia includes the cardia, hypochondria, and epigaſtrium. A faithful obſervation in diſeaſes has taught us, that foul humours lodged about the præcordia, (whether from an indigeſtible matter taken in and corrupted, or from a morbid contagion, or from humours ſpontaneouſly ſeparated and not diſcharged, but ſtagnating and corrupting there) may diſturb all the actions of the brain, and produce deliria, ravings, and other ſymptoms of the worſt conſequence. After giving a vomit, by diſcharging theſe corrupt humours, we may frequently obſerve many patients to recover from theſe deliria: the ſigns by which we may know in general, that theſe foul humours are collected about the præcordia, are a *foul tongue, a bitter diſagree-*

*able taste in the mouth, nausea, vomiting, and oppression or anxiety*; and this diagnosis is the more certain, if there be no other signs to lead us to believe there are any other causes from whence a delirium may be expected.

Warm bathing the feet, with the application of blisters to them, and to the hams, with friction upon the same parts, are here useful; all these derive the impetus and quantity of the blood towards the lower parts of the body, and consequently divert it from the head, or encephalon. For the blood propelled from the heart by the aorta ascends partly upward, and partly downward by the descending trunk of the aorta; if therefore the vessels of the lower parts are relaxed, the resistance to the blood flowing into those vessels will be lessened; whence it is evident a greater quantity of blood must flow towards the lower parts, by which means a true revulsion will be made from the encephalon. But for this purpose a

vapour bath is principally of uſe, becauſe it more powerfully relaxes and ſoftens, while at the ſame time there is no danger of compreſſing the veſſels by the weight of the fluid into which the parts are immerged. For it appears from hydroſtaticks, that fluids preſs upon bodies immerged into them, and that this preſſure increaſes in proportion to the height of the incumbent fluid. If therefore the feet are immerged to a ſmall height in warm water, while at the ſame time care is taken to let the vapours of the water come into contact on all ſides with the lower parts of the body, this intention will be fairly anſwered; and at the ſame time, likewiſe, the erect poſture of the body will be very ſerviceable. But the tumour and redneſs of the parts expoſed to ſuch a bath ſufficiently prove that the humours are derived, in a greater quantity, towards them. But bliſters act inaſmuch as by their ſtimulus they irritate the veſſels of the part to which they are applied into more frequent and vio-

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lent contractions; that is to ſay, they accelerate the motion of the vital humours through the veſſels, which by this means emptying themſelves oftener in the ſame time, they will tranſmit a greater quantity of fluids; but frictions, by emptying the veins, make way for the blood to paſs more eaſily through the arteries, to empty themſelves into the depleted veins; and therefore both the quantity and impetus of the vital humours will be derived towards thoſe parts to which the frictions are applied. But it is very evident that epiſpaſticks, if made of the more acrid ſubſtances, and frictions, ought to be applied with ſuch moderation, as only to increaſe the motion of the humours through the lower parts, without increaſing it much thro' the whole body.

By emollient clyſters often applied, the fæces are cleared away; the veſſels of the inteſtines relaxed and fomented; the impulſe of the humours is conſequently diverted from the head, while at the

ſame time a diluent fluid may by theſe paſſages be communicated to the blood to advantage. In a fierce delirium therefore, ſuch a clyſter ought to be injected every three hours till the diſorder abates; but care is to be taken in the decline of the diſeaſe not to weaken the patient's ſtrength too much by the too frequent uſe of them. Purges in this caſe may be uſeful two ways; firſt, inaſmuch as they evacuate the offending humours lodged about the præcordia; ſecondly, inaſmuch as they leſſen the too great impetus of the arterial blood, and derive it from the head towards other parts; and at the ſame time they diminiſh the too great quantity of the fluids diſtending the veſſels; but in this caſe thoſe purges are principally recommended which diſſolve the humours without exciting any great diſturbance in the body.

The bringing down of the hæmorrhoids has always been obſerved to be uſeful in diſeaſes of the head; and no wonder, ſince the hæmorrhoidal veſſels

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and carotid arteries convey the blood in oppoſite directions; whence a very great revulſion might be reaſonably expected.

For the ſame reaſon, likewiſe, it will be uſeful to provoke the menſes.—But this ſhould be attempted by ſuch remedies as relax and mollify the parts, (and not by emmenagogues, moſt of which increaſe the impetus and velocity of the circulation) ſuch as by waſhing the feet in warm water, epiſpaſticks and frictions; and theſe may be more eſpecially attempted with hopes of ſucceſs, when the uſual time of this periodical diſcharge is at hand, or when the pains in the loins, groins, thighs, and tenſion in the neck, with other ſigns, denote that the menſes are about to flow ſooner than uſual, as is frequently remarked in acute diſeaſes.

But all theſe evacuations are only uſeful when the veſſels are diſtended with too great a quantity of blood, or when the force of the circulation is too violent, and a revulſion of the humours is neceſſary to be made from the head; for

when in the end of acute diſeaſes a delirium continues, though the diſeaſe has almoſt exhauſted the patient's ſtrength, all evacuations are then prejudicial, and an imprudent uſe of them is frequently attended afterwards with an incurable ſtate of ideotiſm.—But a weakand ſmall pulſe, ſlight heat, and relaxation of the veſſels readily denote that in the preſent caſe ſuch evacuations are not to be uſed.

All cauſes whatever which too much leſſen the quantity of the arterial blood to be impelled to the brain, which impede the free circulation through the veſſels of the brain, obſtruct the ſecretion of the ſpirits, or intercept their free motion through the nerves when ſecreted, may produce a coma; namely, a coma ſomnolenta, if all the animal actions are equally lulled by ſuch an impediment; a coma vigil, when the motion of this moſt ſubtle fluid is not impeded through the moſt ſenſible parts, as it is through many others.

In acute diſeaſes, when a ſalutary and critical hæmorrhage is about to happen

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from the nose, watchings or wakefulness often precede; and this because the blood is carried towards the head more plentifully and with a greater force; and we therefore at that time usually observe *a pain of the head, tension about the neck, redness of the eyes, &c.*

Convulsions subsequent to inflammations of the brain are generally fatal, because they denote that the inflammatory cause is so violent and so deeply seated in the narrow extremities of the vessels of the brain, that the medulla itself is affected.

*In diuturnis lienteriis ructus acidus obortus, qui prius non aderat, bonum signum.*— "Acid belchings, happening in lienterys "of a long standing, says HIPPOCRATES, "which they did not attend before, are "a good sign;" for it denotes that the contractile force of the stomach and intestines is in some measure returned, whereby the ingested aliments may be retained at least so long, as to degenerate into a spontaneous cor-

ruption, and produce theſe acid eructations; whereas in a lientery, properly ſo called, every thing taken in is ſpeedily evacuated, unaltered by ſtool.

The general cure of fevers requires four things; namely, the preſervation of life and health in the patient; a correction or expulſion of the acrid irritating matter; a diſſolution and expulſion of the febrile lentor; and laſtly, a mitigation of the ſymptoms.

Thoſe fevers are termed continual and putrid, wherein the humours degenerate much from their natural and healthy ſtate, and at the ſame time incline to putrefaction; and hence there are various degrees of malignity obſerved, according to the greater or leſs intenſity or degeneracy of them.

A dryneſs of the whole ſkin, noſtrils, mouth, and tongue, ariſes from a diſſipation of the moſt thin and watery juices of the blood by the febrile heat; and partly becauſe the reſt of the blood becoming impervious and adhering in the larger veſſels, diſtends them ſo as to com-

compreſs the adjacent ſmaller veſſels; and therefore in ſuch patients the ſkin appears rough and dry, becauſe the ſubcutaneous veſſels diſtended with impervious blood compreſs the very ſubtle exhaling veſſels, while at the ſame time there is a deficiency of the thin ſerous parts of the blood; the ſame is alſo true in the eyes, noſe, mouth, and tongue. Hence *Hippocrates* ſays, that they periſh with dryneſs who die of an ardent fever.

There are three different periods to be conſidered in reſpiration, that of inſpiration, expiration, and the intermediate ſpace betwixt both; the thickneſs or rareneſs of reſpiration reſpects the intermediate ſpace of time, but the quickneſs and ſlowneſs belongs properly to inſpiration and expiration.—But a large or ſmall reſpiration denotes a different dilatation of the organs of reſpiration. The reſpiration, therefore, which is thick and ſhort, denotes a quickneſs of the inſpiration and expiration, and that there is but a very ſhort ſpace intermediate betwixt thoſe

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contrary motions. But a laborious respiration denotes difficulty and trouble in the performance of these motions; but since there is so great a burning heat about the vital organs, and the blood is moved with great rapidity through the lungs, being in a manner parched up by the intense heat, it will meet with great difficulty in passing through the narrow extremities of the pulmonary artery; whence the reason is evident, why these unhappy patients breathe so quick, and with so much labour, namely, that they may receive an agreeable coolness from the inspired air, and forward the course of the blood through the lungs. A slight cough may proceed from a turgescence of the blood vessels of the lungs distended too much with impervious blood, so as to compress the air vessels of the lungs, that their surfaces rub against each other, for then such a dry and irritating cough will attend in a peripneumony.

*Galen* observes, that an exquisite ardent fever retains all the signs of an exquisite

quiſite tertian, and that it differs only in not invading with a rigor or ſhivering, and in not coming to perfect intermiſſions; and that this was the reaſon why he ranks an ardent fever not among the ſynochi, or continent, but among the continual remitting fevers. But in the fevers which he calls tertianary (τριταιοφυεες) or ſemitertianary; which he likewiſe refers to an ardent fever; the exacerbations happen always on unequal days. Hence the ardent fever ſeems alſo to have ſomething of the nature of an intermittent; and from hence frequently when ſuch fevers are extended to a great length, they afterwards change into intermittents, and even ſometimes when intermitting fevers ſpread epidemically, and appear early in the ſummer months, they often paſs under this appearance. The blood being deprived of its thinneſt parts in an ardent fever, tends to concretion, and begins to ſtagnate in the arteries, whence it is accumulated in thoſe veſſels, and diſtends them,

them, while in the mean time they preſs out only the more fluid parts of the blood into the veins; whence it appears that by opening a vein frequently in ſuch diſeaſes that part of the blood is removed only which is beſt diſpoſed to flow thro' the veſſels; whereas an hæmorrhage from the noſe diſcharging the blood from the arteries themſelves, turns off the impetus and quantity of blood, more eſpecially from the encephalon, whoſe functions in theſe diſeaſes are uſually ſo much diſturbed.——The beſt hæmorrhage is that which happens on a critical day, viz. the 4th, 7th, 11th, 14th, 17th, 21ſt, &c. which are legitimate critical days; but thoſe hæmorrhages which happen on ſome incidental critical day, as the 3d, 5th, 6th, or 9th, are leſs ſalutary; but thoſe happening on other days are altogether to be ſuſpected, and the ſame will alſo hold true of the other critical evacuations.

A redneſs of the face, beſet with drops of ſweat, is a very bad ſign in an ardent

ardent fever, becauſe it denotes an inflammatory ſpiſſitude and imperviouſneſs of the blood, and that it is either forced into other improper veſſels, or elſe adheres about the ſmalleſt extremities of the ſanguiferous arteries, and that a very ſmall portion of it can as yet be expreſſed; as alſo that death being now at hand, the extremities of the ſmall exhaling veſſels in the ſkin are ſo relaxed, as to tranſmit a thick and groſs ſweat. This has been well obſerved by HIPPOCRATES, *Cæterum univerſalem ſudorum rationem noviſſe opportet. Alii enim fiunt ob corporum reſolutionem, alii vero ob phlegmones vehementiam*; "Moreover the general cauſe or "reaſon of ſweats ought to be known; "for ſome ariſe from a relaxation of the "parts of the body, and others from "the violence of inflammation."

A ſwelling under the ear, not coming to ſuppuration, is deſtructive: when parotides ariſe in an ardent fever, it is a ſign that the febrile matter is critically depoſited towards the glands there ſeated; and

and as the blood in this fever is deprived of its more fluid parts, and at the ſame time has acquired a greater acrimony, therefore a mild reſolution of theſe parotides cannot be expected, inaſmuch as to effect that, requires a mild ſtate of the humours, a ſedate motion of them, and the obſtructing matter not to be overcompact, therefore a ſuppuration only can take place here, which if it is not procured, a worſe manner of terminating the inflammation muſt be expected. But ſometimes the ſwelled parotides ſuddenly diſappear from the morbifick matter returning again into the blood; whence the very worſt returns, and even death itſelf may be expected to follow in ardent fevers.

It is a very juſt admonition of *Hippocrates*, to conſider whether the fever is abated or increaſed; for if the fever ſuddenly increaſes when the parotides diſappear, we know that the febrile matter mixing again with the blood, produces thoſe diſturbances, and that

that therefore a bad termination of the diſeaſe is to be feared. But if no ſuch increaſe of the fever happens, there is reaſon to hope that the matter will in a little time eſcape by other paſſages, or be depoſited upon ſome other part.—Neither yet muſt we believe health to be always an infallible conſequence of parotides coming to ſuppuration in ardent fevers; for theſe criſes, which are made by abſceſs or depoſition, are always leſs ſafe.

A conſtipation of the bowels in ardent fevers is never of ſervice; for ſince the bile, rendered more acrid or corrupt, kindles theſe fevers, and ſince even healthy bile is ſoon corrupted by a great heat, it muſt be evidently more uſeful for theſe foul humours to be diſcharged from the firſt paſſages, ſince otherwiſe, by the free acceſs of air with heat and ſtagnation, they may degenerate into the moſt malignant putrefaction in a very ſhort time. Hence it is that clyſters are ſo uſeful in ardent fevers, not only inaſmuch

much as they dilate, relax, and cool, but alſo as diſcharge out every thing putrid lodged in the inteſtines. It is therefore no bad ſign for the bowels to be looſer than ordinary in theſe fevers.

An ardent fever differs from a putrid ſynochos or continent, inaſmuch as its courſe is not one continued ſtrain from the beginning to the end, but it is attended with remarkable fits of remiſſion and exacerbation. It is diſtinguiſhed from intermitting fevers, in that the force of the fever does not perfectly ceaſe and from the ſlighter continual remitting fevers, by its intenſe heat chiefly, which is greater about the vital viſcera, and more remiſs towards the extreme parts, attended with unextinguiſhable thirſt, and a dryneſs of the whole body.

An inflammation may ariſe throughout the whole body, although the blood continues to flow through the greateſt number, if not through all the ſanguiferous arteries. But that ſuch an inflammation

ſlammation does attend in an ardent fever, we are taught from a redneſs in the face, and frequently of the whole ſkin, which ſometimes continues even after death.—The inſpection of bodies dying of this fever, demonſtrates the cortical ſubſtance of the brain (in which naturally there is no red blood to be found) to be all over red, as if it were artfully injected. This is alſo the reaſon why ſuch a great heat attends, even though ſuch a great number of the ſmall veſſels are rendered impervious; for the red blood, inſpiſſated by the loſs of its moſt fluid parts, continues to be moved with a great velocity in the larger ſanguiferous arteries.

They are much deceived who judge that ſweat ought to be promoted, thinking thereby to evacuate all the febrile matter, becauſe in an intermittent fever the fit goes off with ſuch a ſweat: for daily obſervations teach us, that thoſe are more eſpecially difficultly recovered from

intermitting fevers who ſeem, as it were, to melt away by theſe moſt profuſe ſweats; neither is their cure practicable unleſs theſe ſweats be firſt ſuppreſſed. Hence alſo the ſweat which attends at the cloſe of the fit, is to be moderately promoted by fleſh broths, ptiſans with wine, and the like, which afford plenty of liquid nouriſhment: but by no means by remedies, nor the heat of bed-cloaths, leſt by ſuch ſweats thoſe fluids fly off, which ought to be retained: the weakneſs and dejection which follow upon theſe profuſe ſweats, evidently demonſtrate how prejudicial they are.

Quartan fevers, which have been diſturbed by no powerful medicines, and have been gradually removed by a proper regimen in the ſpring ſeaſon, have left people more ſtrong and firm, and leſs ſubject to diſeaſes, than before.—For theſe fevers contain a ſort of epitome of that kind of life which CELSUS (in B. 1. Ch. 1.) recommends to ſome people:

ple: for intenſe cold is followed by great heat; during the time of the paroxyſms, the patients generally have an averſion to all ſorts of food, to which they often have a ſtrong appetite on the intermediate well days: moreover, by a long-continued quartan the whole body is frequently emaciated, all the fat being diſſolved and carried off by urine and the other emunctories, even as much as by mercury itſelf, or ſudorific decoctions; whence an almoſt radical change of the humours is obtained, by a reſolution and expulſion of the old; whence the body is beſt diſpoſed for the reception and reſtoration of new vital matter; and thus, by a prudent management in theſe fevers, will the body be diſpoſed to longevity.

If now it be conſidered that in the cold fit of intermitting fevers, the whole body trembles and ſhakes violently, often for ſeveral hours, almoſt as much in the internal as in the external parts; that the extremities of the arteries being contracted, propel the humours back

into the larger trunks, as evidently appears from the paleneſs, and an opportunity they give for happily removing the obſtructing matter adhering to the extremities of the arteries, it will not ſeem wonderful that many diſorders ſhould be thus relieved or removed, which are not at all affected by other medicines; more eſpecially as ſoon after there follows a rapid motion of the humours through all the veſſels; whereby the obſtructing matter which was lodged in the viſcera, being rendered moveable by the repeated concuſſions, is further reſolved. Hence the reaſon appears, why theſe fevers ſo frequently remove the moſt inveterate diſorders from the body, after they have been in vain attempted by other medicines.

The beſt methods recommendable towards the cure of theſe fevers, are ſuch as conſpire together with the diſeaſe itſelf, *to reſolve what is concreted, to open the obſtructed veſſels*, and thus *to reſtore the equable and free circulation of the humours*

*through*

*through all the veſſels:* In the ſpring ſeaſon, and in juvenile patients, the hotter medicines muſt not be uſed; autumnal fevers, on the other hand, more eſpecially thoſe which continue on until the winter, require warmer medicines, eſpecially if the patient's ſtrength is weakened by the diſeaſe, or if the body languiſhes by an advancing old age; for then the radix contrayerv. ſerpent. virgin. ſaffron, and the like moſt penetrating aromatics, are of the greateſt uſe. In cold phlegmatic habits, alcaline ſalts are the beſt aperients, which yet are often injurious to warm and bilious people; and therefore thoſe of the ſaline neutral kind are preferred, as nitre, ſal polychreſt. tartar. vitriolat. &c. Purges and vomits are not only uſeful, inaſmuch as they evacuate, but alſo becauſe they wonderfully ſtimulate and ſhake the frame, ſo as to change its whole condition. The cort. peruvian. ſhould never be given in fevers, where there is

a continual fixed pain, or the ſenſe of an inward burning heat, with other ſymptoms of an inflammation.

Vernal intermitting fevers are of ſo mild a diſpoſition, as to require no medicines, but generally go off ſponta-neouſly. They are only obſerved ſtubborn for ſome time in ſuch people, who having their blood of a very weak craſis or texture, it is ſo eaſily diſſolved, that they waſte away with profuſe and weakening ſweats; but even in theſe they are curable, eſpecially by the uſe of the bark; but autumnal intermittents are much more difficult to remove, and often require the greateſt attention of the phyſician, with every aſſiſtance of art, in order to cure them.

Three things are chiefly to be conſidered in acute inflammatory diſeaſes; viz. the acute continual fever, the inflammation, and the organ, whoſe functions are injured by the preſent inflammation.

In a true phrenzy the brain is primarily affected in an acute continual fever; that

that is to ſay, the cauſe of the diſeaſe is not produced in ſome other part of the body, and tranſlated from thence to the brain, but is ſeated in the brain itſelf, or its inveſting membranes, from the very firſt attack of the diſeaſe, although by the violence of the fever the diſorder may be increaſed which is already ſeated in the brain.—In the ſymptomatic phrenzy, the cauſe lodges in ſome other part, and is afterwards thence tranſlated to the encephalon.

There can be nothing more dangerous than ſleeping in the open air, with the head expoſed to the ſolar rays.

A black tongue denotes either a deficiency of the thin lymph of the blood, or that the larger veſſels, diſtended with the impervious blood, compreſs the adjacent ſmaller ones, whence the exhaling arterial ducts placed at the ſurface of the tongue become dry and gangrenous; hence a black tongue, eſpecially if it be dry at the ſame time, preſages the very worſt condition of the humours.

A conſiderable degeneracy of the humours is ſcarce ever obſerved, without a diſturbance likewiſe in the functions of the encephalon at the ſame time.

Lethargic, comatous, and cataleptick diſorders, are of the worſt preſage in a phrenitis.

A flux from the bowels is ſalutary, not only becauſe it diſcharges the morbifick matter, but alſo becauſe it empties the veſſels in the abdominal viſcera of the humours which flow thither, and leſſen the reſiſtance to the impulſe of the blood; and by that means happily diverts the impetus and quantity of the humours from the head, which is an event of the utmoſt conſequence in the cure of a phrenzy.

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## *Of Quincies.*

A Quincy may be divided into that which happens without any manifeſt ſign of an external tumour or viſible

ble in the fauces internally; and that which is attended with ſome tumour obvious to the ſenſes.

This firſt kind of angina occurs more ſeldom than the reſt, and only after the body has been exhauſted by diſeaſes of a long continuance, and profuſe and repeated evacuations, and is obſerved to be very dangerous and fatal, and is attended with an apparent dryneſs, paleneſs, and ſhrinking of the fauces, without any ſigns of inflammation concealed in the internal parts; ſometimes indeed a pain and redneſs appears in the fauces, but it is only ſlight; nor are the parts affected thereby ſwelled, but rather ſeem to be conſiderably ſunk or collapſed. Hence it is ſufficiently evident why this kind of quincy is ſeldom curable, ſince all hopes are placed in a ſpeedy reſtitution of the loſt humours, ſo as to fill the empty veſſels with good vital juices. But even deglutition itſelf injured, prevents ſuch nouriſhment from being commodiouſly taken into the body, and at

the

the ſame time, thoſe things are deficient from which the aſſimilation of the ingeſted aliments may be expected, namely, a due quantity of healthy juices, and a requiſite action of the veſſels upon their contained fluids.

The phyſician muſt be extremely careful how he diſtinguiſhes this kind of angina from the reſt, ſince the method of cure is ſo very different; ſudden evacuations by bleeding, cooling purges, &c. would moſt certainly prove fatal in this caſe. An inflammatory angina may be occaſioned by hard riding on horſeback againſt a cold wind; for when a perſon rides violently againſt a ſharp wind, the cold air enters the fauces every moment, and at the ſame time the veſſels of theſe parts are powerfully compreſſed by the reſiſting air directed againſt them in an oppoſite motion, by which, as well as the coldneſs, they are too much contracted.

When the inflammation is in the windpipe, it is ſo much the more dangerous,

as

as it is ſeated nearer to the glottis and epiglottis, and it is much more ſo when ſeated about the rima of the glottis itſelf.

When the *ſtyloceratohyoidei* muſcles, and thoſe others which are deſtined to draw up the larynx in the act of deglutition, are inflamed, it is evident enough that the moſt acute pain muſt follow. Such quincies are frequent; and the patients, if they do but attempt to ſwallow, are univerſally convulſed from the ſeverity of the pain. But, as theſe muſcles are deeply ſeated, upon inſpecting the fauces, there is often no tumour to be ſeen; namely, when the diſorder is ſeated in theſe muſcles only, nor is there any tumour conſpicuous externally in the neck for the ſame reaſon; but generally this diſorder is ſeated only on one ſide, in which the patient has ſometimes been able to point out the courſe and ſituation of the painful and inflamed muſcle, at leaſt in the beginning of the diſeaſe, for afterwards the inflammation frequently becomes uni-

verſal,

verſal. But this kind of quincy is eaſily diſtinguiſhed, becauſe reſpiration continues free enough, and the voice is not ſo ſharp or ſhrill. Though this kind of quincy is not ſo fatal as others, yet is it not without danger, as well becauſe it renders deglutition impracticable, as becauſe the diſeaſe is frequently tranſlated by a dangerous metaſtaſis to the lungs.

When reſpiration is obſtructed in an inflammatory quincy, the lungs cannot freely expand themſelves, whence the right ventricle of the heart cannot readily expel its contained blood through the narrow extremities of the pulmonary artery into the left ventricle; and therefore the blood will begin to be accumulated in the lungs and right ventricle of the heart. The right auricle and venous ſinus therefore will be unable to empty themſelves; and the blood of conſequence be likewiſe accumulated in theſe cavities. Hence the venal blood returning from the whole body through the upper and lower

vena

vena cava, cannot enter into these cavities already filled; the veins will be consequently distended. But all the venal blood from the lips, tongue, and face, returns to the heart chiefly by the external jugular, while the blood from the interior parts of the head moves through the internal jugular vein.

When, therefore, the blood cannot pass freely through the jugular veins because of the obstructed respiration, all the blood vessels belonging to the external, as well as to the internal parts, will be more and more distended, since the arteries continue to send forward the blood, while in the mean time it cannot return by the veins. Hence the fauces, lips, tongue, &c. will be swelled; and the eyes, overcharged with blood, will look red and protuberate in a frightful manner; the tongue swelling, can be no longer contained in the mouth, but will be thrust out, distorted, and appear of an ugly livid colour, froth and spittle being at the same time discharged from the mouth.

And

And as the blood veſſels diſtributed through the encephalon may become diſtended from the ſame cauſe, the ſoft ſubſtance of the encephalon will be compreſſed; whence the ſight, hearing, and touch, will be rendered dull, all the functions of the brain will be diſturbed, and at length entirely aboliſhed; but the ſnoring or rattling attends when the viſcid froth begins to fill the whole mouth, fauces, or lungs; and the blood veſſels of the lungs being diſtended at the ſame time, the cavities of its air veſſels are diminiſhed. Hence the unfortunate patient ſuffers all thoſe diſorders which happen to ſuch as are ſtrangled with an halter; only in this diſorder they are much more unhappy, as they are obliged to ſuffer theſe bad effects by ſlow and gradual advances.

The beſt of all methods for curing an inflammation is that by reſolution or diſperſion; and therefore this courſe is to be purſued before any other, provided there is any reaſon to expect it will ſucceed;

ceed; but more eſpecially this method is required in the cure of an inflammatory quincy, ſince a ſuppuration is attended with ſo much danger from the increaſed tumour compreſſing the organs of reſpiration and deglutition; and likewiſe becauſe there is reaſon to fear, leſt the abſceſs breaking, ſhould diſcharge its matter into the windpipe, and ſuddenly ſuffocate the patient.

We may aſſert, and not without reaſon, that there is hardly any acute inflammatory diſeaſe more mutable: it is frequently ſeen in practice that the inflammation occupying the tonſil on one ſide, ſuddenly abates, and affects the tonſil on the other ſide. Nor is this all, but it likewiſe frequently removes to other and very diſtant parts of the body.

This kind of quincy ought to be well remarked, becauſe I have ſeen ſome miſtaken in ſuppoſing a ſuppuration already formed, and believing the white ſpots to be the apex to the abſceſs now ready to break, eſpecially if they were not

called in at the beginning of the diſeaſe, or did not obſerve that the ulcers attended from the firſt: but the diſtinction of theſe is eaſy enough, ſince an abſceſs here formed ſwells much more, and never comes to maturity but when the diſeaſe is of longer ſtanding.

A continual draining of a thin ſerum from the mouth is alſo one of the worſt ſigns in an inflammatory quincy, for ſuch a flux of ſerum may proceed from a compreſſure of the larger veins, which are here ſeated to return the blood from the head to the heart.

We ſhould always endeavour to diſperſe an inflammatory quincy by all the remedies in our power. But it ſometimes happens that the violence of the diſeaſe, or the too late application of medicines, when the diſorder has been neglected by the patient at the beginning, exclude all hopes of a future reſolution: but the beſt method of terminating an inflammation which cannot be diſperſed, is that by ſuppuration; and therefore in this

this caſe all the endeavours of art are to be uſed to promote the ſuppuration as faſt as poſſible, that the patient may be ſpeedily relieved from the extreme difficulties with which he is oppreſſed.

It will be expedient for the patient to be continually holding in his mouth a warm gargle prepared from linſeeds, mallows, marſhmallows, and the like moſt emollient remedies. For thus the inflamed parts will be continually fomented, too great a dryneſs of them will be prevented, and the crude inflammatory matter will be happily changed or concocted into laudable pus. By the ſame means, likewiſe, the abſceſs ſeated in the fauces will be beſt diſpoſed to break upwards, and diſcharge the collected matter into the cavity of the mouth, which is much the ſafeſt, ſince if the abſceſs breaks downwards towards the fauces, there may be danger, leſt the matter ſhould ſlip through the opening of the glottis, ſo as to threaten the patient with immediate ſuffocation.

We are ſometimes obliged, in a ſuppurative quincy, to repeat bleeding, though

the ſymptoms denote that an abſceſs is now forming; the reaſon is, becauſe the ſwelling of the affected parts being increaſed at the time of ſuppuration, often excites a new and dangerous inflammation compreſſing the parts adjacent; we are therefore obliged ſtill further to exhauſt the body, that the veſſels may collapſe, ſo as to prevent the ſuffocation, which is often to be feared in this diſeaſe.

When the diſorder is ſeated in ſuch parts as cannot be ſeen, we know that the inflammation is tending towards a gangrene, if the ſymptoms be moſt violent, the pains moſt acute, and joined with an intenſe fever; and if theſe continue two or three days, without abating, and the patient is not in the mean time ſuffocated. But that a gangrene is already preſent, we know if the ſymptoms ceaſe of a ſudden, without any favourable ſigns; as for inſtance, if the pain goes off, and the ſwallowing or breathing, before very difficult, now becomes free; and yet there are no ſigns denoting that the matter,

ter, or the diſeaſe, is by a metaſtaſis tranſlated to ſome other part, which frequently happens. This diagnoſis is confirmed by a cadaverous countenance, a coldneſs and livid colour in the extreme parts of the body, with a weak and unequal pulſe, which are the ſigns uſually attending a fatal gangrene in theſe parts.

This diſorder ſeldom or ever admits of a cure; but a gangrene, which ariſes from a depoſition of malignant humours upon theſe parts, without a previous inflammation, is indeed dangerous, yet frequently curable, provided effectual remedies are immediately applied. A convulſive angina, tho' it ſeldom occurs, yet has it ſometimes been obſerved to happen.

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## *Of a true Peripneumony.*

A Peripneumony is owing to an impervious blood, from an inflammatory ſpiſſitude adhering in the narrow extremities of the arterial veſſels of the lungs only.

The lungs are frequently and powerfully affected by the changes of the air, which, if moiſt, will weaken the fibres of the pulmonary veſſels, ſo as that they cannot well reſiſt the impelled fluids; and there will therefore be danger, leſt the relaxed veſſels admit groſſer particles of the fluids than can paſs through their extremities; and this more eſpecially happens when heat is joined to a moiſture of the air, and thus occaſions an inflammation. But, on the other hand, if the air offends by too great a dryneſs, ſo as to deprive the internal ſurface of the windpipe and bronchia of its natural moiſture, theſe parts being rendered leſs flexible, will be more difficultly expanded or dilated by the inſpired air. Moreover, the ultimate ſmall mouths of the exhaling veſſels, which open in the ſurface of the air-veſſels of the lungs, will be dried up ſo as to reſiſt the impulſe of the fluids, whence obſtruction and inflammation may follow; and this more eſpecially, as by a dry and hot air the

moſt fluid juices are diſſipated from the body, whence a greater thickneſs or tenacity of the blood will ariſe from the ſame cauſe. But too great heat of the air will produce the ſame effects as the dryneſs of it; but if the heat of the air be joined with moiſture, it may prove injurious by too much relaxing the pulmonary veſſels.—Intenſe coldneſs of the air, is, above all cauſes, moſt apt to produce this diſeaſe, for by cold and froſt the particles of the blood are concreted together.

Straining, wreſtling, &c. may occaſion a peripneumony; for then almoſt all the voluntary muſcles are in violent action; whence the motion of the venal blood is accelerated almoſt as much as in running. But moreover we ſee, that all thoſe who wreſtle or ſtruggle with each other, or by great ſtraining endeavour to raiſe weights or remove certain obſtacles, breathe in a great quantity of air, which they retain a long time before it is expired; and this they continually repeat.

But the air retained in the warm lungs becomes rarefied, and preſſes ſo much the more powerfully upon the pulmonary veſſels, as it is expanded by heat: thence it is evident that the pulmonary veſſels muſt be leſs capacious, while at the ſame time the motion of the venal blood is accelerated towards the heart, into more violent and frequent contractions; but ſince the pulmonary veſſels are then compreſſed or ſtraitened by the rarified air, the blood will more difficultly paſs thro' the lungs; and only the more fluid part of it will be able to flow through the leſſened extremities of the veſſels, while the thickeſt part will be accumulated, and occaſion obſtructions and inflammations.

Singing and bawling may alſo produce this diſorder; for the voice is formed by an expulſion of the air contained in the whole capacity of the lungs, drove out by the powers contracting the thorax; yet ſo, that the air thus drove through the windpipe, ſtrikes againſt the ventricles of the larynx, arytenoide cartilages, and

rima

rima of the glottis. For when the rima of the glottis is too much dilated, the air paſſes out very freely, and produces no ſound or voice, as is evident in thoſe who endeavour to ſound a deeper tone than they are able; but muſicians have demonſtrated that the difference of the voice, with reſpect to acuteneſs and gravity, depends upon the different aperture of the rima of the glottis, and the increaſed or diminiſhed celerity with which the air is expelled. When, therefore, people endeavour to ſing the moſt ſharp tones, the cauſes contracting the thorax, expel with a great force the air contained in the lungs through a very narrow aperture of the glottis; whence the compreſſed air violently re-acts upon the cavity of the lungs, in which it is contained, ſo as to hinder the free paſſage of the blood through the lungs. The ſame is alſo true in bawling aloud, when the voice always forms a more ſharp tone, the more violent it is. The appearances obſervable in thoſe who ſing or bawl

aloud, evidently prove the truth of this aſſertion; for in ſuch the face always appears red and turgid, the eyes are ſuffuſed with blood, the veins of the forehead and neck ſwell, &c. all which evinces, that the venal blood is accumulated about the right ſide of the heart, becauſe it cannot freely paſs through the lungs.

Many cauſes concur in a peripneumony to render the inſpired air very hot; for here the lungs are ſtuffed up with the thickeſt, or red part of the blood, which we know to be moſt diſpoſed to produce heat, and to retain it a long time when produced; through the veſſels of the lungs, not yet impervious, but leſſened by the adjacent, obſtructed, and diſtended veſſels, the humours are very ſwiftly tranſmitted, whence a greater heat muſt ariſe; add to this, that the lungs diſtended with impervious blood cannot be ſufficiently expanded, and therefore can take in but a ſmall quantity of the cool air at ſuch inſpiration.

From

From all theſe concurrent circumſtances we may eaſily conceive the reaſon, why the expired air is perceived extremely hot in peripneumonick patients. A yellow ſpitting, intermixed with ſmall particles of blood, is of the beſt import in this diſeaſe; for the thickneſs and yellow coloured note that a concoction of the morbific matter is already begun.

A peripneumony may be carried off by urine, but then it is neceſſary the diſcharge ſhould be very copious, it will otherwiſe not ſuffice; but the diſcharge ought alſo to happen before the ſeventh day, ſince, if this diſeaſe continues longer without any ſalutary diſcharge, there can be no hopes of curing it without ſome other diſeaſe ſucceeding upon it. A white and uniform ſediment in the urine denotes ſafety to the patient and ſhortneſs of the diſeaſe; ſo is a ſediment at firſt red, and afterwards changing white by degrees, becauſe it denotes a perfect concoction and change of the morbific matter.

We cannot expect a perfect cure of a peripneumony, unleſs the diſeaſe be

ſlight,

ſlight, that is, the inflammation ſeated only in the bronchial artery, or in but a ſmall part of the pulmonary artery.

HIPPOCRATES condemns a ſimple yellow ſpitting as dangerous, becauſe all the obſtructed veſſels are not ſet at liberty, for if they were, ſome red bloody ſtreaks would appear intermixed with it: he likewiſe pronounces a white, viſcid, and uniform ſpitting to be uſeleſs, becauſe it contains none of the morbific matter, but conſiſts only of the inſpiſſated mucus lubricating the bronchia, compacted into a roundiſh figure in the cells of the lungs.

Every ſuppuration is attended, more or leſs, with a fever: this fever generally increaſes towards evening, when the crude chyle formed from the aliments is moved through the veſſels with the blood, and from the action of the lungs weakened in this diſeaſe, is not ſo ſoon aſſimilated or ſubdued, but retains its own crude nature for a long time, before it can acquire all the qualities of our ani-

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mal humours; and therefore it increaſes the fever, either by forming an obſtruction, or by its ſtimulus, or by both together.—Even in healthy people the quickneſs of the pulſe is increaſed towards the evening; and for that reaſon all diſeaſes which are attended with an increaſed velocity of the circulation, grow worſe towards evening. But ſince the vital powers are weakened or exhauſted by the long continuance of the diſeaſe, and at the ſame time the courſe of the blood is impeded through the lungs, the reaſon, therefore, is ſufficiently evident why the pulſe is weak and ſoft.

Night-ſweats almoſt conſtantly attend an abſceſs of the lungs, as they likewiſe attend upon thoſe who have a conſumption of the lungs, with a purulent ſpitting: for it appears from phyſiology, that the action of the lungs upon the blood ſerves, among other uſes, to form a moſt exact mixture of all the humours, and to give the blood a due degree of

denſity

denſity or firmneſs, as well as to work up the chyle to that perfection which is natural to our healthy humours. But the chyle is always lighter than the blood or its ſerum; and therefore the action of the lungs and arteries is to compact the chyle, and give it a greater ſolidity, that is, to reduce more of its matter into the ſame or a leſs ſpace or dimenſions. But when the action of the lungs is weakened by an abſceſs formed in them, the texture of the blood will be rendered leſs firm, and the mixture of all the parts of the blood with each other will be leſs intimate or exact. Therefore, when the whole ſurface of the external ſkin is thoroughly heated by the warmth of the bed, the thinneſt parts of the blood from the increaſed motion of the humours, by the continual ſlight fever, will be expreſſed in the form of ſweat, that when ſuch a cacochymia takes place in our humours, as renders their parts leſs aſſimilated and unequally mixed, there then enſues a propenſity to ſweats from even ſlight cauſes.

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But all theſe effects will be ſtill more increaſed, becauſe the matter confined in the abſceſs of the lungs being attenuated and abſorbed by the veins, will very much increaſe this cacochymia, and continually diſpoſe the blood to be more inclining to a putrid diſſolution. But this ſweat will appear chiefly about the throat and forehead, becauſe the pulmonary abſceſs impeding the free paſſage of the blood through the pulmonary artery, will, at the ſame time alſo, prevent the return of the venal blood from the parts above, whence all the veſſels of thoſe parts will be more diſtended, and conſequently, *cæteris paribus*, the ſweat will be more conſpicuous, often gathering in drops when the patient is weak; and this is always of bad preſage.

The urine is almoſt conſtantly obſerved to be frothy in this caſe; ſo that, upon ſhaking it, a froth often continues upon the ſurface for ſeveral hours, whereas healthy urine very ſoon loſes the froth which has been raiſed by a violent ſhaking;

king; and therefore this urine is bad, becauſe it deviates in its qualities from that in a healthy ſtate. The urine of healthy people is always ſaponaceous, as the oil being mixed with the more acrid ſalts of the blood, is changed into a ſoap diſſolveable in water: but at the ſame time all theſe are ſo highly attenuated in healthy urine, that it has no ropineſs or viſcidity capable of maintaining a laſting froth. But as in this diſeaſe there is an imperfect aſſimilation of the humours, and the moſt fluid and moveable parts of the blood are diſſipated in ſweats, it is no wonder that the urine thus degenerates, ſo as to reſemble an unactive, viſcid, and ſoapy lixivium; yet the ſame ſort of urine is obſerved in other diſeaſes of the lungs, as when, for example, that viſcus is ſtuffed with a ropey viſcid phlegm; we are not, therefore, from this ſymptom alone, to form our opinion of an abſceſs in the lungs: but if ſuch urine appears at the ſame time with the ſigns before mentioned, it con-

confirms the diagnosis; but that great paleness, leanness, and weakness, must attend here, is evident enough from what we said before; for the blood being broken or dissolved, from the weakness of the assimilation, causes paleness; and the night sweats, hectical fever, and loss of appetite, are the causes of leanness and extreme weakness.

Although the matter contained in a vomica of the lungs should be absorbed by the veins, and be deposited by a metastasis on some other parts of the body, yet when this is done, the ulceration will continue in the lungs, whence new matter will, in a short time, be collected again in the same place; and therefore no great benefit can be expected from such a translation of the matter. But when the inflammatory matter, being subdued and rendered moveable, passes on into the veins before an abscess is formed, and mixing with the blood, is afterwards deposited upon other parts of the body, the lungs may by that

means

means be freed from the diſorder, and when once freed, they may enjoy the ſame ſtate which they had in health.

When matter is moved with the blood through the branches of the deſcending aorta, a great part of it will be conveyed, both by the cœliac and meſenteric artery, through the chylopoietic viſcera, and from thence paſſing into the vena portarum, it muſt make its way through the narrow veſſels of the liver, in which organ we know the paſſage of the humours is proportionably always more difficult, as the venal blood muſt paſs on through the narrow ends of converging veſſels, without being aſſiſted by the impelling force of the heart. It will therefore not appear wonderful if from hence an obſtruction ariſes about theſe parts, and is followed with the ſigns of a ſlight inflammation. Now, whether this be the genuine cauſe of the ſymptom obſerved, or whether it be from ſome other leſs known cauſe, it is ſufficient for the phyſician that he is aſſured this preſages a

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future abſceſs about the legs; but they ſhould be the ſigns of a ſlight inflammation only, and ſoon diſappear again; for if they continue, there would be reaſon to fear the morbific matter would lodge itſelf in the liver, with more dangerous events. A vomica of the lungs may eaſily be diſtinguiſhed from a ſcirrhous ſwelling of thoſe parts, becauſe the former daily increaſes in bulk till it breaks, whereas a ſcirrhous hardneſs of the lungs continues a long time in the ſame ſtate.

It is demonſtrated that the inſpired air ſerves to cool the blood, which acquires a moſt intenſe heat by its rapid motion through the pulmonary artery; which refrigeration is ſo neceſſary, that an animal being deprived of it for a few minutes, dies, and preſently falling into the moſt horrid putrefaction, exhales an intolerable vapour or ſmell. But violent inflammation is attended with a great heat; and the turgid inflamed veſſels afford but little ſpace for the inſpired

air, whence we may expect the blood will be much leſs cooled. It is therefore evident, that in a violent inflammation of the lungs, all thoſe cauſes concur, which are able to produce a ſudden mortification and ſpeedy putrefaction of the part.

The ſtrongeſt man labouring under a peripneumony, immediately becomes ſo weak that he cannot lift up his hand, owing to an impeded influx and preſſure of the nervous fluid into the muſcles: now in a violent peripneumony almoſt all the blood is collected betwixt the right ventricle and the extremities of the pulmonary artery, while at the ſame time the free return of the venal blood from the brain is impeded, whence the encephalon is compreſſed: the left ventricle of the heart, in the mean time, receiving ſcarce any blood at all, will be unable to ſend a due quantity by the carotid and vertebral arteries to the encephalon; and therefore the moſt powerful cauſes of weakneſs will concur.

Revulſion, which is ſo neceſſary in the cure of an inflammation, is here impracticable;

practicable; for all the blood of the whole body muſt paſs once through the lungs in the ſame time that it is moved through all the other parts of the body; conſequently, the motion of the blood through the lungs cannot be much impeded or leſſened by any art, if life be ſtill remaining. All the fluids of the body flow to the heart and lungs, as to their original ſource, and thence ſupply every individual part again.

When the whole ſubſtance of the lungs is inflamed, the right auricle and ventricle of the heart will be filled, the courſe of the blood through the lungs being obſtructed; whence the coronary veins will not be able to empty themſelves, which will cauſe an inflammation in the very ſubſtance of the heart itſelf: and ſince the heart is ſuſpended in the pericardium almoſt in an horizontal direction by its four large blood veſſels, in ſuch a manner as that the right auricle and ventricle of the heart

incline towards the fore part of the body, the reaſon appears evident, why the right auricle and ventricle being very much diſtended while the left are almoſt empty, the heart will be thrown forward, ſo as to touch the ſide of the thorax, which muſt neceſſarily terminate in death.

A bilious ſpitting is bad, if purulent, and it appears after the ſixth day; for ſuch a diſcharge ſeems to denote that the inflammation of the lungs, which attended in the beginning of the diſeaſe, is now changed into a ſuppuration; while at the ſame time there is a new inflammation exciting that bilious, or yellow ſpitting, which is not yet concocted or maturated, whence the patient at that time labours under a double diſorder. If a very little blood is intermixed with good and concocted ſpitting, it is eſteemed one of the beſt ſigns; for then the obſtructing matter eſcapes (per anaſtomoſin) by a dilatation of the mouths of the arteries, which open in the trachea, where-

by the lungs are happily ſet at liberty. But when the ſpitting is very bloody, there is reaſon to fear that the impetus of the vital humours from the adjacent heart is ſo very great, as to burſt the very ſmall and tender veſſels of the lungs, and extravaſate their blood.

A ſimple yellow ſpitting denotes that the groſſer parts of the humours are accumulated in the lungs, while the thinner parts only paſs through them, which is a moſt fatal circumſtance. Thick and white ſpitting is nothing more than the mucus of the lungs collected in the bronchia, where it is thickened by heat and ſtagnation, ſo as to retain the round figure which it acquired in the cavity of the lungs, even after it is ſpit out; whence it appears, that by ſuch a ſpitting there is none of the morbific matter diſcharged which oppreſſes the lungs, and therefore is a mortal ſign.

Myrrh, frankincenſe, gum ſarcocola, opopanax, &c. made up into a bolus with turpentine, Peruvian balſam, &c.

are very proper taken ſeveral times in a day with ſmooth balſamic emollient decoctions; for by theſe mild and native balſams we deterge the ulcerated parts, and when they are cleanſed, diſpoſe them to conſolidate and heal.

Riding on horſeback is alſo of very great ſervice, where the ſtrength will admit of it; for by this means the freſh air, which every moment enters the lungs, ſweeps away, or ſhakes off the matter from the ulcerated parts, and removes the load oppreſſing the lungs by thoſe concuſſions of the body which ariſe from the motion of a horſe, and this even without a cough, or at leaſt with a very ſlight one.

It is obſervable in thoſe who have a pulmonary conſumption, and daily evacuate by ſpitting the matter collected in the lungs, that towards the evening, when their hectical fever is uſually much increaſed, the ſpitting becomes ſuppreſſed, and the anxiety augmented; but in the morning the fever leſſens, and the ſpit-

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ting comes on again, to the great relief of the patient.

That violent paſſions of the mind have an effect on the lungs, is obſervable from the alteration which is thereby made in reſpiration.—A perſon ſeized with great anger, immediately breathes very ſtrong and pants; ſo a man ſuddenly ſtruck with a panic, perceives a great oppreſſion about the breaſt, fetches very troubleſome ſighs, &c.

If any diſeaſe, by its falſe appearance of mildneſs, deceives the leſs ſkilful, it is the *falſe peripneumony*, for here there is no intenſe heat, great fever, or other violent ſymptoms which uſually attend a true peripneumony; for the material cauſe of this diſorder is a ſluggiſh inactive phlegm, which begins ſlowly to be collected in the narrow extremities of the pulmonary arteries. But among thoſe ſigns which inform us that a ſluggiſh phlegm is moved together with the blood through the veſſels, and is rendered leſs pervious, are reckoned a ſlight wearineſs

and greater weakneſs, together with an unuſual dullneſs.

But when that ſluggiſh phlegm begins to adhere to the veſſels of the lungs, the free paſſage of the blood, from the right to the left ſide of the heart, is then impeded, when the patient endeavours to breathe with greater efforts to forward the courſe of the blood; and from thence there ariſes a panting, with complaints of a troubleſome anxiety and oppreſſion at the breaſt: but in the mean time there are no ſigns, or at leaſt very ſlight ones, of any fever attending: then follow ſhiverings, not confined to any particular part, together with the attack of a ſlight fever, ſo that at one time the patient is hot, and at another time cold again. But by degrees the lungs are more and more ſtuffed up, attended with a diſagreeable rattling; the ſhortneſs of breath increaſes, together with weakneſs, and death enſues. *Sydenham* is of opinion, that the abſence of the fever, or the reaſon why it is ſcarce perceptible,

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is partly owing to circulation being interrupted by the obſtruction of the lungs, and partly becauſe the blood, charged with a great quantity of phlegmatic matter, cannot be rarefied or heated into an ebullition. Hence the reaſon is evident, why there are ſcarce any ſigns appear either from the urine or pulſe, from which we may judge of the fatality of this diſorder.

Redneſs of urine is eſteemed a ſign of internal heat, and yet in this diſtemper ſuch urine may be eaſily diſcharged, if we conſider that thoſe are invaded with it chiefly who are ſhort and fat; and when in theſe people the inactive oily glue is diſſolved by motion, heat of the air, &c. and ſuddenly mixed with the blood, an impervioufneſs of the humours of the worſt kind will be produced; and it is theſe oily parts which being mixed with the ſalts of the urine, which give that redneſs to it.

So ſoon as the ſhortneſs of the breath and oppreſſion perceived about the breaſt

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by the patient, denote that the lungs are ſtuffed up, a vein muſt be immediately opened, (and that from a large orifice, leſt the phlegm with which it is charged might obſtruct a ſmaller opening) for thus the maſs of fluids to be moved through the lungs will be leſſened, and, together with the blood drawn out, will be removed: part of the phlegmatic matter flowing with the blood through the veins, the febrile motion will be leſſened, if any there is, from whence a greater impaction of the viſcid phlegm into the narrow extremities of the pulmonary arteries might be apprehended, and the veſſels being likewiſe unloaded, convenient room will be made for diluent and attenuating medicines. After bleeding a clyſter ſhould be immediately adminiſtred to cleanſe the bowels, made up of honey, nitre, the yolk of an egg, and barley water; theſe clyſters ſhould be thrown up daily, till reſpiration becomes eaſy, and the ſtrength of the pulſe enlarged, and by that means we know the lungs to be relieved.

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The legs and feet may be fomented with warm baths; by which means they being relaxed, the panniculus adiposus may swell and receive into its cells a large quantity of the ropey phlegmatic matter, which may be thus drawn off from the lungs as much as possible.

Large blisters applied to the legs and thighs may be of great service also.

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## *Of a Pleurisy.*

A Pleurisy is said to be present when a person labours under an acute continual fever, with a hard pulse and a sharp pricking inflammatory pain in the side, which greatly increases in the act of inspiration, but abates in expiration, or by holding in the breath; also becomes milder when the breathing is performed by the abdomen chiefly, without moving the breast; a cough likewise attends, which is almost incessant, and which exciting great pain, is therefore stifled or suppressed by the patient.

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An acute continual fever must accompany this pain; it cannot else be properly called a pleurisy.—Hysteric and hypochondriac persons have very sharp pains about them, but then they are not attended with a fever.—*Pain*, therefore, and *an acute continual fever* are the *pathognomonic* signs of a pleurisy; and this pain is *sharp and pricking*, arising from a distension of the inflamed vessels.

A hard pulse attends most of the more acute inflammatory diseases, from the more dense and compact blood passing more difficultly through the extremities of the capillary arteries: but this symptom may sometimes deceive us, when the patients cannot inspire for the severity of the pain, to avoid which they almost suffocate themselves; for then a peripneumony succeeds in consequence of the pleurisy, and the pulse feels small and soft.

But since, when the thorax is dilated by inspiration, the inflamed parts are more stretched, the pain will consequently be

be at that time increaſed; and for the ſame reaſon it will be ſlighter during expiration, and when the ſick hold in their breath. Hence it is that thoſe who have a violent pleuriſy ſcarcely breathe, to avoid the ſeverity of the pain, whence they almoſt ſuffocate themſelves. Such patients, therefore, are often eaſed in their pain, while the thorax remains bound up with a roller, ſo as to allow little or no dilatation to the breaſt in reſpiration; for in that caſe inſpiration is principally performed by the abdomen without moving the thorax: for in the act of inſpiration the thorax is dilated, not only by the motion of the ribs, but likewiſe by that of the diaphragm, which being drawn downwards enlarges the capacity of the cheſt, while at the ſame time it leſſens thoſe of the abdomen; whereupon the abdominal viſcera, being compreſſed, urges againſt the muſcles of that venter, and thruſts out the belly. Therefore, while the thorax is thus immoveably bound up, there may be ſtill a

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sufficient space left for dilating the lungs by the inspired air, while the diaphragm is drawn downward; which now probably acts with a greater force than when the thorax is conjunctly dilated with it: thus we see the manner in which the breathing, absolutely necessary to life, may be still carried on. But the breathing will also suffer more or less impediment, according to the situation of the inflamed parts

A cough is almost a perpetual attendant on a pleurisy; and since expectoration is of the utmost importance in a peripneumony, and since a pleurisy itself frequently terminates that way, it behoves for that reason every skilful physician, in the beginning of this disease, ever to observe whether the cough be attended with a spitting, and of what kind it is; for a dry pleurisy is by all condemned as the most dangerous, troublesome to treat, and difficult to bring to a concoction or crisis; it either carrying off the patient with great rapidity, or continuing

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for a considerable time; and even a spitting intermixed with blood, in this case, is far better than where there is no expectoration at all.

There is a very near affinity betwixt a pleurisy and a peripneumony, and they often arise from the same cause; both are attended with a cough, and a pleurisy is near as often relieved by a spitting from the lungs. A peripneumony often accompanies a severe pleurisy, or almost constantly succeeds it: physicians therefore of the best judgment in practice have always been of opinion, that the lungs are the seat of both these maladies.

HOFFMAN was of opinion, that a bastard, or false pleurisy, occupied the external parts of the breast only by its inflammation; but that if it invaded the surface of the membranous substance of the lungs, like an erysipelas, it then constituted a true pleurisy; and if it yet descended deeper into the substance or body of the lungs, it then became a peripneumony.—Certain we are, that the

pleura

pleura alone is not ſolely or conſtantly the ſeat of a pleuriſy: we have even found a phlegmon ſeated within the fat and intercoſtal muſcles.

PETER SERVIUS, after opening three hundred perſons who died of pleuriſies at *Rome*, always found one lobe of the lungs, corrupted and diſtended with a putrid matter; but the pleura appeared not at all affected, or at moſt but ſlightly. Indeed, if we conſider that a pleuriſy and peripneumony are often conjoined, and that it is not from the pleuriſy only that the patient dies, becauſe the pleura and intercoſtal parts are inflamed, but oftener becauſe the immenſe pain occaſions the neceſſary motion of the thorax to be ſuppreſſed, whereby the courſe of the blood through the lungs being ſtopped, brings on a fatal peripneumony; it will evidently appear, why in bodies dying of a pleuriſy, the diſorder ſhould rather be conſtantly found in the lungs, while the pleura appears but lightly diſordered.—For it is obſervable, that SER-

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vius does not deny the pleura to be affected, he only confines it to a ſmall degree.—The proximate cauſe of death was by him, therefore, aſcribed to the lungs, although the original diſtemper might have previouſly been ſeated in the pleura, or in the adjacent muſcles and panniculus adipoſus; however, we are confirmed by a great number of obſervations, that the pleura is truly affected in this diſtemper.

The true ſeat of this diſorder is in the pleura, incumbent on the coſtal muſcles, and contiguous to the fat.

It is an obſervation of the learned Triller, that the pleuriſy which attacks the right ſide, is not ſo dangerous, ſtubborn, or inveterate, as when the left ſide is affected: it proves often fatal on the third or fourth day, eſpecially in perſons who are very hard drinkers.

An original pleuriſy generally requires copious and repeated bleeding, the ſymptomatical, or that which happens in con-

ſequence of other epidemical diſeaſes, will not bear it ſo well, at leaſt no repetition of it; and therefore the lancet ſhould be ſparingly ordered. Pleuriſies are ſeldom more ſevere, or more ſuddenly fatal, than when they happen upon exceſſive and ſudden drinking of cold liquors, when the body has been much heated; and the reaſon is pretty evident, for the blood of a healthy perſon, drawn from a vein into cold water, inſtantly concretes into threads of an almoſt ſolid conſiſtence. Now when plenty of cold drink is ſwallowed down the œſophagus, which deſcends in its courſe very near the trunks of the intercoſtal arteries, it becomes filled or diſtended with it; the whole ſtomach, in like manner, being alſo charged with the cold drink, inſtantly imparts the unuſual coldneſs thereof to the adjacent diaphragm, liver, ſpleen, &c. the trunk of the aſcending cava, and the large right ſinus of the heart, incumbent on the thin tendinous part of the diaphragm, are likewiſe affected,

affected, by disposing the blood there collected to a concretion, and impede its passage, which it ought to make through the lungs.

The breathing is greatly injured, because at the time of inspiration the ribs must, of necessity, be drawn from each other; and the inflamed parts be consequently stretched and extended, and so cause a great increase of the pain. Upon this account such miserable patients hardly breathe air sufficient to dilate the lungs; whereby the right ventricle of the heart becomes unable to empty itself so freely as it ought to do. The blood, therefore, returning from the head by the jugular veins, cannot now find any admittance into the right sinus and auricle, already full; the whence internal parts of the encephalon are compressed by the turgid vessels, and the patient will become dull, stupid, and less sensible of the pain; and while the lungs are gradually more and more overcharged with blood, they soon expire, suf-

focated; and it must be remarked, that pleuritic patients perish in the height of the distemper, not from the inflammation of the pleura, nor of the parts incumbent on the ribs, but are suffocated by a repletion or oppilation of the lungs, for want of a free respiration.

It is to be observed, that when a pleurisy has continued three or four days, without having had any necessary assistance, it seldom or never is cured by an innocent or mild resolution; for then the violence of the disease usually gives rise to other maladies which seat themselves in the body, and more especially in the lungs.

TRILLER has very justly observed, that pleuritic patients generally escape by the help of nature, even without venæsection, provided a copious flux of florid or purple blood from the nose, happens between the *first and the fifth day.*

*Urina subrubra in pleuriticis* (says HIPPOCRATES) *habens læve sedimentum, securam judicationem indicat.* "A pale reddish

diſh-coloured urine, with a light ſediment, in pleuriſies, denotes a ſure and ſafe criſis." If ſuch an urine flows plentifully, and generally depoſits ſuch a ſediment, with relief of all the ſymptoms, we are then ſure the morbific matter is diſcharging itſelf; and we have more eſpecially hopes that the diſeaſe will terminate that way, if this happens in the beginning, before many of the humours become vitiated by a long continuance of the diſtemper; for if this kind of urine happens towards the cloſe of the diſeaſe, it will ſcarce ever be removed by that diſcharge only.

When the pain invades the back, ſhoulder, or arm, and that of the pleuritic ſide evidently abates, it is a very happy ſign; for thoſe patients moſt generally recover. It is worth obſerving, that *theſe pains happen oftneſt upon the ſixth day of the diſeaſe*—This metaſtaſis, however, does not appear to cure the diſeaſe, but is rather the forerunner of a ſalutary criſis.

LANCISIUS often observed, that pleuritic patients, before the fourth day, expectorated a bloody matter, which afterwards appeared white and concocted; and that they did not draw this up from the bottom of the breast, but that they pointed to the place under the sternum, where the *vena azygos* opens into the *cava*.

All expectoration in peripneumonies are bad, which do not relieve the pain; but such as do, are certainly the best of all.

A white, concreted, or pus-like expectoration has been often known to cure a pleurisy; and even in a woman advanced into the fifth month of her pregnancy, when this spitting came on plentifully on the second day of the pleurisy, the symptoms were all immediately relieved, so that the disease itself was cured by the fourth day; a vein was opened on the first day of the distemper, but it was not repeated again, there being no occasion for it: this is the more remarkable, because HIPPOCRATES absolutely pronounces

nounces a pleurisy fatal to women with child, and declares in general, that all acute cases are fatal to pregnant women.

Expectorations of a yellow colour, intermixed with blood, are salutary; *Mitissimæ enim pleuritides sunt in quibus sanguinolentum spuitur*, is an axiom of HIPPOCRATES. "Those are the mildest "pleurisies in which the spitting is some-"what bloody:" but here the physician must avoid the lancet; for otherwise he suppresses expectoration, and kills the patient.

In a violent pleurisy, although by a happy treatment the matter of the distemper may be dissolved, and rendered fluxile, it hardly ever once happens, that this matter can be again assimilated with the healthy juices, so as to circulate with them freely, and without prejudice to the vascular system, which this matter almost constantly stimulates to such a degree, as obliges them to throw the same off by one outlet or another, in a sensible discharge from the body. This cau-

tion is very necessary here, lest any one should fear to order bleeding in the beginning of a pleurisy, thinking it might hinder the said salutary endeavours of nature to expel that matter.

Neither should we neglect to open a vein, even while the menstrual flux is upon the patient, provided there be a great difficulty of breathing; nay, the good effects of it have been very apparent, even in child-bed women, seized with a pleurisy, notwithstanding the lochia; and this is confirmed by the observations of LA MOTTE, who has repeated bleeding in the arm in these cases, even where the flux has not been very small.

It sometimes happens, in a pleurisy, that the breast can by no means be dilated or moved, upon account of the violent pain, whence the lungs transmit but very little blood; for which reason the large veins are very full and turgid, but the aorta receiving only a little blood, does not press forward that which is contained in

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the veins with any great force; so that, upon opening a vein, there often issues out but a small quantity of blood: but as soon as the patient expands them by sighing, or shocks them by coughing, the blood issues forth with impetuosity. This was observed in a pleuritic woman by TULPIUS, who advises physicians, therefore, in such cases, to persuade the patients to cough; but as the pain is often so very severe, that the least dilatation of the breast throws them into convulsions, it is not an easy matter to persuade them to do it.—Under such circumstances, it will be expedient to give them a pinch of some sternutatory, or a spoonful of sour wine or hot vinegar, to drink by way of pretence as a cordial, whereby an involuntary cough may be excited, which may suddenly remove the pain, or greatly abate it at least.

We should be cautious to avoid fainting in bleeding, lest a peripneumony should follow; for while the heart ceases to move in a fainting, the blood in the

right

right sinus, auricle, and ventricle, often stagnates for some minutes; and the blood being in this inflammatory malady greatly inclined to inspissate and concrete, it will, in some degree, enter before the patient can be recovered from his fainting fit; it may therefore adhere and become impervious to the smaller vessels of the lungs, through which it ought to have passed; and by that means be productive of a peripneumony, which would be of much more dangerous tendency than the pleurisy itself.

TRILLER gives us a history of a case, to prove how effectual bleeding may be, even when the patient is extremely weak, and all the symptoms are, notwithstanding, aggravated to a degree of violence. In a robust youth, very fond of hunting, under a most severe pleurisy, after two plentiful bleedings, the disease seemed to change for the better; but on the fifth day the symptoms returned with great violence; so that, in spite of clysters and vesicatories, the patient seemed to be in the

the most imminent danger. A large orifice was made in the veins of both feet, now grown so cold, that though they were fomented with warm water, not a drop of blood came; upon which water was continued to be poured upon them, so hot as to fetch off the cuticle, and then the veins bled plentifully enough; and so effectually, that the patient, almost half expiring, revived, and was most happily cured of this most dangerous disorder.

SYDENHAM bled his pleuritic patients, as soon as he was called to them, from the arm of the affected side; but when he afterwards repeated this venæsection, he makes no mention of the part from which the blood was taken. HILDANUS observes, that he seldom or never found the desired success from bleeding in the arm of the opposite side of the pleurisy. And TRILLER confirms this also, as to the first bleeding; for the second he rather prefers the foot of the same side; and then in the opposite foot, if there should be a necessity for a third or fourth

bleed-

bleeding; but he very justly remarks, that the first bleeding should of all be the most copious.

In this case a solution of Venice soap, in equal parts of warm water and new milk, has been found a comfortable fomentation; or half an ounce of soap to a pint of the emollient decoction, in which flannels were dipped and laid upon the side, and hot tiles placed over them, in order to keep the fomentation from cooling too soon.—In the night-time, that the frequent renewal of the fomentations might not be troublesome, the side may be first rubbed with unguent. de althæà, and then be covered with a melilot plaister.

A simple decoction of barley, with oxymel and nitre, is often sufficient here, since this includes all the qualities necessary towards a cure; for it dilutes by being watery, relaxes and eases by the mealy substance of the barley that is intermixed with the water, while the honey and vinegar very well dissolve inflammatory

matory size or spissitude, as does the nitre likewise, which at the same time abates the too great heat of acute diseases by lessening the density of the humours.

We should by all means keep pleuritic patients from being too hot; they should have liberty to be taken out of bed for a few hours every day, if their strength will admit of it: copious bleeding, and other cooling medicines, will avail but little without this precaution, and more particularly if they happen to be over-loaded with bed-cloaths.

In the paraphrenitis, the sardonic, or convulsive laughter, is a pathognomonic sign.

Clysters in this disease are useful; for when they are thrown into the bowels, they may extend through the whole length of the colon, even to the end of the ilium; and as the colon, when it has reached as high as the liver and spleen, lies very near to the diaphragm, it will, therefore, when filled with an emollient clyster, have the effect of a

mild

mild and discutient fomentation applied to the inflamed diaphragm. Great mischief may be feared from an abscess of the diaphragm draining into the cavity of the abdomen: for if it be considered that the diaphragm is always in motion, and that the circulation through its vascular fabric is very rapid on account of its vicinity to the heart, we may easily perceive that a large quantity of matter must gather there in a short time; and that the ulcer of the diaphragm will admit of no cure, more especially when it is constantly mostened by the confined matter, rendered acrid by long standing. It is true, indeed, the matter poured out will, by its own weight, drain to the bottom of the abdomen; but being long confined and corrupting there, its putrid vapours will infect all the viscera, and will itself corrode all the parts within its reach.

Great caution is necessary towards the close of a pleurisy with regard to the diet of the recovering patient, for too sudden a repletion would endanger a fatal relapse.

## *Of an Hepatitis, and of the ſeveral kinds of Jaundice.*

THE arteries which branch to the liver are but ſmall, in proportion to the ſize of ſo conſiderable a viſcus, and the blood which is driven through the liver, from the trunk of the vena portarum, moves on but very ſlowly, as it does in the veins, having now no further aſſiſtance from the moving powers of the heart and arteries: on theſe accounts, probably, a true inflammation of the liver is not ſo frequent as in other parts; but very ſtubborn and chronick obſtructions are therefore much oftener formed in this tender gland.

Since an inflammation can take place only in thoſe veſſels, through which the humours are conveyed with a directed motion from the baſis, towards the apex of the cone of the veſſel; 'tis therefore evident, this malady may be ſeated in the branches of the vena portarum, diſ-

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perſed through the liver, as well as in the branches of the hepatic artery; for all the venal blood returning from the other viſcera of the abdomen, flows together into the trunk of the vena portarum, and from that venal trunk it is again propelled throughout the liver, by converging branches of the ſaid trunk; but anatomical injections have alſo taught us, that the branches of the hepatic artery, which convey blood for the nouriſhment of this viſcus, are diſtributed throughout every part of the liver, as well as the arterial branches of the porta, which ſerve for the ſecretion of the bile; and that they run in company by the ſides of the former, throughout all the ſubſtance of the liver; and even ſeem in many places to join, or open one into the other by anaſtomoſes; for, in a dexterous injection of the vena portarum, I have known the wax return through the hepatic arteries; and therefore here, as well as in the lungs, a twofold inflammation may take place; but it is worth

worth remarking, that the effects of an inflammation in the liver, from a ſtuffing up of the portal branches, or of the extremities of the hepatic arteries, will be very different from the ſame effects in the lungs, from an inflammation of the extremities of the pulmonary or bronchial arteries of the lungs; for in the lungs, in both caſes, the very conſiderable force of the heart, which is contiguous, preſſes upon the inflamed parts; but in the liver the branches from the porta are filled with blood from the veins of the abdominal viſcera, moving on much more ſlowly than the arterial blood which paſſes the hepatic arteries. On this account the effects which ariſe from the blood preſſing upon an inflamed part, and which are, likewiſe, the plain indications of a preſent inflammation, do not ſo plainly ſhew themſelves when the malady lies in the branches of the vena portarum; and this ſeems to be the reaſon why ſome phyſicians are often miſtaken in their diagnoſis of this diſtemper.

GALEN, and many phyſicians after him, have particularly diſtinguiſhed the diſtemper, according as what certain part, or region of the liver, the inflammation is ſeated in, as whether it be in the convex or gibbous part, which lies next the diaphragm, or in its concave or hollow part, which covers a portion of the ſtomach and duodenum; but he will have the diagnoſtic ſigns to differ in theſe two caſes, more eſpecially becauſe different parts are preſſed and irritated by the inflammatory ſwelling of the liver; ſo that if the inflammation be ſeated in the convex part of the liver, he obſerves there will be a greater difficulty of breathing, a pain of the right ſide will reach up to the very neck, and a cough will alſo attend: but if the concave part of the liver be inflamed, he then tells us, that a ſickneſs, reaching, vomiting, and great thirſt, will be moſt obſervable.

The omentum has no excretory veſſel; and therefore all the fat, liquified and trans-

transfuſed by diſeaſe or violent exerciſe, muſt paſs directly through the epiploic veins into the vena portarum; whereby the whole liver will be ſuddenly ſurcharged with an inundation of oily fat, which will not very readily move thro' the very ſtraight paſſages of the ſmall veſſels, and will give riſe to an obſtruction of the worſt kind, more eſpecially in this inert viſcus, which is firſt attacked by the ſaid oily plethora.

Stony concretions are no where oftener found than in the liver and gall bladder, and in the paſſages deſtined for the ſeparation, retention, and expulſion of the urine.

NEBELIUS, in the body of a ſoldier, found a long worm, both in the cyſtic and in the hepatic duct, with a number of the ſame ſort in the inteſtines; whence he reaſonably conjectured, that thoſe worms had made their way from the duodenum, through the common biliary duct, into the cyſtic and

hepatic duct. There may, perhaps, be other paſſages by which worms may get into the liver; for RUYSCH, in examining the meſentery of a horſe, found a part of the meſenteric artery greatly dilated, which, upon examination, was owing to numberleſs ſmall worms about the ſize of very fine needles: neither is it abſurd to believe that ſuch vermiculi, when they were infinitely ſmaller, might have paſſed along from the meſenteric arteries to the veins of the ſame name, and ſo get, by that means, into the liver.

It is well known that the fore part of the liver, which lies upon the ſtomach, is in immediate contact with the peritonæum, and is therefore very eaſily affected by the external cold; and hence we may frequently account for inflammations of the liver, and very ſtubborn jaundices.

Violent thirſt may occaſion terrible diſorders throughout the whole body, but more eſpecially in the liver, becauſe the blood in that viſcus is obliged to flow from the

veins,

veins, thro' the ſtraightened arteries, without receiving any additional force from the heart and lungs.

If now the whole tract of the ſtomach and inteſtines, being overparched for want of drink, there be none of the uſual moiſture re-abſorbed into the meſeraical ſmall veins, the venal blood of the abdominal viſcera will return too thick, before it is driven by the vena portarum through the liver, in the extremities of whoſe minuter veſſels, it will be, therefore, apt to ſtick and adhere; but the other venal blood, before it enters the right ſide of the heart, is firſt diluted, with all the lymph collected throughout the cellular ſubſtance of the whole body, and is then attenuated by paſſing the pulmonary artery with a very conſiderable muſcular force from the heart: but as both theſe helps are wanting, towards facilitating the courſe of the blood thro' the liver, it readily appears, that we have much reaſon to fear obſtructions in this gland, from the impervious blood

adhering closely to the impacted vessels.

When the bile cannot pass through the intestines, but returns from the liver into the blood, and overspreads the whole surface of the body, it occasions the jaundice.—But since the hepatic bile differs in colour from that of the cystic, and both of them often put on a different colour from that which is natural to them, it will necessarily follow, that icteritious people will be variously tinged: sometimes they are pallid, or of a yellowish green hue; at others of a deep green, inclining almost to black; yet physicians have generally distinguished but two kinds of the jaundice, namely, the black and the yellow; although there be, in fact, a great diversity, or number of colours, betwixt the slightest yellow jaundice, and that which descends almost to a black.

A doubt, however, may arise, Whether an inflammation of the liver can produce a jaundice? Unerring observation proves that every

every impediment which obſtructs the free diſcharge of the bile from the liver and gall bladder into the duodenum, may produce a jaundice. Thus, for example, a jaundice has often been obſerved in new-born infants, from the glutinous clogging humours collected in, and ſticking to the ſides of the inteſtines; but that kind of jaundice is eaſily cured by expelling the congeſted humours by a ſlight purge. Some women have been obſerved to have a jaundice during the time of their pregnancy, although they were not troubled with that diſtemper either before or after their child-bearing; this might poſſibly happen by the enlargement of the womb compreſſing the abdominal viſcera, and diſplacing the inteſtines, after a wonderful manner, from their uſual ſituations; they have ſometimes voided moſt hard fæces, of a very conſiderable bulk, by ſtool, for ſome days after delivery; after which the yellow icteritious colour has entirely diſappeared: whence it is very probable to ſuppoſe the colour to have been

diſtended by ſuch accumulated fæces in that part, where it lies under the liver, ſo as to compreſs the cyſtic duct. If, therefore, an inflammatory tumour of the liver happen in a place, ſo as to compreſs the exit of the cyſtic bile, no doubt ſuch an hepatitis, or inflammation of the liver, may produce a jaundice. But it is not quite ſo clear that every hepatitis may be the cauſe of a jaundice; namely, inaſmuch as it impedes the ſecretion of the bile, by the ſtuffed-up extremities of the vena portarum; or if the adjacent ſecretory ducts are compreſſed by the ſame diſtended and inflamed veſſels that lie contiguous to the ducts, which contain the bile, already ſeparated from the blood of the vena portarum. Certain we are, that the cyſtic bile differs, both in colour and taſte, from the hepatic; and there are numberleſs arteries ramified throughout the gall bladder with wonderful contrivance, and in very peculiar diſtributions, as we are taught by anatomical injections: whence it ſeems not improbable, that

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they may be ſome way ſerviceable towards the preparation and ſecretion of this bitter fluid. Add to this, that naturally in the liver we obſerve, neither bitterneſs nor a yellow colour; and therefore, when a jaundice tinges the ſurface of the body with ſuch a colour, it ſeems to follow, that it muſt be from an obſtruction of the excretion of the cyſtic bile into the duodenum, whence it is driven back again into the blood. This opinion is confirmed by obſervations made in deceaſed bodies; abſceſſes, even of a conſiderable bulk, have been found in the liver, without any preceding jaundice; and other tumours have been found, likewiſe, which, by their bulk, muſt have compreſſed a great many of the adjacent biliary ducts and veſſels: on the other hand, when the bodies of thoſe deceaſed of a jaundice have been opened, the cauſes have manifeſtly appeared, and been found ſuch as obſtructed the diſcharge of the cyſtic bile into the duodenum;

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and, among theſe, the moſt frequent cauſes have been ſtony concretions blocking up the excretory paſſages of the bile.

But, in the mean time, it deſerves to be remarked, that the blood of the vena portarum contains in itſelf the matter for the immediate formation of the bile, which muſt be ſoon after ſeparated from thence by the ſecretory ducts of the liver; ſo that, if a large part of the final extremities of the vena portarum are ſtuffed with impervious humours, the ſecretion of the hepatic bile will be neceſſarily obſtructed; and that as yet unperfected bilious juice, which was about to aſſume the name of bile, will remain mixed with the blood, and paſs with it throughout the body: conſequently, this muſt induce a bilious cacochymia of the blood, which thus retains a humour accumulated in itſelf, that ought not naturally to be there, or at leaſt not in that abundance. When continual, or remitting fevers, have been epide-

epidemical in the autumn ſeaſon, after very hot and dry ſummers, practical obſervations have then ſhewn us, that the liver has been often affected, and ſtuffed with a thick blood, that has had almoſt an atrabiliary tenacity: now in ſuch patients there has not, indeed, been obſerved the intenſe yellowneſs of a jaundice, but the face looks of a ſallow complexion, exhibiting a paleneſs, mixed with a ſmall tincture of light yellow, as a ſymptom of this diſtemper.

So long as the febrile heat continues moderate, and is treated with reſolvent medicines, the obſtructions formed in the liver may be removed, ſo as to reſtore the patient to perfect health; but if, when the diſtemper is going off, the tired patient refuſes farther help, or if the phyſician careleſsly neglects to treat the remains of the diſtemper timely, chronical diſorders are then uſually the conſequence, which prove extremely difficult to cure, particularly ſcirrhous indurations of the liver. In autumnal epidemical fevers,

fevers, which follow after the hottest summers, it often happens that a slight inflammation of the liver is an attendant with other symptoms; and when such a fever is removed or extinguished, before the febrile viscid that lodged within the obstructed vessels of the liver be thoroughly resolved, the surviving patient often lives in an unhealthy, or languishing state, with a pale, yellowish, or sallow countenance, and is not without the utmost difficulty recoverable to sound health; at least, it will be a work infinitely more laborious, or difficult, to remove obstructions in the liver that are once confirmed and inveterate, when they might have been easily removed in the beginning of the distemper. But this difficulty here principally arises, because the blood of the vena portarum, now become venal, moves with a less force, wanting, in a great measure, the impulse of the heart and arteries to push the blood forward through the other

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parts. Hence HIPPOCRATES, who deſcribes an hepatitis, but by a different apellation, very juſtly remarks, that many who have had this diſtemper only palliated, or imperfectly cured, have afterwards had a return of the ſame malady; and that then they are in great danger of a conſumption: and he afterwards adds, that for forty-five days after the violence of the diſtemper is over, the patient ought to be kept to the lighteſt regimen, and make milk whey his daily drink, provided the ſeaſon of the year will permit; becauſe the diſeaſe is ſtubborn, and requires a careful treatment. When no further yellowneſs is obſervable in the eyes, while the pale, yellow, or ſallow colour goes off from the face, and the urine, with the inteſtinal fæces, recover their natural appearance, while at the ſame time no pain or anxiety is felt about the right hypochondrium, eſpecially after a full ſtomach, or after more than uſual exerciſe of the body,

body, we may then pronounce the cure to be compleat; and more eſpecially, when for ſeveral weeks after there are no returns of theſe ſymptoms or complaints: for great care is here neceſſary, not to leave any remains of the diſtemper within the liver, ſince moſt chronical diſtempers take their riſe from an inflammation of that viſcus, either neglected or ill cured.

The principal diagnoſtic ſigns, by which a tumour of the gall bladder may be diſtinguiſhed from an abſceſs of the liver, are, that a throbbing pain attends ſuppuration, together with wandering ſhiverings, which are both frequent and hold for ſome time; that the tumour of an abſceſs has not ſo uniform or circumſcribed a figure; nor is there at firſt ſuch an apparent or eaſy fluctuation obſervable in it, which is moſt ſenſibly to be perceived in the center of the tumour only, the circumference ſtill remaining hard. But it is obvious enough, that the difficulty

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of diſtinguiſhing theſe tumours, is only when they occupy that region of the liver wherein the gall bladder is placed.

The bad ſymptoms which attend the liver, waſting by a purulent impoſthume, proceed partly from the reſorbed matter bringing on a purulent cacochymia of the blood; and partly becauſe the functions which depend upon a healthy ſtate of this important viſcus are interrupted: for the quantity of collected matter increaſes daily, whence it has been found amounting in the liver to an incredible quantity: and thus, by drawing and compreſſing the adjacent organs, that lie contiguous to the liver, it may be productive of many evils. ARETÆUS, for this reaſon, among the other ſymptoms which attend a ſuppuration of the liver, mentions a ſharp pain extending as high as the throat and top of the ſhoulder, becauſe the diaphragm with the pleura connected to it, are hereby much diſtracted.

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An inflammation of the liver is often attended with great anguiſh and oppreſſion; and as all the functions of the ſeveral viſcera in the abdomen muſt either be impeded or much diſturbed, the free courſe of the blood through the portal veins of the liver, being obſtructed, a great weakneſs of the vital powers from the corrupted bile that in this caſe often lodges itſelf about the præcordia or ſtomach, will happen; which has led ſome unſkilful people to treat ſuch an inflammatory hepatitis as a malignant fever, with great danger to the patient; but a diligent obſervation of the cauſes of an hepatitis, and of its effects, will not eaſily lead the wary phyſician into ſuch miſtakes.

The bile is known to be one of the ſharpeſt and moſt putreſcent juices of the body; the blood of the venæ portarum contains the immediate matter of this ſoapy fluid; but the property of the bile is to melt or diſſolve the texture of the blood,

texture, inſomuch that after a long continued jaundice, the blood too much fuſed by the intermixed bile, commonly terminates in an incurable and fatal dropſy.

Whatever juices flow through the vena portarum, do it by a two-fold paſſage, either through the ſecretory canals into the hepatic pores and ducts, or elſe through the final extremities of the vena portarum into the branches of the vena cava, which are diſtributed through the whole ſubſtance of the liver, and thence into the cava, ſinus venoſus, and right auricle of the heart. But ſince the hepatic bile, ſecreted from the blood of the vena portarum, is a fluid much thinner than the blood itſelf, it will therefore evidently follow, that if its courſe through the bilious canals be obſtructed, that the ſaid bilious juice will return with the blood through the vena cava, ſo as to infect the whole maſs of circulating fluids with a bilious cacochymia. 'Tis true, indeed, theſe bilious canals, that convey away the bile as it drains or ſecretes from the blood of the vena portarum, are not very eaſily

obſtructed, but from a violent cauſe, ſince the fluid has a motion through them, from a leſs to a more largely opening part of the veſſel; but then it meets with a much ſmaller paſſage through the entrance of the common duct into the duodenum, where obſtructions often prevent its excluſion. Again, the bile, and even the blood, containing the immediate matter which conſtitutes the bile, are very much inclined to run into calculous concretions, which being once formed, and daily enlarged, may eaſily block up thoſe paſſages. Finally, all ſorts of tumours ſeated in the liver, whether they be inflammatory, ſuppurative, ſcirrhous, ſteatomatous, &c. may produce ſuch an obſtruction by compreſſing the adjacent parts which lie contiguous.

Young people are ſeldom attacked with this diſorder, which oftener invades people more advanced in years, or thoſe inclining to old age, and more eſpecially perſons who have long laboured under afflictions and grief, or are of a fretful and choleric

haſty

haſty diſpoſition; but above all, it attacks thoſe who lead very ſedentary lives, who live ſumptuouſly, feed high, and who, after having filled their ſtomachs, indulge themſelves at table, where, by ſitting too long, all the abdominal viſcera become compreſſed. They firſt begin to complain of a troubleſome tightneſs about the præcordia, with a ſenſation like that of an oppreſſing load; for ſome hours after eating they complain of a ſharp heartburn, or pain about the cardia, which has been known to hold the patient ſeveral months before a periodical jaundice of this kind. The next obſervable ſymptom is a ſlight yellowneſs in the greater canthi of the eyes, the urine becomes ſomewhat higher coloured, and bilious excrements paſs by ſtool; afterwards a ſudden and unaccountable anxiety ariſes, without any apparent previous cauſe, with an intolerable pain about the cardia, and ſometimes even throughout the whole abdomen; whence it is often

taken for a pain of the cholic or iliac paſſion; and laſtly, a fever ſucceeds, with violent vomiting, and when theſe ſymptoms have continued for ſome hours, they abate or go off, and leave the whole body tinctured with this icteritious colour. In ſome the face and breaſt only have been coloured with this yellow tint at the firſt attack, without affecting any of the other parts of the body, but then the urine is of a very deep yellow, and the patient has no other material complaint; yet ſome have a troubleſome pain in their back, loins, and ſides, before the yellowneſs appears: HIPPOCRATES has taken notice of this, *Quibus lumborum ac lateris dolor ſine manifeſta cauſa, icterici fiunt.* "Thoſe who have a pain of the "loins and ſides, without a manifeſt "cauſe, become icterical." After twenty-four hours, ſooner or later, theſe patients find themſelves ſeemingly well, and perceiving no more of this oppreſſive weight about the præcordia, flatter themſelves they ſhall ſoon get perfectly well; their

their urine becomes leſs and leſs coloured, the yellowneſs goes off daily, ſo that in a few days there ſeems to be nothing of the diſtemper left. In ſome there is an intolerable itching in the ſkin, all the time it is tinged with the bile.—But in a few weeks, and ſometimes a few months, the whole train of theſe complaints return again in the ſame order; and after the patient has been attacked thus for ſeveral times, the jaundice at length becomes perpetual, worſe at ſome times than others, though not attended with ſuch violent ſymptoms as at their firſt attack; the yellow colour is now very intenſe, and diffuſed all over the body, even the ſaliva itſelf, (this, however, is rarely obſerved) has a bitter taſte; in proceſs of time the whole body becomes of an almoſt black colour, the legs and ancles begin to ſwell, and the abdomen at length filling with water, ſinks the miſerable patient under a dropſy.

A jaundice happening in acute fevers, before the ſeventh day, is always ſuſpi-

cious, becauſe it rather denotes an increaſe of the malady, and that the veſſels of the liver, which have hitherto remained pervious, are now beginning to be ſtuffed up and obſtructed by the yet unconcocted matter.

Bleeding is, in general, proper in the cure of an inflammation for three reaſons, namely, 1ſt. To prevent any further injury of the veſſels which are inflamed, by leſſening the quantity and impetus of the blood in the obſtructed veſſels: 2d. That the veſſels, diſtended with impervious matter, may be reſtored to their proper vibrations, by leſſening the fluid that oppreſſes their muſcular and elaſtic force: or, laſtly, That the obſtructing matters having a leſs impulſe of fluids urging from behind, may be repelled into a larger part of the veſſel, and the obſtruction be thereby removed. Now, it readily appears, that all theſe effects of blood-letting will be much leſs efficacious towards the cure of an inflammation of the liver, ſince the

blood

blood of the portal veins is already venal, before it is driven into the narrow paſſages of the converging branches, whence it follows, that the impreſſed force of the heart and arteries on this blood muſt be extremely weak; but when an inflammation is ſeated in the final extremities of the hepatic artery, bleeding will then have a more conſiderable effect, no leſs here than in any other part of the body. We are not, therefore, totally to diſcourage bleeding in this caſe; for it may reduce the too great violence of the fever, diminiſh the heat, relax and empty the veſſels, and allow a more eaſy entrance or admiſſion of diluents and attenuants.

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## *Of an Inflammation of the Stomach and Inteſtines.*

IT is almoſt a pathognomic ſign of an inflammation of the cardia, when the pain is violently exaſperated, after any

thing, tho' ever ſo ſmall in quantity, has been taken down into the ſtomach, which it at other times would have eaſily borne. Indeed, if the inflammation be ſeated in the parts contiguous to the ſtomach, it will be irritated by its diſtenſion, but then the ſudden exaſperation of pain will not be ſo immediately perceived if but a ſmall quantity be swallowed down. It is obſervable that an inflammation of the ſtomach often kills the patient very ſuddenly, by exciting the moſt violent convulſions.

If a ſcirrhus of theſe parts be recent, a courſe of Venice ſoap, uſed for a conſiderable time, has been found ſerviceable, provided the patient takes to the amount of two drachms every day for ſeveral months; for this is the higheſt reſolvent, and is at the ſame time tolerably mild; but it ſhould be laid aſide immediately, in caſe the pains or vomitings increaſe upon taking it; for we then have reaſon to ſuſpect the ſcirrhus is degenerated into the nature of a cancer, which will not admit

admit of this medicine; and here the medicinal ſpaw waters, which have no acrimony, and abound with an extraordinary power to reſolve concretions or indurations in the human body, will be very properly preſcribed.

Diſtempers of the ſpleen are very frequently mentioned by the ancients, but with ſuch circumſtances as afford good reaſons to ſuſpect they have ſometimes miſtaken the diſtempers of other parts, for this; for the left flexure of the colon lies immediately contiguous and under the ſpleen, from whence indurated fæces and flatulencies obſtructed by theſe fæces, may cauſe pains and ſwellings in the region of the ſpleen, though there may be no fault in the ſpleen itſelf.—Moreover, if we conſider that the ancients often mention ſcirrhoſities of the ſpleen very ſpeedily cured, and that even ſome of the moderns do the ſame, there will be little room to doubt, but that thoſe hard ſwellings aroſe from indurated fæces, lodged at the

the flexure of the colon; ſince a ſcirrhus cannot be ſo ſuddenly reſolved, but for the moſt part even ſtubbornly withſtands the moſt powerful medicines.

The ſmaller inteſtines are oftener inflamed than the larger. The frequent cauſe of inflammation in the bowels, is the acrimony of ſuch humours as are lodged in the cavity of the inteſtines; and ſuch an acrimony muſt be derived either from what is ſwallowed into the ſtomach, or from a matter formed in other viſcera, and thence tranſlated into the bowels. It will, perhaps, ſeem difficult to underſtand how the contents of the large inteſtines can be able to paſs into the ſmall inteſtine ileum; and likewiſe to account how they ſhould get over the place where the volvulus is ſeated; but if it be conſidered, that by this inverted periſtaltic motion, the ileum itſelf is emptied, while the cæcum is greatly preſſed and its ſides diſtended, ſuch a paſſage will eaſily ſeem poſſible; for if the volvulus be formed by an introſuſ-

ception

ception of a lower portion of the gut into the upper, the way will not be ſo wholly intercepted for any thing to paſs upward by the reverted motion. But if the gut be in this manner involuted downwards, ſo that the lower portion being more dilated takes in the upper, ſuch a return will, in that caſe, be certainly much more difficult; but then we are alſo to obſerve, that this ſtercoraceous vomiting only happens (at leaſt for the moſt part) when the patient is in the laſt extremity of the diſeaſe, namely, when a gangrene is already formed, or very near at hand: and, it is well known, that, whatever tenſion the parts may ſuffer under a ſtate of painful inflammation, they, notwithſtanding, relax and ſubſide when the phlegmon turns to a gangrene.

If the ſeat of inflammation be in the larger guts, the moſt emollient fomentations may be applied immediately to the inflamed parts, where they will relax the ſtuffed-up veſſels, and dilute what

what is impervious; but where the ſmall guts are inflamed, it is true, that clyſters cannot naturally penetrate ſo far as to reach the part itſelf, yet the large inteſtines being filled with ſuch liquors, will prove as a warm bath to all the adjacent parts, and by that means be of great uſe; and nothing is of greater ſervice in relieving cramped or convulſed parts, as the application of warm and emollient remedies.

A prudent uſe of opiates may be of great relief, ſince we know not a more powerful antiſpaſmodick than opium, but bleeding and the uſe of clyſters muſt be premiſed, to abate the inflammation; otherwiſe, while the pain is rendered inſenſible by opiates, the cauſes of the pain, to wit, the inflammation, may yet remain, and deſtroy the affected parts by gangrene.

If an acid acrimony excites this diſtemper, abſorbents will be proper; but, on the contrary, if it ariſes from any putrid matter, ſuch things as are acid, or aceſcent,

aceſcent, will afford the beſt relief, more eſpecially when plentifully diluted with water. In other caſes, where the nature of the acrimony is doubtful or unknown, or where the excoriated membranes can only bear the ſofteſt liquors, watery, oily, mucilaginous, and emollient decoctions, will be always the beſt adapted.

Inflammations of the bowels muſt moſt certainly be treated in the antiphlogiſtic method by venæſection, fomentations, and emollient clyſters.

If a fixed pain continues very ſevere in one certain place, with a violent fever and ſtubborn conſtipation of the bowels, while every thing taken into the body is returned by vomiting, or if the cure was neglected in the beginning of the diſeaſe, or no relief obtained from it, we may conclude that ſuch a phlegmon of the bowels inclines to a gangrene.

A cadaverous countenance, livid lips, of a leaden colour, coldneſs of the extremities with anxiety, an inflated belly,

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an extreme weak and quick pulſe, are certain ſigns of immediate death.

BAGLIVI obſerves, *Gravi iliaco ſi ſuperveniat alvi fluxus, paucis poſt horis morietur nam ſphacelata ſunt omnia, hinc lethalis fluxus. Et ſi iliaco tumor ventris veniat, & flatus copioſi pedendo exeant, brevi morietur.* "If a flux of the bowels comes upon a violent iliac paſſion, the patient will die in a few hours after; for all the parts of the inteſtine are then mortified, from whence proceeds the fatal flux. And when a tight diſtention and tumour of the belly attends an iliac paſſion, with a plentiful eruption of flatus downward, the caſe is alſo deſperate and fatal."

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## *Of Aphthæ.*

PHYSIOLOGY demonſtrates that a great quantity of the juices are diſcharged through the whole internal ſurface of the mouth, in order to be mixed with the aliments at our meals in maſtication; and

and at the ſame time that there are numberleſs mucous cryptæ, or cells in the back of the tongue, tonſils, velum of the palate, pharynx and gula, which excrete a thick mucus for the lubrication of theſe parts. If we look into the mouth of a healthy perſon, we behold all thoſe parts equally moiſt and tumid: whence we may juſtly conclude, that there are like emiſſaries every where which tranſmit the ſame mucous liquid this; is alſo perfectly confirmed by anatomical injections. Now thoſe eruptive aphthæ ariſe when the ſaid mucous humour, being rendered thicker than ordinary, cannot be driven forward through the ultimate extremities of the ſaid emiſſary ducts, but adheres there, and blocks up the excretory openings into the mouth: while the force of the humour, urging from behind, diſtends the ends of the veſſels above the ſurface, and thus produces the aphthæ. A diligent inſpection of the aphthæ, at their firſt appearance, when they are here

and

and there ſingly diſperſed, ſeems to confirm this opinion; for when they occupy theſe parts in thick cluſters, they are not eaſily diſtinguiſhed to be compoſed of ſingle ones. But this appears ſtill more evidently when the aphthous cruſt falls off, and is again renewed, as is frequently obſerved to happen: for then by wiping or ſcraping the internal parts of the mouth, there appears ſmall white ſpecks, more eſpecially if they are viewed through a magnifying glaſs; theſe again ſuddenly encreaſing, unite, as they lie contiguous, and within a few hours form a like aphthous cruſt, reſembling that which ſeparated and fell off a little before. Hence it is evident that aphthæ cannot, without an impropriety, be termed exulcerations.

This diſtemper is very rarely, or ſeldom ever obſerved in hot countries: for human bodies being more thin and lax in the warmer climates, become better diſpoſed to perſpire and ſweat, ſo as frequently to carry off the matter of this and other

other diſtempers by exhalation or ſweat, which, in bodies leſs apt to ſweat, and in colder climates, does not ſo eaſily eſcape from the habit: and KETELAER affirms, that he has obſerved ſuch copious ſweats and urines to have rendered the aphthæ more ſafe and mild, whereas every thing that tended to leſſen theſe evacuations always proved detrimental. It may, perhaps, deſerve to be remarked, that in thoſe countries where the aphthæ do not appear, that the white and red miliary eruptions are frequently to be obſerved on the outward ſurface of the ſkin. It may be then aſked, Whether a like humour is not here depoſited upon the outward ſkin, as that which in the caſe of aphthæ is diſperſed through the ſurface of the various parts of the firſt paſſages? Certain we are, that theſe miliary eruptions often attend in moſt kinds of acute diſtempers and continual fevers, and there is alſo a very peculiar and diſagreeable ſmell, commonly reſembling that of flat or vapid vinegar,

perceivable in the apartment where the patient lies; and this ſmell is alſo frequently to be obſerved in aphthous patients. The white miliary eruptions exhibit very ſmall puſtules filled with a pellucid liquor, in part projecting above the ſurface of the cuticle; and after the ſaid liquid is become turbid and opaque, they dry up, ſcale off, and are often renewed. Now in the aphthæ many like circumſtances happen, and are alſo preceded by anxiety about the præcordia, weakneſs, ſlight and perpetual dozing of unequal intervals, in the ſame manner as we often obſerve it to happen before miliary eruptions, and the decline of them after their eruption. Sometimes the miliary eruptions diſappear very ſuddenly, with great danger to the patient: we likewiſe obſerve the aphthæ to vaniſh within a few hours; upon which the fever returns, or rages with great violence, and a troubleſome oppreſſion is felt at the præcordia, from whence there ſeldom can be expected any relief but by throw-

throwing out the aphthæ again, if poſſible.—But theſe particulars are only propoſed as merely ſpeculative, that thoſe who have frequent opportunities of ſeeing both the aphthæ and the miliary eruptions, may judge concerning the affinity of theſe two ſeparations of the morbid matter, depoſited upon the different parts of the body; for it muſt be confeſſed, that there are ſeveral other ſymptoms which precede and accompany the miliary eruption, which are yet not to be obſerved in the aphthæ.

A ſtupor and heavineſs are certain ſigns of approaching aphthæ, which ſeldom or ever fail; ſo that even the nurſe or attendants on the ſick, where theſe eruptions have often been known, immediately preſage their appearance when they obſerve theſe ſymptoms.

Hickups too have been often obſerved to precede a thruſh in the mouth, which ſeems to be owing to the aphthous cruſt, which is forming about the upper orifice of the ſtomach, where it is the cauſe of irritation by its bulk.

If we conſider that the opening of the common duct of the bile and pancreatic juice into the duodenum, may be ſo obſtructed by a thick aphthous cruſt, as to tranſmit neither of thoſe important fluids, we may eaſily apprehend what great anxieties muſt follow about the præcordia. But when the ſaid impeding cruſt is once ſeparated, and a free paſſage opened for the diſcharge of the now accumulated bile, rendered more acrid by ſtagnating, we need not wonder if the worſt ſevere gripes ariſe in the bowels, that are, in a manner, almoſt excoriated, ſo as to produce moſt dangerous diarrhæas and dyſenteries: hence it is that many phyſicians have ſo much condemned the uſe of purgatives in the aphthæ, becauſe they have obſerved them ſometimes fatal within a few hours, by cauſing an overpurging, or hypercatharſis, which ſeems to have been in conſequence, not only of the purgatives, but alſo of the ſudden torrent of collected bile and pancreatic juice, ruſhing ſuddenly forth into the

bowels;

bowels, and irritating their raw or excoriated ſurface. Moreover, as a ſalivation often holds for ſeveral days after the thruſh is fallen from the mouth, before the dilated veſſels can recover their former ſize; ſo, upon the ſame account, the juices which naturally diſtil into the ſtomach and inteſtines, frequently continue to flow in ſuch great abundance, as to entirely exhauſt the body by the purgings.

Aphthæ of the mouth in pregnant women may cauſe abortion, becauſe they hinder the due preparation of the aliments, and abſorption of the chyle; and, therefore, as the pregnant mother requires nouriſhment to ſuſtain two bodies at the ſame time, the want of chyle will be ſoon deſtructive to the fætus, more eſpecially as it muſt have ſuffered conſiderably already, from the mother's humours being vitiated by the preceding diſtemper, changed much from the healthy ſtate they ought naturally to have.

A hickup in the beginning of a thruſh is of worſe conſequence than at their

falling off, becauſe it denotes the interior ſurface of the ſtomach to be lined with very thick aphthæ, which, gradually aſcending from thence into the gula, at length fill the whole extent of the fauces, and are of the worſt diſpoſition, and become commonly fatal.

Cold applications in this diſorder are very dangerous.

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## *Of a Nephritis.*

A Nephritis is an inflammation of the kidneys with intenſe pain.

Little urine, thin and aqueous, is juſtly condemned as bad, both as a ſign in the diſtemper preſent, and as a cauſe in the future changes. As a ſymptom, becauſe it denotes a very violent degree of inflammation, and that throughout the whole ſubſtance of the kidney; and it is ſo, likewiſe, as a cauſe, inaſmuch as all the acrid parts of the humours are now retained, which, by the laws of nature,

nature, ought to have been this way evacuated from the body, and inſtead of which, the thin parts of the blood, driven through the kidneys, being thus exhauſted from the other parts, increaſes the inflammatory denſity of the blood.

It may be occaſioned by violent ſtraining; for as the kidneys are faſtened to ſome of the ſtrongeſt muſcles of the back, at that time ſwelled with action, while the diaphragm and abdominal muſcles, at the ſame time, powerfully compreſs the viſcera; and if we conſider, alſo, the bigneſs of the emulgent veſſels, it will, from all theſe matters conſidered, appear evidently, what a force the kidneys ſuſtain in a violent exertion of one's utmoſt ſtrength; more eſpecially when the body, being bent forward, endeavours to raiſe itſelf upright with ſome large weight, in which caſe the muſcles of the back act with a prodigious force. Violent ſtraining, therefore, of the body, may be a

cauſe productive of an inflammation of the kidneys, by compreſſing and obſtructing the final extremities of their arteries, and likewiſe by urging the groſs red blood into the urinary tubes, which naturally tranſmit only pellucid juices that are much thinner.

It may be occaſioned by heat; for by heated air the moſt fluid part of our humours are diſſipated, and the blood becoming more denſe, is alſo of a redder colour and more acrid, which brings on a ſtranguary.

An iliac paſſion, and that of a fatal tendency, has followed upon ſymptoms which have indicated the diſeaſe in the bladder or kidneys. This has been confirmed by HIPPOCRATES, *Quibus ex ſtranguria volvulus ſuccedit, intra ſeptem dies intereunt, niſi oborta febre copioſa urina effluat.* "A ſtranguary ſucceeded by an "iliac paſſion, is fatal about the ſeventh "day, unleſs a fever comes on with a co-"pious diſcharge of urine." GALEN ſeems to have a doubt about this; but I have

have once met with it, though it muſt be confeſſed that the caſe is very rare and uncommon.

In an inflammatory nephritis, ſuch urine as appears thick, although it does not ſubſide, or form a diſtinct and even hypoſtaſis, is, nevertheleſs, good, which yet, in other diſeaſes, is a ſign to be ſuſpected. But the reaſon of this difference is, that in other acute diſtempers, the matter of the diſeaſe being diſſolved and rendered fluxile, muſt remix with the blood, paſs the lungs, and circulate with the blood through the arteries before it can eſcape through the kidneys; nor can it all paſs out preſently by this emunctory, but is obliged to ſuffer the repeated actions of the lungs and arteries, which, in a manner, divide, and, as it were, levigate its parts, that are thus adapted to form a copious and even ſediment in the urine. But the matter of the diſtemper lodged in the kidneys has no ſuch neceſſity of remixing with the blood, but may immediately, upon its colliquation or diſſolution, deſcend and eſcape with the urine.

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The ſharper diuretics are here miſchievous; for by their ſtimulus they increaſe the fever and preſent inflammation, and give a greater acrimony to the urine, by which all the painful parts are more irritated, and the ſymptoms aggravated. Lenients with watery drinks, emollient and ſoft oily medicines are beſt, for they eaſe pain, relax the parts that are drawn into a cramp or conſtriction, and lubricate the paſſages to the bladder.

Pus diſcharged with the urine, if conſidered alone, is no abſolute ſign of an abſceſs or ulcer in the kidney; ſince it may come from the ureters or bladder, affected in the ſame manner. TRALLIAN has very well obſerved the ſigns by which one may diſtinguiſh, whether the pus comes from the kidneys or from other parts: for if the matter was not collected in the urinary paſſages, but being firſt abſorbed elſewhere, paſſes off with the urine, this pus will appear moſt intimately mixed with the urine, and will ſubſide, but very ſlowly to the bottom

of

of the veſſel; becauſe this pus being intermixed with the blood, has been highly attenuated by the action of the lungs and arteries, and has paſſed thence with the ſecreted urine through the venal ducts. But when matter diſtils immediately from an ulcer of the kidneys, it is never thus intimately blended with the urine; but, ſoon after it is diſcharged, appears at the bottom of the veſſel, ſeparated from the urine.—Matter from the bladder is much more tenacious and glutinous, and directly ſubſides like ſlime to the bottom of the urinal; but matter from the kidneys appears more looſe and fluctuating.

It ſeems a doubtful point, whether a complete palſy may enſue in the leg and thigh of the ſame ſide, from a tumour in the kidneys.—Since the large nervous trunks that are ſent to thoſe limbs, go out from the foramina of the *os ſacrum*, and are ſo ſituated, as ſcarcely to be compreſſed by any ſwelling of the kidneys, however large it may be. Add to this, that in an abſceſs of the bladder there is dis-

diſcharged with the urine a ſort of ſcabby or foliaceous fragments, which TRALLIAN calls μορια πεταλωδη, *a leaf-like abraſion*, which is, probably, a ſeparation of the interior lining of the bladder; but from a ſuppuration in the kidneys, particles more conſiſtent and fleſhy are diſcharged in the urine, which are, by HIPPOCRATES, called σαρκια σμικρα, *ſmall carnucles*, and he tells us they come from the kidneys: but theſe are, probably, half gangrenous parts, from the ſubſtance of the kidneys themſelves; for in the ſame manner we ſee that upon the breaking of abſceſſes in the external parts of the body, there are membranous fleeces of the cellular ſubſtance intermixed with the diſcharged matter.

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## *Of an Apoplexy.*

THE longer the neck is, the greater is the diſtance of the heart from the baſis of the ſkull; but as the mo-

tion communicated to the blood, by the contraction of the heart, and dilatations of the arteries, occaſioned by the blood which is propelled through them, are ſtronger near the heart than in parts more remote from it; it is thence very plain, that the nearer the heart is ſituated to the head, the blood will, *cæterus paribus*, be puſhed with the greater force through the veſſels of the brain; whence, likewiſe, theſe veſſels will be the more diſtended, eſpecially as the blood is ſent to the head in a ſtraight courſe through pretty large arteries. Hence it is remarked in phyſiology, that the carotid and vertebral arteries, when they approach the baſis of the brain, are diſpoſed in ſuch a manner, as that the force of the blood which is propelled through them, may be diminiſhed, leſt the ſoft ſubſtance of the brain ſhould be hurt by its violence: whence it appears why a ſhort neck is juſtly reckoned a prediſponant cauſe of an apoplexy.

In perſons who are very corpulent, all the veſſels of the body are compreſſed

by

by the accumulated fat; and there is no fat obſerved within the ſkull, or at leaſt very rarely, and a very ſmall quantity about the ſinuſſes of the dura mater; it appears very plain, that thereby the larger veſſels of the brain muſt be filled and dilated, and the ſmaller ones compreſſed, whereby its functions will be gradually more and more obſtructed; hence they begin to grow dull, torpid, forgetful, and ſleepy; all the ſenſes are rendered leſs acute in them; and at laſt the brain being oppreſſed with too great a fullneſs, or a rupture of the veſſels, they die apoplectic.

Plethoric perſons become ſleepy, torpid, and ſubject to ſwimmings of the head, and unleſs that plenitude of blood be diminiſhed, either by natural or artificial evacuations, they will be in danger of becoming apoplectic; and the reaſon ſeems to be this, the red blood, naturally, is not found in the veſſels of the brain, but in thoſe of the pia mater, and in all its proceſſes, which inſinuate them-

themſelves every where between the cortex and medullary ſubſtance of the brain; as, therefore, all the blood veſſels in plethoric perſons are turgid with too much blood, theſe veſſels, likewiſe, will be diſtended, but the cavity of the ſkull is very exactly filled up by the contained brain, and the bones of the cranium cannot yield in adults; wherefore the blood veſſels being more full than uſual, the other veſſels which contain the thinner fluids muſt be ſtraightened and compreſſed, and therefore the functions of the brain diſturbed.

The too great thickneſs of the humours may be reduced to three ſpecies, viz. *to polypoſe concretions, an inflammatory ſpiſſitude, and a phlegmatic lentor.*

The immediate cauſe is the ſame in all apoplexies, but the remote ones are frequently very different; whence there can be no univerſal method of curing this diſeaſe: for if the animal functions are aboliſhed by an inert phlegmatic

lentor

lentor of the blood, whereby it is rendered unfit to circulate freely through the veſſels of the brain, and ſerve for the ſecretion of the ſpirits, then that method of cure alone is proper which attenuates this lentor, gives a due conſiſtence to the blood, and quickens its too languid motion; but if the blood, from an inflammatory ſpiſſitude, is obſtructed near the extremities of the veſſels, then a quite oppoſite method of cure, whereby the blood may be diſſolved, and the too great motion of humours moderated, will undoubtedly be neceſſary.

A flux may be of ſervice in an apoplexy two ways, either as it evacuates part of the morbifick matter, or as it diverts the force and quantity of the humours from the head downwards; for as by the humours being evacuated by ſtool, the veſſels of the abdominal viſcera are emptied, and thus make leſs reſiſtance to the blood, which is ſent thither; hence a powerful revulſion is made from the upper parts of the body. In the

vertigo

vertigo the whole common ſenſory is affected; but then eſpecially a vertigo threatens an apoplexy, when the cauſe of the former is lodged within the cranium, and then the vertigo is called idiopathic. This is known from the conſtitution of the patient, and other concomitant ſymptoms; there is likewiſe a ſympathetic vertigo, in which the common ſenſory is indeed affected, but the cauſe of the vertigo remains without the cranium; as for example, bile corrupted in the ſtomach, poiſons ſwallowed down, &c. but this ſpecies of vertigo rarely ends in an apoplexy.

Evacuations are then only uſeful in diſeaſes, when they either remove the morbific matter, diminiſh the too great quantity of good blood in plethoric perſons, check the too great rapidity of the circulation, or laſtly, divert the force of the circulating humours from the parts affected, to other parts of the body; it eaſily appears that there cannot much good be expected from bleeding in apoplexies ariſing from a phlegmatic tumour.

There is need of great judgment in the cure of a cacochymia, where the ſymptoms ſhew the functions of the brain to be diſturbed: for if you ſuddenly diſturb the humours before they are ſufficiently attenuated, they will ſtick ſo much the more obſtinately in the extremities of the veſſels, and all the complaints will be increaſed. This is the reaſon why determining remedies ought firſt to be applied, that the preſſure may be diverted from the head as much as poſſible, and at the ſame time a part of the viſcid phlegm may be removed by evacuants; then we muſt begin with gentle diſſolvents, and eſpecially with thoſe which powerfully reſolve, and at the ſame time do not increaſe the force of the circulation ſuddenly and violently; ſuch as Venice ſoap, tartarized tartar, regenerated tartar, fixed alcaline ſalts, of the aſhes of plants, &c. After theſe have been ſome time uſed, if the ſymptoms become eaſier, we may know the lentor to be attenuated; then more acrid

diſſolvents, and ſuch as increaſe the motion of the humours may be ſafely uſed, together with corroborants which correct the too great laxity of the ſolids, a conſtant attendant of this kind of cacochymia. Bliſters are here of the greateſt ſervice, not only as by ſtimulating and irritating the part to which they are applied they make a revulſion towards other parts of the body, but likewiſe by ſeparating the cuticle from the ſkin, they draw a great collection of lymph under the epidermis, which, upon the bliſters being cut, continues frequently to diſcharge ſeveral days; at the ſame time they increaſe the motion of the blood, through the whole body, diſſolve and attenuate the lentor of the fluids.

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## *Of Chronical Diſeaſes.*

CHRONICAL diſeaſes in ſtrong labouring people generally ariſe from complaints remaining after acute diſtempers,

which have not been perfectly cured; but in weak and indolent perſons, they are owing to a morbid quality of the fluids, gradually ariſing from the aliments not being duly aſſimilated.

Auſtere ſubſtances act firſt, and moſt efficaciouſly upon the ſtomach and inteſtines, and by conſtringing the mouth of the abſorbent veins, ſeem to preclude their paſſage into the veſſels, ſo that they cannot eaſily infect the blood; now from this effect alone great miſchief may be produced, ſince by that means the minute veſſels of the internal coat of the ſtomach and inteſtines are ſo contracted, as that the arteries cannot diſcharge, nor the veins abſorb the fluids as uſual, and the whole chylification will be thereby diſturbed: but when thoſe auſtere ſubſtances are much diluted, either by drink, or by the fluids which are conveyed to the inteſtines, they then enter the lacteal veſſels, and occaſion the worſt kind of obſtructions in the glands of the meſentery; or they may likewiſe be carried off

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from the meſenteric veins by the vena portarum to the liver, and there produce the like bad effects; hence chronical diſtempers of the abdominal viſcera uſually ariſe.

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## *Of the Palſy.*

A Palſy is a lax immobility of a muſcle; it differs from the tetanos, in which all the parts are rigid and immoveable, and is cauſed by an obſtruction of the courſe of the nervous fluid from the brain to the affected muſcles; and alſo by a ſuppreſſion of whatever ought to be evacuated.

As the organs which ſecrete and excrete the ſaliva, receive their blood from branches of the external carotid artery, it is plain, that the excretion of the ſaliva being hindered, the branches of the internal carotid veſſels muſt be more filled, and at the ſame time the blood which is to flow through the veſſels of

the brain will not be freed of that viſcid mucous matter, which is ſeparated by the ſalivary ducts: wherefore all the functions of the brain might be diſturbed, and a palſy be likewiſe produced from this cauſe only. This is the reaſon why we fear deliria, and a phrenitis coming on in acute diſeaſes, where the patient's mouth is very dry.

The cauſe obſtructing the function of a nerve, may either be ſeated in the coats only, or likewiſe in the ſubſtance of the nerve properly ſo called; whence a different prognoſis will ariſe, becauſe the cauſe of the palſy frequently, when ſeated in the teguments of the nerves, may be removed by art, but when it occupies the ſubſtance of the nerve itſelf, it is ſeldom or never cured.

The higher the palſy is ſeated in the body, the more dangerous, in general, it muſt be, as the cauſe of the diſeaſe is ſeated nearer to the brain.

A paraplegia has often happened, without any apparent cauſe exiſting with-

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in the cranium; but there, perhaps, was never an inſtance of an hemiplegia where the brain was not immediately affected, for the patient almoſt always ſtammers, loſes his memory, &c. hence we have, likewiſe, reaſon to apprehend, that the cauſe of the hemiplegia increaſing may bring on an apoplexy. But when a paraplegia or hermiplegia ſucceed upon an apoplexy, there is more hope, becauſe we then have reaſon to believe that the cauſe of the diſeaſe is leſſened, and that ſome parts of the brain are relieved from the obſtruction.

It is a very bad ſymptom when the paralytic parts waſte, for that denotes an inſufficiency of nutritious liquor, which ought to ſupply the part affected.

A convulſive trembling of the paralytic part is good, both as a cauſe, and as a ſymptom; for it denotes, that the cauſe of muſcular motion is again applied to the paralytic muſcles, but not yet with ſuch conſtancy, as that its effect can be durable, without ſoon giving

way a little. Whence it indicates a beginning cure, and gives great hopes of its being compleated; eſpecially if attended with a gentle convulſion: for all the muſcles which have been long at reſt, if they happen to be haſtily moved, are convulſed, as we ſee in thoſe who are awakened out of ſleep by a great noiſe, or the like, acting ſuddenly and powerfully upon the common ſenſory and nerves. But that convulſive trembling is of ſervice, likewiſe, as a cauſe, ſeeing by thoſe concuſſions, whatever remains obſtructed in the muſcles themſelves, the extremities of the arteries, and perhaps in the very nerves, or at leaſt in their coats, may frequently be reſolved. Sometimes there is likewiſe felt a pricking ſenſation in the affected part, which is alſo a good omen: thus we frequently ſee, when a perſon ſits ſleeping inclined upon one hip, and compreſſes the great nervous trunk running along the back part of the thigh, with almoſt the whole weight of the body, the leg becomes numbed

and

and immoveable; but upon changing the ſituation of the body, and ſo removing the compreſſion, in a little time the diſagreeable ſenſation is felt, as if innumerable ſmall needles were pricking the part; ſoon after which the ſenſe of motion and feeling returns: wherefore all thoſe ſymptoms obſerved in a paralytic part, portend that a free motion is begun in the nerves through the arteries to the muſcles; and that, therefore, there are great hopes of a perfect cure.

There are no hopes, or at leaſt not very great, of curing a palſy, which has been of ſeveral years ſtanding, becauſe there is juſt cauſe to fear, that either the ſtructure of the nerves is deſtroyed, or that their ſides are ſo grown together, as no longer to tranſmit the animal ſpirits.

## *Of an Epilepſy.*

IF all the ſenſes, both internal and external, are quite aboliſhed, and at the ſame time the muſcles are convulſed, independant of the influence of the will, it is a true epilepſy. Thus it is diſtinguiſhed from a palſy, in which there is a flaccid immobility of the muſcles; and likewiſe from a catalepſy, in which all the ſenſes are indeed deſtroyed, but the body retains the ſame poſture which it had at the firſt attack of the diſeaſe; and from an apoplexy, becauſe in this, together with the ceſſation of the ſenſes and voluntary motions, there is the appearance of a profound and conſtant ſleep without convulſions. It is true, indeed, that apoplectic perſons are ſometimes convulſed a little before death, but in that caſe the epilepſy ſucceeds the apoplexy. The diagnoſtic ſigns, therefore, of an epilepſy, may be reduced to, 1. a ceſſation of the ſenſes, 2. to a perturbation of the voluntary motions.

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In the worst species of all, they fall down immediately without any warning symptom, and experience teaches us, that this is almost always incurable. More frequently they at first feel a swimming in the head, perceive sparks before their eyes, and a purple or black colour or variegated like the rainbow; sometimes they hear strange kinds of sounds; others are sensible of a disagreeable smell, or a bad taste in the mouth. I have seen some who observed a small spark appear before their eyes, which was suddenly increased till it grew to the size of a large sun-beam. Others have imagined they saw all objects, as if they were involved in a cloud; and this darkness suddenly increasing, they fell down: ARETÆUS has remarked this, calling it σκοτος φαντασιας, the appearance of a cloud. Some feel, as it were, a cold blast ascend from the finger or toe, or from some other part of the body, which, as soon as it arrives at the heart, they instantly fall: the patients recollect all

those

thoſe ſenſations as ſoon as they recover the paroxyſm, but are ignorant of every thing that happens during the fit; whence afterwards, when they have ſuffered ſeveral paroxyſms, they can foreſee the fit a coming with thoſe previous ſigns, and take care of themſelves as much as they are able, or beg the aſſiſtance of the bye-ſtanders. Moſt part of them the moment they fall, give a loud ſhriek, which they are, however, not conſcious of: then follow, for the moſt part, various ſurpriſing convulſions of the muſcular parts of the body. The reſpiration is moſt ſurpriſingly diſturbed; and this ſymptom ſeems to have made the ancients believe, that the epilepſy was nothing elſe than an effort of the brain to diſburthen itſelf of ſomething malignant, or an oppreſſing phlegm: but the reſpiration being hindered, the blood cannot be tranſmitted freely through the lungs, and therefore the right ventricle of the heart cannot evacuate itſelf; whence the venal blood is accumulated

near

near that ventricle, and all the conſpicuous veins appear very turgid, eſpecially thoſe of the forehead, the raninæ under the tongue, and the jugulars in the neck: then the face begins to grow livid, nay, almoſt black, firſt under the eyes about the lower eye-lid, where the ſkin is very lax, and likewiſe about the lips, almoſt in the ſame manner as in thoſe who are ſtrangled.

Young perſons are more obnoxious to this diſeaſe than thoſe who are grown up; for in the former, both the greater bulk and more tender ſtructure of the brain, ſeem to conſtitute the prediſponent cauſes, which, by means of any ſlight accidental cauſe ſupervening, produces the epilepſy.

Fear and ſudden frights have, perhaps, occaſioned this diſorder more frequently than any other cauſe, and rendered it often incurable, nay and ſometimes ſuddenly fatal.

I have ſeveral times ſeen a viſcid foam tinged with blood, voided from the mouth

mouth and nose in the time of the paroxysm; and yet afterwards I could not observe the least appearance of a hurt in the tongue or other parts within the mouth, though I examined with the greatest care. If now the vena cava, passing through the liver, happens to be very full, and cannot empty itself into the right ventricle, then the vena portarum will not be able to transmit to it the blood remaining after the secretion of the bile; while in the mean time the convulsed abdominal muscles and diaphragm propel the venal blood towards the liver with such force; hence the mouths of the vessels opening into the cavity of the intestines, may be easily dilated so as to transude the blood itself, without any rupture of these vessels: in like manner also, the liver being thus distended, the blood returning from the spleen, by the *vasa brevia*, as they are called, may make its way into the cavity of the stomach; hence may be known the reason why blood may be sometimes voided

voided upwards and downwards during the paroxyſm, and even after it is over.

All the ſecretions and excretions may be much diſturbed during the paroxyſm of an epilepſy.

An epilepſy, when it takes its origin from the *hands or feet*, is eaſily cured, if from the *ſide* it is more difficult, but if from the *head* it is very bad and dangerous.

The only hope in attempting to cure this malady, conſiſts in endeavouring to bring about a great change in the body. Removing the patients into a different air and climate.—It is often obſerved to go off at the time of puberty.

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## *Of Melancholy, and of a Mania.*

THE madneſs of melancholics differs from the febrile delirium or a phrenzy, in that it appears without a fever, and continues, moreover, with obſtinacy for many months, or even years;

years; whereas a delirium, with a fever, terminates much ſooner, either in health or death. It differs from a mania, as it is not attended with thoſe furious outrages which are obſervable in maniacs.

In the higheſt melancholy we ſee the face looks contracted and pale, while a great anxiety is felt about the præcordia, as if the cheſt were forcibly compreſſed: and there frequently enſues a kind of diabetes, or large diſcharge of a moſt clear and limpid urine. The pulſe is at this time ſmall, weak, ſlow, and rare; the blood, therefore, here deprived of its more fluid parts, continues moving on with a weakened force through the cramped or contracted veſſels, from whence an eaſy occaſion is given for the groſſer parts of the blood to run together into coheſions; at the ſame time the oppreſſion about the heart, which accompanies extreme grief, and occaſions a moſt troubleſome ſenſe of ſickneſs about the ſtomach, denotes that a free courſe of blood is hindered thro' the portal veins; and in con-

quence

quence of this the ſaid groſs dregs of the blood will very quickly adhere to the veſſels of the abdominal viſcera, and will conſequently not only produce atrabiliary or melancholic humours, but hyſterical and hypochondriacal complaints likewiſe. Add to this, moreover, that ſevere grief engages the mind too intenſely upon one and the ſame object, and prevents ſleep: whence we may very eaſily account for the atrabiliary and melancholic humours within the body.

Fevers, ſuch as are the moſt difficult of cure, are known to follow after the moſt ſultry and hot ſummers, in the autumn ſeaſon, and which at their beginning appear continual, but afterwards put on the type of intermittents; in theſe we obſerve a great anxiety about the præcordia, and if the inſpiſſated bile be not diſcharged from the body, the patients will languiſh often during the whole winter: and then in the ſpring following the ſaid atrabiliary matter will

 become

become fufed by proper folvents, and come awayfrom the body by ftools like fo much melted tar.

Denfe and lean bodies are more liable to thefe diforders, becaufe the more fubtile fluids are more forcibly expelled and diffipated by the greater ftrength of their veffels, while they ftill retain thofe that are more grofs or clammy.

A warm and moift air is proper in thefe cafes; for here the moft liquid and moveable parts of the blood are diffipated, the remains grow thicker, the fmaller veffels exhaufted collapfe or fhrink up, and the whole body becomes drier; the folids are all rendered more rigid or inflexible, and the fluids yield with more difficulty to the given impulfe; and thus brings on a ftrict and dry temperature of the whole body. But an air which is warm and moift will, therefore, weaken this too great ftrength of the folids, while at the fame time it applies a watery and thin vehicle to the thickened fluids; for it is plain, that when the bi-

bulous veins, which open throughout the ſurface of the body, are relaxed by warmth and moiſture, they will abſorb the watery vapours in the contiguous or ambient air. And this is the reaſon why the ſpring ſeaſon is the moſt favourable for curing this and moſt other chronical diſtempers, becauſe it comes joined with ſuch a temperature of the air.

Summer fruits, if they be perfectly ripe, are of great ſervice in theſe complaints: theſe fruits abound at a ſeaſon of the year when people are the moſt heated by the ſcorching rays of the ſummer ſun, diſpoſing the blood to an atrabiliary ſpiſſitude and acrimony, and then theſe fruits continue till the autumn, that by the revolving power of theſe, the melancholic matter may be attenuated, which was collected during the precedent ſummer, and be by their gentle laxative force carried out from the bowels. I have even known melancholy mad perſons, in the moſt raving degrees of the

diſtemper, cured by feeding wholly upon ſummer fruits, ſuch as cherries, ſtrawberries, &c. taken to the amount of three or four pounds in a day, while they have obſtinately refuſed all other food and medicine, from a ſuſpicion of being poiſoned.

Although atrabiliary humours may occupy divers parts of the body, they, however, above all, moſt frequently ſettle and fix within the abdominal viſcera. It is demonſtrated that the moſt moveable parts of the blood, driven by the heart into the aorta, recede thence with a greater velocity, and in a more direct courſe, while the more viſcid and leſs moveable parts go on ſlowly and laterally; and therefore, agreeable to the laws of *hygraulics* theſe laſt will be carried more abundantly into the deſcending aorta, from which ſpring the cæliac and two meſenteric arteries which ſupply the abdominal viſcera. Since, therefore, in the preſent malady, many of the more ſubtile and moveable parts of the

the blood are exhausted from the habit, while the more viscid and less fluxile cohere closer together; therefore many of the grosser parts of these last will fall into the said visceral arteries; and if we then consider, that all this blood of the abdominal viscera is obliged to be rendered, in a manner, twice arterial, before it can return to the heart, which obliges the course of the humours to be extremely slow; it will appear very evident, why the atrabiliary humour is the most frequently of all deposited upon the abdominal viscera, although it was before equally distributed through all the circulating juices. It is well known what influence a strong respiration has towards quickening the circulation through the abdominal viscera; because, when the diaphragm and muscles of the abdomen then act, all the contents of the belly are compressed, and by that the motion or return of the venal blood is promoted. Since, therefore, melancholic persons

intent upon one and the ſame object, generally neglect all motion for a ſedentary and ſtill life, or even ſometimes too cloſely apply to their ſtudies, with their body inclined forward, the free courſe of the humours will in them be ſtill more impeded thro' the abdominal viſcera, and this in a more eminent degree when they continue long ſitting in that poſture after they have made too plentiful a meal. For this reaſon it can never be ſufficiently inculcated to the literati, who are ſo frequently ſubject to this diſorder, that they accuſtom themſelves to ſitting with their body upright, and not lean with their belly to the table at which they are ſeated: ſince the ſecretion of the bile, no leſs than that of the other humours, prepared by the viſcera of the abdomen, reſults from a courſe of healthy juices through the veſſels, which in this caſe is hindered by the degeneracy of the juices to an atrabiliary cacochymia; it thence

thence eaſily appears, that all the alimentary ſecretions muſt in this caſe be diſturbed, and that the ſecreted juices themſelves, muſt be altered from their natural or healthy conditions. But it appears from the whole hiſtory of chylification, that to ſubdue or change the crude nouriſhments, there is required a due quantity and quality of the bile, and clear juices which flow from the ſtomach, pancreas, and bowels themſelves, &c. And therefore from this defect, the firſt digeſtion will be greatly injured, and the nouriſhments will be changed, rather ſpontaneouſly, in the natural courſe of their corruption, than aſſimilated into our own juices, while they ſtagnate in ſo warm a place, into which the common air has a free admittance. Thus the aliments rather will degenerate into various kinds of acrimony, according to the diverſity of their nature; from whence new miſchiefs will again ariſe; hence flatulencies, with cramps of the ſtomach and bowels: moreover, as the

ſecretion of the bile is deficient, the bowels are leſs ſtimulated to unload themſelves by ſtools; and as the bowels are leſs furniſhed with that lubricating mucus which drains into them, of a due quality and conſiſtence, from numerous follicles, or cells in their membranes; therefore the excrements are longer retained in the large inteſtines, become dry, and are with much difficulty excluded.

The curative indication in the preſent caſe calls out for the diſcharge of the atrabiliary matter from the viſcera in which it is arreſted, leſt by long ſtanding there it ſhould become more thickened and coheſive, ſo as to concrete with the veſſels themſelves in which it is lodged, and produce incurable obſtructions and indurations. And as the perverſe malady grows ſtill worſe by delay, it appears to demand the moſt effectual remedies, without loſs of time: "Becauſe when the diſeaſe is become "inveterate, and, in a manner, habi-"tual or natural, it is next to incurable."

*Inve-*

*Inveteratus enim (ſays* TRALLIAN) *& veluti in naturam converſus, morbus incurabilis propemodum evadit* Great prudence, however, is required in this work, ſince the tough atrabiliary matter yields neither eaſily nor preſently to the operation of mild remedies; and yet by thoſe which are more violent, it is often rouſed and provoked to do dreadful miſchief. Certainly, if the atrabiliary ſuburra be duly liquified by reſolvent medicines, and a ſuitable regimen, ſo as to flow from the bowels by a ſpontaneous purging or flux, it gives the greateſt relief to the preſent diſtemper; and therefore in that caſe, purgatives are convenient; but if, without this liquification of the matter, purgatives draw off the thinner juices from a melancholic body, they are always bad.

Since, therefore, a total expulſion of the atrabiliary matter can hardly be attempted without danger, unleſs it be firſt rendered fluid and moveable enough to yield to the moſt lenient purgatives; this

muſt be therefore the intention firſt purſued. But even in this again, ſome prudence is required; for we know all the abdominal viſcera ſend their venal blood to the liver, and, therefore, if the matter be too precipitately reſolved in them, ſo as to paſs their arterial extremities into the portal veins, the ſaid viſcid matter will be thrown upon the liver: but ſince there is ſometimes a great acrimony joined with this atrabiliary matter, which produces no great miſchief while it lies wrapped up in the ſaid tar-like viſcid; yet if the acrimony be ſet at liberty, and be rouſed into action, ſo as to ruſh with violence at once upon the liver through the portal veins, it may thus entirely deſtroy, or at leaſt greatly injure this tender viſcus; for theſe reaſons the diſſolution of the matter of this diſtemper is not to be urged too haſtily, and ought always to be attempted by ſuch medicines, as, without acrimony, have a powerful reſolving quality.

Now there are a variety of ſalts, and thoſe even of an oppoſite nature, that may be

be employed in making medicinal ſoaps, and we ſhould chuſe out ſuch of them as have an acrimony oppoſite to that we know prevails in the atrabiliary viſcid. If, for example, the ſymptoms indicate a rough ſourneſs, it will be proper to uſe a courſe of the Venice ſoap, made of an expreſſed vegetable oil, and a lixivial or alcaline ſalt; but if, on the contrary, a putrid cadaverous acrimony, or an oily rancidity appears to prevail in the blood, by the proper ſigns in thoſe circumſtances, the aceſcent ſaponacea will be of the greateſt uſe; ſuch as honey, ſimple oxymel, juices of tart ſummer fruits, and the officinal jellies or ſyrups prepared from them, which yet would rather increaſe the firſt caſe, or acid acrimony, as they are all of them ſpontaneouſly aſceſcent, or eaſily inclined to turn ſour.

Exerciſe, provided it be not too violent, is very proper in theſe diſorders; for otherwiſe, by over-heating the body, the moſt liquid juices are diſſipated, and the quantity of atrabiliary matter increaſed,

creaſed, and rendered more turgid, which would be attended with great danger: intenſe heat is for that reaſon to be avoided.

They frequently diſcharge a thin ſaliva; and this more eſpecially happens when the free circulation is impeded through the viſcera of the abdomen, ſtuffed up with a viſcid atrabiliary humour, and conſequently there is an obſtruction to the ſecretion of the inteſtinal lymph, pancreatic, and gaſtric juice: now as the ſalival glands ſeparate the ſame kind of humour from the blood, therefore during the obſtruction of the former, there will be a greater ſeparation of ſaliva, by which the mouth will be continually moiſtened by a frequent thin ſpitting. Melancholic perſons are for this reaſon diſtinguiſhed by the appellation of *ſpitters:* but ſuch frequent ſpitting is bad, both as a cauſe or a ſign, ſince it denotes the veſſels of the abdominal viſcera to be ſtuffed up, while there is a great quantity of the more liquid and

fluxile

fluxile parts exhauſted from the blood by the profuſe and thin ſpitting, which muſt aggravate the diſtemper.

It is always of the laſt importance towards the cure of diſeaſes, to give due attention to ſuch diſcharges as naturally ariſe from diſeaſes with ſome apparent relief.

A filthy eruption of ſcabs, or a leproſy, has often ſucceeded upon theſe caſes, attended with great advantage: and the reaſon is this, the matter of the atrabilis is not only offenſive by its thickneſs and tar-like tenacity, but likewiſe on account of the great acrimony which attends this tenacity alſo, and which, indeed, does no great harm, ſo long as it lies intangled in the ſaid tenacity; but when from any cauſe the atrabilis is become fuſed, and put into motion, it may then eaſily mix with the circulating juices, and if it be urged with ſome force upon any particular part of the body, the very worſt and moſt incurable maladies may follow: but if the

atrabilis

atrabilis be gradually fused, its acrimony will be likewise gradually extricated, and being diluted with the lymph of the body, may pass therewith to the emunctories of the skin; and irritating the small vessels by an acrid stimulus, it will be unable to escape by insensible perspiration, but adhere to some of the smallest cutaneous vessels, which it will slowly corrode, so as to produce all these evils. A dropsy is good that succeeds upon a mania: now to understand the reason of this, it is to be observed, that this distemper arises sometimes from a too dissolved state of the humours, which therefore drain from their larger vessels, into the cavities or cells of the body, and are collected in the adipose or cellular membrane. Now such a colliquation of the humours coming upon a maniacal person will also resolve or melt the atrabiliary viscid, so that it may either escape from the body, or else be deposited upon parts less important, with a relief to the distemper; so likewise will a saliva-

ſalivation frequently cure this diſeaſe. If a mania be occaſioned by the atrabilis, we may hope, that when the matter is evacuated, the patient will be cured; but when the common ſenſory is ſo altered by any violent paſſion of the mind as to bring on a mania, it is ſufficiently evident, as we cannot learn what produces this change within the common ſenſory, that we cannot judge what remedies will remove it.

Opiates, after previous evacuations, may be of ſervice, and eſpecially when attended with ſtubborn watching; and it is remarkable that maniacal patients will bear great quantities of it.

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## *Of Canine Madneſs.*

THE properties of the canine virus is as wonderful as it is difficult to be accounted for.

In general hydrophobous patients are ſeldom delirious, and though they ſeem

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to look angry and threatening, are clamorous, and incline to bite thoſe about them, yet do they chiefly remain ſenſible to the very laſt; nay, admoniſh the byeſtanders to take care of themſelves, whenever they find a fit coming on, which is known by a greater redneſs of the face, a fixedneſs or immobility of the eyes, and diſtortions in the muſcles of the countenance. This very miſerable ſtate does not, however, hold long; but the pulſe now begins to flag and grow inſtable, the breathing becomes very difficult, and a cold clammy ſweat appears upon the whole ſurface of the body, and they expire convulſed. The hydrophobia ſeldom runs beyond the fourth day, computing from its firſt appearance.—It has been univerſally obſerved, on opening the bodies of thoſe who have died hydrophobous, that a conſiderable quantity of bilious matter has been found in the ſtomach, or that the gall-bladder has been diſtended with a thick and black bile, and that the pericardium was

quite

quite dry; and it is well known that the internal ſurface of the pericardium, as well as that of the heart and its auricles, with the large venal and arterial trunks near the heart, all included by the pericardium, are continually moiſtened by a very thin vapour, that diſtils from the exhaling veſſels of theſe parts, ſo as to hinder the heart from growing to the pericardium, and to preſerve at the ſame time the neceſſary flexibility in all thoſe parts. Now ſince this exhaling vapour is ſome of the thinneſt and moſt fluid portion of the blood, it muſt of courſe be diminiſhed, nay, ſometimes be entirely deficient, when all the finer parts of the humours have been exhauſted in ſweats and continual agitations, without any freſh ſupplies of drink.

The lungs are ſtuffed up with congeſted blood, becauſe all the blood returning in the veins from the whole body, muſt firſt have a paſſage through the lungs, before it can be again diſtributed throughout the body by the branches of

the aorta. Now after the ſeveral ſecretions have been performed, while the blood flows through the arteries, a great deal of its moſt fluid parts will fly off, and leave the venal blood much thicker and leſs moveable: but in healthy perſons, all that is abſorbed into the bibulous mouths of the inhaling veſſels which open through the whole extent of the ſtomach, inteſtines, outward ſkin, and other membranes, paſſes directly into the veins, and becomes mixed with the venal blood before it is driven thro' the lungs; and thus the venal blood is kept ſufficiently diluted and fluxile to paſs through the final extremities of the pulmonary arteries. But in this diſeaſe before us, all recruit from diluent liquors to the blood is intercepted; and of courſe the ſaid coheſive fluid muſt, in a little time, begin to be arreſted in, or at leaſt gain a very difficult paſſage through the ſaid arterial extremities in the lungs; whence ariſes that intolerable anxiety and difficulty of breathing. Sometimes

a total

a total diſſolution of the humours will happen, and then the blood will never be arreſted or accumulated in the lungs, but eaſily paſſes on to the left ventricle of the heart, for which reaſon the venal ſyſtem will very readily empty its contents into the arterial. Now, ſince at the ſame time the blood, however diſſolved, cannot be urged through the final extremities of the diſtended arteries, unleſs a conſiderable impulſive force be impreſſed on it by the arterial coats, and by the heart, therefore in defect of this force, the blood will be congeſted in the arteries; becauſe whenever there is ſuch a miſchievous diſſolution of the texture of the humours, all phyſicians obſerve the pulſe to be very quick, weak, ſoft, and intermitting; which is a plain ſign that the vital powers are oppreſſed, which move the humours through the veſſels: but the blood will be leſs arreſted within the branches of the pulmonary artery, becauſe the whole force of the right ventricle drives the blood thro' the pulmonary artery and tho' the ſaid force becomes weaker,

yet the more frequent and laborious breathings in this malady keep open this paſſage of the circulation, which is much ſhorter than the other, wherein the blood is driven by the force of the heart thro' the extreme branches of the aorta, thro' all the parts of the body, even to the ſkin; and for this reaſon it is uſual, in theſe caſes, for the extremities to be cold or chilly, while a great heat is perceivable about the præcordia.

The ſeat of this malady is principally about the ſtomach, gula, and parts adjoining; this is confirmed by the very ſymptoms, great anxiety and oppreſſion felt about the præcordia, inflation of the ſtomach, when any kind of liquid is offered, bilious, brown vomiting, of a diſagreeable ſmell: they are frequently delivered by vomits.

## *Of the Scurvy.*

HÆMORRHAGES from the noſe, and thoſe even to a degree of danger, are very common in ſcorbutic people, and they are at the ſame time very little diſpoſed to exerciſe; the ſlighteſt injuries break their ſkin, and leave ulcerations, and this more remarkably ſo in their legs, where even upon the leaſt ſcratch of the ſkin by the finger nails, excoriations will happen, which are ſucceeded by ſores, which will remain for a conſiderable time.

The true and primary cauſe of the ſcurvy, is no other than a too long continued abſtinence from freſh-gathered vegetables and garden ſtuff.

In the autumn ſeaſons, after very hot ſummers, intermitting fevers have been very frequently known to follow, with anxiety of the præcordia, a ſlight yellowneſs in the eyes, and a urine ſomewhat of a jaundice colour; all which ſymptoms

denote obſtructions formed in the abdominal viſcera; when plenty of reſolving medicines have been given here upon the intermediate or well days, the commotions into which they are afterwards put, together with the humours by the conſequent fits of the fever, often clear the ſtuffed-up veſſels and viſcera from their clogging matter, ſo as to diſſipate the fever it produced: or if the fever continues on the patient, it then readily is cured by the uſe of the Peruvian bark, after once the viſcera have been cleared from their obſtructing matter. But when the bark is too haſtily adminiſtred, before the febrile matter has been duly reſolved and expelled, theſe patients are then left in a languiſhing condition, and by repeated doſes of this excellent drug, given upon the firſt ſigns of the returning fits, before the veſſels are opened, ſtubborn obſtructions are often left throughout the whole meſenteric ſyſtem of veſſels, and give birth to melancholic, hypochondriac, and ſcorbutic diſtempers.

In

In chronic diſeaſes, gradually ariſing from vitiated humours, and which, by ſlow degrees, injure the functions of the body, we often find it very difficult to diſcover and point out ſuch pathognomonic ſigns as may afford a certain diagnoſis of the preſent malady; and this more eſpecially in the beginning of it, where the health of the patient does not ſeem to be much injured, but rather, as it were, drooping.—However, authors are all agreed in this, that in the beginning a ſcurvy is accompanied with *an unuſual ſluggiſhneſs of body and mind, with a ſpontaneous laſſitude of the whole body.*

The ſpontaneous laſſitude, when it is the preſage of an acute diſtemper, ſoon terminates in one; but if it ariſes from an obſtructed or retained perſpiration, it will go off by reſt, a thin diet, and a mild diaphoreſis, or in caſe this be neglected, it may ſometimes produce a more dangerous diſtemper. But in the ſcurvy, this kind of laſſitude ſlowly advances upon the pa-

tient, gradually increaſing for many days, often weeks, without any other conſequent complaint; and it has, moreover, this peculiarity to itſelf, that the weariness ſeems more troubleſome to the patient upon waking out of a ſleep, than it does at any other time of the day; whereas laſſitude, ariſing from other cauſes rather abate after ſleeping.

EUGALEN obſerves very juſtly, that the difficulty of breathing in ſcurvies may be readily diſtinguiſhed from that which ariſes from other cauſes in other diſeaſes, as it is not attended with a cough, wheezing, rattling in the windpipe, pungent, pain, orthopnæa, or any other complaints of the ſame kind, peculiar to diſtempers of the breaſt.

The legs and ancles frequently ſwell and ſubſide, and the reaſon is evidently this: ſince the venal blood aſcends from the lower limbs of the body, towards the heart, with difficulty, nature has therefore furniſhed thoſe veins with a greater number of valves, and placed them

them either upon or betwixt very conſiderable and active muſcles, by the preſſure and motion of which, the blood in the adjacent veins may be accelerated towards the heart; and hence we often obſerve the legs ſwell in perſons who ſit long inactive, becauſe the ſmaller veins cannot now eaſily empty themſelves into the larger ones that are over diſtended. But ſince an unuſual ſlothfulneſs and defective breathing, from very ſlight exerciſe, attend upon this malady, ſo as almoſt to entirely prohibit all muſcular motion, the reaſon appears evident, why a ſwelling of the legs ſo often attends in this diſorder.

The teeth and gums are often very early affected in the ſcurvy: ulcers are in no part more miſchievous and difficult of cure than thoſe in the legs, and more eſpecially about the ancles: the whole circumference of ſuch an ulcer appears brown, or ſpread with a bluiſh purple colour, while the bottom of the ſore looks foul or ſordid, the lips of it rough,

as

as if gnawed, and the matter weeping from it is of a fætid ſmell: they cicatrize or heal with great difficulty, and readily break out again.

Cocchi, a celebrated *Italian* writer, ſuſpects the elephantiaſis to be a ſpecies of the ſcurvy, and that the reaſon why it was more frequent in *Egypt*, might be owing to the great ſcarcity of vegetables in that country; and he very judiciouſly obſerves, that elephantiacal patients, who moſt deſpaired of being cured, after they were baniſhed the ſociety of mankind, on account of the foulneſs of the diſtemper, into remote deſerts, were not recovered ſo much from the eating of vipers, as from their finding no other ſuſtenance but ſuch as plants and vegetables afforded them.

Neither do the internal viſcera eſcape the fury of the ſcorbutic acrimony; and I have particularly obſerved enormous pains about the cardia and ſtomach tormenting theſe patients, which have increaſed upon them after taking nouriſhment,

ment, although their appetite to food has continued ſharp enough. The pericardium, lungs, pleura, and diaphragm, have been found not only adhering together, but in a manner melted or mixed into one maſs, in ſcorbutic perſons, who have died ſuddenly by ſuffocation, with a great oppreſſion at the breaſt; and yet it is ſomething very wonderful, that under ſo violent an acrimony of the juices, the tender fabric of the brain ſhould have been always found in a healthy and ſound condition; and indeed the obſervations which have been made through the whole courſe of this diſtemper aſſure us, that the actions of this viſcus have continued ſufficiently entire. There are, indeed, ſometimes, convulſions, tremblings, palſies, and the like, which attend this malady, but then they rather are the effects of injuries of the nerves and muſcles, than of the brain itſelf; ſince we find the memory, underſtanding, reaſon, and judgment, remain unhurt.—It is to be remarked, that intenſe

hunger

hunger continues as long as violent ſcorbutic perſons have lived: this POUPART derives from the ſharp humour which he found in the ſtomachs of thoſe who have died of this malady.—The ſame author has obſerved in thoſe who have died ſuddenly in this diſtemper, all the viſcera corrupted, and in many the auricles of the heart were enlarged to the ſize of a man's fiſt, and filled with congealed blood. It is not at all wonderful that patients may become convulſed in the worſt ſtage of the ſcurvy, although upon opening their bodies there may be nothing found amiſs in their brain: for if only bile floating into the ſtomach can produce convulſions, which immediately ceaſe when the foul humour is thrown up by a vomit; and if ſharp periodical pains, with ulcerous humours lodged in the body, can produce a terrible epilepſy, what effects of this kind may we not fear in thoſe whoſe very bones are almoſt all of them become carious, and whoſe ligaments are found eroded by the acrid

ſanies

ſanies collected in the cavities of the joints, whoſe pericardium has been found almoſt eaten up, and the heart itſelf deeply ulcerated; and laſtly, whoſe tender viſcera are moiſtened by a filthy liquor, ſo acrimonious, as even to ulcerate the faces, and fetch the ſkin off the hands of thoſe who have diſſected ſuch ſubjects?

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## *Of the Cachexy.*

THE continuation of life demands a conſtant recruit to the ſolids and fluids in proportion to what is daily exhauſted.

Fat ſubſtances are very difficult to digeſt, and are long retained in the ſtomach, by which means they turn rancid, and become productive of much miſchief: healthy and ſtrong perſons often experience, that after making their dinner upon bacon or other fat meats, they will, towards evening, belch up an acrimonious oil, which almoſt excoriates the throat

throat or fauces, and being ſpit into the fire will blaze with violence. If this fat oil remains for a long time in the ſtomach undigeſted, as it will, even after the other aliments are emptied into the bowels, it may, in the remaining tract of the inteſtines, produce a rancid crudity highly miſchievous, unleſs it be corrected and reduced to a ſoapy ſtate, miſcible with watery liquors, by a plentiful flow of ſtrong bile into the duodenum.

*Ab exercitationibus quies & ab ingentibus laboribus otium.* "Reſt after accuſtomed "exerciſes, and living idle after great "labours and fatigues," is very juſtly reckoned by ARETÆUS as one of the cauſes of a cachexy.

And ſo is too great ſtrength or toughneſs of the veſſels and viſcera, becauſe the exceſſive coheſion of the ſolids that compoſe them, will not yield enough to the impulſes of the liquids they contain, whereby, of courſe, the equable motion of the blood is interrupted, ſo as to diſ-

turb all the ſecretions. Whenever the due quantity of our healthy indigenous humours is, from any cauſe, much diminiſhed, the aſſimilation of crude alimentary juices is but imperfectly performed; whence the nutrition of the body becomes depraved, and a cachexy enſues. But the greateſt danger of all to be feared from this quarter, is when ſome profuſe loſs or diſcharge of the healthy humours has been ſuddenly made from the body, as in perſons wounded, or women who miſcarry, with exceſſive floodings or hæmorrhages from the womb, or the flux of the cholera morbus, which, in a few hours, almoſt empties the whole body; ſuch bodies are, indeed, to be filled again, but very ſlowly; and to avoid a cachexy, they muſt not be allowed to take much aliment at a time, however keen and ſharp their appetites may be.

A firm, robuſt, or healthy blood is required to paſs the ſubſtance of the brain, in order to ſecrete the ſubtile fluid of the

nerves

nerves that is required for muſcular motion; and as in cachexies the blood and its humours are depraved and of unhealthy condition, the nervous fluid will, of conſequence, be variouſly deficient, both as to quantity and quality, in thoſe conditions which are required in it. The chearful diſpoſition to motion and exerciſe, ſo remarkable in healthy perſons, will be here certainly wanting, and the cachectic patients will, with great difficulty, be enabled to draw their weak limbs after them. It is moreover obſervable, that whenever the free circulation, or courſe of the blood is hindered through the veſſels of any certain part, the ſaid part will be preſently ſeized with a ſenſe of weight; when a violent phlegmon, for example, ſeizes the arm, it feels as heavy as lead; and ſince a cachexy is frequently conjoined with a ſluggiſh cold clamminess, and cacochymia in the humours, and renders them more difficultly paſſable through the veſſels, it will be evident that a weight may be perceivable in the limbs from more cauſes than one.

It

It is well known that the humours contained in the veins are driven forwards through them towards the heart, by the motion which they received from the arteries, and ſince the veins have no pulſation, but gradually widen in their courſe, it neceſſarily follows, that the motion of the fluids, circulating from the arteries into the veins, will be checked or retarded; on which account we obſerve in many parts of the body, that the arteries and veins lie contiguous to each other, that the neighbouring vein may be compreſſed by the expanſion of the beating artery, and promote the motion of the returning blood through them to the heart. Moreover, the muſcles, when they contract, preſs upon all the circumjacent veins, and ſuch as run betwixt them; and thus again is the motion of the venal blood very much promoted. But in thoſe who are cachectic, the power or action of the heart and arteries is very languid, and

the motion of the muſcles very weak; whence thoſe helps are wanting which conduce to forward the return of the venal blood to the heart. Hence the larger veins are hardly able to empty themſelves, and the ſmaller lymphatick veins, which ought to have abſorbed the lymph diſcharged by the exhaling arteries, from the leſſer and larger cavities of the body, as they cannot eaſily empty themſelves into the larger veins, already too full, nor abſorb the whole which the exhaling arteries emit, muſt neceſſarily fill the cellular membrane with watery humours, and produce oedematous ſwellings, more eſpecially in ſuch parts as are moſt diſtant from the heart, where the circulating blood is (*cæteris paribus*) proportionably ſlower than in others that lie nearer to the heart. Hence follows a ſwelling of the legs, more eſpecially when the patients ſtand for a time with their body erect, or ſit long with their legs pendulous, by which

which means the humours are forced upwards, contrary to the laws of gravitation; but when the body lies in an horizontal poſture in bed, the humours contained in the veins may then more eaſily return back to the heart, the heat of the bed-cloaths alſo rendering the lymph more fluid, which was collected within the cellular membrane; for oedematous feet will always be cold.

Since the left ventricle of the heart can expel none of its contained blood into the aorta, unleſs it receives the ſame firſt through the lungs from the right ventricle, which laſt is now very ſcantily ſupplied, from the flowneſs of the returning blood into the veins, it will appear very evident why the pulſe ſhould be weak and languid. But as ſoon as theſe patients begin to move briſkly, the overfilled veins being compreſſed by the action of the muſcles, ſuddenly drive the

humours which they contain towards the right ventricle of the heart, which then becomes overcharged or oppreſſed, becauſe it cannot ſend the blood ſo faſt through the lungs, as it is urged upon it by the returning veins; whence a palpitation of the heart will follow, with a very laborious difficult reſpiration.

If the cachexy ariſes from a vicious diet, the foul humours lodged in the primæ viæ may be expelled by a prudent uſe of vomits and purges, and then by a proper regimen with corroborants.—If want of exerciſe has brought on a cachexy, motion and an active life will cure it; but if it be occaſioned by a purulent abſceſs or ſcirrhus, ſeated in any of the viſcera, it is then incurable, unleſs the cauſe can be removed, which is frequently not ſo eaſy a matter, nay, in general, almoſt impoſſible. If cachectic people are ſeized with a vertigo, loſs or weakneſs of memory, tremors, and ſleepineſs, there is reaſon to fear the viſcid and watery humours are already collected within the brain, whence there will be danger of an approaching

apoplexy; if they begin to pant and loſe their breath upon exerciſe, we conclude the capacity of the breaſt and lungs are charged with a like humidity. We very ſeldom ſee thoſe who are in the full vigour of life, and of a firm and ſtrong conſtitution, ſubject to cachectic diſorders but from violent cauſes; in which caſe they are not eaſily cured.

Thoſe who would recommend the perpetual attenuation of our humours, never rightly conſider the healthy nature of our animal fluids; for the blood of ſtrong and healthy perſons has a conſiderable ſpiſſitude or thickneſs, by which it is immediately diſpoſed to harden into a ſolid cake, when drawn from the veins; whereas in weak or valetudinary perſons the blood is much thinner, and leſs diſpoſed to cohere. If this one practical obſervation had been conſidered, they would have eaſily perceived, that a too thin or diſſolved ſtate of the blood and humours, muſt render a ſtrong and healthy perſon in the condition of one

that is weak and ſickly. Moreover, each particular humour is required, to have a due conſiſtence or degree of thickneſs, to confine it within the veſſels to which it properly belongs; for if the red part of the blood were once to become as thin as the ſerum itſelf, the blood veſſels would all ſoon be empty; or if it were to become as thin as the lymph which tranſpires through the exhaling veſſels of the ſkin, the whole body would waſte in a very ſhort time. It is therefore plain enough, our fluids may offend by a too watery or inconſiſtent ſtate, in which they are manifeſtly deprived of their healthy conditions. But ſince the thickeſt portion of the blood, namely, its red part confined within the larger arteries and veins of the body, receives its motion from that of the heart and arteries, and communicates the ſame, when ſo received, to the other humours, and as, at the ſame time, the natural heat is excited by the attrition of the ſame thickeſt part of the

blood,

blood, and communicated to the whole body: therefore, when the ſaid portion of the blood is too much diluted with watery liquors, which, at the ſame time, renders the ſolid veſſels too weak and flaccid, the motion and attrition of the humours will be both ways conſiderably weakened, and the heat and warmth of the body will be proportionably leſſened: hence again the ſaid watery liquors will not eaſily be exhaled from the body, wherein it will remain diſtending the weaker veſſels, and gathering itſelf into the hollow ſpaces of the body, will produce a cachexy or dropſy.

But beſides the ſaid over-thin ſtate of the humours ariſing from an imprudent uſe of diluent liquors, there is another diſeaſed fluidity of them obſervable, for want of a due preſſure or condenſation of them by the vital and elaſtic force of the veſſels and viſcera; or from the diſſolving force of ſome diſeaſed liquid intermixed with them, which melts down or deſtroys their due conſiſtence.

Certain it is that the chyle prepared from the ingeſted aliments, has a leſs denſity than that of the red blood or its ſerum; becauſe the chyle floats upon the ſurface of the blood, after it has been taken out of a vein, but in length of time, and by repeated circulations thro' the veſſels and viſcera, it acquires a greater denſity, and changes into our own nature. But it ſeems an eſtabliſhed principle, that the lungs do, by their action, principally conduce to this greater denſity and aſſimilation of the chyle, which is all of it obliged firſt to undergo the attrition of the lungs, before it can move on with the reſt of the blood, through the arteries of the body; and all the vital humours are obliged to paſs in the ſame ſpace of time through the lungs, while only a certain ſmall portion of them flows through any of the other viſcera. Moreover, the aorta is diſtributed over all the body and every different part of it, ſo as to ſend the nutritious fluid together with blood, throughout

out the whole ſyſtem; but then the aorta receives all its blood from the left ventricle of the heart, into which the pulmonary veins tranſmit their blood that has firſt been preſſed through the lungs, which laſt, therefore, ſeem to give a due degree of denſity to the chyle, and preſerve, likewiſe, the firm texture of the blood itſelf. Hence the reaſon is apparent, why, when the lungs are diſeaſed, we ſo often obſerve a conſumption of the whole body, although no great waſting of it appears, either by expectoration or any other ſenſible diſcharges; ſometimes, alſo, there are night ſweats, ariſing from the too thin or diſſolved ſtate of the humours, not ſufficiently condenſed by the lungs, which diſtil thro' the cutaneous pores, or mouths of the exhaling veſſels, relaxed by the heat of the bed cloaths. But ſince the ſame action which condenſes the chyle, and renders it like the reſt of our humours, is alſo employed in maintaining the ſweet gelatinous and globular nature in all the

reſt

reſt of our juices, which, in a healthy ſtate, are not acrimonious, the reaſon thence appears, why a thinner ſtate of our humours is commonly joined with a greater acrimony from the ſame cauſe; which acrimony requires to be moderately obtunded or corrected at the ſame time, that its too watery or thin ſtate is rendered more conſiſtent. Sudorifics and diuretics can only take place in a cachexy that inclines to a leucophlegmacy, or a dropſical anaſarca; but not where the body becomes juiceleſs, and is decaying by a conſumption or maraſmus.

Alcaline ſalts, and the ſoaps prepared of them, are very efficacious in diſſolving tough and viſcid humours, but then they are not convenient when the patient is under a courſe of chalybeates: for ſteel filings readily diſſolve in an acid that is prepared from vegetables, but if an alcali be added to the ſaid diſſolution, the iron precipitates, with the appearance of a yellow earth or ochre, which being entangled in the mucus of the firſt

paſ-

paſſages, may harden into a ſolid coagulum hardly diſſolvable, ſo as frequently to occaſion much trouble to the patient: for this reaſon, therefore, alcaline medicines are avoided, during the time that a cachectic patient uſes the filings, or other preparations of ſteel, which are commodiouſly exhibited in infuſion in wines or ſtrong-bodied ale.—And for this reaſon too the patient ſhould uſe ſuch a diet as is rather aſceſcent than alcaleſcent.

When the body ſeems ſwelled with viſcid humours, from too great a weakneſs of the ſolids, corroborant remedies will be of ſervice; but when the humours, being in too diſſolved a ſtate, are drained or waſhed from the body, without being reſtored again by freſh nouriſhment, the veſſels collapſe and the whole body is deſtroyed by a ſlow maraſmus, in which laſt caſe ſuch remedies are required as gently moiſten, and give a better conſiſtence to the humours. Chalybeates in theſe caſes, though proper,

per, ſhould be varied according to the particular circumſtances.—In a girl, for example, bloated or ſwelled with the green ſickneſs, from a cacochymia of unactive mucous or viſcid phlegm, iron or ſteel medicines ſhould be given in a diſſolved form, in a vegetable acid rather than in ſubſtance, becauſe otherwiſe chalybeate powders, or ſteel filings, ſwallowed into the ſtomach, are apt to entangle themſelves in the viſcid mucus, and clog together, ſo as to paſs on through the bowels, with little or no operation or effect on the body; but where the primæ viæ are charged with a ſharp ſourneſs, chalybeates are better adminiſtered in a dry ſubſtance, becauſe at the ſame time that they obtund the ſour acrimony, the diſſolved ſteel will happily perform all its effects.

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## *Of an Empyema.*

PATIENTS under this diſorder lie eaſy enough on their back, becauſe the diaphragm deſcends much lower towards

wards the back and loins.—And for the ſame reaſon are they deſirous of ſitting upright in their bed, whenever a conſiderable quantity of purulent matter is lodged in the breaſt, becauſe the weight of it in that poſture preſſes down the diaphragm towards the abdomen, and thereby enlarges the capacity of the breaſt; and the breathing is thereby rendered more eaſy.

Thoſe whoſe breaſts are almoſt filled up with matter have red cheeks, and their countenance looks better, becauſe in them the blood meets with a more difficult paſſage through the lungs, and of courſe the blood returning from the head by the jugular veins is more impeded in its reflux into the right cavity of the heart; whence the blood veſſels of the face continue more than uſually diſtended.—But a ſlow fever is uſually the conſtant companion of an empyema, from the thinner parts of the matter abſorbed and mixed with the blood. And as this fever gra-

fever gradually preys upon the habit of the body throughout, it is at length attended with an extreme leanneſs or conſumption of all the fat: and ſince there is a good deal of this ſoft fat ſpread as a cuſhion under the globe of each eye, to ſuſtain and facilitate their motion, therefore when the ſaid fat is conſumed among the reſt, the eye-balls ſink lower into their orbits or ſockets, and the eyes are then ſaid to appear hollow: and when the ſaid fever has alſo conſumed the fat that fills out the ends of the fingers, and conſtitutes the ſenſe of feeling, the nails appear incurvated and more projecting. At the ſame time too a ſharp heat is felt in the ends of the fingers, and in the palms of the hands, from the quickened or febrile motion of the blood through the more contracted veſſels of theſe parts, that are yet more confined and compreſſed by the tendinous incumbent expanſions, and are more dry or juiceleſs than other parts.

Hippocrates has, with great care and induſtry collected together all the ſymp-

ſymptoms, by which a ſure and ready diagnoſis of this diſtemper may be obtained. He obſerves, that the ſide of the thorax which contains any conſiderable quantity of matter, ſo as often to yield no rattling noiſe, upon account of its being over-full, is more ſwelled than the oppoſite ſide; this is confirmed by the obſervations of our modern ſurgeons. And becauſe the affected ſide grows hotter than the other, he therefore adviſes the whole thorax to be wrapped up in thin linen dipped in liquid bole or red earth diſſolved or rendered very fine and thin by being well rubbed, and then directs an inciſion or cautery in the place which appears the ſooneſt and moſt dry: or he likewiſe adviſes the whole naked cheſt to be anointed with a red-like liquid, and this on the ſame account; but then he very prudently obſerves that in this caſe ſeveral hands ſhould be employed in rubbing in this liquid all over the breaſt, becauſe a miſtake might otherwiſe happen, as the part firſt rubbed in, would undoubtedly appear the ſooneſt dry.

If

If a vomica has continued broken for four or five days, the phyſician ought cloſely to attend to the urine and ſtools, for if any matter be diſcharged that way, it is well; otherwiſe he muſt immediately, and without loſs of time, have recourſe to the operation of the paracenteſis, which ſhould by no means be deferred, if we are to expect any ſucceſs from it.

We ſhould never cloſe up the external wound, unleſs the interior ſurface of the ulcerated thorax be rightly depurated, and afterwards thoroughly conſolidated and cicatriſed, for there might be danger of another empyema in conſequence of ſuch an incautious and imprudent treatment.

THE END.

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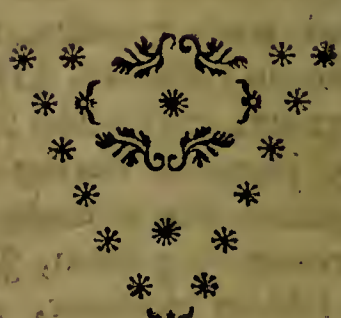

# VAN SWIETEN'S COMMENTARIES ABRIDGED.

By RALPH SCHOMBERG, M. D.

Fellow of the Society of ANTIQUARIES.

VOL. II.

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Quidquid præcipies, esto brevis ; ut cito dicta
Percipiant animi dociles, teneantque fideles.

HORAT. de Arte Poeticâ.

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MDCCLXVIII.

I Now preſent the Reader with a continuation of the Abridgment of the fourth volume of VAN SWIETEN's Commentaries—as the number of obſervations, and the quantity of materials collected from a conſtant peruſal of the beſt medical writers, made it impoſſible for one volume to contain the remaining part of the work; the very learned *Commentator* aſſures us that a fifth volume will poſitively be the laſt—when this makes its appearance, I ſhall endeavor, as ſoon as poſſible, to finiſh the whole of the Abridgment.

It

It has been obſerved, that I had omitted inſerting the *Aphoriſms*—this I did deſignedly; and for two reaſons: firſt, becauſe they would have ſwelled the book to a much larger ſize, than I imagined would be convenient; and ſecondly, becauſe I ſeldom or ever through the whole courſe of the Abridgment treat of every particular as it ſtands related in the Aphoriſms.

## *Of a* PHTHISIS PULMONALIS.

THREE things are requiſite to conſtitute a *phthiſis pulmonalis.* 1ſt. A ſlow waſting of the whole body: 2. The cauſe of this conſumption muſt ariſe from a depravity of the humors in conſequence of a putrid cacochymia: 3. The ſeat of the diſeaſe muſt be in the lungs.

The cure of a wound in the lungs, is often much more tedious and difficult than in any external part of the body, for the air cannot be excluded, and the lungs, upon account of their office in reſpiration, ſo eſſentially neceſſary to life, can never be at reſt, but in a conſtant and uninterrupted motion—phyſicians therefore very judici-

ouſly recommend reſt in an *hæmoptyſis* or ſpitting of blood, forbid their patient's ſpeaking, preſcribe the mildeſt nouriſhment, and caution againſt every paſſion of the mind, in order that the lungs may be as little diſturbed as poſſible; nor is this intended ſo much to prevent the return of the *hæmoptyſis*, as that the ruptured veſſel may be more ſpeedily cloſed and conſolidated.

Another reaſon why an ulcer of the lungs is often the conſequence of an *hæmoptyſis* may be accounted for, from the formation of this viſcus: if the lungs be blown up and dried, and then cut aſunder, they appear entirely cellular, not only becauſe the extremities of the bronchia terminate in hollow membranes, but there plainly appears a cellular membrane, which fills up the intermediate ſpaces between theſe ſmall veſicles in which the bronchia terminate, as we may very readily

prove

prove by microſcopical obſervation, after the veſſels of the lungs have been properly injected; now, if it happen that theſe veſſels being ruptured, the blood is thrown upon this cellular membrane, this extravaſated ſtagnating blood growing putrid and acrimonious may produce a ſuppuration and an ulcer of the lungs: for the extravaſated blood, which obſtructs the air veſſels of the lungs, may eaſily be thrown up by a cough, but that blood which is collected in the cellular membrane of this viſcus, cannot ſo readily find a paſſage this way till it has corroded the neareſt bronchia.—This fully explains the aphoriſm in *Hippocrates*, *A ſanguinis ſputo, puris ſputum, malum*; ſpitting up of matter after a ſpitting of blood, is a bad ſymptom; this is not to be underſtood of a ſpitting of matter in a ſmall quantity, which ſhews, that the veſſel which was ruptured begins to cloſe, but of ſuch a

ſpitting as diſcharges the pus in very large quantities, and are of a long ſtanding, and argue an ulcer to be forming or actually exiſting in the lungs.—

Worſe conſequences are to be dreaded from an *hæmoptyſis* occaſioned by an eroſion, than from a ſimple rupture of the veſſels, for if the healing and cloſing of a veſſel broke by ſome violent cauſe be difficult, (and an ulcer of the lungs often follows in conſequence of ſuch an accident) how much more are we to be alarmed, when the eroſion of the veſſels has brought on, not a wound, but an ulcer! *Galen* in theſe circumſtances almoſt deſpaired of a cure——*Ex iis vero qui ulcus in pulmone habent ii ſolum inſanabiles mihi videntur qui ex ſucci vitioſi eroſione id poſſident, quorum aliqui ut ſalſulaginem ſputum ſuum ſentire ſe aiunt, nam longo arbitror tempore omnino opus eſſe, ut ſucci corrigatur*

*gatur vitium.* Thoſe ulcers in the lungs, which happen in conſequence of a vitiated or corroſive humor, ſeem to be moſt difficult of cure, if at all curable—patients of this claſs ſay, that they perceive a brackiſh and ſaltiſh taſte in their ſpittle, a long time therefore is in my opinion neceſſary before this acrimony of the juices can be corrected.

An *hæmoptyſis* which proceeds from *anaſtomoſis*, that is, from a dilatation of the mouths of the veſſels, is the moſt eaſily cured of any; becauſe no acrimony of the humors is implied, and the veſſels, although dilated, remain uninjured. From the very effuſion of blood a conſtriction of the dilated veſſels will enſue; for a diſtenſion of the veſſels depends principally upon two cauſes, the force of the heart impelling the fluids, and the reſiſtance near the very minute extremities of the veſſels. As ſoon as theſe open ex-

tremities give a free vent to the blood, their reſiſtance will be conſiderably diminiſhed, if therefore the body be kept ſtill and quiet, the circulation of the blood will be calm and eaſy, and the veſſels will contract of themſelves by their own elaſtic power, their diameters will become leſſened, and their mouths cloſed in ſuch a manner, as to admit a paſſage to the blood no longer—thus the *hæmoptyſis* will ceaſe; the only ill conſequence to be feared, is, that the blood thus diſcharged by anaſtomoſis, may lodge in the cellular ſubſtance of the lungs, and by becoming putrid, produce an ulcer in them; yet as the paſſage from the pulmonary artery into the bronchia is eaſy, ſuch an effuſion of blood into the cellular ſubſtance of this viſcus is the leſs to be apprehended, ſince the fluids propelled through the veſſels, readily run where they meet with the leaſt reſiſtance.

The

The firmneſs of the veſſels reſiſts the fluids impelled into them; the greater therefore the ſtrength of the veſſels is, the leſs danger will there be of a rupture of them; but the greater the impetus of the blood is, which flows through the veſſels, the greater force will be put on them.—If therefore an acrimony of the fluids be joined to an impetuous circulation, and at the ſame time to a weakneſs of the veſſels, a ſtill greater danger of a rupture of theſe veſſels muſt be neceſſarily apprehended; now all theſe accidents are obſerved to happen in ſuch perſons as are ſubject to this diſeaſe. *Sydenham* obſerves, that perſons of a warm conſtitution, but not ſo robuſt as others, are moſt commonly ſubject to a ſpitting of blood. In ſuch perſons the blood drawn from a vein, will appear of a very red and beautiful color, but the craſſamentum is leſs firm, and the ſerum abounds more

with ſalts, is thinner, and not ſo high-colored as we commonly find it in healthy blood; and as the color of the contained fluids is eaſily perceivable through the thin coats of theſe veſſels, the ſkin will appear more tranſparent, becauſe the cutaneous veſſels are ſo ſmall as not to admit the red blood —and the cheeks will appear of a fine roſy complexion, the bright red blood appearing pellucid through the thin coats of the veſſels—*Galen* tells us, *quod color a ſuccis proveniat non a ſolidis animalis partibus*; that the color proceeds from the fluids, and not from the ſolids of an animal.

A ſtraitneſs of the breaſt, θωραξ στενος και αβαθης as *Galen* calls it, ever denotes a tendency to this diſeaſe—from hence it will evidently appear how pernicious the cuſtom is, of wrapping up children and ſwathing them too tightly, and in grown people lacing them-

themſelves up in tight ſtays, for the ribs by theſe means being depreſſed, the cavity of the thorax will be ſtraitened, and the abdomen at the ſame time being compreſſed, the deſcent of the diaphragm be rendered difficult. Thus an evil habit diſpoſes a naturally healthy body to a diſorder, which phyſicians ever judged the forerunner of a conſumption, where the parts were ſo conſtructed from a ſpontaneous formation. *Spigelius* very juſtly condemns this cuſtom, and aſcribes the frequency of conſumptions in *England* to this cauſe; *ineptum eſt & ultra fidem perniciosum, illud ſtudium, quod fere virgines adhibent, ut junceæ videantur, loris, & mortifero artificio, pectus in anguſtias cogentes, ignaræ, ſe anguſtando thoracem, januam tabi marcorique, aperire.* The care which young women take to appear of a ſlim and taper ſhape is abſurd and incredibly pernicious; for

whilſt

whilſt by ſtays and other injurious contrivances they confine their cheſt, they do not conſider they are bringing conſumptions and decays upon themſelves.——

It is evident from phyſiology that many viſcera are employed in changing the crude aliment into the nature of the human fluids; every one of which performs the function allotted to it: when therefore the viſcera, by means of weakneſs, are unequal to their deſtined office, the fluids ſecreted from them, muſt neceſſarily degenerate from their natural qualities, the chyle will be crude, viſcid, and even acrid; for unleſs the food can be ſubdued by the chylopoietic power of the viſcera, they will degenerate into their own nature, be it into an acid, putrid or rancid acrimony, or even into a tough viſcid glue according to the different matter of which they are conſtituted.

tuted. —— Now the lungs are more liable to be affected by this fault in the fluids, and that, much ſooner too, than any of the other viſcera, becauſe ſuch a vitiated chyle, as ſoon as it is mixed with the blood in the ſubclavian vein, muſt immediately paſs thro' the lungs, which therefore will receive the firſt injury in conſequence of this degeneracy of the fluids. Hence *Bennet* obſerves, *qui bellariis & ſympoſiis nimis indulſerint, phthiſi languorem importante maxime corripiuntur & periclitantur.* They who indulge themſelves in luxurious eating, and in drinking to exceſs, frequently fall into a languid decay, and very dangerous conſumptions; and this ſeems to account why the Engliſh are ſo frequently attacked with this diſeaſe; for they eat ſtrong food, drink hard, and are not ſo fond of vegetables as other nations are; and inaſmuch as the bile is of the greateſt uſe in chylification,

tion, a greater depravation of the chyle is to be feared, eſpecially if the liver, which is the organ which prepares the bile, is any ways defective.—

An acrimony already generated in the humors, or the viſcera being too weak to properly aſſimilate the aliment may occaſion a ſlight fever, ſuch as we obſerve in theſe caſes, for the lungs being irritated by the acrid chyle flowing through them together with the blood, a cough enſues, which is a dry one, becauſe there is as yet no matter formed, to be expectorated, and as at the time when freſh chyle mixes with the blood, the paſſage of the blood through the lungs is ſomewhat troubleſome and difficult even in healthy ſubjects, hence ariſes a greater heat, and fulneſs in the blood veſſels of the head—becauſe the jugular veins do not ſo eaſily diſcharge their blood. This is plain if we obſerve the countenances

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of people when they firſt ſit down to a feaſt, and after they have done—their faces then become red and turgid—becauſe the diſtended ſtomach prevents the free deſcent of the diaphragm, and thereby diminiſhes the expanſion of the lungs, and crude chyle is at the ſame time circulating with the blood in large quantities. Thoſe who are obliged to ſpeak in public, experience the truth of this obſervation, and find that it is much eaſier to do it before, than after dinner.

Violent panting on the leaſt motion, is partly owing to great weakneſs, and partly to the blood's being obſtructed in its paſſage through the lungs—hence we ſee conſumptive people do not perceive this ſymptom ſo much in the beginning of the diſorder, unleſs the breaſt is ſo formed as to hinder the free expanſion of the lungs—but when in the progreſs of the diſorder, an ulcer

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is once formed in the lungs, then this ulcer preſſing upon thoſe veſſels which are as yet unobſtructed, renders the paſſage of the blood from the right to the left ventricle of the heart, difficult—but in caſe the ulcer be open, a purulent matter will be continually diſcharging itſelf, and the patient will be leſs oppreſſed indeed in his breathing, but the body will gradually waſte, and the ſtrength fail, unleſs the ulcer can be healed, which it will not be an eaſy matter to do.——

*Bennet*, who was very accurate in every circumſtance relative to this diſeaſe, obſerves that a bleeding at the noſe, prevents a phthiſis, or at leaſt prolongs life; *pthiſici omnes frequentiori, modo mediocri narium hæmorrhagiâ detenti, diuturniores. Si ſuffuſio ſanguinis cum pari per nares expreſſione arteriam pulmonariam ſimul occupaverit, minus periculoſam, quam ſimplex in arteriam extruſio.*

*truſio.* All conſumptive perſons who have frequent moderate bleedings at the noſe, hold out the longer for ſuch a diſcharge; and if this hæmorrhage accompany a diſcharge of blood from the pulmonary artery, it is leſs dangerous, than if the diſcharge came from the pulmonary artery alone.—He farther remarks in another place, that a moderate periodical bleeding at the noſe keeps off a conſumption, and is much more ſerviceable than repeated phlebotomy — and confirms this obſervation, by the example of a youth who had received a conſumptive habit from his parents, and who nevertheleſs enjoyed an almoſt uninterrupted ſtate of health from the age of ſixteen, to twenty-five, by means of a bleeding at the noſe, for towards the decline of the ſpring, and throughout the greateſt part of the ſummer he bled one ounce, ſometimes two at the noſe; at twenty-

five,

five, upon his taking an accidental cold in his head, this bleeding ſtopped, upon which his breaſt became greatly oppreſſed, and an hæmoptyſis and other ſymptoms of a beginning conſumption became threatening,—he was bled, but to little purpoſe—but a copious hæmorrhage from the noſe returning, his breathing grew freer, and he eſcaped the imminent danger he was in, without any conſiderable alteration in his health.——If therefore a perſon was recovered by this means from an hereditary conſumption, which is univerſally allowed to be the moſt difficult of cure, what may we not hope for in other caſes from the ſame ſalutary evacuation! And this, by the bye, ſhould alſo be a caution to phyſicians, never imprudently to ſtop this hæmorrhage by any remedies—however importunate the patient or his friends may be to have it done.—

An

An hæmoptysis occurs most frequently in the time of life between early youth or adolescence and manhood.—This *Galen* computes to be from eighteen to twenty-five, and from that time to thirty-five he calls persons youths, and imagined *Hippocrates* used the plural word *ætatibus*, ages, because during that interval, between eighteen and thirty-five, both adolescence and youth were comprehended.—*Aretæus* says simply *juvenes autem usque ad consistentem ætatem* (μεχρι ακμης) *post sanguinis sputum phthisici fiunt.*—Youths till the time of full growth become consumptive after an hæmoptysis. There are three principal ways, by which in time of health such things are expelled from the body, as would, were they allowed to remain there, be very injurious to it; viz. by stool, urine, and perspiration.—when these excretions are not well performed, diseases, and those sometimes of

very dangerous consequence, will often happen, but the lungs in these cases do not seem to be more exposed to injury than any other parts of the body; physicians have observed other excretions by which noxious superfluities are discharged from the body, which would be attended with great mischief if they were suppreſt,—and in consequence of the retention of these acrid particles the vessels of the lungs become corroded, and an incurable consumption be brought on.—An acrid serum frequently oozes from the skin of the head in infants, which, drying into a crust, becomes fœtid.—A like disorder sometimes prevails over all the skin, now should this by any accident or design be checked, terrible disorders and convulsions might be the consequence; nay the lungs themselves would be frequently affected by it, and a consumption ensue. I have some-

times

times seen a periodical asthma which lasted many years, brought on by a stoppage of this excretion; the fits of this asthma went off each time by a like cutaneous eruption on the face; about the time of puberty, the intervals of the fits grew considerably longer, and the person afterwards was quite freed of this complaint: hence we are taught, that the morbid matter in these cases is not discharged by the usual channels, but seeks a passage through peculiar ways, which the rules of art cannot predetermine, but must be learnt from a very diligent, close, and careful observation.——Experienced physicians therefore are very cautious how they check such excretions, though they are very troublesome, or how they drive them into other channels, but with the greatest circumspection. — Doctor *Mead* very judiciously remarks, *habent enim hu-*

*mores vitiosi suam quique indolem, cumque per modum crisis plerumque prorumpant quantumvis minui possint; vix tamen cum bonis ægri rebus per alios meatus, quam quos natura monstrat, e corpore prorsus exeunt;* the vitious humors have each their particular property, and as their eruptions are generally by way of crisis, though they may be lessened, they cannot with safety be discharged by any other ways than those which nature points out.——

*Hoffman* says that they are mistaken who suppose an abundance of wholesome blood of a good consistence to be the proximate and material cause of hæmorrhages; for in such constitutions the vessels are strong and the juices mild—he rather feared hæmorrhages in those whose blood abounded with a larger proportion of serum than of crassamentum, which is ever the case in subjects of a softer texture, and

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is a proof that the blood is thin and acrid. It is certain however that bloody diſcharges checked, frequently lay a a foundation for the moſt grievous diſorders—and that it is therefore adviſeable either to bring on theſe evacuations again, or to promote other diſcharges in parts leſs dangerous than the lungs. The hæmorrhoidal flux imprudently checked will bring on a dropſy or a phthiſis—*Hippocrates* was well aware of this;—*diuturnas* (ſays he) *hæmorrhoidas curanti niſi una ſervetur, periculum eſt hydropem ſuccedere vel phthiſin.* In the cure of bleeding piles of long ſtanding, unleſs one be left open, there is danger of a dropſy or conſumption.——

That even the larger veſſels may be broken by a great force is well known—how much more may this be feared of the tender veſſels of the lungs — it ſeems rather ſtrange that this ſhould not often happen, and eſpecially from

a cough, which violently ſhakes the whole cheſt, and at the ſame time forces large quantities of blood into the veſſels of the lungs; hence we ſee, that in violent coughing the whole face becomes ſwelled and turgid, and the eyes quite red with blood—as the blood cannot return from the head by the veins, the right ventricle of the heart having no room for it, and its paſſage through the lungs is obſtructed, while it moves faſter than uſual in the arteries—and in the Tuſſis ferina as it is called, and which is ſometimes epidemic, we ſee many afflicted with it grow black in the face and are almoſt choaked, whence a ſpitting of blood will often follow. The inteſtines of a boy were burſt, who died in a fit of this cough——and *Hoffman* relates a caſe, in which he ſays one of the vertebræ of the back was broken by the violence of a cough.

In

In the laſt efforts of a woman in labor, when ſhe is juſt at the point of delivery, the veſſels are ſtrained with a prodigious force, eſpecially if the woman is ſomewhat advanced in life, and it is the firſt birth——and I have known a rupture of the veſſels and an apoplexy follow upon theſe unhappy occaſions. In bodies of a tender frame, the veſſels of the lungs are ſo ſtrained by this effort, that a ſpitting of blood is the conſequence. It may hence be eaſily inferred, how theſe cauſes may ſtill be more likely to produce theſe effects, when a great part of the veſſels of the lungs are obſtructed by a ſcirrhus or polypus — or when it is ſo much compreſſed by another humor, as not to admit the blood to paſs freely through them—for then theſe pervious veſſels of the lungs will have ſo much the greater force to ſuſtain, if the motion of the blood be ſuddenly

accelerated by any cauſe.—In a young virgin who labored under a difficulty of breathing occaſioned by a ſuppreſſion of the menſes, *Hoffman* obſerved an enormous quantity of blood thrown up by coughing, attended at the ſame time with a ſpitting up of ſeveral large, hard, fleſhy ſubſtances; which on examination proved to be polypoſe concretions, and weighed above four ounces. The preceding ſymptoms and the hæmoptyſis which proved mortal, were a very ſtrong indication that the veſſels of the lungs were obſtructed with polypoſe concretions, which, on the burſting of the lungs, were thrown up together, attended with a great effuſion of blood. — This ſpitting of blood we frequently obſerve in perſons who imprudently drink down large quantities of very cold liquors, after having greatly overheated themſelves with hard labor or violent exerciſe.— *Trallian* and *Galen* do both of them con-

conſider a ſudden and violent cold among the cauſes of a rupture of the veſſels, not that it is effected by the cold itſelf, but becauſe the coats of the veins rendered hard by the cold, reſiſt a longitudinal extenſion and ſo are more eaſily ruptured — and he reckons a plethora or violent motion as the immediate cauſes of a rupture of the veſſels—*Hippocrates* ſays *frigidum valde venas frangit & tuſſim citat ut nix & glacies.* *Hoffman* obſerves that juſt before an hæmoptoe comes on the patient frequently perceives a chillineſs and conſtriction at the extremities, and more particularly a laſſitude in his feet, a flatulence in the abdomen, coſtiveneſs, an oppreſſion at his breaſt, and a difficult reſpiration: to theſe ſymptoms he adds, in another part of his writings, a ſhivering or coldneſs of the ſkin, a diſappearance of the veſſels on the hands, a pain

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in the back, *donec*, continues he, *sequente in faucibus titillatorio & secundum tractum arteriæ asperæ quasi pruriente sensu, sub calida ebullitione & undulatorio in dextro latere motu, ipsa eruptio sanguinis incidat*; till at length a kind of tickling sense and an itching is felt all along the aspera arteria, attended with a warm ebullition and undulatory motion on the right side, and then the spitting of blood comes on. — These symptoms I have myself observed to happen, though seldom or ever together in the same patient; and I have seen several persons, who had frequently been subject to an hæmoptysis, who knew it was coming on, upon feeling a kind of tickling in the aspera arteria, a slight oppression of the breast, and that undulatory motion sometimes in the right, and at other times in the left hypochondrium; in consequence of this foreknowledge they had immediate re-

course

courſe to the lancet, and have thereby prevented the hæmoptyſis for the preſent: *Aretæus* obſerves that an hæmoptyſis may proceed from a diſordered ſpleen or liver, but he adds, this is not eaſily or conſtantly produced from ſuch a cauſe, as theſe viſcera can more readily diſcharge their contents into the ſtomach and inteſtines. He adds however that it is neither impoſſible nor incredible, but that they may diſcharge themſelves upwards through the lungs and the artery (he means the aſpera arteria) ſince in fevers occaſioned by obſtructions in the ſpleen and liver, an hæmorrhage from the noſtril on the ſide in which the affected viſcus is ſituated, will enſue.

Experiments demonſtrate that fluids injected into the pulmonary artery, eaſily paſs into the bronchia; the injections with wax into the arteries of the lungs, render the veſſels which branch

branch over the whole ſurface of the air-veſſels of the lungs very conſpicuous—if ſome of theſe ſmall veſſels be broken, or their extremities dilated, they may diſcharge a ſmall quantity of blood, which ſtagnating in theſe parts, is thrown up afterwards in clots; it is farther to be obſerved that the cellular membrane every-where interlines the lungs between the trachea; and that when the lungs inflated and dried are injected with wax, innumerable veſſels appear diſtributed over the ſurface of this membrane; if now, either a rupture or an anaſtomoſis happen among theſe ſmall veſſels, the blood collected there will not be ſpit up, but ſtagnating on the outſide of the air-veſſels of the lungs, will form an ecchymoſis, or effuſion of fluids, ſuch as happens in conſequence of a bruiſe under the whole ſkin, or in a ſcurvy and other

diſeaſes

diſeaſes ariſing from an acrimony of the humors which corrode the veſſels. It is true, that ſuch effuſions, eſpecially when they proceed from ſome external violence, are often gradually re-abſorbed and diſappear, but in ſcorbutic habits they not only ſometimes remain for a conſiderable time, but they often degenerate into obſtinate ulcers; and it is to be obſerved that blood diſcharged upon the lungs is detained by very tender membranes; ſo that if the fluid becomes more acrid by ſtagnation, or from its quantity diſtends theſe membranes beyond their ſtrength, then burſting them, it will find a paſſage into the bronchia.——

That the lungs may be lacerated by a wound or ſome other violent cauſe is by no means improbable, and that ſome portions of the lungs thus lacerated, may be expectorated—but when no ſuch cauſes have preceded, ſuch an accident

accident is not at all likely. Such polypoſe concretions, are ſometimes thrown up after a violent ſpitting of blood, but the blood in this caſe is diſcharged upon the bronchia, and unleſs it be immediately thrown up, it will coagulate there, and readily aſſume the figure of the veſſel in which it is lodged; and the longer ſuch a polypus remains there, the more denſe it will become, and ſometimes grow entirely white; if now we conſider, that the patients upon account of their weakneſs from loſs of blood, or by the advice of their phyſician keep themſelves very ſtill and quiet, abſtain from talking, and ſuppreſs their cough as much as poſſible, it is not all ſtrange, that part of the blood fallen upon the bronchia, ſhould coagulate into a polypoſe ſubſtance, and after ſome time be thrown up by a cough, eſpecially ſhould the hæmoptyſis return. The pulſe is ſlow,

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ſoft and fluttering at the time of an hæmoptyſis, becauſe the blood which comes from the right ventricle, paſſes leſſened in its quantity to the left ventricle, as part of it is diſcharged into the air-veſſels of the lungs; and it is to be conſidered at the ſame time, that men are generally terrified when they are ſeized with a ſpitting of blood, which occaſions a panting, occaſioned alſo by this effuſion of blood on the bronchia—a brackiſh taſte in the mouth frequently precedes an hæmoptyſis, eſpecially when cauſed by an eroſion of the veſſels from too great an acrimony of the humors.

Bleeding is adviſeable in an hæmoptyſis for two reaſons; principally, that the quantity of the blood circulating through the veſſels may be leſſened, and the veſſels by that means be leſs diſtended, and the blood returning through the veins in a ſmaller quantity

tity to the heart, the heart itſelf may contract leſs forcibly; by this operation an inflammation may alſo be prevented.

An hæmoptyſis generally decreaſes after bleeding, nay often quite ſtops, unleſs ſome large branch of the pulmonary artery be torn or eroded; but as there is ſome reaſon to apprehend its return, it will always be adviſeable to repeat the bleeding; the intervals between this operation, how frequently it ſhould be repeated, and what quantities be taken from the vein, can only be determined by the particular ſymptoms which a phyſician will be the beſt judge of. The following circumſtances ſhould be particularly attended to; if the hæmoptyſis ſtopped after the firſt bleeding, and the patient felt no pain in his breaſt; if the pulſe was regular and ſlow but not full, if the heat of the whole body, eſpecially at the

the extremities, was leſs than in ſound health, the breathing free and eaſy, after a ſecond bleeding, for three or four days — but as ſoon as the pulſe grows full and ſtrong, and the heat of the body and in the extremities, is equal to, or exceeds that of a perſon in health, if there be a tenſion, or an obtuſe pain be felt in the breaſt, and the cough grows worſe, immediately bleed again, even theſe ſymptoms appear but a few hours after the firſt bleeding, the greater or leſſer quantity to be taken away, depends upon the ſymptoms likewiſe, for the whole intention muſt be to leſſen the quantity of blood, that the veſſels may be leſs diſtended, and to weaken the vis vitæ, that the blood may paſs through the veſſels with leſs impetuoſity, and the ruptured veſſel have a better chance to conſolidate and heal, and the cicatrix now forming, and yet but tender, not break open afreſh.

There can however be no determinate rule laid down, but attention muſt be had to the patient, and to the circumſtance of ſymptoms.——An inflammatory cruſt has ſometimes been obſerved upon the blood of perſons ſeized with an hæmoptyſis, though this does not frequently happen, yet the above deſcribed ſymptoms have called for repeated venæſections—we are not quite clear with regard to the nature of this inflammatory cruſt or ſize—if for inſtance blood drawn from a vein be received the into three baſons, this cruſt will appear in the firſt baſon but not in the reſt; ſometimes in the ſecond and third baſons only, though the blood has iſſued from the orifice in a full ſtream. I have ſeen a man who threw up a very large quantity of blood in an hæmoptyſis, which was received into a baſon, but it was not at all ſizy, though the blood taken from his arm had a very

thick

thick ſizy coat upon it—ſo that this appearance only will not ſufficiently determine us in the cure of an hæmoptyſis. In general *Sydenham* recommends a frequent repetition of bleeding in the cure of this diſorder—but it ſhould be left to the diſcretion and judgment of the attending phyſician. It will always be ſafer, rather to exceed in this operation though it weaken the patient, than to leave him to the hazard of a return of the diſorder. But bleeding is ſerviceable on another account. It is very evident that the ancients apprehended very great danger, when an inflammation or fever attended or ſucceeded a ſpitting of blood, and with very good reaſon, becauſe under ſuch circumſtances, an ulceration of the lungs and an incurable conſumption might be expected. *Galen* ever deemed it de-

ſperate.—*Ætius* likewiſe ſtrongly inculcates the neceſſity of trying every poſſible method to cure a wound in the lungs while it is recent, and before the inflammation begins; for if an inflammation comes on, there is little room to expect the wound will cloſe, and the cure of the diſeaſe will be greatly protracted; for the pus and ichor muſt be cleared away after the inflammation is removed, and the patient afterwards be treated as labouring under a conſumption. We find the ſame obſervation in *Hippocrates*, his words are, *ſanguinem ſpuentibus confert, ut ſint ſine febre, & tuſſiant ac doleant leviter & ut ſputum tenue fiat ad dies bis ſeptem. Febricitare autem & tuſſire ac dolere vehementer, & ſanguinem recentem ſemper ſpuere, damnoſum.* It is well for thoſe who ſpit blood to have no fever, and but a ſlight cough, to be without pain, and what they ſpit up to be thin

for

for a fortnight at leaſt — but to be feveriſh, to cough much, to feel great pain, and to ſpit up freſh blood, is very pernicious. Hence we may learn how uſeful repeated *venæſection* is in this caſe.

Cold water has been frequently ſtrongly recommended in an hæmoptyſis, and ſome eminent Italian phyſicians have experienced the happy effects of it when boldly adminiſtered—*Martin Ghiſi*, who practiſes with reputation in *Cremona*, among other very uſeful obſervations relates, that while he attended a patient under this diſeaſe in the hoſpital, who was a very robuſt man, he ſuddenly threw up three pints of blood; the doctor immediately gave him water rendered extremely cold with ice, with ſuch good effect, that the ſpitting of blood almoſt immediately ceaſed, and the patient kept well for three days, when

the hæmoptyſis returning with violence, he was inſtantaneouſly ſuffocated before any aſſiſtance could be given him—but it was owing to his indiſcretion, for he (heedleſsly forgetful of the danger he had ſo very lately eſcaped) drank plentifully of ſome ſtrong wine, and eat voraciouſly of ſome roaſt meat which his wife very officiouſly and imprudently had in ſecret brought to him.——He mentions another caſe of a youth who had a frequent ſpitting of blood attended with a violent fever, after repeated bleedings and other remedies unſucceſsfully applied, he gave him water made extremely cold with ice alſo, a cup of which was to be taken every quarter of an hour at leaſt—in a few hours the hæmoptyſis ceaſed, the fever and cough abated, and in a few days he entirely recovered, and continues in good health.——

Aſtringent

Aſtringent remedies are alſo recommended here, or ſuch medicines as are incraſſating, and at the ſame time ſoften every kind of acrimony of the humors; ſometimes remedies of both claſſes are combined——gum arabic, gnm tragacanth, ſtarch, the root, leaves and flowers of the greater comfrey; among the aſtringents we may claſs the leaves, roots, and ſeeds of the plantain, cinquefoil, pimpernel, tormentil, biſtort, &c.

Reſt is abſolutely neceſſary, leſt the motion of the blood through the veins accelerated by the action of the muſcles, ſhould circulate through the lungs with too great an impetuoſity and in too large a quantity, and ſo endanger a relapſe—hence it is evident how much a cough is to be dreaded in this diſorder — which not only endangers the rupture of a veſſel, but prevents the already ruptured veſſel from cloſing

again.—A cough ſhould therefore, by every method that can be thought of, be ſtopped by a prudent uſe of anodyne medicines, and the patient ſhould for the ſame reaſon be warned not to talk much, or call out for any thing he may want—and for that reaſon there ſhould always be an attendant in waiting in the room or a bell, ſo that the patient need not be under the neceſſity of talking or calling for whatever he wanted.——

The diet ſhould be very mild, ſoft, and cooling, and nothing be allowed that is either acrid by nature, or that may eaſily acquire a conſiderable acrimony—the food therefore ſhould conſiſt of ſuch farinaceous ſubſtances as are not very tough or ſlimy; of ſoft, mellow, thoroughly ripened fruits, well fermented bread, milk broths, ſoft vegetables, weak broths cleared of their fat, and boiled with rice, all

which

which are agreeable to the palate though enriched with little or no ſalt. Some people are fond of giving their patients calves foot jelly, &c.—now it is well known that the feet of animals boiled for a conſiderable time, yield a very viſcid kind of glue, which is uſed for mechanical purpoſes by artificers; ſuch a viſcid glue will form a thick tenacious chyle, which will rather oppreſs the weak lungs, than contribute to nouriſh the body; ſo that they are to be rejected in theſe caſes, and thin diluted broths ſubſtituted in their ſtead; but when the patient grows better, he may be indulged with ſome white meat, as a chicken for example, though very ſparingly — and ſuch food ſhould be given but in ſmall quantities at a time, though often, leſt the lungs might be oppreſſed by plenty, though of good chyle, too ſuddenly—for we obſerve

even

even healthy people, after too hearty a meal, have their veſſels very full and turgid; at that time the plenty of freſh chyle mixes with the blood, and the breathing becomes more ſhort and laborious than it was before, partly from plenitude, and partly becauſe the ſtomach being too much diſtended obſtructs the deſcent of the diaphragm, cloſe to which it lies—for a ſudden repletion even of good fluids is much to be dreaded in this caſe.

New milk diluted with equal parts of water or barley water in winter will make a good drink; in ſummer, as more diluting liquids are then neceſſary, the drink may conſiſt of the ſame, only in different proportions; two thirds water or barley water, and one third milk. A little ſugar, or Venice ſoap together with ſome abſorbents may be added, in order to pre-

vent

vent its turning ſour, or curdling in the ſtomach.——

Blood ſhould be taken from a vein twice a year by way of prevention, though the patient appears ſeemingly recovered of the diſorder; this ſhould be done about ſpring and autumn, theſe being the ſeaſons in which we obſerve changes in the human body; if he is of a ſanguine conſtitution and in the vigor of life, he may be more frequently bled for the firſt two or three years—and the phyſician ſhould very carefully attend whether the ſymptoms agree with thoſe which appeared a little before the coming on of the hæmoptyſis. When an hæmoptyſis has been cauſed by an anaſtomoſis of the veſſels, there is reaſon to hope a cure like that of a freſh wound without ſuppuration, becauſe the veſſel is not injured, and the veſſels contract and cloſe ſpontaneouſly after the

blood-

blood-ſpitting and repeated bleedings have ſufficiently emptied them. — If from any violent cauſe a veſſel be ruptured in the lungs, there yet may be hopes of cloſing the wound without ſuppuration, provided proper means are taken, unleſs it be very large indeed; but when the veſſels have been corroded by the acrimony of the fluids themſelves, in that caſe it will certainly be difficult to prevent ſuppuration; for then it is not a ſingle wound, and the inflammation which is commonly about the lips of the wound, will not be taken off, becauſe in order to bring this about, a mild diſpoſition of the fluids is abſolutely requiſite—and it will be impoſſible in ſo ſhort a time to correct ſuch an acrimony in the fluids, as was great enough to corrode the veſſels themſelves.

Another

Another reaſon for apprehending a ſuppuration in conſequence of an hæmoptyſis, is when grumous blood is left in the lungs after a ſpitting up of blood—for while the hæmoptyſis is diminiſhed or ceaſes, ſome part of the blood remains in the orifice of the injured veſſel, and even in the bronchia themſelves; now as ſuch patients muſt be kept perfectly at reſt, and breath as gently as poſſible, ſuch grumous particles of blood will ſometimes remain there a very conſiderable time; but when ſtrong ſtypticks have been applied, and eſpecially if the hæmoptyſis has been ſtopped by drinking of very cold water, we ſhall have reaſon to ſuſpect that large clots of ſuch grumous blood have been formed, and adhere to theſe parts. — *Si in ventrem effuſus ſanguis fuerit præter naturam, neceſſe eſt ſuppurari*; ſays *Hippocrates*; if the blood

be

be preternaturally discharged into the belly, a suppuration must necessarily ensue. *Galen* in his commentaries upon this aphorism, has judiciously observed, that *Hippocrates* does not there speak of an effusion of blood into the belly properly so called, but into any other cavity; he adds at the same time that by suppuration, is here meant every kind of corruption of the blood, and not its being changed into what we properly call pus. The blood in a warm moist place provided the air may get at it will soon grow putrid, and thus will it by its acrimony influence and corrode the neighbouring vessels and encrease every complaint, and bring on a suppuration.——The ancient physicians certainly seem to have feared this bad consequnce from grumous blood left after an hæmoptysis, and were for that reason very sollicitous to remove it as soon as possible.

sible. *Galen* in the cure of a violent hæmoptysis, after recommending it to his patient to breath gently, to keep still and quiet, and after having directed bleeding says, *ubi hæc sunt facta; primum posca tum diluta tum tepida potui est offerenda; quo, si quis in viscere thrombus latitet, resolutus extussiatur* (εκβηχᾶσθαι) *atque hoc nihil vetat bis terve ternis horis facere;* when these things have been premised, a thin warm posset is to be drank, by which if any clot of blood be remaining in the lungs, it may be dissolved and coughed up, and there is nothing to contra-indicate its being repeated every three hours for two or three times together. *Trallian* is of the same opinion, thinking that not only the grumous blood may be thereby dissolved, but that a farther effusion of blood may also by that means be prevented, with an addition of vinegar, to which the

the ancient physicians ascribed an astringent quality. *Bennet* certainly feared a consumption might be produced from grumous clots of blood long retained in the lungs; *si peractis sanguinis excreationibus pulmo minus sensilis, aut pectoralia torpida, sanguinis reliquias per αναχαθαρσιν non apprimè repurgaverint, retenti sanguinis & ipsius pulmonis computrescentia suborta phthisin subsecuturam minatur*; if, when the spitting of blood is over, upon account of the lungs insensibility, or the pectoral muscles inactivity to exert their powers, the remaining blood has not been cleared away, there will be danger of a consumption in consequence of its growing putrid, or a suppuration of the lungs.——It must be owned that we should endeavor carefully to remove the grumous blood, but it should be done with great caution, for fear we may excite a cough,

and

and ſo endanger a relapſe of the hæmoptyſis, which muſt unavoidably be attended with danger. I own I never ventured to adviſe perſons troubled with an hæmoptyſis to take a poſſet, and I have oftener adviſed it three hours after it was ſtopped—it is true indeed the ancients did not give oxycrate or vinegar poſſet hot, but lukewarm only, which indeed irritates leſs, yet ſtill it does irritate, neither can this grumous blood be thrown up but by a cough, which will ever be ſafer, when the ruptured veſſel has already ſpontaneouſly contracted itſelf, and that there is hope of its conſolidating; beſides it is to be obſerved, that a clot of grumous blood ſtopping in ſome branch of the aſpera arteria, often has ſtill another obſtructing the wounded veſſel, if ſuch a clot therefore be diſcharged, the other muſt alſo come away with it which obſtructed the wounded

veſſel, and an hæmoptyſis come on again and endanger the life of the patient, which, ſhould we even again ſucceed to ſtop, will yet leave grumous blood, which muſt again be removed.——

Doctor *Mead* has obſerved that thoſe perſons who were troubled with ſtrumous ſwellings in their childhood or in their younger days were moſt ſubject to ulcerations in the lungs; — *experientiſſimum medicum Radclivium dicere ſolitum, phthiſes in noſtris & frigidioribus regionibus eſſe plerumque ſtrumoſas; ſæpiſſime itaque videmus in tabidis poſt mortem inciſis, pulmonem tuberculis ſeu glandulis induratis obſitum, quæ ſuppurantia pus expuerent*, that moſt experienced phyſician doctor *Radcliffe* uſed to ſay, that moſt of the conſumptions in England were of the ſtrumous kind; we therefore moſt generally obſerve in ſuch bodies as have been diſſected, and have

died

died of this diſeaſe, the lungs filled with tumors or indurated glands which ſuppurating diſcharge matter. We frequently ſee perſons ſubject to ſtrumous complaints, have ſwellings in the neck for ſeveral months nay for ſeveral years, which nevertheleſs do not come to ſuppuration, and when they do begin to ſuppurate, it is only a part and not all of them—beſides, it is farther confirmed by many inſtances that theſe tumors may be and are lodged in other viſcera, and it appears farther that theſe tumors even in the ſame body, may be formed of different ſubſtances; ſometimes the matter contained in them is whitiſh or grey, mealy, and more or leſs ſoft, and of various different conſiſtences.—Sometimes they are every-where hard and ſciſſile—in ſome we find matter which is like lime moiſtened with water, and which is not rough to the touch;

in ſome we find a hard calcarious ſubſtance, rough in handling, and concreted as it were into a fungous ſtone.——In the body of an aſthmatic youth the lungs were found in part ulcerated, and partly full of ſuch ſort of tubercles filled with a chalky matter, the concave ſide of the liver, the ſpleen and the whole meſentery, were covered with a number of theſe tubercles. In a boy of four years old, who ſeemed perfectly recovered from a beginning conſumption, but who died in convulſions, the lungs were found filled with ſuch tubercles, ſome of which contained a thin pus, others again a ſubſtance as thick as new cheeſe.

If therefore the lungs be ſtuffed with ſuch tubercles, and that they contain a thick calcarious matter which cannot be brought to ſuppurate but by the ſloweſt and even moſt difficult methods,

methods, it is evident a man may die with a ſlow maraſmus, (becauſe the action of the lungs in forming the chyle is impeded) even before a purulent phthiſis comes on——which however would moſt probably have happened had the patient ſurvived much longer. We have many examples to illuſtrate this. —— A ſoldier twenty-five years of age, came to the hoſpital, he had a ſlow fever, dry cough, a ſlight oppreſſion of the breaſt, his face was pale, and his body extremely emaciated—after two bleedings, he was put upon a milk diet, and in the evening they gave him ſyrup of white poppies—nothing did him good, he grew ſtill thinner, his ſtrength decayed, and he died very quietly, without a diarrhœa, which is generally the concluding ſcene in a conſumption; his breathing through the whole courſe of his illneſs was not

at all laborious.——On diſſecting the body, handling the lungs, they felt as if they were filled with gravel, and the lobes being opened, we diſcovered a large number of tubercles each as big as a pea, which contained a matter much reſembling plaiſter but ſomething ſofter. Another ſoldier of twenty-eight years of age, weak and emaciated, was afflicted with a very troubleſome cough for eight months, on being brought to the hoſpital, he was put to bed with a ſlow fever hanging upon him, he coughed much, but ſpit ſeldom—and when he did the ſaliva was glutinous, and white, but never purulent, he could not bear to lie on the left ſide.—Various remedies were tried, but all to no purpoſe, ſlight ſweats ſucceeded, ſudden emaciation, a difficulty of ſwallowing, an aphonia, and at length death—but he never had a looſeneſs. On diſſection, the lungs

were

were found every-where adhering to the pleura; every-where filled with very ſmall tubercles, about the ſize of a grain of millet, when the lungs were ſqueezed, hard tubercles were obſervable as big as a nut, ſome of which being cut open were found to contain a white ſubſtance reſembling ſoft plaiſter, one of them only contained real pus. In the upper part of the right lobe we found a tumor as hard as a ſtone, and as big as a ſmall hen's egg——the author of theſe obſervations (*Barrere*) very juſtly remarks, that ſuch a diſorder was incurable when arrived at its height, and when the lungs were every where loaded with theſe hard tubercles—but where he luckily took it in time, he had ſaved many ſoldiers by ſending them into a purer air up into the mountains.

Such tubercles, though they were originally hard and filled with a

chalky substance, yet will suppurate in time, and produce a consumption with an ulceration of the lungs; so that they may be reckoned among the causes of a pulmonary consumption. —— It may so happen indeed, that these tubercles may be so numerous as almost to destroy the action of the lungs, and so kill the patient with a true marasmus, before the tubercles have any possible time to suppurate. Very many instances of such kind of consumptions occur in practice. A spitting of purulent matter, which in some measure relieves the patient, follows upon an obtuse pain felt deep in the breast, attended with a difficulty of breathing; the quantity expectorated gradually decreases, the small vomica heals up again, and the patient thinks himself quite recovered; but, as a new tubercle generates pus and breaks, all the former

symptoms

ſymptoms return again in very few months after.--I have frequently ſeen repeated inſtances of this, and I have been aſſured by many phyſicians that they have obſerved the ſame thing.——The generality however of theſe patients die conſumptive at laſt, though they hold out a conſiderable time before they ſink under the diſeaſe, but when from any adventitious cauſe many tubercles ſuppurate together, in that caſe the patient dies much ſooner.

After a mild, moiſt rainy autumn, during which the wind chiefly blew at ſouth, and remained in that quarter the winter and ſpring following, a cloudy ſummer followed with very little rain; but the ſame wind ſtill kept blowing as before, *Hippocrates* obſerved *quod ante incipientem æſtatem atque in hyeme, eorum multi, qui jam ſubtabeſcebant longo tempore, tabidi decubuerint; quando quidem multis etiam*

*dubie*

*dubie ſe habentibus tabes tunc confirmata fuit*, that juſt before the beginning of ſummer, and the winter following, many who were inclined to be conſumptive, were actually ſeized with a conſumption, and others who were in a doubtful ſtate, fell into a confirmed phthiſis. Might not they whoſe lungs were filled with hard tubercles be juſtly called phthiſically inclined? Is it not probable enough, that ſuch ſymptoms ſhould ariſe in theſe patients in a conſtitution of the air ſuch as *Hippocrates* here deſcribes it, eſpecially as he premiſes, *pluribus tuſſes aridæ nihilque tuſſientibus educebatur, atque voces non multo poſt rauceſcebant*. Many had dry coughs, but did not expectorate, and they ſoon after grew hoarſe. It is probable, that this epidemical conſtitution of the air was ſo adapted to produce a phthiſis, that they who were naturally inclined to this diſeaſe,

but

but had hitherto never been attacked with it, now began to feel its effects, and died.——*Hippocrates* adds, that he does not recollect any of his patients who were attacked with the diſorder, to hold out for any moderate time as they all died much ſooner than was in general uſual in this diſeaſe.

If a ſpitting of blood continue for a long time, neither encreaſing nor diminiſhing, it is moſt aſſuredly a very bad ſymptom—*Hippocrates* ſays, *quibus in pulmone tubercula fiunt, pus educunt ad quadraginta dies poſt ruptionem, hos vero tranſgredientes plerumque phthiſici fiunt.* They who have tubercles in their lungs, ſpit up matter for forty days after they break, if the ſpitting continue longer, they generally become conſumptive.

It may ſeem wonderful that when the wounded lungs have been almoſt entirely deſtroyed by ſuppuration

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(which has ſometimes been obſerved in practice) that the patient ſhould not rather die of a ſudden hæmoptyſis, as the right ventricle of the heart would propel the blood through the pulmonary artery into the waſted lobe of the lungs.——This in fact now and then happens, though rarely, and the patients more frequently die of a ſlow conſumption. Very many inſtances certainly ſhew, that when a ſuppuration is begun, there is leſs danger of an hæmorrhage. This we ſee in wounds and in amputations. When in perſons ſubject to a ſpitting of blood (even when they have had returns of this complaint) a ſuppuration begins, the hæmoptyſis ſoon ceaſes, although a conſtant cough, and that even pretty violent, ſtill remains.—I have ſeen the whole kidney ſo conſumed by an ulcer, that nothing remained of it but the outward membrane, yet no blood ever

paſſed

paſſed with the urine, but mere pus only.——Perhaps ſome peculiar formation of the lungs may account for this difficulty.——It is well known that the lungs are divided into large lobes, and theſe again are ſubdivided into ſmaller lobes, each of which have a branch of the pulmonary artery, according to their greater or leſſer dimenſions, all which however united compoſe the great lobe.—*Ruyſch* upon examining the ſtructure of the lungs, ſays, that the blood-veſſels of one lobe did not communicate with thoſe of another, a membrane dividing each from the other.—Nay, that each ſmall lobe had its peculiar membrane diſtinct from the reſt, and that branches of the veſſels ſupplied only the lobes to which they particularly belonged——he ſays however that this obſervation was made upon a calf's lungs, but the ſame diſpoſition did not always (if ever it did

at

at all) prevail in human bodies.——However in another part of his writeings he demonſtrates the ſubdiviſion of the greater lobe of the lungs into innumerable ſmall ones. *Helvetius* on examining the ſtructure of this viſcus, found that the arteries do not paſs from one lobe to another, but that each of them ſupplied its own peculiar lobe, and that the larger branches ran between the lobes. *Lieberkuhn* a moſt ſkilful enquirer into the ſtructure of the viſcera, compleated this diſcovery, and ſhewed a preparation of a part of the human lungs (diveſted of its external membrane) divided into ſmall lobes, which hung down upon the aſpera arteria; he injected three different branches of the arteries and one vein with an injection of different colors, and by this method evidently demonſtrated, that there is no communication between the lobes by the

blood

blood-veſſels; hence we may comprehend how ſome one ſmall lobe of the lungs may have its veſſels obſtructed, may be inflamed and ſuppurate, and yet not communicate the diſeaſe to the neighbouring lobes.

Thus we underſtand how a ſlow conſumption may gradually prey upon the lungs, without bringing on a ſudden and fatal hæmoptyſis, as the diſorder gently pervades one lobe to another and ſmall arterial branches ſupply each lobe with blood, the circulation thus remaining uninjured, and paſſing freely through that part of the lungs which is as yet in a ſound ſtate.—We are farther from the conſideration of this ſtructure of the lungs taught what theſe tubercles in the lungs are, which phyſicians have ſo frequently obſerved to be inflamed, and to ſuppurate ſucceſſively.

It

It is however to be confessed, that the lungs have not always been found entirely destroyed in those who have died consumptive, though a very large quantity of pus had been daily discharged upwards—and the physicians have thence consequently concluded that this viscus was entirely consumed. I must freely own that this has occurred to me in practice—a very singular instance of which happened in the hospital at *Vienna*, where after a very copious discharge of pus by expectoration, the lungs were found entire, but every-where adhering closely to the pleura, and to the pericardium on the left side of the thorax: but which way soever they were cut, not a drop of pus or the least marks of a vomica appeared, but on opening the trachea some pus was found lodged there. Experience proves that a suppuration does

not

not always consume the part from whence the pus arises, and yet that when a great quantity of pus is daily discharged, the body wastes away.— After an amputation of the breast, or of a limb, surgeons often to their great regret, see their patients waste away, from an excessive discharge of matter from so very large a wound — so that all the fluids of the body, converted into pus, are carried off, and then the poor patient, who at first seemed to be in a promising way of recovery, sinks under the evacuation——but a short time before the patient expires, all the wide surface of the wound grows dry, and when dead, there remains not the least appearance of any pus. I have seen very large ulcers in the legs, which had daily for many years together discharged an amazing quantity of fetid ichor; and when upon the use of the bark, a laudable pus was

formed, the wound began to cicatriſe, and there did not appear the leaſt loſs of ſubſtance, after the wound was cloſed and entirely healed up.

When one lobe of the lungs is purulent, we ſometimes find pus lodged in the other lung, for while the patient now much weakened, endeavors to ſpit, but cannot, the pus is pumped up into the aſpera arteria, from whence it may eaſily fall into either lobe of the lungs. Doctor *Simpſon* upon opening the body of a man who had diſcharged a great quantity of blood before his death, found a ſcirrhus on the upper part of the right lobe of the lungs, and at the ſame time a ſinus full of matter, large enough to contain a man's finger; he alſo found a ſtone, and a quantity of water in the cavity of the right breaſt, but the left lobe of the lungs was entirely ſound, well colored, and without any hardneſs; and

he

he was ſurpriſed to find pus iſſuing from every part of the lungs while he was cutting into different parts of its ſubſtance, but the pus did not iſſue forth in large quantities together, but by a drop or two at a time, ſo that it is probable it might come from the branches of the aſpera arteria, as they were ſucceſſively cut open.

It is not the red blood which is changed into pus, but rather ſome of the thinner fluids ſecreted from the blood, for ſo long as a wound is bloody we ſee no pus, but the veſſels afterwards contracting, the ſurface of the wound grows moiſt with a thinner humor, which gradually turns to pus on the ſurface of the wound, if it be guarded from the air, for if the wound be expoſed to the air, it all dries up and is covered over with a ſcabby cruſt, under which the pus is formed. By how much the matter ſpit up in this

diſeaſe deviates from the qualities of laudable pus, by ſo much *cæteris paribus*, have we reaſon to doubt of a cure; for whether this proceeds from the nature of the matter being too long retained in a fiſtulous ulcer of the lungs, and rendered more malignant thereby, or whether the ulcer itſelf conſtantly pours forth a ſharp ichor of a different quality from laudable pus, there will always be danger, leſt the evil ſhould extend itſelf more and more, or that the pus rendered both more acrid as well as thinner by its retention, may be reabſorbed, and ſo infect the whole body in ſuch a manner, as to render it entirely unfit for nutrition, and ſo cauſe the conſuming away of the body. Phyſicians ſhould attentively examine the ſaliva of conſumptive perſons, in order to form a proper prognoſtic from it. *Hippocrates* ſays, *phthiſicorum in aquam ſalſam expuentium ſputa ſi ad*

*fundum*

*fundum tendant, cito pereunt.* If what is spit up by consumptive persons into salt water sinks to the bottom, it is fatal.——Almost all physicians after him have condemned the saliva when it is dense, and sinks in water—and have accounted this gravity of the matter as a sign that some parts of the solids, which were beginning to waste, were carried off, and being heavier than the water sunk down to the bottom of it. Purulent matter spit up will swim upon the surface, though sometimes a part of what the patient throws up will sink, while the other part will swim a-top.——*Hippocrates* for this reason directs the trial to be made with salt water, as it is specifically heavier than fresh water, and therefore whatever is expectorated must be much denser and heavier to sink to the bottom, as a confirmation of this prognostic.——But we are to observe

that this holds only, in ſaliva which is rarely purulent without any mixture of mucus, for the mucus which lines the trachea and bronchia is ever frothy and contains air-bubbles, and if it be mixed with the pus, or by its viſcidity adheres to the outermoſt edge of it, the purulent ſaliva will ſwim on the ſurface, though properly ſpeaking it is in itſelf heavier than the water; this will readily explain the reaſon why we often ſee it ſwim a-top, and then ſink down into the water though expectorated at the ſame time—for while the mucus ſtill adheres to the ſides or is mixed with the purulent expectoration, or the air-bubbles contained in the mucus are not broken, it will neceſſarily ſwim on the top, but when once the mucus is diſſolved, and the air-bubbles diſperſed, then it will ſink to the bottom of the water.—In ſpitting up matter (ſays *Bennet*) that which

lodges

lodges about the upper part of the trachea, is brought off without straining, by a slight cough; but that which is seated at the bottom of the bronchia is thrown up with difficulty. The same author confirms what *Hippocrates* has written by his own observations, and reckons among the mortal symptoms in a consumption *pus cœnosum, ponderosum colorisque cinerei quod aqua injectum facile quasi ei commiscetur fundumque petit:* a filthy, heavy, ash-colored pus, which on being thrown into water easily mixes with it and sinks to the bottom. The matter spit up in consumptions has various tastes also. *Hippocrates* mentions *sputum crassum ex virore pallescens & dulce per tussim rejici,* the expectoration of a thick palish green, and sweet saliva by a cough—and soon after *quod sputum ore continens excreaturus illud detestetur.* And in the *Coacæ prænotiones* he says, *qui sup-*

*purati futuri sunt primum salsuginosum spuunt dein dulcius*—before a purulent matter is expectorated the patient perceives a saltish thin and sweetish saliva in his mouth.——I have sometimes heard patients when they had just spit up matter complain of the nauseous sweetness of their spittle, and *Bennet* esteemed this symptom very pernicious, *ex profuso vitali nectare defloresscentes & arescentes strigosos periisse*, for he imagined the nutritious juices were excreted by this spitting, and therefore the patients were destroyed by a consumption or marasmus, and he was the more confirmed in his opinion, because he had observed in the body of a man who died after such a spitting, and who had sometimes spit up blood, that all the organs of respiration, and all the viscera appeared sound to view, but the lungs were every-where soft and had lost their tone—as also because

this

this ſaliva when put on the fire, like all nutritious juices, acquired by heat the conſiſtency of a whitiſh jelly—Very fetid ſaliva is a ſtill worſe ſymptom, as it indicates a putrefaction already begun, however *Bennet* ſeems to be of opinion that it is not always mortal, for he ſays the pureſt blood will grow putrid if it be deprived of its own vital heat.—Certainly grumous blood contained in the bronchia, or pus lodging there, and not ſoon excreted, may grow corrupt from the free acceſs of air and moiſture and heat of the place—for this reaſon he further obſerves, (when he is deſcribing the ſymptoms of an incurable phthiſis) a ſtinking breath to be a bad ſign, but adds, when joined with a great panting and laborious reſpiration.—It is not very ſafe to be much converſant with perſons in this ſtage of a conſumption, for as the putrid effluvia of

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the ſaliva may be drawn in with the air into the lungs of the by-ſtanders, there may be danger of infection. *Galen* ſays *periculoſum eſt conſueſcere his qui tabe tenentur, atque in totum cum omnibus qui putridum adeo expuant, ut domicilia, in quibus decumbunt graviter oleant:* it is dangerous to be much in company with people in very deep conſumptions, eſpecially when the breath is ſo fetid as to communicate its influence to the very chambers wherein they lie.——A man's wife expiring of a conſumption, giving him a parting kiſs, all that part of the chin which her lips had touched remained ſmooth ever after, though his beard grew thick all around it—his lungs however were never affected by it. Phyſicians have ſometimes thrown what has been ſpit up by conſumptive patients on burning coals, and if it was fetid, they prognoſticated certain death to be very

near

near approaching——but it is certain that all ſpittle ſmells ill when it is burnt, and *Bennet* therefore does not depend ſo much upon the certainty of this prognoſtic — the greater or leſs ſtench in the ſpittle when burning, may indeed be a ſign of a greater or leſs corruption of the humors. *Hippocrates* accounts this a bad ſymptom but then he adds alſo—*ſi & capilli a capite defluant*, provided the hairs fall off from the head.——

A vomica may certainly break in ſuch a manner as to diſcharge the matter contained in it into the cavity of the thorax; this however happens but ſeldom in conſumptive caſes, as the pus is generally thrown up by the mouth—but where it does happen, it is eaſy to foreſee that there is very great danger, for we then may reaſonably conclude that the lungs already ulcerated, are at the ſame time loaded with pus on all ſides.

Anxiety

Anxiety ariſes from an obſtruction of the paſſage of the blood through the extremities of the pulmonary artery, now in conſumptive caſes, where this viſcus is either gradually conſumed, or filled with matter, this obſtruction will neceſſarily happen, and this in a greater degree, the nearer the poor patient is approaching to his end, they complain of nothing more, nor are more deſirous of relief than for this diſtreſſing ſymptom; the oppreſſion encreaſes towards the evening, becauſe the ſpitting decreaſes about that time, and the fever riſes; and the more rapidly the blood moves through the obſtructed veſſels, the greater will the anxiety be. If a perſon in health runs very haſtily and thereby quickens the blood's momentum, an anxiety ariſes in conſequence of it, becauſe the lungs cannot admit a paſſage to the blood ſo faſt as the veins convey it to the right ven-

tricle

tricle of the heart, hence unleſs the velocity of the blood be leſſened by reſt and quiet, ſudden death would follow—as may be obſerved both in men and beaſts who have run upon the ſtretch for any length of time——but in the morning when the fever abates, and the ſaliva concreted and collected during the night is expectorated, we find the conſumptive patients grow better — the thirſt in this diſorder is occaſioned by the putrid taint of the blood rendered acrid—and this will be ſtill farther encreaſed by night ſweats which diſſipate the moſt fluid parts of the blood.—

Red puſtules often happen, becauſe the thinner fluid is drawn off by ſweat, and the thicker part ſtops up the narrow pores of the ſkin — theſe puſtules we obſerve in healthy perſons in very hot weather.—*Bennet* among the ſigns of an incurable conſumption, ſays a

ſcurf

ſcurf on the extreme parts and on the ſkin, with a deficiency of moiſture upon the external parts, is a bad ſign—*Hippocrates* has obſerved the ſame thing.

From the pus mixing with the blood as it flows through the ulcerated lungs, the whole blood is corrupted, and the craſis of the fluids ſo broken down, that they iſſue from the body in great quantity in a colliquative ſweat: but when the vital powers grow weaker and weaker, and the moſt fluid parts flying off by ſweat, leave the remaining humors more viſcid, the fluids carried towards the ſkin will paſs with much greater difficulty, and here and there raiſe watery bladders upon the epidermis, ſomewhat like white miliary eruptions, only that they are ſomewhat larger.—*Hippocrates* was not ignorant of this—for after recounting the ſymptoms attending in the laſt

ſtage

ſtage of a conſumption he adds—— *& φλυκταιναι per corpus naſcunt.*—Watery pimples break out upon the body.

Swelling of the hands and feet is a mortal ſymptom, becauſe the reabſorption of the lymph is rendered more difficult — and ſtagnates in the moſt remote parts from the heart. — The fluids and ſolids of the body are conſtantly changed by the hectic fever, are worn away, and deſtroyed by ſweats and expectoration, and as they cannot be reſupplied bring on that great weakneſs which attends theſe diſorders— the dryneſs of the parts which are the inſtruments contrived to form and tranſmit the voice, occaſion a hoarſeneſs.

Falling off of the hair is alſo a fatal ſymptom, becauſe it ſhews the fat and oily parts of the body to be entirely conſumed and waſted away, and that the ſkin is quite dry and ſapleſs— *Huic ſi jam capilli ex capite defluant* (ſays

(says *Hippocrates*) *caputque velut ex morbo jam nudetur, & super prunas expuenti graviter sputum oleat, hunc intra breve tempus periturum asserito, &, quod, enecet, alvi profluvium fore.*—The humors are driven inward, and being dissolved by a putrid malignancy, rush on the intestines and produce a fatal diarrhœa.—*Aretæus* takes notice of the same thing.——But white fæces are most dangerous of all, for in this case all kind of nourishment is drained from the already too-much exhausted body. A vomica of the lungs which follows upon a peripneumony is in general of a larger size, and when it breaks discharges a greater quantity of matter all at once, than that which happens after an hæmoptysis, which are frequently smaller, and consequently discharge a less quantity of pus—less is to be feared when the vomica breaks and discharges the pus from the body,

than

than when it is reabsorbed into the blood.——In external abscesses therefore, unless they be very large indeed, and discharge a great quantity of matter when opened, we may almost be certain of a cure; but it is quite different in an ulcer of the lungs, for the blood of the whole body is propelled through them from the right ventricle of the heart with a rapid motion, and constantly rubs against the ulcerated part; whatever is absorbed by the mouths of the veins on the surface of the ulcer, passes quickly by a short passage to the left ventricle of the heart and is directly conveyed with the blood circulating through the aorta to all the parts of the body, for the pulmonary veins are soon emptied, and therefore it will be more easily reabsorbed——this will evidently prove how much greater danger there is from a purulent infection of the blood in the case of an ulceration

in the lungs, than in any other part whatever.

In order to prevent the pus infecting the blood, three things are primarily to be considered—first, that the pus do not remain long in the vomica, so that there may be less to be feared from reabsorption, and this is to be brought about by promoting expectoration and using mild detergents for the ulcer. 2dly, That whatever pus is absorbed be purged off and expelled out of the blood as soon as possible, lest by being too long retained it may do farther mischief; and this may be obtained by the usual excretory channels, the intestines, kidneys, or by the pores of the skin. 3dly, Such remedies are to be administered, as do efficaciously oppose that corruption of the humors, which happens in consequence of the reabsorption of the pus into the blood.—

In

In endeavoring to anſwer the firſt indication by expectorant and detergent medicines, the phyſician muſt take care to do nothing which may impede the healing of the ulcer in the lungs. Now it is known, that if a ſurgeon was continually to deterge an external ulcer it would never heal; for laudable pus ſhould be left quietly in the ulcer ſome time, that under it the diſeaſed part may be ſeparated from the ſound, and that, that what is loſt and waſted may grow up again. Nay, a laudable pus will never be formed unleſs the humors effuſed from the mouth of the veſſels remain a conſiderable time in the ulcer. The ſame thing happens in an ulcer of the lungs, we are therefore conſtantly to promote expectoration, becauſe too frequent a cough exaſperates the ulcerated parts and prevents the formation of a laudable pus.——It is adviſeable therefore to allay the troublesome

ſome cough by anodynes, that the lungs may have reſt at leaſt in the night time——by which means we ſhall find next morning that the patient is relieved by throwing up a good and well-concocted pus; and while the cough does not agitate the lungs, there will be room to hope, that under the good pus, we may expect a conſolidation of the ulcer; ſo that if the cure proceeds well the quantity of pus will daily gradually decreaſe without that anxiety which uſually attends when pus is too long retained in the lungs——*Bennet* is very juſt in his remark when he ſays, in the day time, when the ſpitting comes on, expectoration by lenient medicines only ſhould be promoted, becauſe we then have nature co-operating with us—he at the ſame time recommends us to encourage a free perſpiration, for by that means the humors will have an uninterupted

paſſage,

paſſage, and nothing be repelled upon the internal parts, which might oppreſs the lungs.——

At the ſame time it will be neceſſary to direct gentle detergents to the ulcerated parts; in caſe the pus be rather tough and viſcid, and expectoration difficult, a mixture compoſed of oxymel, vitriolated tartar, and the ſyrup of the five opening roots will be of uſe—if there be a hoarſeneſs, and dryneſs of the fauces, infuſions may be prepared of maiden hair, parietary, ſcabious, coltsfoot, nettles, &c. which may be ſweetened with honey, and drank warm often in the day. If a tough viſcid mucus at the ſame time ſhould oppreſs the lungs, which does ſometimes happen, ſmallage, ground oak, hyſſop and other ſuch-like attenuants may be directed; nor are we to fear any thing from the warm aromatic power of theſe plants, as they

are first to be steeped in a large quantity of water; it will not be amiss to add a third part of milk to such infusions——by these means urine and sweat will be promoted, and so the pus which has been absorbed into the blood be expelled by these excretions.—These infusions should be drank plentifully *by day, and not by night,* so that the patients may not be disturbed of their rest, which is so necessary to them. The second intention is to guard the blood against the purulent taint, by expelling the reabsorbed pus out of the blood as soon as possible, as well as every other fluid which may have been so altered by this taint as to degenerate from a state of health; for in order to heal the ulcer it is absolutely necessary that mild and untainted humors should circulate thro' the vessels.——

Besides

Beſides the remedies, which by obtunding, are capable of weakening any acrimony, or of deſtroying it by an oppoſite quality, phyſicians have always endeavored to expell it from the body, by the channels which nature ever employs to diſcharge acrid particles from the body, and for this end to encreaſe the natural ſecretions and excretions — viz. by urine, ſtool, and by the pores of the ſkin. Now as the urine even in healthy people contains the ſaline and more acrid oily particles of the blood, all phyſicians have univerſally allowed its ſecretion and excretion may very ſafely be augmented in order to abate the acrimony of the humors, and of the blood——infuſions of vulnerary herbs encreaſe the quantity of urine, and therefore may be plentifully adminiſtered; the native balſams alſo have

their uſe, as they have apparently a diuretic quality. But we ſhould be more cautious with regard to the evacuations by ſtool or ſweat; for we obſerve in dangerous conſumptions, the unhappy patients ſink under nocturnal ſweats and colliquative diarrhœas.—No prudent man therefore will attempt this method, when the fluids already diſſolved by a putrid taint, iſſue at the pores in the firſt ſleep, or when the blood diſſolved and broken down, is expelled by the meſeraic veſſels into the cavities of the inteſtines, and brings on a fetid diarrhœa—in that caſe, the diſeaſe is deſperate and beyond the power of art—but in the beginning of the diſeaſe before the ſtrength of the patient is too much exhauſted, and the body too far emaciated, theſe methods may be tried with a tolerable degree of ſucceſs; but it

requires

requires prudence and great circumſpection and we muſt at the ſame time be very attentive whether the patient feels himſelf relieved by it or not.—Such ſudorific medicines as encreaſe the heat and momentum of the fluids and add to the acrimony, are undoubtedly to be exploded, thoſe are only to be choſen which are mildly aromatic, and even thoſe ſhould be infuſed in a large quantity of water, ſuch as the decoctions of the three ſander woods, of ſaſſafras, &c.—two ounces of this taken warm every two hours in the day time and in the evening on going to bed four ounces, and the ſame quantity again early in the morning — by this method a gentle equable ſweat is generally procured, by which means the acrid particles will be excreted from the blood, and a mild diluting vehicle be afforded to the body.——Native balſams beſide their aromatic fragrance, con-

contain alſo an acid, which prevents putrefaction.——Myrrh has frequently been given in conſumptive caſes—which according to the admirable experiments of the learned and judicious phyſician doctor *Pringle* is a powerful antiſeptic, far exceeding ſea ſalt in this quality.——We are indebted to this gentleman for many excellent obſervations tending to elucidate the effects of the remedies generally recommended by phyſicians; as chemiſts obſerve that putrefaction produces a volatile alcali, it was apprehended that this diſpoſition to putrefaction might be encreaſed by ſuch things as contained this alcali, and yet phyſicians tell us that crawfiſh boiled and bruiſed in their own broth, are very proper food to conſumptive people.——Now it is well known that theſe fiſh have a kind of urinous ſmell, not unlike a volatile alcali—the *Seltzer* waters which contain

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a fixed alcaline ſalt, are very ſafely and advantageouſly given to perſons in a conſumption, eſpecially if mixed with a third part, or even with an equal proportion of milk. *Avicenna* adviſes the plentiful uſe of ſugar of roſes, and orders the patient to eat of it *omni die quantum poteſt, quamvis multum ſit, ita etiam et cum pane*—as much as he poſſibly can to a large quantity, every day, and that even with his bread.—He gives us a caſe of a conſumptive woman who was at the point of death; but, ſays he, *tunc ſurrexit quidam frater ejus ad eam, curavit eam hac cura tempore longo, & revixit & ſanata eſt, & impinguata eſt, & non eſt mihi poſſible dicere ſummam ejus, quod commedit de ſaccharo roſaceo:* her brother came to her and recommended the uſe of this remedy for a conſiderable time, ſhe eſcaped the diſeaſe of which ſhe was perfectly cured and grew fat upon it,

nor

nor is it ſcarce poſſible for me to tell the great quantity ſhe eat of ſugar of roſes—he alſo extolls troches of camphire—how perfectly does this agree with doctor *Pringle*'s obſervations? he obſerves that there is a powerful antiſeptic quality in ſugar, and thinks it is owing to the great uſe of it, that fewer putrid diſeaſes occur than formerly; and as to camphire, he ſays that two grains of it only, were more efficacious in preventing putrefaction than one drachm of ſea ſalt—he alſo obſerves that there is a very powerful antiſeptic virtue in the Peruvian bark. *Morton* recommended the uſe of the bark in this diſeaſe. *Torti* owns that he gave the bark to many conſumptive patients not too much worn down by the diſtemper, and always found it procured ſenſible relief for ſome days, and ſometimes though not always, with a manifeſt interruption of the fe-

brile

brile exacerbations — but the diſeaſe ſoon got the better, and purſued its courſe even to the laſt period of life; yet he believes he once preſerved a lady of quality who was with child by it, and kept her alive till ſhe was delivered.—He ſays however that he had ſeen a boy who he imagined to be conſumptive, and was at the ſame time afflicted with a *ſpina ventoſa*; at the requeſt of the boy's father, he reluctantly gave him the bark, expecting no good from it, but he afterwards met him walking about quite ſtrong, ruddy, and full of fleſh, inſomuch that he ſcarcely knew him again, the lad was not only cured of his conſumption but of the remains of the *ſpina ventoſa*. He afterwards relates ſome other inſtances of conſumptive perſons reſtored by this medicine—he does not indeed deny that in ſome caſes it proved unſucceſsful, but he declares nevertheleſs that it

did

did no harm. This worthy phyſician gave it with reluctance, not expecting any advantage from it; and was therefore the more amazed at its ſucceſs. I have myſelf frequently tried the bark in the beginning of a conſumption, and never had reaſon to be ſorry for the trial; I remember a lady to whom I gave it in various forms for a conſiderable time, who had a very troubleſome cough, a ſlow fever, and was emaciated; no hæmoptyſis had preceded; and though her ſtrength was much exhauſted, and ſhe ſpit up purulent matter, and even had a vitiated conformation of the cheſt, yet ſhe recovered perfectly.

The following caſe proves how efficacious ſugar may be—a youth in conſequence of hard drinking and exceſs of venery, had got a perpetual violent cough, he ſpit up vaſt quantities of matter of various colors, he labored

under

under a ſtraitneſs and oppreſſion of breathing, had a fever, and was almoſt worn away to a mere ſkeleton, his ſtrength was greatly impaired, and his caſe ſeemed deſperate: he longed very much for garden ſtrawberries, and his phyſicians conſented to his eating them; in three weeks time after having eat as much as coſt above five and forty ſhillings, he was ſo much altered for the better in every reſpect, that he actually recovered in about two months time—this was in all probability owing to the quantity of ſugar he had eaten along with his fruit.

Small beer without hops, milk whey acidulated with the juice of wood ſorrel, of China oranges, pine apples, &c. were much recommended by *Bennet* as a conſtant drink to conſumptive patients. Perſons in this diſeaſe, who expectorated a fetid purulent matter, have been recovered by drinking waters

ters which were not only ferruginous but aluminous also.——Now doctor *Pringle* has demonstrated that alum possesses a more antiseptic quality than other salts; perhaps we might here refer to an observation of *Tulpius*, concerning a woman who by neglecting to be bled, had gathered a great deal of pus which she spit up in such large quantities as to fill a large bason, and infect a very spacious room with the stench of it; this poor creature was as emaciated and wasted as if she had been in the very last stage of a consumption; after having labored under this disorder for about four months, she longed for raw oysters, which she eat voraciously, and with such an happy effect, that the symptoms all of them presently abated, and she soon perfectly recovered.——*Hippocrates* advises salt meats to promote expectoration in purulent cases.

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The evacuation of pus by expectoration is far ſafer than by any other means; but this is not to be effected but by a cough, hence ſuch remedies as excite it, are recommended; for by a cough the lungs are cleared, but we are to obſerve at the ſame time, that if it be violent it exaſperates the ulcer; ſuch remedies therefore ſhould be adminiſtered, as render the pus which is to be diſcharged by expectoration eaſy to be carried off, and yet not ſo as to do miſchief by an acrid ſtimulus.——But when the pus is concocted, and of a laudable conſiſtence, it is brought up by coughing, and that without the leaſt trouble; and this chiefly happens in a morning, after a good ſleep, for then the lungs have been for a long while in a ſtate of quiet, and only moved by gentle breathing, and the conſolidation of the ulcer begun under good pus—but the ſame expectorating

remedies are not alike good in all cases—if the saliva be naturally tough, or if a viscid mucus be excreted, together with a purulent spitting, and with difficulty, an infusion of hyssop with simple oxymel, or with oxymel of squills will be of use, or if these be judged improper milder infusions of vulnerary herbs may be administered, all these infusions drank down mix with the blood, and are conveyed to the ulcerated place; hence physicians have thought of external remedies for this purpose also, though much service cannot be expected from plaisters and ointments.——Steams and vapors may be of use, as they may every-where come into contact with the whole aërial cavity of the lungs, this *Bennet* approves of much, and relates many cases, to prove the happy effects of this method—it may however seem surprising that he should use orpiment reduced into troches with the white of

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an egg for a fumigation as it has been described by the ancients under the name of arsenic, and therefore accounted a poison by many—but what we at this day call arsenic was indisputably unknown to the ancients, and orpiment in many of its qualities much resembles sulphur, and is improperly called citrine arsenic, as it is harmless enough. Air replete with sulphureous vapors is recommended as very salubrious in this case by physicians, and therefore do they send their patients to Mount *Tabio* particularly, which is near the city of *Naples*. *Mead* recommends fumigations with frankincense, storax, &c.——I have imitated this method in a vomica which was still whole; I contrived a steam of hot water to be constantly conveyed through a pipe, near the bed of the patient, and when I found he could bear it well, directed it still closer to him, so

that he might for a long time breathe a moiſt and warm air, by this method I gained my end, for the vomica broke ſooner than it would otherwiſe have done; I alſo ordered fumigations with frankincenſe, amber, ſtorax and benjamin, ſo that the whole room might be impregnated with them, increaſing the quantity by degrees, for fear it might bring on too violent a cough, which would have done harm. Patients bear theſe fumigations tolerably well, but the amber is rather more irritating, as it is melted by the fire into a pretty hot oil and a volatile acid ſalt, and benjamin though its odor be fragrant enough ſhould be ſparingly mixed with the other ingredients for the fumigation, becauſe it has an acrimonious ſteam, which when received on a paper cover, condenſes into ſmall parcels of a ſnowy color, which are ſold in the ſhops under the name of flower of

benjamin,

benjamin, and are of ſo pungent a nature, as to excite a burning kind of ſenſation when put to the tongue.—I have uſed the ſteam of benjamin, that the vomica, having firſt of all been ſoftened by watery ſteams, might ſuddenly break from the violent cough which it excites.——

We are however to obſerve, that it is not every remedy will ſend up its virtues in exhalations, and under that form be carried to the lungs—emollient herbs boiled in decoctions, and given in vapor, make a very good emollient and moiſtening ſteam, though their efficacy remains behind, and it is nothing more than a watery ſteam—and ſo are decoctions made of aſtringent remedies, which are now and then preſcribed to contract the lacerated veſſels in the lungs, which nevertheleſs they do not; the water indeed relaxes, and the

aſtringent qualities remain fixed and do not aſcend with the water.——

Moderate exerciſe ſuch as the ſtrength of the patient impaired by the diſeaſe can ſupport, is of great ſervice, for muſcular motion accelerates the return of the venous blood to the heart, which in conſequence contracts more in a given time, thus will alſo a greater quantity of blood be driven with a greater velocity through the lungs; by which means the purulent matter will ſooner be diſcharged from the viſcus, and be expectorated, eſpecially in the morning, when a quantity of digeſted pus has been accumulating during the time of ſleep. Perſpiration will at the ſame time become more briſk, and the air being more frequently drawn in and breathed out of the lungs, will perform the office of an excellent deterſive remedy, more eſpeci-

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ally if it be the pure clear air of a healthy country place.——But caution is very necessarily to be used here, for not only the cleaning of the ulcer, but the healing of it becomes necessary.—*Bennet* very sensibly advises great care with regard to the motion of the body by day, and moderate exercise especially in persons of a warm temperament and delicate make; he at the same time recommends the lower parts of the body to be well exercised—but very strongly condemns all violent motion of the upper parts—however where the chest and adjacent parts are of a lax habit and cold temperature, the muscular motion of the arms and hands will be of use.—Now riding on horseback is of great efficacy in this as well as many other chronic diseases; for by it the whole trunk is perpetually agitated, and the air acts with greater force upon the lungs.——*Sydenham*

much approves of this exercise and used it with great success upon many occasions, even in the most desperate stages, when night sweats and diarrhœas threatened the life of the patient; he cautions the patient however to lie in dry sheets, and to ride far enough. I have known some sailors and fishermen, who having an ulcer in the lungs became coachmen, and were perfectly cured.—Riding is an exercise which should be used in a morning, and not upon too full a stomach.—A country air is useful, not entirely upon account of its pureness, but because as the patient grows stronger, and freer from care, he may be amused with slight rustic employments, another motive which recommends the country is, the fine fragrant steams arising everywhere after kindly showers, which greatly conduce to refresh and invigorate.——

If the prudent uſe of anodynes be neglected in the cure of this diſeaſe, little ſucceſs can be hoped for; ſome are afraid, that the ſpitting may be ſuppreſſed by opiates, and the lungs be more loaded, but I can truly aſſert, that after a quiet ſleep I have always obſerved a more eaſy and free expectoration in phthiſical perſons in the morning, and the pus ſpit up had every requiſite good quality; it may render the patient coſtive indeed, but this is of no bad conſequence, for ſtools may be eaſily procured by an emollient clyſter.

## *Of a* Dropsy.

A Dropſical ſwelling of the legs and feet is very frequently obſerved to happen after acute diſeaſes. It is at preſent known that there are veſſels in the human body which convey fluids thinner than the red blood—ſo that if a free paſſage of theſe fluids be denied, the veſſels will become diſtended, and a dropſical ſwelling will enſue. But thoſe arterial veſſels, which tranſmit a fluid thinner than the red blood, at their very origination, (where however they are largeſt) have ſo ſmall a diameter, as naturally will admit of no globule of blood, ſo that large tumors can ſcarcely happen in conſequence of obſtructions there.——But the caſe is very different in the venous veſſels which convey the lymph back towards

towards the heart, and discharge it into the larger veins, or into the ductus thoracicus, which may be considered as a lymphatic vena cava. These veins before they send the lymph to the common receptacle, are not inconsiderable in their size, although collapsing after death, they almost elude our sight; yet by inflation, injection, and many other methods they may be rendered sufficiently conspicuous. *Bertin* a very able anatomist, not only says he observed many lymphatic veins in the kidneys, but farther declares, he saw a large trunk of it half the size of a goose-quill. He very candidly at the same time, informs us, that these lymphatics appear most plainly, even without any artificial assistance, when the body is opened, when it swells, just when it is tending to putrefaction; for in that case the cavities of the body swell in consequence of the expansion of the

air

air from the putrefaction, and this not only happens in the larger cavities, but in the cells of the adipoſe membrane alſo. The bodies of drowned perſons for this reaſon float, as ſoon as they begin to putrefy, the tumid abdomen chiefly riſing above the ſurface of the water, but as ſoon as the belly burſts, an intolerable ſtench follows, and the body ſinks again. As the lymphatics therefore begin to ſwell, at the ſame time that the air, ariſing from or rather let looſe by the putrefaction, diſtends the cellular membrane, he concludes, that there is in living bodies a communication between the lymphatics and the cellular membrane, and that when the lymphatics are diſeaſed, the cellular membrane will of courſe ſwell with extravaſated lymph. If therefore the free return of the venous lymph towards the heart be by any cauſe whatever obſtructed, the larger

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as well as ſmaller cavities of the body may become filled with water, and the lymphatic veſſels be diſtended. But as anatomiſts have very manifeſtly diſcovered valves in theſe veſſels, it will be very difficult to force the lymph back into theſe veſſels, the parts between the valves will become turgid; this poſſibly may be one of the true cauſes of hydatides.——

The whole body through all the external and internal ſurfaces of it is perſpirable. This is very evident in very intenſe cold, where we ſee it in the form of a ſteam exhaling every-where from the ſkin, the lungs and the inſide of the mouth —— this exhaling moiſture in healthy ſubjects is reabſorbed before it condenſes into a ſenſible fluid—if therefore from any cauſe whatever, this reſorption of the perſpirable exhalation be impeded, it will collect and condenſe into water, and ſo

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fill and diſtend the cavity in which it may happen to lodge. Hence it is very certain that a dropſy may be either univerſal or particular. Every collection of an aqueous ſerum is by no means to be deemed an hydrocephalus, unleſs the parts are ſo flexible as to admit of diſtention and to enlarge the capacity of the head, in that caſe indeed it may be called an hydrocephalus. This diſorder however ſeldom happens in adults; but is generally a diſeaſe of infancy, and to which great attention ſhould be given, as it otherwiſe will be difficult of cure.

An hydrocephalus in the external parts of the head only, is a very rare diſeaſe. The dura mater, it is well known, adheres ſo cloſely to the cranium, that it cannot be ſeparated from it but with the utmoſt difficulty, and therefore it will not be ſo eaſy to find water collected between the cranium

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and this membrane, as it will be between it and the pia mater, for though they are very contiguous to each other, yet do they not adhere ſo much but that they may and do admit of an intermediate moiſture. The arachnoide membrane, which lies cloſe to the pia mater, is of a cellular ſubſtance, and is therefore very eaſily inflated and diſtended with air, as we may eaſily remark in dead bodies, when it is carefully opened with the point of a lancet—between this and the pia mater lymph may very readily be collected, as is frequently obſerved in ſuch as have died lethargic; we perceive a ſort of a jelly-like ſubſtance about the brain, as the collected lymph is every-where diſtributed through numberleſs ſmall cells, and a thin lymph readily follows upon making a puncture.——

That the lymph contained in the ventricles of the brain is the cauſe of

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an hydrocephalus is very evident from a variety of obſervations — it ſeems however ſurpriſing that ſo great a quantity of lymph ſhould be contained in the cavity of the ſcull—*Veſalius* ſaw a girl at Augſburg of two years old, whoſe head in the ſpace of ſeven months grew to an enormous ſize; near upon nine pints of water were found in the ventricles of the brain after her deceaſe; he obſerves at the ſame time, that the ſcull was entirely membranous, with only ſo much of an oſſeous ſubſtance remaining as might be equal to the bulk of the girl's ſcull, before it grew to that wonderful bigneſs. No collection of water was to be found in any other part of the body, the cerebellum and the whole of the cerebrum and the nerves through every part of their originations were in a perfect natural ſtate, and the girl preſerved her ſenſes to the very laſt mo-

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ment of her life. *Vesalius* who saw the girl a few days before her death, observed, that when those about her moved her head or held it up ever so little, a cough and a difficulty of breathing immediately succeeded; attended with a flushing of the face and a discharge of tears. *Tulpius* gives a case of a boy of five years old whom he saw in an hydrocephalus, whose scull contained five pints of water, which when drawn off, left such an appearance of emptiness in the cavity of the cranium, as that those who were present imagined the brains were wanting—it was plain however that the brain was there, but having lost its globular figure, it had assumed the shape of a convex arch, and the soft medullary substance was so distended by the great quantity of water, that it adhered closely on all sides like a very thick membrane to the arched surface of the softened bones—

the father of the child declared notwithstanding all this that the child retained all his senses.

*Petit* has observed that this disease happens after difficult cutting of the teeth in children, upon violent convulsions, or when they are much troubled with worms. In the beginning of the disorder, the lips and eyelids are slightly convulsed, they bite their lips, gnash their teeth, and rub their nose, sometimes they are costive, at other times they are loose; the eyes look languid, the pupils of which seem uncommonly dilated; they grow pale, weak, melancholy and languid. The principal symptoms to warn us of the approaching disease, are stupidity and sleepiness, evident signs that the brain is already loaded with aqueous serum collected in the head; as the disorder encreases, the bones of the head begin to recede from each other, the size of

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the head enlarges, and leaves no farther room to doubt what the patient labors under. All theſe ſymptoms evince us that the functions of the brain are more and more impaired, which we cannot ſo eaſily judge of in very young infants, but when they are about a year old, we have plain and evident proofs to convince us of the peſence of the diſeaſe. We have in the memoirs of the Royal Academy of Sciences an account of a boy who lived perfectly in health till he became two years and a half old, when he was attacked with this diſorder; he began to falter in his ſpeech, could learn nothing, his memory failed him, he became daily duller and duller, and at length quite ſtupid.——No water was found in the external parts of the head, though it had grown to an enormous ſize, nor between the meninges; but upon piercing into the brain, a large

collection of tranſparent lymph guſhed forth, which had no bad ſmell at all. Beſides the forementioned ſymptoms, and more eſpecially the continual ſtupidity, I have ſometimes obſerved, that perſons afflicted with this diſorder, cannot bear to hold their heads erect without crying out—yet as ſoon as they throw their head back ſupported by a pillow they are eaſy enough, but ſtupid. Under theſe circumſtances I have ventured to prognoſticate an accumulation of water in the ventricles of the brain, though the ſize of the head was not remarkably enlarged—and on opening the body, my conjecture has proved true.——I ever found the fluid collected in theſe caſes to be limpid and clear, and by no means fetid.——

*Petit* in thoſe who have died of this diſeaſe, obſerved the dura mater more than commonly adhering cloſely to the ſcull, the baſis of the cranium quite flattened,

flattened, and as it were depreſſed, and the orbits of the eyes, and the eyes themſelves thruſt forward.——

When from the ſymptoms juſt now enumerated, I had reaſon to believe water was collected and lodged in the internal parts of the head, I directed the hair to be taken off, and recommended gentle friction, and this they bore very eaſily.— I ordered the head to be covered with a ſoft aromatic plaiſter, ſuch as the emplaſtrum e labdano or e meliloto of the ſhops—this was renewed twice or thrice a day, in order that the head might be rubbed again.——I made them continue the friction till the parts, behind the ears eſpecially, became red; for we frequently obſerve a quantity of matter oozing from thence and indeed from the ſkin which covers the whole head, this flux if imprudently checked, would greatly affect the brain and diſturb all its functions—by this method I had

hopes, that the internal parts of the head might be relieved, by keeping up a due moiſture upon its whole outward covering.

I tried this method on a female infant of nine months old, and was much pleaſed to find a conſiderable moiſture about the right ſide of the *fontanella* *, and that the ſkin of the whole head, and eſpecially *that* behind the ears was afterwards conſtantly ſupplied with ſo much moiſture as to oblige the nurſe to change the child's caps very frequently, becauſe they were ſo wet. I examined the head very carefully every day, and I found it did not enlarge, neither did the bones appear to recede from each other. I gave ſuch gentle phyſic as I imagined beſt adapted to the tender age of my patient; but it

* Is that membranous part found in infants newly born near to the coronal and ſagittal ſuture, which however becomes a thin bone in time.

was all in vain, for after the ſkin of the head had conſtantly for a fortnight together diſcharged its moiſture, the ſtupidity encreaſed, and the child died after a few ſlight convulſive fits. I found ſix ounces and more of limpid water in the ventricles of the brain.—

*Petit* expreſſes much concern, that he never knew any patient who underwent the punctum in this diſeaſe to recover.

We ſometimes obſerve a diſeaſe in new-born children analogous to this, and which is called the *ſpina biſida*, or double ſpine, becauſe the vertebral ſpine ſeems as it were to open and recede from each other, and a ſoft tumor of a different magnitude grows there, containing at times a very limpid water, though at other times a fluid more thick and opaque; the integuments retain their color, though more frequently they are red or rather livid. *Ruyſch*

ſays, " if we examine this tumor carefully it will appear very evidently that it is a dropſy of a part of the ſpinal marrow, and is pretty nearly the ſame as that diſorder of children which when ſeated in the head we call an hydrocephalus."

This ſort of tumor appears for the moſt part in the back or loins; ſometimes, but that indeed ſeldom, in the nape of the neck; but very rarely in the lower and exterior part of the os ſacrum; *Ruyſch* expreſſes his ſurprize at it, becauſe the lower part of the os ſacrum even in a natural ſtate ſeparates at its back part.——But although the vertebræ for the moſt part recede only on the back part near the ſpinal proceſſes, the body of the vertebræ itſelf remaining entire, yet he obſerved an aperture in one ſingle vertebra juſt large enough to admit a ſmall pea, he confeſſes however that none of the in-

fants

fants he ever visited escaped, and observes that death immediately ensued, if this swelling broke of itself, or was imprudently directed to be laid open.—*Tulpius* cautions much against it, and directs surgeons never to attempt it.

The lymph contained in the swelling of the spina bifida, descends perhaps from the ventricles of the brain, for we know, that the fourth ventricle of the brain is continued along the spinal marrow. We have an observation of *Wepfer* to confirm this opinion. A girl was born with a head well formed and proportioned, but on the back towards the right side of the superior vertebræ of the loins, there appeared a bright livid spot, about five inches in length and three in breadth, which daily encreased in its size, but not to be above the thickness of the finger at most, it grew so bright, as almost to shine like a looking-glass. Her right

foot

foot was motionleſs from her very birth—ten days after which as the water viſibly appeared through the ſkin, the ſurgeon made a very ſmall inciſion, from which an abſolutely limpid water iſſued forth, and the wound was ſoon cloſed, which the mother with her nails opened ſix times for ſome ſubſequent days, and diſcharged three ounces of water from it at each time, the ſurgeon ſoon healed up the wound, but as ſoon as it cicatrized, and the ſpot diſappeared, firſt the right frontal bone, then the left, began to protuberate, and an hydrocephalus, with an immenſe encreaſe of the head, appeared in the ſpace of about three or four weeks. It is evident this lymph iſſued from the ventricles of the brain, which being obſtructed, nor the integuments capable of farther diſtention, the head began to fill from its accumulation and became univerſally

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diſtended by it. Hence it will appear, that ſince in a part ſo remote from the head, it is not ſafe to diſcharge the extravaſated lymph, for by the conſent of the moſt eminent men, death will in a few days follow after ſuch an operation; how much more dangerous will it therefore be if we attempt to do it, where the internal parts of the ſcull are filled with a watery ſerum accumulated there?

The blood paſſes with the briſkeſt circulation through the coronary arteries, the heart for this reaſon ſends forth from its whole ſurface a larger quantity of a thin moiſt vapor, ſo that if it be immediately laid bare in a live animal, we find it reaking all over; wherefore after death, even after the body is cold, we obſerve a larger quantity of moiſture in the cavity of the pericardium than in any other ca-

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vity of proportionate size, by reason of this condensed vapor.

In healthy animals however, all the inward parts both containing and contained, are constantly found moist, but no fluid is observed to be collected in them, when they are dissected alive, or immediately after their death, the moist steam exhaling from the arteries, being reabsorbed by the veins — the smallest of these absorbed veins, being united to those next to them, exhibit large branches, visible even to the naked eye, in the thorax, and indeed on the surface of the containing as well as contained parts, till at length these lymphatic veins discharge themselves into the thoracic duct or in the sanguiferous veins. It is hence evident that there exist passages by which the thin lymph, expelled from the extremest exhaling arteries, may be conveyed into the

the cavities of the body, and be again returned to the maſs of the circulating fluids; and the accumulation or ſtagnation of them when collected be thus prevented. *Muſgrave* injected four ounces of warm water into the right ſide of the thorax of a living dog; a difficulty of breathing enſued, and a manifeſt weakneſs; theſe complaints however went off by degrees, and in a week's time the dog was as well as ever. He afterwards injected in like manner ſixteen ounces of warm water into the left cavity of the thorax of the ſame dog; the animal began to breathe with difficulty, grew very hot, and the heart beat very ſtrong, but in a week's time the dog grew well again. He then injected into one ſide of the thorax eighteen ounces, and into the other only ſix, the ſame ſymptoms followed, but diſappeared ſooner, for the dog recovered in five days, he obſerved that

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the creature made a greater quantity of water than uſual.

Whatever occaſions an obſtruction of the ſpeedy re-abſorption of the exhaling moiſture by the veins, may be the cauſe of a dropſy in the cheſt; this gives us to underſtand, why after a ſpaſmodic aſthma of long ſtanding, a dropſy of the cheſt ſoon follows. In this kind of aſthma certainly, the right ventricle of the heart is incapable of propelling the blood through the lungs, on account of the conſtriction occaſioned by the ſpaſm, the vena cava conſequently cannot diſcharge itſelf, the veins therefore become all of them turgid, the lips of the miſerable patient become livid and ſwell; neither can the lymphatic veins tranſmit the lymph which they have reabſorbed into the ſanguiferous veins, which are already over-diſtended with blood; the arteries in the mean while continue to

exhale

exhale their moiſture, the lymph hence accumulates, or the tender lymphatic veins burſt, and ſo perpetually diſtill the lymph into the cavity of the thorax.——Theſe diſorders are more eſpecially to be feared, when the aſthmatic paroxyſms have been very ſevere, have frequently returned, and are chronical.

There is nothing perhaps which brings on this watery collection in the cheſt, ſooner, than when a perſon too much overheated, ſuddenly drinks cold water, or remains long without exerciſe in the open and cold air—the ſudden cold conſtringes the mouths of the veſſels, and eſpecially the abſorbent venal, rather than the ſmall exhaling arterial veſſels; becauſe the veins, cæteris paribus, have thinner coats than the arteries, as alſo becauſe the motion of the fluids through the arteries towards their extremities keeps them

open,

open, or opens them if they have suffered any degree of constriction; the motion of the fluids in the veins on the contrary acts not with such force on their extreme orifices, so that if they be constringed by the cold they close more easily, and collapse, and this happening to a great number of absorbent veins, will occasion an incurable dropsy, as the reabsorption cannot be restored.

The collected lymph may be lodged in five different parts of the thorax, in the right and left cavity of the breast, in the pericardium, behind, near the external part of the pleura next to the vertebræ, before, under the sternum between the two lamellæ of the pleura. We should diligently attend to these different seats of a dropsy, because they produce different symptoms, and require consequently different methods by which the collected lymph is to be drawn off — for if it

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be lodged in either of the cavities of the breast, it may be removed by the paracentesis; if it be lodged in the pericardium, a puncture is to be made in it; if it be collected under the sternum, it requires a perforation there. If the water accumulates in that triangular cavity formed by the membranes of the pleura receding from each other near the vertebræ of the thorax, it will force itself a passage by its own weight through the cellular membrane, which covers the dorsal muscles, and fills up their interstices, in the same manner as pus when gathered there, and causes sinuous and wonderfully fistulous ulcers.

A dropsy of the breast is attended with many symptoms which resemble and are even the same as in an empyema. The fluid contained in the cavity of the breast, be it pus or a watery serum, will equally compress the

lungs, and obstruct their free motion—the pus when too long retained, contracts an acrid ichor, and will irritate the parts it is in contact with; and so will the lymph when it degenerates into a putrid colluvies.——*Albertini* by close observation and dissection of bodies dying of this disease assures us, that if the fluid stagnating in the thorax, be pure and limpid, it will not occasion such an oppression and difficulty of breathing; unless it fills both the cavities of the breast, or so distends either of them, as greatly to compress the other—but when the extravasated fluid is turbid, extremely yellow, or very acrid, in that case even a very small proportion of serum in the cavity of the breast will bring on a very difficult respiration.

If we attend to antecedent causes we shall then be able to distinguish properly in these disorders. If for instance

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upon an inflammation of the breaſt ſymptoms of ſuppuration ſucceed, attended with a difficulty of breathing, we very naturally conclude that there is matter already formed. But if there be ſigns that tend towards a dropſical diatheſis; ſuch as a leucophlegmatic temperament; ſwelled face, feet, legs, thighs or ſcrotum, we may then pronounce it to be dropſical; and we may ſtill be more ſtrongly confirmed in our opinion, if there be a difficulty of breathing, and upon ſtriking the body, we perceive a fluctuation or hear the noiſe of water in the breaſt. We know moreover that a dropſy of the breaſt frequently ſucceeds a convulſive aſthma, we therefore have great reaſon to pronounce our opinion if ſuch a diſorder has preceded; whatever cavity of the breaſt the water be contained in, the patient cannot lie on the well ſide; if both the cavities are filled the patient

is moſt eaſy in an erect poſture rather inclining forward.——An œdematous ſwelling of the feet not only generally attends this diſtemper, but it relieves the breaſt greatly as I have frequently obſerved, provided the ſwelling encreaſes in the lower extremities. If on the contrary the ſwelling of the legs ſuddenly ſubſides, the difficulty of breathing encreaſes greatly. *A difficult and quick breathing ſuddenly coming on towards bed-time, depriving the patient of reſt, and gradually abating in the day-time,* Piso eſteemed a *pathognomonic* in this diſeaſe.

Anatomical injections demonſtrate the pericardium to abound with innumerable arteries, through which the thin attenuated blood returning from the lungs is puſhed forward by the force of the neighbouring heart, the ſame thing happens to all the contents of the pericardium, there is at the ſame

time

time a great heat in thoſe parts, which diſſolves the exhaling fluid into a very fine ſubtile vapor; in healthy animals therefore we find no collection of lymph, no ſtagnation, or corruption. By means of this moiſt, warm vapor continually exhaling, the pericardium is kept free from the heart, and concretion is prevented, and the whole ſurface of the heart, of both auricles, of the ſinuſes, arteries, and veins, remains moveable, capable of extenſion, moiſt, and fit to reabſorb the perſpirable fluid; and the calloſity and attrition of the parts is prevented by the great and perpetual motion of the heart. Certainly if the great cauſes of ſecretion exiſt here, we ſhall find the aptneſs for reabſorption not leſs, for the warm exhaling vapor acts with conſiderable force on the whole concave ſurface of the pericardium and the convex ſurface of the heart and both the au-

ricles; the veins of the heart are entirely empty during its ſyſtole, and are therefore in the inſtant after bibulous and moſt fit to reabſorb whatever is excreted by the arteries. It is not true as it was formerly believed that the pericardium contained a fluid in its cavity in order to lubricate the heart and temperate its heat, for ſuch a liquor is only found in the body when it is grown cold after death.——In living animals, ſuddenly diſſected, we find only a thin exhaling vapor provided the ſubject be ſound and in health.

The pericardium has ſometimes been found dropſical alone, ſometimes it has accompanied a dropſy of the breaſt. But it is not ſo eaſy a matter to form a certain diagnoſtic, to judge whether there be a dropſy of the pericardium; and this becauſe, the diſeaſe agrees in many circumſtances with a dropſy of

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the breaſt, and with diſorders of the lungs and heart, polypuſes, &c. the ſymptoms therefore obſerved in the life-time of the patient cannot ſo eaſily be aſcribed to a dropſy of the pericardium as they may be when death gives us an opportunity of examining the cauſe of the diſorder. Beſides it is certain, that in the beginning of the diſeaſe when the pericardium is but ſlightly diſtended, leſs troubleſome ſymptoms ariſe, as when it becomes more and more turgid with collected lymph. A ſenſation of oppreſſion and ſtraitneſs about the anterior part of the thorax, which is the ſeat of the pericardium, ſeems moſt diſtinctly to point out this diſeaſe. It is evident at the ſame time, that the lungs which are nigh the pericardium, muſt be compreſſed whenever this happens to ſwell with water, reſpiration will be conſequently much impeded,

and a dry troublesome cough will frequently return; and as the pericardium not only lies close upon the tendinous part of the diaphragm, but adheres firmly to it, in that part of it which is nearest to the inferior flat part of the heart, it is very probable that the pericardium when distended with water, will obstruct the motion of the diaphragm greatly, and so it will that of the heart, and occasion violent palpitation, an unequal pulse, syncope, and almost suffocation. By the unanimous consent of the best approved writers, it is universally allowed that it is a very difficult matter to distinguish a dropsy of the pericardium from one in the breast—*Senac* gives us one symptom, which he seems to think a very sure one, viz. *An undulatory motion perceivable between the third, fourth, and fifth ribs when the heart palpitates.*——

A drop-

A dropſy of the cheſt has its ſeat principally in three cavities, the pericardium, and the right and left cavity of the breaſt—the *paracenteſis* does not remove the cauſe of this diſeaſe, but it frees the patient from the danger of immediate ſuffocation, and gives time to the phyſician to attack the diſeaſe by ſuitable medicines. It prolongs life by being frequently repeated and renders it more ſupportable, even when it is beyond the reach of art to remove the cauſes of this diſeaſe. It is not therefore right totally to condemn this operation in the thorax. For though *La Motte* and ſome others have poſitively aſſerted that all dropſies of the breaſt are mortal and entirely diſapprove of the paracenteſis—we find *Hippocrates* adviſes this method, and we may conclude from his expreſſions that ſome of his patients recovered—and it is very certain that, unleſs the water

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has remained ſo long as to corrode the viſcera, &c. this operation has been performed by the ancient as well as modern phyſicians with good ſucceſs.

*Hippocrates* deſcribes this ſort of dropſy and ſays that it happens chiefly when any perſon in hot weather, urged by vehement thirſt, drinks plentifully of cold water, and the lungs are filled and diſcharge the water on the breaſt.—Then comes on a dry cough, the fauces grow rough, then enſue rigors, fevers and orthopnœia, the body grows bulky, the feet ſwell; the ſymptoms he obſerves reſemble thoſe of an empyema, but leſs violent in degree, and of longer duration—he adds that in ſome patients, the belly, the ſcrotum, and the face are ſwelled, but ſays this only happens, *ſi tempus ſectionis præterieris*, if you delay the puncture too long.—We are however to obſerve that he never let out the water all at once but

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at different times—though this holds not at preſent, for we find the viſcera may be ſo well ſuſtained by a proper bandage, as to maintain an equable preſſure, and ſo the water may be very ſafely drawn off—there is much more danger in doing it at ſeveral times, for the air may gain admittance into the cavity, and haſten the putrefaction of the extravaſated fluid.

Leſs danger is to be apprehended when we draw off all the water at once in a dropſy of the cheſt, than in any other dropſical complaint, as the lungs are thereby freed from the load of the water which oppreſſes them, and are expanded by the air drawn in by reſpiration, and fill the whole cavity of the breaſt when thus emptied of the water; provided therefore the lungs be ſound, the water may be ſafely enough drawn off.

Mr.

Mr. *Du Verney* gives us the hiſtory of a woman, who had a low and unequal pulſe, and a great difficulty of breathing, and had an aſcites as well as a dropſy of the breaſt—having firſt of all emptied the abdomen of the contained water by tapping, he ſome few days after performed the operation of the paracenteſis in the breaſt between the ſecond and third ſpurious rib, as near to the ſpine as it was poſſible; by this method he drew off the water with ſuch good ſucceſs, as enabled the patient to breathe with great eaſe and freedom, and in a month after to return to her uſual employment. *Bianchi* alſo tells us of the ſame operation boldly and ſucceſsfully performed upon a ſtout young man, in a recent dropſy of the breaſt—but he confeſſes at the ſame time, that he has not often choſe to venture upon it.

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Nor is *Bianchi* alone apprehenſive in this matter—*Senac* complains that almoſt all phyſicians deſpair of perſons unhappily labouring under a dropſy of the breaſt, though his own experience and obſervation convinced him how ufefully the operation might be attempted. A perſon who had been cured of a pleuriſy, ſtill continued to be ſo oppreſſed in his breathing, that he was obliged to be kept in an erect poſture, the diſorder encreaſed upon him ſo much that there was great danger of ſuffocation — the thorax was punctured, and ſix pints of a yellow tranſparent water were drawn off; the diſcharge continued for ſome days, and in about a month's time he was ſo perfectly cured, as to be in a condition to attend the king at a hunting match on a ſwift horſe. We ſhould be very cautious how we poſitively foretell what fluid will come away upon

piercing

piercing into the thorax, more eſpecially if inflammatory diſorders have preceded the dropſy of the breaſt.

A dropſy of the lungs themſelves is a very ſurpriſing diſorder, and not very eaſy to be diſcovered. This viſcus it is well known conſiſts of veins and arteries, and of air-veſſels alſo. Watery ſerum cannot well be collected in veins and arteries, through which the fluids are continually propelled by the force of the neighbouring heart, nor in the air-veſſels, becauſe when once the humors begin to accumulate in them, a cough would immediately expel them, or if that did not ſucceed, the patient would no doubt be ſuffocated.—Anatomy demonſtrates that theſe three kinds of veſſels are joined by a ſufficiently conſpicuous cellular membrane, which admits of no fat—and in this membrane extravaſated lymph may be collected, as well as in any other part

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of the body, and produce a real dropſy of the lungs, eſpecially when the thin vapors which the arteries perpetually exhale, are not again reabſorbed into the blood, by whatever cauſe this may be occaſioned.——The lymph thus diſtending the cellular membrane may form tumors of various ſizes, watery vomicæ, and hydatides, and by compreſſing the adjacent veſſels, and particularly the membranous extremities of the bronchia, diſturb the action of the lungs in different manners. Neither will this appear wonderful, if we reflect that purulent vomicas are formed in this very cellular membrane.

*Albertini* formed his diagnoſtic of an œdema of the lungs where-ever he obſerved an œdematous ſwelling of the external parts attended with a difficulty of breathing in the very beginning, this is farther confirmed by the teſtimony of *Hippocrates*, who tells us

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that respiration will be more impeded by a small quantity of serum collected in the interstices of the lungs themselves, than by a greater, accumulated in the cavity of the breast. *Albertini* farther observes that the water is more easily drawn off from the lungs than it is from the cavity of the breast; he had seen many patients who from various causes suddenly swelled all over, more especially in the extreme parts, attended with a great difficulty of breathing, who nevertheless were recovered with ease by gentle hydragogues, diuretics, &c.—he concluded thence that their asthmatical symptoms certainly arose from a dropsy of the lungs. Doctor *Simpson* observes that he always suspected a dropsy of the lungs, if the face became turgid, or that the ankles swelled, and was attended with a difficulty of breathing, especially too if the pulse was so depressed

preſſed as ſcarcely to be felt. He happily cured a woman, who ſeemed to be in great danger of inſtant ſuffocation, by giving her calomel. Certainly, if we conſider that the veins of the lungs are moſt freely emptied during the diaſtole of the heart, and that there is a great heat and a briſk circulation there, of the fluids, we ſhall have great reaſon to expect a reabſorption of the extravaſated humors, particularly if hydrogogues, &c. have been prudently adminiſtered at firſt—hence *Albertini* ſaw diuretics, purging and even bleeding of uſe in this caſe.——

*Maloet* relates a very remarkable caſe with reſpect to this diſeaſe. A ſoldier was very grievouſly afflicted with an aſthma attended with a ſlow fever, he could neither lie on his back or either ſide without the greateſt pain and uneaſineſs, and was therefore obliged to be kept in an erect poſture—

his arms, hands, legs and feet were œdematous—hence this ingenious phyſician ſuſpected a dropſy of the cheſt; but as upon the niceſt examination, no fluctuation could be perceived, nor had the patient ever diſcovered any thing of it himſelf, and as no other ſymptoms which uſually accompany this diſorder appeared, the doctor gave up his opinion. The unhappy ſufferer found little or no relief from the medicines directed for him, and after, lingering for two years, died. Upon opening his body, no extravaſated ſerum was found in the cavity of the thorax, but a watery vomica in each lobe of the lungs, containing each about ſix ounces of clear tranſparent ſerum; and this was encloſed in a particular cyſt, whoſe ſides were of the thickneſs of a geometrical line, compoſed of different lamellæ lying one upon another, and in which there was

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not the leaſt appearance of either fibre, veſſel, or gland; yet were they notwithſtanding very capable of a longitudinal diſtention, and contraction by their own elaſtic power—but when they were roughly rubbed with the fingers, theſe membranes became a perfect mucus.——It is very judiciouſly obſerved at the ſame time, that the extravaſated ſerum was not lodged in the bronchia, but in the cellular membrane which fills up the ſpaces between the greater and ſmaller lobes of the lungs.

This ſame writer ſeems to think that the lamellated membranes which form theſe bags, were not of an organical ſtructure, but were formed from the contained fluid, as neither veſſels nor fibres were viſible in them. Very celebrated anatomiſts have been of the ſame way of thinking, and ſay that the ſubſtance of the cellular membrane is

not properly to be called vaſcular; at leaſt that veſſels have not as yet been diſcovered in this part; but numerous veſſels are every-where diſſeminated all along this cellular coat, which envelopes the veſſels diſtributed over the viſcera, and every-where accompanies them.

Tumors have frequently been obſerved in the conſpicuous and anterior part of the aſpera arteria, and thoſe too of a conſiderable ſize; which, as they were imagined to ariſe from any violent ſtrainings, loud crying, or the ſtruggles of a woman in labor, were referred to herniæ or ruptures, called bronchoceles. As the thyroid gland which in men is about four inches long, at its anterior part lies cloſe upon the ſegments of the aſpera arteria, and is narrower there, but wider where it covers the ſides of the thyroid cartilage, it is thought to be the

the ſeat of theſe tumors. Mr. *Lalouette* was at great pains in examining the ſtructure and uſe of this gland in human ſubjects as well as in brutes, and found the internal ſtructure to conſiſt of numberleſs, round, tranſparent corpuſcles, which upon inciſion yielded a yellow fluid of a very viſcid nature, which however ſoon diſappeared; making a ſlight wound with the point of a lancet, he blew air into it with a pipe, upon which the thyroid gland ſwelled conſiderably, and he plainly ſaw theſe ſmall round bodies ſwell and riſe, but when he blew into the arteries or veins, theſe bodies did not ſwell. In a woman with child holding in her breath in violent labor pains, he obſerved the left ſide of the thyroid gland to ſwell conſiderably, which ſwelling upon opening the body was found to contain air only, with but a very few drops of a yellow fluid.

Whence it seems very probable, that the air, by the woman's violent efforts retained in the aspera arteria, found a passage into the substance of this gland. As therefore very large arteries run to this gland, and veins return from it, and since it consists of various, small, hollow, round corpuscles containing a fluid, it appears almost to a certainty, that some secretion is here intended, which, if (when collected in these follicles) it be prevented from carrying off, may gradually distend them and so produce very large swellings.

Such a watery tumor is very easily to be known, and if it has not been long left to itself may be easily cured by discussion, repeated frictions, and fomentations of camphorated spirits of wine, and hydragogue purges. A decoction of briony, with an addition of wine and sal ammoniac, or even the root itself beat up into a pulp, have been

been of great uſe. If theſe ſwellings are ſo large as not to yield to thoſe methods they may be very ſafely laid open, and they will generally diſcharge a pellucid liquor, ſomewhat viſcid, reſembling the white of an egg.—There is, perhaps, ſcarce any part of the body, where ſuch tumors may not happen.—if the follicle of a gland, or one or more cells of the membrana adipoſa be diſtended with a watery ſerum. There is not a cavity of the body whether great or ſmall which does not exhale and reabſorb ſome humor, if therefore from any cauſe whatever the exhalation continuing, reabſorption is impeded, ſuch a watery ſwelling muſt neceſſarily be the conſequence.

The ovaries of women very frequently ſwell into atheromatoſe, ſteatomatous and dropſical tumors, and have been found to contain very extraordinary concretions—ſuch as ſtones, hairs,

teeth, bones, and often large hydatides enclosed in peculiar membranes, and those sometimes of a most surprising magnitude.

Doctor *Douglas* dissecting the body of a woman of twenty-seven years of age, who had died three days after her labor, found the whole ovary converted into a large hydatid, which filled the whole cavity of the abdomen, compressed all the abdominal viscera, and contained above seventy pints of a viscid dark-colored humour of pretty nearly the consistence of a syrup. In the sack itself, which contained this fluid, he found many small bladders of different dimensions, distinct from each other, resembling a mucilage of quince-seeds, and coagulating on the fire like the white of an egg. This tumor had grown so amazingly in three years time; and was originally owing to a violent blow received on the left side

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of the abdomen, not long after the birth of her firſt child; in conſequence of which ſhe felt a great pain, which however went off in about three days—two months after ſhe felt ſome ſlight pains in the hypogaſtric region on the left ſide, which began alſo to ſwell; the pains encreaſed more and more till ſhe grew with child; during her pregnancy ſhe felt no unuſual uneaſineſs, only that the abdomen was more ſwelled than uſual, and the ſwelling ſcarcely ſubſided at all after delivery. In a year after ſhe became pregnant again, about the middle of that time her legs began ſuddenly to ſwell, which when rubbed, diſcharged a conſiderable quantity of water, and ſo it did from the ſkin of the abdomen eſpecially if any little puſtules happened to be ſcratched.—A difficulty of breathing enſued, attended with a palpitation of the heart, nor could ſhe ſleep but

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in an erect poſture for fear of ſuffocation. She nevertheleſs brought forth a living child, but a great weakneſs, and difficulty of breathing coming on, ſhe died three days after her delivery. But as each cavity of the thorax contained a large quantity of reddiſh water, and the pericardium was full of a greeniſh liquor, doctor *Douglas* was of opinion the cauſe of her death was owing to thoſe circumſtances; and that otherwiſe ſhe might have lived many years, the other abdominal viſcera being in a very ſound ſtate.

Such dropſical ſwellings ſometimes grow to ſo large a ſize, as to fill up the whole cavity of the abdomen, and are then not eaſily diſtinguiſhed from an aſcites: but an incipient dropſy of the ovary may more readily be thrown from its ſituation in one or other ſide of the epigaſtric region, and from the circumſcribed magnitude of the tumor.

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In the beginning alſo they perceive an obtuſe pain and weight in the part affected.——Women labor under this complaint a long time, without any remarkable injury to their health; they conceive, bear children, and the abdominal viſcera perform every function not being ſoaked in water as they are in an aſcites; but ſuffer preſſure only from the diſtention of the incumbent bag in which the tumor is contained. The urine is diſcharged freely and in ſufficient quantity, which it does not do in an aſcites. To theſe ſymptoms *Targioni*, a celebrated phyſician, reckons a ſwelling of the leg on the ſame ſide with the tumor, and a continual oozing of water through the pores of the ſkin, which he eſteems almoſt a pathognomonic ſign.

The cure is difficult, as the diſorder lies often concealed—long before it can be properly diſtinguiſhed and known,

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and not till the ſwelling is grown to an enormous ſize—and as the principal hope of curing a dropſy conſiſts in the collected lymph's being reabſorbed by the veins, and the expulſion of it from the body by urine, ſtool, or ſweat; it will be eaſy to conceive that this cannot ſo readily happen; ſince the encloſing membranes are ſo much dilated, and the veins, every-where diſperſed through them, ſo entirely compreſſed by the diſtending water.—Nay ſometimes a ſcirrhus accompanies this complaint, which will ſtill add to the difficulty of the cure. A gelatinous ſubſtance is ſometimes contained in this kind of tumor, which cannot ſo readily be diſcharged through the trochar; for which reaſon it has been neceſſary to dilate the wound, in order to give it a free paſſage; now putrefaction ſoon follows an acceſſion of air, ſo that part

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of the fluid paſſing into the abdomen corrupts, and will occaſion death.

From the obſervations of doctor *Houſtoun* as well as from other ingenious gentlemen of the faculty we find that dropſies of the ovaria are not abſolutely incurable, eſpecially where the diſeaſe has not got to a great height, and where there is no apprehenſion that the tumor adheres to the neighboring parts.——

It is certain however, that the paracenteſis is equally ſafe here as in an aſcites—life by this means may at leaſt be prolonged for many years, and the patient greatly relieved, though a perfect recovery is not to be expected. Profeſſor *Morand* affirms that he had ſeveral times performed this operation upon a woman of quality, who ſuffered ſo little from it, that ſhe frequently went into the country the very next day after the operation, though in general

neral eighteen pints of water were taken from her at a time; neither did she die of this, but of some other disease.—

Dropsies of the womb frequently happen in consequence of miscarriage, and more especially if the placenta has been left behind, which will degenerate into a mass of hydatides.——*Ruysch* and *Tulpius* give several cases in proof of this remark.

If more fat be secreted into the cellular membrane than can be reabsorbed by the veins, the body will be overloaded with fat: if the fat be melted down by violent motion, by heat, or by a fever, and be reabsorbed, a sudden emaciation will follow, as we frequently observe it to do after acute diseases, When therefore the watery colluvies abounds in the body, or that the aqueous particles are not sufficiently blended with the more balsamic particles

ticles of the blood, the water will eaſily diſcharge itſelf into the cellular membrane, which, if it be not reabſorbed by the veins in equal proportion, will diſtend this cellular membrane, and occaſion a general ſwelling of the whole body. Thus doctor *Hales* produced an artificial dropſy, by injecting warm water into the arteries of an animal through a tube of ſuch an altitude, as that the preſſure of the column of water ſhould be nearly equal to the power with which the heart propels the blood through the veſſels. But if the water be injected through the veins, the whole cellular membrane will ſwell dropſically, and that more eaſily than where the injection is attempted by the arteries—this dropſy is therefore called ανασαρκα.

Frequently the feet only, or the legs and thighs ſwell by an anarſaca, and indeed this diſeaſe generally begins by attack-

attacking the lower parts, as the water collected in the cellular membrane tends downwards by its own weight, and ſwells the feet conſtantly towards night, the which by the equable heat of the bed, and the horizontal poſition of the body diſappears, but returns again when the patient is up, and the lower limbs remain pendent during the courſe of the day, and more eſpecially if the aſcent of the venous blood which is not very eaſily performed, be not promoted by muſcular motion.

When the blood is ſo broken down as to diſtend the parts under the ſkin with an aqueous humor, the diſeaſe is then an anaſarca.

In a leucophlegmatia a mucous viſcidity rather prevails, which being ſpread over the whole body, is more equally diſperſed. But in an anaſarca the watery tumor appears firſt in the extremities,

mities, and then ascends gradually. The description given by *Celsus* rather corresponds with an anasarca than a leucophlegmatia. And indeed it merits well our attention to distinguish these two diseases from each other, as they frequently require a very different method of cure. A leucophlegmatic girl is often cured by corroborants without the previous help of evacuations, which does not always succeed in a dropsy.—They are to be distinguished in the following manner; in a leucoplegmatia the whole body is soft, doughy and cold; in an anasarca the feet swell first, then the swelling ascends upwards, and the parts affected in this disease swell more than any other parts of the body; in a leucophlegmatia on the contrary every part is alike tumid, pale and relaxed. *Fernelius* reckoned this a pathognomonic symptom. *Hanc* (ana-

sarcam) *a plegmatica cachexia sejungit sola magnitudo, quod tumidiorem habeat corporis vitiatam molem.* Besides if the tumid parts in this sort of dropsy be pressed with the fingers they pit, and it recovers itself but slowly and gradually, for as the cells of the membrana adiposa communicate with each other, when a fluid is pressed out of some of them, it will pass into others, and when the pressure ceases it will return again into its former situation—but this cannot so easily happen in a leucophlegmatia, where the humor collected is tough and viscid, and it will therefore be more difficult for it to pass from one cell to another. This will also readily account for the swelling of the extremities, because the serum by its weight passes downward into the cells of the cellular membrane.——*Aretæus* perfectly knew this symptom of an anasarcous dropsy, for he advises pressing the

the part here and there with the finger; for then says he αλλακην πη τον δακτυλον ερεισης, ο χωρος γιγνεται κοιλος ες χρονον τε πολυν μιμνει κοιλος—if you press with the finger it pits, and remains so for a considerable time. But this observation is not quite so accurate, as it only comprehends an anasarca when attended with an ascites, which is sometimes the case; but an ascites is frequently unattended with an anasarca, in that case the abdomen is tense, nor do the integuments give way to the pressure. An anasarca may occupy the whole habit, since the cellular membrane is spread all over the body; it is obvious how difficult the cure will be under such circumstances, the whole of the blood being dissolved into a watery colluvies, which it is not in the power of human art to remove.

A true anasarca even of the pia mater has been frequently known, the cellu-

lar ſubſtance lying between that and the dura mater, being greatly diſtended with water; upon the firſt view a viſcid mucus ſeemed to cover the pia mater; but on making a puncture into the arachnoid membrane with a lancet, there iſſued forth a very large quantity of a thin watery fluid, and the whole tumor ſubſided.

That an anaſarca may be productive of many and various evils, according to the places it affects, is very obvious—I have ſeen a dropſy ſwell the eyelids to ſo immenſe a degree as to render them incapable of ſeparation. If it attack the ſcrotum, the penis will be moſt ſurpriſingly inflated, and the tumid præpuce ſo ſtrangely twiſted as to obſtruct the paſſage of the urine, and bring on a total ſuppreſſion, ſo that ſcarification has been found abſolutely neceſſary in order to let out the water contained in the cellular membrane of

theſe parts. *Aretæus* mentions this ſymptom particularly.——

An anaſarca however cæteris paribus is more eaſily cured, than other kinds of dropſy, becauſe numerous large veins run through the cellular membrane, which may reabſorb the collected ſerum; beſides the ſtagnating fluids may be put into motion by friction, and thus reabſorption be promoted; the collected lymph may alſo be diſcharged by ſcarification, bliſters, cauſtics, &c.

It ſeems a matter of no great moment, with regard to the cure of this diſeaſe, whether the water be lodged between the duplicature of the peritonæum or between that and the aponeuroſis — it will however be always neceſſary to know whether the water be contained in the cavity of the abdomen or not.——

Doctor *Mead* mentions three ſpecies of an aſcites; the firſt, when water is

lodged in the cavity of the abdomen; the ſecond, when the water is extravaſated between the aponeuroſis of the tranſverſe muſcles and the peritonæum; and the third, when the fluid falling between the coats of the peritonœum, diſtends them, and ſo forms a large receptacle for itſelf.

A dropſy may poſſibly have its ſeat between the duplicature of the peritonæum, though this very rarely happens; nor is it an eaſy matter to diſtinguiſh whether the water be lodged between the peritonæum and the aponeuroſis of the abdominal muſcles, or in the duplicature of the peritonæum, becauſe the membranes are much injured by their ſoaking in the water; neither is there always ſufficient time allowed to thoſe who diſſect the bodies of ſuch as have died under this diſeaſe, to make an accurate obſervation and examine every particular.

*Liſter*

*Liſter* has deſcribed the ſymptoms of an aſcites of the peritonæum from his obſervations upon a lady he attended, and who died of this dropſy. Firſt, ſays he, the beginning of this diſeaſe is gradual, and its encreaſe ſlow—this is principally to be remarked in the firſt ſtages.——

Secondly, the belly does not ſwell equally alike all over, as when the water is lodged in the cavity of the abdomen; but the tumor is ſomewhat circumſcribed, towards the anterior part of the belly eſpecially; nor is its form much altered, by the different poſitions of the body; by this very circumſtance, it is diſtinguiſhable from that ſpecies of dropſical ſwelling, occaſioned by water collected in the cavity of the abdomen, for in that caſe, unleſs the abdomen be overſtretched, the ſwelling gives way, as the patient moves from one ſide to the other. It

is alſo to be diſtinguiſhed from a beginning tumor of the ovary, which occupies the lower lateral region of the abdomen, which is for the moſt part attended with an obtuſe pain.

Thirdly, No fluctuation is perceived in ſome part of the abdomen, out of the limits of the tumor.

Fourthly, The lower extremities do not ſwell, at leaſt not very perceptibly, and that alſo very leiſurely.

Fifthly, The patients bear the diſorder long, without any viſible injury to the functions of the body; nor do they ſeem ſcarce to ſuffer any other inconvenience than what juſt ariſes from the ſize and weight of the tumor gradually encreaſing.

When the water is lodged out of the cavity of the abdomen, the bowels are not injured by it, the patient therefore can ſupport the diſeaſe longer, and in every other reſpect enjoy tolerable health;

health; and obſervations greatly to be relied upon, convince us that in theſe caſes a good complexion, a tolerably free ſecretion of urine, a good appetite and digeſtion, and regular alvine excretions have remained for many years; from theſe appearances alſo, we may deduce diagnoſtics by which to diſtinguiſh this diſeaſe.

When the abdomen begins to fill with water, the ſwelling is firſt perceived about the flanks, and as the belly enlarges, there will neceſſarily enſue a greater preſſure in the lower parts, and the iliac veins of courſe be compreſſed; and hence we obſerve the legs and thighs oftneſt to ſwell in an aſcites—whereas if the water is collected between the muſcles of the abdomen and the peritonæum, or in its duplicature, theſe veins are not affected, and therefore the extremities are little or not at all ſwelled; or if they be, it is after a

long

long time, when the swelling in the abdomen is so much encreased as to compress the viscera.——

*Nuck* who very attentively examined the lymphatics, asserts that they may in a morbid state become hydatids.— Professor *Morand* who embraces the same opinion very ingeniously illustrates and confirms it, Hydatids most generally are found at their first origination, under the external coats of the viscera, now we likewise observe a vast number of lymphatics in this place.— The hydatids contain a lymph, similar to that which flows through the lymphatics; the lymphatic vessels through their whole length appear as it were knotty, while their cavity every-where is distinguished by two opposite valves, which are so constructed, as to admit an easy passage to the lymph flowing from a narrower to a broader part of those vessels, but obstructs its return

from

from a wider into a narrower part of them.——It is farther obſervable that the lympatics are moſt contracted where they are neareſt to a valve—the valves themſelves, on the ſide towards the wider part of the lymphatic, are concave, and convex on the other ſide. If now from any cauſe, theſe tender lymphatics be compreſſed, or any obſtruction happen in them, which may prevent a free diſcharge of the lymph into the larger veins, the intermediate *internodial* ſpaces will ſwell, the concave ſide of the valves will be diſtended by the incumbent fluid; the double valves lying cloſe upon each other, being dilated by the preſſure and plaſtic diſpoſition of the lymph, may unite and adhere together, and thus, all that part of the lymphatic veſſels, which lies between the double valves, will be diſtended into an hydatid, while the lymph perpetually is preſſing from behind,

hind, before that the valves are become perfectly united together.——

*Bianchi* is not inclined to refer the original of thoſe hydatids to a diſeaſe of the lymphatics, but rather to the membrane which envelopes the viſcera, being diſtended and ſwelled at various diſtances by the extravaſated ſerous fluid.

It will always be abſolutely neceſſary to a phyſician to be thoroughly acquainted whether the ſwelling of the abdomen be cauſed by the water floating in its cavity, or by an encyſted dropſy—and this muſt be learnt from the attending ſymptoms—for the abdomen has been found greatly ſwelled, though no water has been found in its cavity, or in the duplicature of the peritonæum, or between that and the abdominal muſcles, but the whole tumor proceeded from a rarefied vapor; which diſeaſe is generally known by the

the name of *tympany*. And here again caution is requisite not to mistake this distemper for an ascites.

In a tympany the abdomen is never distended to so enormous a size as in an ascites; the abdomen towards its side is more flat and compressed; and more prominent before, an evident fluctuation is not perceived; on striking the belly, it sounds, but very hollow and dull like a wetted or unbraced drum.——Professor *Combalusier* defines a tympany thus, It is a bag-like tumor of the abdomen, shining, not sensibly heavy, constantly prominent upwards towards the navel, sounding when it is struck, and when pressed immediately rises again, generally attended with eructations, borborygms, and an obstinate constipation of the bowels arising from flatulency.——The skin of the abdomen is white, tense and elastic; that the form of the belly never alters

upon

upon shifting the posture, and the *pulse in general is harder and fuller than in an ascites*, in which it is smaller and more languid — *the belly when struck sounds like a drum, and the patient appearing light when weighed*, are as it were in some measure pathognomonic—in an ascites the patients weigh heavy, because of the large quantity of water lodged in the cavity.

It was formerly a received notion, that a tympany proceeded from air lodged in the cavity of the abdomen; but, though this may sometimes be the case, yet we are taught by anatomical dissection, that this seldom happens, and that the cause is chiefly in the stomach and intestines when enormously distended by rarefied air lodged in their cavities Professor *Littre* performed the operation of the paracentesis on the bodies of several persons who died of this distemper; the abdomen did not subside,

ſubſide, nor did the flame of the candle, when applied to the orifice of the canula, ſeem to be diſturbed, though the abdomen was preſſed on all ſides—he always found the ſtomach and inteſtines eſpecially the large ones diſtended, inaſmuch that the cæcum and colon were ſometimes as big as a man's thigh—hence he rationally concluded that the tympany was not occaſioned by air collected in the hollow part of the abdomen, but by the inflation of the ſtomach and inteſtines. This clears ſome paſſages of *Hippocrates* which before ſeemed ſomewhat obſcure:——

"*They who are afflicted with gripings*
"*and pains about the navel, and a pain*
"*of the loins, which are not removed by*
"*purges, or any other methods, generally*
"*fall into a dry dropſy.*" Now we know the meſentery and meſocolon are connected with the loins; hence it is evident why a pain in the loins, not to

be

be removed by medicine, may produce this diſeaſe.——

Profeſſor *Littre* very clearly explains the manner in which the ſtomach and inteſtines may be ſo inflated with air, as to produce a tympany. The œſophagus freely admits the air, being always open at the upper end; beſides this, it tranſmits air into the ſtomach along with the food; perhaps alſo, when the ſtomach itſelf is empty and ſuſpended from both its orifices, the upper orifice of the ſtomach not being quite cloſed, may give a free paſſage to the air, which will therefore move pretty freely in the cavity of the ſtomach and bowels. Phyſiology informs us of what uſe the air is in digeſtion.—The air indeed is expanded by the inward heat of the body; but as the alimentary tube is muſcular, and conſiſts of very ſtrong membranes, it reſiſts its dilatation, and preſſes together

the

the contents of its cavity. If the abdomen of a living animal be ſuddenly cut open, the inteſtines appear, ſolid, round, and ſcarce ſeem to have any cavity. In a dead body, the inteſtina tenuia appear very membranous, and to have a conſiderable cavity, becauſe after death this muſcular force, which reſiſted the diſtending air ceaſes—and as the inteſtines remain warm for ſome hours after death, they will be diſtended by the rarefied air, ſince they have loſt their contractile muſcular power.

Now *Littre* conſidered the rarefied air in the alimentary tube diſtending the bowels, and their contractile force, as two oppoſite powers. In health the contractile force of the inteſtines prevails, we cannot otherwiſe account, how ſix pints or more of medicated waters ſhould be drank, and the whole be reabſorbed by the inteſtines, with-

out any diſcharge of it by ſtools. But if there be too great a quantity of air pent up in the alimentary tube, or that it be too much rarefied, it will then be expelled by the contractile power of the ſtomach and inteſtines, and ſo paſs upwards by eructations, or downwards by flatus.——Hence the ſtomach which ſo often receives crude and flatulent food, and fermentative liquors, nay is frequently overcharged with them, expels the too copious or too rarefied air, generated by ſuch meats and drinks, by the ſuperior orifice of the œſophagus, with an eructation.—But in the inteſtina craſſa, in which the greateſt part of the injected food, deprived of all its nutritious juices, is collected, and mixed together with all the ſecreted humors of the body through the whole alimentary tube, there we ſhall find manifeſt tokens of putrefaction—

hence

hence theſe parts are moſt frequently known to be the ſeat of flatulencies.

The inteſtina craſſa are of a larger diameter than the tenuia, have ſtronger coats, and a triple ligament, which reſiſts any immoderate diſtenſion, and conſiderably ſtrengthens them through the whole length of their canal. And hence the rectum when irritated by rarefied air, reſiſts its effort, and contracting itſelf, expels the flatus.——And it is evident that the power with which it contracts itſelf is conſiderable, when we conſider that flatus and even the fæces are ſometimes forcibly and violently diſcharged, even againſt the efforts of ſtrong and robuſt men.

If now, from any cauſe, the contractile force of the inteſtines ſhould be weakened, they may yield to the expanding air, and ſo produce a tympany; for which reaſon we frequently obſerve this diſeaſe, when the ſolids

have been debilitated by long and tedious diſorders, as alſo after frequent returns of the iliac paſſion.——Flatus and borborygms give hopes of cure in a tympany, becauſe they are ſigns, that the inteſtines have not quite loſt, or have recovered their tone.——

We read a remarkable caſe to this purpoſe, in the Medical Eſſays:——A girl twenty-two years old, after a tertian ague, which had been injudiciouſly treated, and had laſted ſeven months, took ſome doſes of the cortex; after which ſhe complained of acute pains in the loins and abdomen, which generally began near the right os ilii; thence they moved upwards and croſsing the ſtomach tranſverſely paſſed to the left ſide; they were attended with griping and borborygms, the abdomen ſwelled, and ſometimes roſe to an extraordinary bulk; then again, though no evacuations had preceded, ſubſided gradually,

gradually, though not entirely—the following winter ſhe ſeemed free for ſome time of theſe complaints; but they returned in the beginning of the ſpring, the ſame ſymptoms appeared, and the abdomen ſwelled; and that to ſuch a degree, that there were ſome apprehenſions of its burſting; at laſt however the tumor again gradually grew leſs, without the intervention of any evacuation; at that time ſomething like balls branching out in different places were perceivable upon touching the belly, eſpecially on either ſide of the abdomen; her appetite was good, ſhe had no thirſt, and the urine was in proportionate quantity to what ſhe drank. Purges were adminiſtered, and the fæces diſcharged, but ſcarce any flatus attended them, and little alteration was to be perceived in the ſwelling of the abdomen.——Various remedies both internal as well as external

were tried to very little effect; the belly still continued costive, and no flatus were discharged. At length she perceived rumblings and borborygms in her belly; some blood was discharged by the anus, (she had been subject formerly to an hæmorrhoidal flux) and at length she for two days successively broke wind both upwards and downwards so violently, that the patients in the same hospital could scarce bear the place—the abdomen grew less and softer to the touch; the explosion of flatus still held on, and though the swelling returned from time to time, she recovered so well by the use of corroborants, as to be able to go to hard work, and she continued in health afterwards, though she generally went bare-footed, laboured hard, and lived on very coarse food.—This surprising disease seems to have been a tympany, in which the colon was distended

through

through its whole extent. The hard tumors proceeded no doubt from the dry hard fæces; for had they been ſcirrhi, ſo eaſy a cure would not have happened. When the diſtended fibres of the inteſtines had recovered their tone, the wind was forcibly expelled, the abdomen ſubſided, and the retained fæces were carried off by purges and clyſters, and health was the conſequence.

*Heiſter* declares an abdominal tympany to be a very rare caſe—and that though in the ſpace of forty-ſix years, he had diſſected many bodies of ſuch as have died of a tympany, he never yet found any air in the cavity of the abdomen, but that it was always lodged in the diſtended inteſtines.

Air certainly exiſts in an incredible quantity in the ſolids and fluids of the body, but ſo long as the air remains involved, and coheres with the conſti-

tuent parts of the body, divided as it were with the elements of theſe parts, it is not elaſtic; but when by encreaſe of heat, or by the inteſtine motion of fermentation and putrefaction, that nexus and coheſion of the air with our ſolids and fluids is broken, it then regains its uſual elaſticity, and becomes dilatable on the leaſt encreaſe of heat—thus we ſee the bodies of drowned people, after having long lain in the water, emerge again, and float upon the ſurface. —— When the air penetrates from the mortified inteſtines in the cavity of the abdomen it immediately ſwells, this is ſeen in thoſe who are dying in a paſſio iliaca.

The inteſtinal tympany is eaſily to be diſtinguiſhed from a tympany of the abdomen.——If after gripings of the belly and a pain in the loins, the abdomen be inflated, if there be frequent borborygms, and the belly be coſtive,

coſtive, we may ſuſpect a tympany of the inteſtines: if theſe be wanting, and the inflated abdomen ſwells ſuddenly, we have room to imagine it an abdominal tympany, and in this caſe if you ſtrike the belly the ſound will be ſtronger; and this ſymptom will be of greater conſequence, if ſuch cauſes have preceded, as may give reaſon to ſuſpect a putrefaction or a mortification of the bowels.

The dropſy of the teſticles, may be divided into three ſpecies; a dropſy of the ſcrotum; a dropſy of the bag formed from the production of the peritonæum in a true hernia; a dropſy of the involucrum vaginale of the teſticle—they are all called by one common name υδροκηλαι hydroceles.

The firſt is properly an anaſarca of the ſcrotum, or a collection of water in the cellular membrane of this part.—It appears from the obſervations of that accurate anatomiſt *Winſlow* that a

considerable cellular membrane lies between the tunica vaginalis and the dartos muscle; the collected fluid therefore will be more likely to produce an anasarca in this part, as this cellular membrane has a communication with another similar membrane placed between the skin and the dartos muscle; this slender muscle will scarce appear between these distended cellular membranes, neither does the dartos muscle seem of so firm a texture, as to admit water to lodge itself between it and the tunica vaginalis, as in a hollow bag. The ingenious Mr. *Sharp*'s observations on this subject well deserve to be read with attention.——That gentleman has excellently remarked, that an ascites alone will not fill the scrotum with water, and he appeals to all practitioners, whether they ever saw any persons in an ascites, who had an hydrocele at the same time, unless

they

they had a rupture before. I confeſs that I have ſeen many perſons in an aſcites, and although the abdomen was greatly diſtended with water, I never found the water made itſelf a paſſage into the ſcrotum, unleſs a hernia had preceded.

We ſhould be very careful how we diſtinguiſh other tumors from an hydrocele, and this is not difficult to do, if we are but careful and attentive: for inflammatory tumors of theſe parts are eaſily known by the heat, redneſs, pain and fevers accompanying them. Purulent and ichorous tumors are diſtinguiſhed by inflammation or other cauſes which have preceded, and require a diſcharge of the collected humor as well as the hydrocele, leſt the miſchief may be encreaſed by delay. Sometimes alſo the teſticle may be ſwelled from a bruiſe or any other cauſe, and becomes hard and rough and encreaſes

to

to a great ſize—this diſeaſe is called a ſarcocele; which however is very eaſily to be known from an hydrocele by the bare touch.—Sometimes when the teſticle is thus diſordered, an hydrocele may follow, which if it grow large, may hide the teſticle, and evade the feeling—then the diſorder is compound, and the hiſtory of the diſeaſe will ſhew, whether the ſwelling of the teſticle preceded the hydrocele. This diſeaſe is then only known when it manifeſts itſelf by a ſwelling; for it cannot well be diſtinguiſhed in the very beginning, while only a ſmall quantity of a ſerous lymph is collected in the tunica vaginalis; for this tumor is not elaſtic nor yields to the preſſure of the finger and riſes again, as in an anaſarca of the ſcrotum, becauſe the fluid is not lodged in the cellular membrane but in the tunica vaginalis of the teſticle. And this will be ſtill more evident, if the

the ſymptoms of the firſt and ſecond ſpecies of the hydrocele are wanting. As the cavity of the tunica vaginalis is round, it will retain its figure when dilated; but as it becomes narrower towards the upper part, it may then, when it is ſufficiently filled, be of an oval form.——Although it may ſo happen, that upon an encreaſe of the water, the upper part of it may be ſo dilated, as to retain its globular figure; but as the tunica vaginalis, and the integument of the ſcrotum when greatly diſtended, are rendered thinner by this diſtenſion, the bag in which the collected fluid is lodged, will be more tranſparent, eſpecially if the ſcrotum be cautiouſly drawn up with a ſoft broad piece of linen, ſo as to encreaſe the tenſion. The water contained in ſuch an hydrocele is moſt commonly clear and limpid, the whole of the tumors therefore will be tranſparent, and

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a candle being held on the opposite side, will give a fair opportunity of seeing the testicle lodged in the middle of the tumor, and so prevent its being injured in the operation of the paracentesis by the point of the trochar.—

*Celsus* knew this disease perfectly well, "the swelling (says he) is soft if there be not too much water; but if that encreases to a larger quantity, it resists the touch like a bladder quite filled up with water and tied down very hard—the veins of the scrotum are also much inflated, and if we press the part with the finger the humor gives way, and fluctuating raises that part which was not pressed upon, and it is visible through the scrotum, as if it were in a case of glass or horn, and is without pain in its own proper substance."

It is to be observed however that the fluid collected in the tunica vaginalis is sometimes turbid and bloody; which

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is uſual in an hydrocele of long ſtanding — great caution is here neceſſary how the operation is to be performed.——

We are taught by phyſiology, that all the lymph which returns from any part of the body whatever, paſſes from the lymphatic veſſels into the ſanguiferous veins, either directly, or indirectly through the ciſterna lumbaris, ductus thoracicus, and ſo on to the ſubclavian.——If therefore a free paſſage be denied by any cauſe to the lymph through any of the larger veſſels, it will ſtagnate and diſtend its own veſſels, and the ſmalleſt abſorbent veins will not be able to diſengage themſelves of their contents; wherefore reabſorption of the exhaling veſſels will be impeded, while the exhalation from the arteries will at the ſame time be continued into the ſame cavities, and a dropſy be the conſequence. *Lower* has plainly proved

this

this by evident experiments made upon living animals. Having perforated into the chest of a large mastiff dog, he tied the vena cava, then stitched up the wound; the animal grew immediately faint, and died in a very few hours after. On dissecting the dog, a large quantity of serum was found floating in his abdomen, just as if he had long labored under an ascites. He made a very tight ligature upon the jugular veins of another dog; some few hours after, all the parts above the ligature swelled amazingly, and in two days the dog perished just as if he had been suffocated by an angina; he found all the muscles and glands above the ligature greatly distended with a limpid and transparent serum. Here we see an ascites produced in a few hours, from the venous blood being obstructed in its motion. In the body of a girl of eight years old, who died lethargic,

and

and greatly oppressed in her breathing, from a collection of water in the ventricles of the brain, the cavity of the breast was found full of a watery serum somewhat tinged with blood, but a perfectly clear and limpid fluid was observed in the brain; *Lamotte*, who had opened the child, upon freeing the breast from the contained humor, found the lungs entirely sound, but discovered two abscesses, and two hard fleshy tumors as big as a pigeon's egg, which compressed the descending trunk of the vena cava; which were indisputably the occasion of this accumulation of watery serum in the head and breast.

In the beginning of a dropsy the feet swell first, because the blood returns with great difficulty from the extremities upwards, especially in those who live a sedentary life, and seldom or ever use much exercise—hence tall men are

ſuppoſed to be more ſubject to this diſorder than thoſe of lower ſtature—for in tall men the blood has a long way to aſcend againſt the reſiſting effort of gravitation, and therefore cæteris paribus, their feet will more eaſily ſwell. Profeſſor *Sauvage* has very well remarked that the fluids in a healthy ſtate have a certain degree of viſcidity, by which they adhere to the ſides of the veſſels, and by this means the power of gravity is leſſened, when they are to aſcend almoſt perpendicularly. If now ſuch a cachexy happens, as that no more good blood can be produced, and the fluids degenerate into a watery thinneſs, this adheſion to the ſides of the veſſel is much leſſened, the power of gravity continuing the ſame notwithſtanding; the extremities will therefore very eaſily ſwell.——

Hence we may alſo learn why a dropſy is to be feared, if any obſtruction

ſtruction happens near the right venous ſinus, in the pulmonary artery, or in the lungs themſelves, ſo as to prevent the free paſſage of the blood through that viſcus; for in that caſe the two trunks of the vena cava cannot diſcharge their contents freely, whence the motion of the venous blood will be greatly retarded. Thus we frequently ſee perſons afflicted with polypous concretions about the heart and the larger veſſels become and die dropſical; for the ſame reaſon aſthmatical people are ſubject to the like bad conſequences. This *Aretæus* has taken notice of, and ſo does *Aetius*——: the ancients imagined that dropſies were occaſioned by diſeaſes of the liver, and indeed it is not to be wondered that they thought ſo, ſince this viſcus is found ſo frequently impaired in ſubjects who have died dropſical. The aſcending trunk of the vena cava paſſes

through the liver, and the vena portarum is diſtributed through the whole ſubſtance of it, any tumor therefore in that viſcus may obſtruct a free return to the venous blood; but once the obſtruction is removed, and that the blood moves freely through the veins, the extravaſated fluid may be reabſorbed, and ſo be carried off by the proper channels.——Thus *Hippocrates* ſays, "a dropſy is cured when the water paſſes through the veins into the belly."

If the free circulation of the venous blood be obſtructed, the lymphatics remain diſtended, if this diſtention be encreaſed they may burſt, and diſcharge their contained fluid into the cavities of the body.——Many authors, indeed, have denied that this is a cauſe of the dropſy, others think it is very ſeldom if ever the cauſe of this diſtemper.

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Whatever weakens the tone of the veſſels diſpoſes the body to a dropſy—for whenever the ſtrength of the veſſels is weakened they will act leſs powerfully upon the contained fluids, and be incapable of converting the chyle into a good and firm-textured blood—the blood conſequently loſes of its red color, and as this part is the moſt denſe of all, the whole maſs of humors will degenerate and become much attenuated and impoveriſhed, and a cachexy will enſue: and if theſe too greatly attenuated fluids fly off, the body will conſume in conſequence of a maraſmus; if they remain in the body, they will be accumulated in the cavities, and ſo bring on a leucophlegmatia and a dropſy.

Drinking large draughts of cold water when a perſon is overtired and heated is no unfrequent cauſe of a dropſy, eſpecially if after it he lies down to repoſe himſelf without being

well covered and defended from the air; for in that caſe no ſweat follows, the urine is diſcharged in ſmall quantities, and all the water remains mixed with the blood.——Now it is evident from Mr. Hale's experiments, that a large quantity of water being ſuddenly thrown in upon the blood does not paſs from the arteries into the veins, but is depoſited by the ſmaller ſecretory ramifications in the cavities of the body, and ſoon brings on a univerſal dropſy. The ſame happens to thoſe unfortunate people, who lie down immediately after having ſwilled down large draughts of cold water—for if they continued to move about briſkly, the muſcles acting powerfully and continually, would prevent the water from collecting in the cellular membrane, which every-where covers the muſcles, and fills up their intermediate ſpaces: beſides as the body grows warm by exerciſe and motion,

the

the water that is drank is kept moving on, and paſſes off either by urine or ſweat or by both; and if it oppreſſes the ſtomach is diſcharged by vomit or ſtool. *Aetius* and *Aretæus* expreſly mention this in their deſcription of the cauſes of a dropſy.

The texture of the omentum is ſo contrived as to be entirely fitted for the reabſorbing the lymph, and to mix it ſo reabſorbed by means of the two epiploic veins with the blood of the vena portarum before it paſſes into the liver——if therefore the omentum be impaired or in a ſtate of diſeaſe, this reabſorption will be impeded, and bring on a dropſy.——

A difficulty of breathing is very certainly a bad ſymptom in a dropſy—becauſe it either happens in conſequence of too great a fulneſs of the abdomen, or it argues ſome reaſon to ſuſpect water to be lodged in the breaſt or

lungs.——A cough here is alſo for the ſame reaſons accounted an ugly ſymptom.——

When the watery ſerum is collected in the cavities of the body, it returns not by the veins, neither does it again mix with the blood.——The blood conſequently will be daily more and more deprived of its moſt fluid parts, and be rendered leſs capable of circulating freely through the veſſels. Hence, the ſecretion of the finer juices will be diminiſhed, and the patient becomes dry and thirſty, and the tongue and palate almoſt parched up with heat, and while the belly only ſwells to an enormous ſize, the reſt of the body becomes emaciated with a maraſmus. Neither will copious drinking diminiſh the thirſt, becauſe the liquids drank will not eaſily unite with the already too-much exſiccated blood, but ſoon eſcape from the veſſels into the dilated

cavities

cavities of the body, the ſkin no longer perſpires, and the urine is diſcharged in very ſmall quantity; thus the liquor taken inwardly remains there and encreaſes the dropſical complaint, but does not ſtay in the veſſels through which the fluids circulate:

*Quo plus ſunt potæ, plus ſitiuntur, aquæ.*

Large draughts of liquids but encreaſe the fire,
The more they drink, the more they ſtill deſire.

The collected lymph, by long ſtagnation, becomes ſalt and brackiſh, more and more acrid, and almoſt alcalious. Beſides, dropſical perſons are moſt generally coſtive, the excrements therefore by long retention in the *primæ viæ* become putrid.——

Dropſical

Dropſical patients are commonly heavy and drowſy; for they are overwhelmed with the maſs of water, their ſtrength is much impaired, and they are ſcarce able to move or bear their unwieldy body. Beſides as plenty of good animal ſpirits cannot be ſecreted in the brain from the blood, which is ſo much vitiated, we ſhall have another reaſon why the body feels ſo heavy in this diſeaſe; and why the patient becomes inactive and indolent—ſometimes water is found in the ventricles of the brain, and the patient dies lethargic.—

When the abdomen is diſtended by a prodigious quantity of water, the inteſtines muſt neceſſarily be compreſſed, and the fæces be accumulated in the inteſtina craſſa; they will become hard, and conſequently be excreted with difficulty. Moreover we may conſider that the viſcera in this caſe, which

which are deſtined to ſecrete the chyle, are ſcirrhous and loaded with obſtinate obſtructions; now all theſe viſcera bear a part in forming good bile, whoſe function it is to promote the alvine excretions—if the bile therefore be deficient in quantity, or if from the ill ſtate of the viſcera it wants its due qualities, it is eaſy to conceive that it will produce coſtiveneſs.—This is excellently well deſcribed by *Hippocrates* in his *coacæ præenotiones.*

Dropſical perſons upon this account frequently require a double or triple doſe of cathartic medicines in order to procure ſtools.

Although in the beginning of a dropſy, the whole body feels cold and is languid, and that it appears to be a diſeaſe entirely contrary to a fever, yet we obſerve a fever frequently accompanies the diſeaſe if it be of long

ſtanding;

ſtanding; partly from the tendency to a putrefaction in the ſtagnating fluids, and partly becauſe the blood being deprived of its diluting lymph, eſcaping from its proper veſſels, is collected in the cavities of the body. "*Fere in totum plurimi ex hydropicis febriunt.*" Almoſt all dropſical perſons, ſays *Aetius*, are feveriſh."

That the fluids may paſs through the extremities of the ſmall arterial veſſels of the ſkin, it is neceſſary that the ſkin ſhould be ſoft and naturally warm; now in dropſical people, the ſwelled legs and thighs are as cold as marble, while the parts not immediately affected by the dropſical ſwelling, are quite thin and emaciated. We entertain very favorable hopes, if in dropſical patients we can obtain ſweat either ſpontaneouſly or by art, becauſe it is a ſign that the extravaſated ſerum is reabſorbed and circulates through the

the veſſels, and is exhaled by the pores of the ſkin from the body. Unleſs that which is waſted both in the fluids and ſolids by the very actions of the body in health can be reſtored again by good and wholeſome nouriſhment, a true maraſmus muſt neceſſarily enſue—the very beſt of food requires the action of all the viſcera and veſſels, as well as a large plenty of pre-exiſting ſound juices in the body, ſo that what is waſted may be repaired. Now the whole blood in a dropſy is depraved, and the viſcera ſo compreſſed by the water, that they cannot perform their functions, and the more diſtended and turgid the dropſical parts are, the more defective will nutrition be in the parts which are not ſwelled.

It is well known that our fluids have a tendency to putrefaction; but ſo long as they circulate freely through the veſſels, and that the corruptible par-

ticles

ticles are excreted from the body, putrefaction will be prevented.——But when once they begin to stagnate long in the cavities of the body, putrefaction is to be much feared, which will however be the longer before it begins, provided they are close and shut up, but will soon happen when once free access be given to the air. It is perhaps for this reason that drawing away the water by degrees, has so often been attended with bad success; for the air getting admission, much more readily accelerates putrefaction.——We often observe water taken away by tapping, shews no sign of putridity, but when long exposed to the open air, has smelt abominably. However though water will grow putrid in any cavity of the body, yet it will more readily happen in an ascites than in other dropsies, for from the newly opened abdomen of an healthy person, we see a vapor reeking

forth

forth of the ſmell of urine, with a diſagreeable ſtench; the abdominal viſcera are perpetually agitated by the motion of reſpiration; the bile which approaches neareſt to putrefaction of all the fluids, tranſudes in ſuch a manner, as to tinge all the parts near to the gall-bladder with yellow, as it has been frequently obſerved in diſſection of dead bodies, the fœces retained long in the inteſtina craſſa exhale a putrid ſteam.——All theſe concurring cauſes make the waters putrefy ſooner, which when it once happens, will conſume the viſcera perpetually ſoaking in ſuch a corrupted fluid, into a putrid colluvies——whence, it has been always eſteemed a bad omen, if in tapping the water comes out putrid, or ſo to affect the fingers, and ſoften the ſkin as alcaline lees are apt to do.——

Bleeding at the noſe is a dangerous ſymptom, as it diminiſhes the quantity

tity of blood, already too small.——

We should be cautious in the use of cordials not too suddenly or all at once to encrease the circulation, for the dropsy grows too fast in its own nature, and the abdomen swells more and more in an ascites, while the arteries continue to discharge the serous lymph, and the veins do not at the same time reabsorb it—if therefore the motion of the fluids be too violently or too instantaneously accelerated, and this more particularly, when they are too much attenuated, they might all be discharged into the cavities of the dilated abdomen, and all the vessels of the whole body would entirely collapse, an event which would be of the most fatal consequence. *Trallian* observes, "*nam calefacientia nimium si universa ac una vice assumuntur, totum potius habitum colliquant, quam abundantem humorem evacuent.*"

Besides,

Beſides, when ſuch juices as have hitherto been ſtagnating are too ſuddenly put into motion, ſuch a ſudden fulneſs might enſue, and the lungs be ſo oppreſſed, as to endanger ſuffocation. Thus we ſee when a perſon laboring with an anaſarcous dropſy, attempts to move ſuddenly, he will have ſuch an oppreſſion on his breaſt, as to be ſcarce able to breathe, eſpecially if he goes up hill. For this reaſon a ſenſible prudent phyſician endeavors to ſet the ſtagnating fluids into motion not all at once, but gradually, with an intent that the extravaſated ſerum being reabſorbed and mixed with the blood, may be expelled by ſweat, or by an encreaſed diſcharge of urine, for unleſs this end can be obtained, we can expect no cure.——

Friction is of great uſe in an anaſarca, where the collected water ſtagnates in the adipoſe membrane, for it

acts more immediately on the extravaſated ſerum, when the ſkin only intervenes, than if the abdomen was to be ſtrongly rubbed in an aſcites. Simple oil of olives has been known to have had ſalutary effects even in an aſcites, which was cured by rubbing it night and morning for a month together—however I am rather inclined to believe the ſucceſs was rather owing to the friction than to any particular inherent virtue in the oil.——Friction is by no means adviſable if the belly be very much tumefied, or that the integuments be thin and over-ſtretched, or the breathing laborious—but when the ſwelling abates, the ſkin is leſs diſtended, and better able to bear ſtronger and rougher friction.

The ancient phyſicians very prudently began by very gentle friction, that ſuffocation and an oppreſſion of the lungs might be prevented, from

the

the extravasated serum being too suddenly re-mixed with the blood.

*Hoffman* observed that an œdema of the feet repelled, produced a great oppression and stricture upon the breast. Nay he saw some patients who were seized with an ague, and that as soon as the cold fit began, and the swelling of the feet disappeared, they were suddenly attacked with a violent oppression and difficulty of breathing, and a sudden suffocation always happened in the third fit, as soon as the rigor began.

Exercise accelerates the motion of the venous blood towards the heart, and the circulation of the fluids may be encreased at will; in all times therefore it has been strongly recommended as good in the cure of dropsies. *Hippocrates* advises, *labores, fotum, & temperantiam,* labor, fomentation, and temperance, ταλαιπωρίης, that is hard and laborious fatiguing work; and he

ſays the patient ſhould perſiſt in it, and even attempt climbing up ſteep hills, but leſt the lungs ſhould be oppreſſed by violent and ſudden motion, he adds this caution: "but if he breathes with difficulty, and the ſeaſon be ſultry warm, the patient in the prime and vigor of life, and his ſtrength will bear it, let blood be firſt of all taken from his arm."

If a dropſy happens in conſequence of copious hæmorrhages or of drinking large draughts of water, and that there is no reaſon to ſuſpect any of the viſcera to be obſtructed, or that there is a viſcid cachochymia, we have no need of uſing attenuating medicines, but rather to uſe our beſt endeavors to diſcharge the water from the body, and that done, to reſtore and brace it with corroborants. It is much ſafer to draw off the water in an aſcites by tapping, than by ſtrong vomits and purges.

It

It is not eaſy to determine what number of tappings an aſcitical patient may bear and receive relief from, before he ſinks under the incurable diſorder of the corrupted viſcera.——A Swiſs ſoldier bore the operation fifty-ſeven times in the ſpace of twenty-one months: doctor *Mead* gives us the caſe of a lady who was tapped oftener. When I lived at Great *Yarmouth* in *Norfolk* I attended one Mrs. *Maſters*, and was preſent at her being tapped thirty times, the whole quantity of water taken from her amounted to *one hundred and fifty gallons*.——It is very certain that a large quantity of water floats even in the warm ſummer air, though we imagine it drieſt; for fixed alcaline ſalts grow preſently moiſt in this air, and encreaſe in weight as ſoon as they are cold; neither is it a ſmall quantity of water which theſe ſalts attract to themſelves from the air—it is

very probable to believe that dropſical bodies attract the water from the air, eſpecially ſince no other cauſe can be aſſigned, why perſons in an aſcites, after they have been freed from all the water by tapping, ſhould fill ſo ſoon again, although they drink little or nothing, and eat the drieſt food, and though the urine they diſcharge is more in quantity than the liquor they take.——

Vomits are of uſe ſometimes, by which the excretion of urine is often encreaſed, when the extravaſated ſerum begins to be reabſorbed in conſequence of the frequent concuſſions occaſioned by vomiting; and this fluid afterwards iſſues from the body by various outlets, if the cure goes on ſucceſsfully.

A dropſy if recent, when the viſcera are ſound and uninjured, the ſubject young and robuſt, and always healthy before,

before, is eaſily cured—even ſometimes with two or three draſtic purges.

A liquid form is preferable for purges, becauſe the primæ viæ are frequently entirely dry, ſo that pills and other more ſolid ſubſtances can ſcarcely be diſſolved, and therefore become leſs active in their operation.

A weakneſs of the ſolids, of the viſcera, and of the veſſels is a cauſe of a dropſy.——*Sydenham* obſerves that this diſorder encreaſes more in winter than in ſummer, and more in rainy than in clear weather.--He adviſes the uſe of ſteel medicines, not only to corroborate the body after the water is diſcharged, but in the beginning of the diſeaſe, " when it has ſwelled the feet only, or but very little ſwelled the belly."

A dry diet ſhould be directed in this diſeaſe, of biſcuit, or well baked and well leavened bread, roaſt fleſh of

young animals, river fiſh broiled; the drink ſhould be ſtrong but ſparing; *good old port* is aſtringent and of ſervice, and that the flaccid inteſtines and the ſtomach may be moderately ſtimulated, ſome acrid ſeaſonings may be mixed with the food, ſuch as muſtard, horſe-radiſh, pepper, &c. having however regard to the ſeaſon of the year, and the age and conſtitution of the patient recovered of the dropſy.

Water rendered extremely cold by ice or ſnow has frequently been recommended by phyſicians to be externally applied to the abdomen in a tympany, and to be drank alſo, and this with good ſucceſs—certainly ſuch a ſudden cold contracts the ſolids, and at the ſame time checks the expanſion of the flatulent matter, and ſo is uſeful in both reſpects. Cold water therefore in this caſe acts as a corroborant, but as ſoon as the abdomen begins to ſub-

ſide,

ſide, it ſhould be ſupported by rollers, that the ſtomach and inteſtines may not ſo eaſily dilate again, but be able to reſiſt the rarefied air which moves up and down their cavities.

We know that the periſtaltick motion of the inteſtines is much encreaſed and forwarded by the ſtimulating power of purges, ſo that the fæces are much ſooner expelled; wherefore phyſicians preſcribe purges; and thoſe of the moſt draſtic kind, ſuch as the *wild cucumber, common fleur de luce, Scottiſh ſcurvy-graſs*, together with carminatives and aromatics. But as the whole inteſtinal tube is not always diſtended in this diſeaſe, but is often here and there only contracted, many have adviſed gentle purges, and thoſe given in ſmall doſes joined with carminatives, in order to prevent a coſtiveneſs — for we have reaſon to ſuſpect an encreaſe of the contraction in the already obſtructed

ſtructed bowels, from violent purges; and carminatives without ſome eaſy purge, rather do harm.

*Hoffman* diſcommends ſtrong purges—and ſays they ſhould be gentle and mixed with anodynes, and directs the body to be well rubbed with camphire diſſolved in oil of almonds, at the ſame time.

We muſt endeavor to diminiſh as much as poſſible the rarefaction of the air contained in the cavities of the ſtomach and inteſtines. Air is ſwallowed down with our food, and is either ſeparated from it in the time of digeſtion, imperceptible before becauſe it was not elaſtic; or what is ſtill much worſe, it putrefies.——The great doctor *Hales* has demonſtrated that air is naturally inherent in all bodies, and that it viſibly conſtitutes a conſiderable part of their bulk; and that the ſelf-ſame air is again ſeparated from them whenever

ever their mutual connections are deſtroyed or leſſened by fire, fermentation, putrefaction, effervescence, or any other cauſes. He has farther proved that the air ſeparated from bodies, becomes elaſtic; and when combined again with them, loſes its elaſticity: he moreover obſerves that aqueous vapors diminiſh elaſticity, whether they ariſe from pure water, or exhale from the bodies of animals; whence the elaſticity of the imbibed air in reſpiration is leſſened.——Now if we conſider, that the food is diſſolved in the time of digeſtion, that ſome tend to fermentation, others to putrefaction; a ſeparation of air from the food muſt neceſſarily be ſuppoſed to enſue, which if not reabſorbed, and deprived by that means of its elaſticity by the warm vapors exhaling from the extreme arteries into the cavities of the ſtomach and bowels, will diſtend theſe viſcera,

and

and this by ſo much the more, by how much the viſcera are leſs ſound and firm, and thus they will be leſs able to reſiſt the expanſion of the air. In healthy conſtitutions, during the time of digeſtion much more air ſeems to be generated than reabſorbed; it is for this reaſon that men ſeem ſwelled and bloated after a hearty meal; but in weak habits we obſerve frequent flatulencies, eſpecially if they have eat and drank of ſuch things as contain a great deal of air, and are eaſily ſeparated from them, or are quickly ſubject to putrefy and ferment. Hence it evidently follows that ſuch patients ſhould avoid crude ſummer fruits, turneps, radiſhes, &c.

*Hales* remarks that the vapor of brimſtone moſt powerfully abſorbs the air, or conſiderably diminiſhes its elaſticity—and an accidental practical caſe demonſtrates that *ſpiritus ſulphuris per campanam,*

*campanam*, which is the condenſed ſteam of burnt ſulphur, is uſeful in this diſorder.

*Francis Oſwald Grembſius* had in vain tried to cure this diſtemper by hydragogue purges; he afterwards directed a fomentation of the boy's urine and lapis prunella, but without any hope of doing ſervice.——The patient afterwards deſired he might have ſomething ordered to allay his great thirſt.—The phyſician had ſome of the ſpirit. ſulph. per camp. at hand, of which he directed him to take ſome drops in a glaſs of water.——This not only took off the thirſt, but it brought forth prodigious flatuſſes, the abdomen ſubſided, and the patient was perfectly reſtored. It is well known how efficacious the ſteams of ſulphur are to prevent fermentation, or to ſtop it when it is once begun.——Fermentation generates a great plenty of elaſtic air.

A true

A true emphysematous swelling of the intestines is not easily cured, for the remedies taken inwardly, though they may pass through the cavities of the intestines, can exert but very little of their force on the emphysema.

After the scrotum has been opened, either by incision or by caustic, it is universally agreed that a slight inflammation and suppuration must be encouraged, in order that the depurated sides of the bag may so cohere to each other and to the adjacent parts, that the whole cavity may be entirely destroyed. *Celsus* directs the membrane, which contains the humor, to be cut away.

*Bertrandi* and the very ingenious Mr. *Sharp* observe, that an inflammation excited in the *tunica vaginalis*, is very frequently attended with fevers of dangerous consequence, with deliria, spasms of the abdomen, and other

bad

bad and ugly ſymptoms.——Nay Mr. *Sharp*, though his patients in general got the better of the fever, confeſſes freely that this fever is more terrible and alarming, than that which uſually follows upon the extirpation of the teſticle—hence he condemns the cruel method of trying to tear off the *tunica vaginalis*, after the ſcrotum has been laid open—for the ſole hope we have of a ſucceſsful and radical cure in this caſe, is, to encourage a mild ſuppuration, and therefore gentle irritation is abſolutely neceſſary.

## *Of the* GOUT.

THE gout and arthritis are two very diſtinct and different diſorders; for though the gout when inveterate may ſeize on ſeveral of the joints at one and the ſame time, yet in its firſt ſtage, it always firſt attacks the feet.——Beſides, *the arthritis generally begins with a fever*, but *the gout* without *any previous ſymptom*, attacks the joints.——Its firſt attacks are ſeldom laſting, in which it differs from arthritic pains which are of long duration—insomuch that if they happen in the autumn, they ſeldom leave the miſerable ſufferer before the ſpring—if therefore a perſon be ſeized with an unexpected pain in the foot or feet, without any manifeſt cauſe, which goes off again in a very few days of itſelf, or in conſequence of ſome gentle remedies,

medies, we may reaſonably ſuſpect it to be the gout; and this the more eſpecially if they have periodical returns in the autumn and ſpring—*Podagrici affectus vere & autumno plerumque moventur*, ſays *Hippocrates*. We are here to take particular notice that *Hippocrates* does not ſay that the diſeaſe is produced, but ſeems to hint how the morbifick matter, which lay as it were hid and gradually accumulating, is moved, and diſpoſed to charge its whole fury on the joints.

It very rarely attacks boys before the age of puberty—nor did it ever appear by any authenticated obſervations, that a true genuine gout ever afflicted the human race epidemically.——

Studious people are ſubject to the gout, becauſe they uſe little or no exerciſe; by which means digeſtion is much obſtructed, which is an immediate cauſe of this diſtemper.

As the powers of concoction are greatly weakened by too frequent copulation, too excessive venery is very pernicious and productive of the gout.

Λυσιμελυ Βακχυ και λυσιμελυς Αφροδιτης
Γενναται θυγατηρ λυσιμελης ποδαγρα.

From *Love* and *Wine* Health's chiefest foes,
The joint-relaxing *Gout* arose.

The gout is less severe in summer than in winter. *Sydenham* has very accurately described the symptoms of this disorder—the fit, says he, for the most part comes on suddenly, now and then the patient, for some weeks before, complains of a crudity, and indigestion, and a certain uneasy weight in his stomach; his body is as it were puffed up, which daily encreases till the fit comes on——immediately preceding which, he perceives a kind of torpor, and

and a wind paſſing downward through the fleſhy parts of the thigh, attended with ſpaſm—the day before, the appetite is voracious and unnatural.——

It has been frequently obſerved by gouty perſons who have eaten too large a quantity of *aſparagus, that it has haſtened a paroxyſm.*

*Sydenham* declares purgatives to be hardly ever of any ſervice in the gout.

If we attentively conſider with how much difficulty the fluids paſs through ſuch parts as are generally firſt attacked by this diſeaſe, we ſhall be able to form ſome tolerable and probable reaſons why the gout firſt begins in the feet, which ſuffer greatly, eſpecially about the heels, as they are obliged to ſuſtain the whole weight of the body—and being at a diſtance from the heart, that ſpring of circulatory motion, are frequently ſubject to cold and moiſture; and the blood conveyed thither by the

arteries, muſt return by the veins, though they have the efforts of gravitation to overcome. —— All theſe things well conſidered plainly prove how eaſy it is for matter to collect and lodge itſelf there; beſides the ligaments and tendons which are numerous in theſe parts, are, as we know from anatomical injections, very impervious, and we are therefore not to be ſurpriſed that a free circulation of the humors ſhould be prevented.—Moreover the feet are liable to receive injuries in walking, jumping, or from ſudden falls, &c. theſe accidents, as *Ægineta* has well obſerved, very often bring on a fit of the gout.

The gout is naturally directed to the joints, but when the morbific matter is either too redundant, or can find no farther admiſſion into its uſual channels, it may then affect every or any part of the body——.

It

It very often gives no previous notice of a viſit, but people ſeemingly go to bed in good health and are awakened by it in the middle of the night and *ſomno excuſſi exclamant ſubito*, ſays *Lucian* whoſe deſcription of the gout is moſt elegantly and juſtly depicted, and is well worth the reading—the pain according to *Sydenham* is like the forcing of the bones aſunder, attended with a feeling as if water not quite cold was pouring on the membranes of the parts affected, then a rigor with a ſhivering ſucceeds, accompanied with ſome degree of heat.

A gentle moiſture upon the ſurface of the ſkin, and particularly upon the affected part, uſually relieves the patient—for then the ſwelling begins, and the pain conſiderably abates.

The ſevereſt of all gouts is that in which we can obſerve neither ſwelling or diſcoloration of the part, be-

cauſe it is probable that the morbific matter is locked up and retained in the finer veſſels.

The morbid matter is ſooner or later expelled, in proportion to the quantity accumulated, and to the degree of ſtrength in the patient to throw it off—in ſtrong robuſt people, and thoſe who are ſeldom attacked, the fit is over in fourteen days—but in aged people and thoſe who have had frequent paroxyſms it will continue for two months—in thoſe who are much farther advanced in years or more broken down by the length and ſeverity of the diſeaſe, it will not leave them till the ſummer is advanced.——

Nor is it certain when a confirmed gout will terminate—for the inclemency of the air, errors committed in diet or in the non-naturals, may all contribute to prolong the paroxyſm.

*Sydenham*

*Sydenham* and *Mead* were of opinion, that the gouty matter collected in great abundance about the joint, when the fibres and more ſubtile parts were diſſipated, hardened into *chalky* concretions.

*Hoffman* took this chalky matter to be a tartareous concretion, and endeavors to ſupport his opinion, for theſe reaſons principally; perſons laboring under the gout were often troubled with the ſtone at the ſame time; and that this chalky matter appeared evidently to be of the ſame nature with tartareous ſalt, compounded of an acid and a good deal of earth, and that drinking too much of wines, in which this tartar abounds, contributed moſt generally to produce this diſtemper.

*Haller* with very great induſtry applied himſelf to examine in what manner the bones were firſt formed in young animals at the time of incu-

bation. He obſerves, that the whole body, and of conſequence the bones themſelves were in a ſoft jelly-like ſtate while the animal was forming—this jelly firſt becomes cartilaginous, and then oſſeous.——The converſion from a jelly into a cartilage is quick and eaſy, for it requires but a ſmall degree of ſolidity, but it is leſs accountable and more difficult for the cartilage to become oſſified. A cartilage, when not very thick, is pellucid, the firſt ſigns of its aſſuming a bony nature are opacity and a yellowiſh color, and it is of a very fibrous contexture: this change is perceivable on the eighth day of incubation, on the tenth, the firſt rudiments of the blood are to be ſeen, diſtinguiſhable by a yellowiſh caſt, on the eleventh we obſerve the redneſs, and on the ſame day, that part of the cartilage which began to be opaque and yellow on the eighth,

looks

looks now of a reddiſh color, for the arteries now being dilated, are able to tranſmit ſome red particles of blood, and a bony concretion is eaſily diſcernible in ſome parts of the cartilage, ſuch as may be obſerved in callus's of fractured bones, before they acquire their former ſolidity and hardneſs. The arteries now gradually enlarging, preſs upon the adjacent parts, and harden them, as they become more and more dilated, and are more fitted to give a paſſage to the groſſer parts, thoſe eſpecially of an earthy nature, by the interpoſition of which a greater degree of ſolidity and brittleneſs is given to the cartilage, and of conſequence leſſens its flexibility, thus from being a flexile elaſtick ſubſtance, it becomes entirely hard and bony. If this earth be mixed with the acid of vinegar, it becomes a neutral ſalt full of ſhining cryſtals, which can ſoften the

bones

bones and ſo reſolve them again into their former cartilaginous ſtate. Gouty concretions conſiſt entirely of this earthy part—this it is which deprives the ligaments of their flexibility, and deprives all the parts of their uſe and motion, and deforms the joints in ſo extraordinary a manner, as we ſee in gouty people—the gout is very properly therefore ſtiled περιχονδυλοπωροφιλα, delighting to ſtiffen the joints.—The emperor *Galba* it is ſaid was ſo miſerably mauled with the gout, that he could not make uſe of hands or feet—and cried out, "*Cum eſſe oportet, manus non habeo; oportet progredi, non ſunt mihi pedes, oportet dolere, tum & pedes mihi ſunt & manus.*" When I would eat I have no hands; if I am inclined to walk, my feet fail me; but when I am to be tormented, then both hands and feet are ready.——

There

There is great reaſon to believe that the proximate cauſe of the gout conſiſts in a vitiated diſpoſition of the moſt minute, and of conſequence, of the nervous veſſels in the body, and even in a depraved ſtate of that exceeding fine ſubtile fluid which circulates or moiſtens them.——

The moſt painful gout, of all others, is moſt certainly where no ſwelling or inflammation appears upon the part affected, and even where there is little or a very ſmall degree of fever attending.

*Coſta* has obſerved, that the urine before a fit of the gout for ſeveral days together is very pale and muddy, ſomething reſembling thick lemonade, and the longer theſe ſymptoms continue before an attack of the diſtemper, ſo much ſeverer he apprehended would be the approaching paroxyſm; all which plainly proves the exiſtence of

an

an acrimony in the humors not ſufficiently diſcharged by the urinary paſſages.——

*Sydenham* declares it to be his opinion that the gout owes its origin to an *apepſia* or injured concoction of the particular parts, as well as of the whole maſs of humors in the body—the gout in general, we ſee, attacks the rich, who live ſplendid and luxuriouſly.——We have known ſome of theſe to have been cured, when by any unfortunate accidents they have been reduced, and therefore obliged to have recourſe to work for their maintenance; labor and bodily exerciſe will either ſubdue, or expel, any noxious humors, happening in conſequence of an imperfect aſſimilation of the food, from the body.——A ploughman with eager appetite devours the coarſeſt bread and bacon, which would very little agree with the ſtomach of one who

leads

leads a ſtudious and ſedentary life.——*Sydenham* therefore recommends a diet conſiſting of ſoft, well-boiled ſimple food, and farther adviſes gouty people to eat at dinner only, and never to touch ſuppers—he moreover ſtrongly enforces exerciſe, eſpecially *walking though it be attended with ſome degree of pain.* Now if we well conſider theſe things ſo much inſiſted upon, we ſhall find them to be ſuch as are chiefly calculated to reſtore and promote the languid action of the chylopoietic viſcera, in order to forward a perfect aſſimilation; for if any thing faulty remain in the firſt concoction, it is hardly to be amended in the others; may even though the liquids, which flow through the larger veſſels, may be unimpaired, yet there may be ſomething not altogether agreeable to nature, remaining in the very ſubtile and fine fluids that are ſeparated from the blood,

and

and more in the exceeding tender veſſels, which being accumulated and rendered ſtill worſe by ſtagnation, may occaſion many, and various ſurpriſing diſeaſes.

*Reaumur* has evidently demonſtrated that the vital rudiments of a living animal may remain unchanged for many years, and forbear to give the leaſt ſign of encreaſe, yet when occaſion ſerves, is afterwards capable in all reſpects of producing another animal according to its own likeneſs. In the vegetable kingdom, the rudiments of a future plant, contained in a ripe ſeed, may be kept in that ſtate almoſt for any number of years, even to fourſcore.——Nay *Baillou* gave ſome ſeeds and beans to a gardener, which had been kept above *two hundred years*, which being planted grew to maturity and proved the fine kidney bean. Many things of this kind even occur in the

the human body, which plainly prove many certain latent principles remain a long time in it, without receiving any additional encreaſe, till after ſome years they at once make their appearance. The hairs are from the very beginning planted in the ſkin that covers the *pubis*, and yet they only appear at the time of puberty, and then indeed they grow very faſt, &c.——It will not therefore appear ſo abſurd, that the unhappy ſeeds of the gout and other diſtempers ſhould be ſo intimately conjoined to the firſt rudiments of the embryo, as not to ſhew themſelves by any tokens for many years, and at length, at ſome period of life, awaken into action, and produce a diſeaſe alike in every reſpect to that which originally afflicted the parent.——

*Cognoſcat unuſquiſque, me ſolam deûm*
*Non delinire pharmacis, non obſequi.*

My

My power mankind ſhall own, and pray
in vain,
Nor find one kindly drug to eaſe their
pain.

*Luc. Tragopod.*

So that we are not to expect a radical cure for this diſeaſe—whatever the ignorant and empyrical tribe may pretend. Temperance, care, and ſobriety may keep it under.——

Bleeding, unleſs under the moſt violent ſymptoms, of a delirium, fever, difficulty of breathing, &c. is by no means adviſeable, leſt it remove the morbifick matter, and drive it towards the viſcera.——If there are ſigns of filthy unwholeſome matter collected in the primæ viæ, to purge it off by gentle evacuation may not be hurtful; but it does not by any means appear eligible to diſturb the body with ſharp irritating medicines, in expectation of carrying

carrying off the gouty matter by ſtools, more eſpecially when depoſited upon the joints, or near being depoſited; for in that caſe we have reaſon to fear, that the matter may be driven inwardly, whence the worſt conſequences may happen — during the paroxyſm, the work of nature ſeems to be more requiſite than the attempts of art, and therefore diluent drink, or an emollient gentle clyſter, ſeems to be well calculated to aſſiſt nature, but to provoke theſe evacuations during the fit by any ſharp ſtimulants, is moſt undoubtedly prejudicial.——

Diaphoretics are leſs hazardous than purgatives or emetics.—

*Sydenham* obſerves, that to evacuate the peccant matter by *ſweat*, is leſs hazardous than when it is attempted either by *purges* or *vomits*.——But he much condemns ſuch ſweats as are excited by hot ſtimulating medicines, eſ-

pecially during the time of the fit, for fear they might drive the morbifick matter too forcibly into the articulations, and ſo occaſion intolerable and moſt excruciating pains.——

Neither *Sydenham* nor *Mead* were advocates for purgatives in the cure of the gout, they rather imagined they aggravated the diſeaſe by repelling it upon the joints—where-ever there appeared the leaſt tendency of the gout falling inwardly upon any vital part, *Mead* recommends the warmer purgatives but not the ſtronger ones in order to remove the diſeaſe from thoſe parts.

It is a very neceſſary precaution when phyſicians attend perſons who are ſubject to the gout that are ſuddenly attacked with any other diſorder to have a particular regard to this diſeaſe; and to irritate the parts which have been formerly affected, by friction, fomentation,

mentation, blisters, and every other method to fix the wandering gouty matter on the extremities—and this is more particularly necessary when the gouty person has not had a fit for a considerable time, and has committed some error in his way of living. *Totis viribus* (says *Mead*) *contendendum est, ut ignea colluvies ista in partem quam prius occupaverat revertatur.*

The morbid matter of the gout is no doubt very easily to be moved; but it would be attended with the greatest danger, and very little advantage to the patient; for it will be repelled upon the viscera, whence it can seldom be recalled again to the joints, and even if it can, it is attended with much severer pains than before—the consequences of repelling this disorder, is too obvious to the wary and experienced practitioner. "*Ego vero affirmo*

(ſays *Trallian*) *ne adſtringentibus quidem, & repellentibus, in affectis partibus utendum eſſe, niſi totum prius corpus a recrementis liberaveris. Nam quod articulis influit, ne, ad partes principales recurrens, ſuffocationis cauſa fiat ægro, periculumque mortis adferat, metuendum eſt, ſive igitur diſcutientibus, ſive repellentibus uti velis, totum corpus vacuare properato.*" I do poſitively affirm, that neither aſtringents, no, nor repellents ſhould be applied to the parts affected, until the whole body be diſcharged of recrements; for there is room to fear, that what ſhould be depoſited on the joints, may be driven back towards ſome noble and vital parts, and ſo endanger ſuffocation and ſudden death—if you are determined to make uſe of ſuch ſort of methods, be careful firſt of all to clear the body of theſe recrements — by recrements he muſt certainly

tainly mean the gouty matter — the great *Sydenham* frequently admoniſhes us to be extremely cautious how we uſe ſuch medicines in the cure of this diſtemper.——

*Sydenham* though he in general adviſes a moderation in the diet of gouty people, yet does he condemn too great an abſtinence—and even allows fleſh meats, for though, ſays he, a thin diet be beſt, yet as ſome people cannot bear ſuch a total abſtinence but become languid, nay are ſubject to faint, I would under ſuch circumſtances allow fleſh, taking care however, that they do not tranſgreſs either in quantity or quality, for although their ſtrength is to be ſupported, yet muſt not the body be overloaded with too great a quantity of food.——

The great difficulty attending the cure of the gout (according to *Sydenham*)

*denham*) arose from the natural opposition of the medicines, for such as were of service in assisting digestion, did harm by their heating qualities, in rendering the morbifick matter more active and outrageous; and on the other hand, those which cooled and blunted the acrimony of the humors, were manifestly injurious, because they weakened the viscera.

Doctor *Mead* warns old people in particular, and those who have had many fits of the gout, against attempting a strict diet upon milk and greens; for he had observed, *his, si non omnino invadit morbus, pro articulis præcordia infestentur, crurumque insuper robore destituti, vitam sæpe in reliquum miseram transigant*; in such, if the gout kept entirely off, in place of the joints the parts about the præcordia were sure to be infected, besides they lost all the use

of

of their limbs, and remained miſerable for the reſt of their lives; if at all, he recommends ſuch a regimen to young perſons, or to ſuch as have had but very few fits, or where the diſeaſe is hereditary; and even then does he recommend a ſtrict diet of milk only—but adviſes once a day fleſh-meat, and freſh-water fiſh.——

*Sydenham* though very free in the uſe of opiates in many diſeaſes, was very ſparing of them in the gout, and gives this prudent admonition, *Si igitur dolor admodum ſæviat, æger rectius ſibi conſulet, ſe in lecto continendo, donec is aliquantiſper remiſerit, quam ſi anodynis utatur: attamen haud abs re fuerit, laudani paux-illum veſperi ſumere, ſi dolor patientiam multum vincat: aliter melius omittetur*; ſhould the pain be exceſſively ſevere, the patient till it is ſomewhat abated, had better keep in his bed, than take

any thing by way of an anodyne—but ſhould his pain get the better of his patience, he may then take a ſmall doſe of laudanum in the evening—he would however do better, could he let it alone.——

*Sydenham* when the pains ſuddenly left the joints, and that this was ſucceeded by a great ſickneſs and oppreſſion, attended with vomiting and gripes, immediately ſwallowed down ſome *pints of ſmall beer* or other weak liquor, and as ſoon as all this came away by vomit, took *eighteen drops of laudanum*, in a little Canary wine, went to bed and compoſed himſelf to reſt: he aſſures us that by this method, he has frequently recovered himſelf from the moſt imminent danger.——

Perſons very far advanced in years are not ſo ſeverely or regularly attacked with the gout, as thoſe who are in the vigor of life.

Bitter

Bitter medicines which have a grateful aromatic ſtimulus are of great uſe, for by them the viſcera are irritated into a briſker motion, and if the bile has loſt any proper degree of acrimony, the bitterneſs of the remedy will correct that inconvenience; whence all bitters, that are not purgative, have in all caſes been eſteemed ſtomachic;—they reſtore ſtrength and vigor to the viſcera. *Sydenham* held ſuch medicines in the higheſt eſtimation, *quæ miti calore atque amaritudine ventriculum corroborant, & ſanguinis maſſam vegetiorem reddunt ac magis vitalem.* To theſe bitter and ſtrengthening medicines he uſed to recommend antiſcorbutics, ſuch as horſe-radiſh, ſcurvy-graſs, water-creſſes, &c.—he farther recommended the cort. Peruvianus a few grains to be taken night and morning. Theſe ſort of remedies however

however are beſt ſuited to thoſe who are advanced in years, but theſe or the *Portland* powders ſhould never be given to thoſe who are of a bilious habit. Where the patient is troubled with acid vomitings *Hoffman* ſays great relief may be expected from abſorbent earths and lixivial ſalts, he therefore recommends the Carpline Baths to gouty people, as they contain a conſiderable quantity of alcaline ſalts.

Bodily exerciſe ſuch as riding on horſeback, in a carriage, nay walking even though the patient is in a little pain, is of infinite uſe—and ſo are frictions morning and evening about the feet—by which means the parts are ſtrengthened and any morbid matter collected, diſſipated and melted down. *Ætius* much recommends them, *non quidem tempore inflammationis, et doloribus inſtantibus, ſed cum hæc remittunt.*

External

External applications are beſt let alone, they ſeldom prove of any uſe—it has even been obſerved that the joints ſtiffen ſooner for the moſt part, when they have been too much peſtered with fomentations, ointments, plaiſters, &c.

How happily the waters of BATH, both internally as well as externally uſed, have contributed to the relief of the *gout*, is ſtrongly confirmed by the teſtimony of many ages.

## *Diſeaſes incident to Virgins.*

IT has been conſtantly obſerved that thoſe who have been irregular in the courſe of their catamenia, have never been ſo fruitful, and have been always liable to frequent miſcarriages.

*Columbus* was of opinion that the menſtrual blood came not from the veſſels of the womb itſelf, but from thoſe *quæ in uteri cervicem ad ejus latera inſeruntur.*——But we have demonſtrative proofs that the menſtrual flux proceeds from the uterus itſelf; this is confirmed by *Mauriceau*, *Littre*, and *Morgagni*.

The membrane which covers the bottom of the uterus, as *Winſlow* remarks, is perforated by a great many ſmall foramina, to be ſeen even with the

the naked eye, from which upon a ſlight preſſure of the uterus, the blood is eaſily forced out; this ſame membrane is of a villous texture, reſembling velvet; this villous ſurface together with the foramina are more or leſs tinged with blood in women who have died during the time of the menſtrual diſcharge; water and injections of colored wax when thrown into the arteries, paſs out of their extremities into the cavity of the uterus ——All theſe things conſidered, we may naturally conclude the internal cavity, and particularly the bottom of the uterus to be the true ſeat from which the menſtrual diſcharges originally iſſue forth. However, as the whole pudendum and vagina in women conſtantly diſcharge a fine, ſoft, watery, ſerous liquor from the extremities of theſe very little ſtrait arteries which open into them; and as they are provided with

with blood-veſſels ſimilar to that of the uterus itſelf, it doth not ſeem at all improbable, but that even blood may iſſue out of the dilated extremities of theſe veſſels—and in women with child, who during their pregnancy have theſe diſcharges in ſmaller quantities, it is perhaps from theſe veſſels of the vagina, that the blood comes away without any ill convenience in conſequence of it; for if it proceeded from the cavity of the uterus, a miſcarriage would moſt probably follow.——

The menſtrual flux ſeems ordained by nature to happen at a certain time of life, not only to relieve the body of a ſuperfluous quantity of blood, but ſo to diſpoſe the uterus as to render it fit for conception.——But whether women in countries where they ſeldom or ever menſtruate, do notwithſtanding continue prolific, is a queſtion which will

will admit of a doubt.——Writers of travels frequently relate things upon credit, and often have neither an opportunity or inclination to examine narrowly into matters of this kind. *Linnæus* obſerves that the women in Lapland menſtruate in very ſmall quantities, and ſays at the ſame time, that thoſe who never had this diſcharge, were always barren.

Phyſicians from the very ſtructure of the female body imagined there was a ſufficient reaſon to account why this ſuperfluous blood ſhould rather be diſcharged by the uterus, than by any other part of the body—if the bony conſtruction of the *pelvis* be conſidered, we ſhall find it remarkably different from what it is in man, and much more capacious.—The vertebræ of the loins recede farther back from each other, the diſtance between the *os ſacrum* and *os ileum* is greater, ſo is

that

that between the *ilia:* the *os coccygis* is ſtraiter and more flexible than it is in a man, which is bent a little more forward; the bones of the *pubis* join each other at obtuſer angles—beſides the protuberances of the bones of the *iſchium* recede much more from each other—whence the necks of the *femora* are more tranſverſly placed, and form leſs acute angles with the *acetabula*; all theſe reaſons conſidered we find the pelvis muſt neceſſarily be larger in women than in men, in order that during the time of pregnancy the turgid and diſtended abdomen may be more firmly ſupported.

The *uterus*, which is entirely vaſcular, is ſituated in this large *pelvis*, between the bladder and the *rectum*, almoſt looſe, and under a very little preſſure; for in the time of pregnancy the whole bottom of the uterus aſcends towards the abdomen, and in a

*pro-*

*prolapſus uteri* often deſcends ſo low, as to be protruded without the lips of the pudendum; beſides, the *uterus* may ſlide forwards, backwards, and ſideway in difficult labors. Now, though the uterus feels apparently firm and ſolid to the touch in young girls, and in maidens fully grown, yet the effects of pregnancy ſhew that the veſſels may eaſily yield, and dilate to a ſurpriſing degree, ſince the *uterus*, towards the cloſe of pregnancy, appears like a ſponge filled with blood, while the veſſels, ſcarcely diſcernible before conception, are ſo enlarged, as ſometimes to admit the tip of the little finger. The *uterus* moreover receives a great number of arteries from the ſpermatics, hypogaſtrics, hemorrhoidal, and external iliacs. It is farther ſupplied with a like diſtribution of veins derived from the ſame origin, all deſtitute of valves, and communicating

with each other; which is the caſe likewiſe with the uterine arteries, whence a free circulation of a larger quantity of blood is carried on without the leaſt impediment. The interior cavity of the *uterus* is at the ſame time pierced by theſe very minute apertures, which diſcharge a thin, aqueo-mucoſe moiſture, in order to lubricate and ſoften the internal ſubſtance of the *uterus*, and to prevent the ſides of the cavity from adhering to each other.

All theſe things which regard the ſituation, vaſcular fabric, and ready expanſion of the *uterus*, being clearly underſtood, it is next to be conſidered that women ſooner arrive to their utmoſt growth than men, and yet their viſcera extract from the aliments the ſame quantity of nutritive humors as before, which however do not ſerve the purpoſes of accretion as before; and ſince it is obſerved that women perſpire leſs

than

than men, it muſt follow that a quantity of wholſome humors will be accumulated in the veſſels, and a plethora enſue, uſeful indeed, where a woman becoming pregnant, has not only her own body, but that of the child's to nouriſh and ſupport, but injurious, when that is not the caſe, when allowed to be daily increaſing, without any ſalutary proviſion made or outlet given to carry it off. Such a ſuperfluity is therefore neceſſary, in order that a woman may always be in a condition to conceive and nouriſh the fœtus; and it is as neceſſary that there ſhould be ſuch outlets to carry off the redundancy when a woman is not under ſuch a ſituation. Seeing then that the uterus is wholly vaſcular, looſely ſituated, and eaſily dilatable, and that it has a cavity adapted to receive the ſuperfluous humors, till they are afterwards expelled by the *os uteri*; hence the veſ-

ſels of the uterus being gradually enlarged by the increaſed quantity of ſound humors, become ſo much dilated, as that their extreme orifices, which at firſt diſcharged a dewy moiſture only, gradually encreaſing in their diameters, ſend forth even the red part of the blood into the cavity of the uterus, and ſo the menſtrual flux follows of courſe; the erect poſture of the body alſo greatly aſſiſts its ſecretion and excretion——.

But when the *plethora* is once leſſened by this bloody diſcharge from the *uterus*, the veſſels being no longer diſtended, contract themſelves by their own power into leſſer diameters; and then they no longer admit the red blood to paſs, but the very thin humors only; and thus the minute extremities of the veſſels which open into the cavity of the *uterus*, return to their former dimenſions, till the *plethora* returning in conſe-

conſequence of the ſame cauſes, dilates them again, at the ſame interval of time.

Thoſe who would deduce the cauſe of the menſtrual flux from a plethora ariſing, for inſtance in a girl's body when arrived at its full growth, do not ſeem to have conſidered how frequently it happens that girls grow remarkably taller and bigger after having had ſeveral regular periods of the menſtrual diſcharge. The encreaſe or growth of the human body has by many been obſerved, not always to proceed in ſo regular and gradual a manner, as has been commonly imagined. That the human body the nearer it is to its origin, has a very quick tendency to grow, the fœtus ſufficiently demonſtrates, which from a very ſmall ſpeck grows in nine months time to ſo remarkable a ſize. We frequently ob-

ſerve in the progreſs of life a very great difference with regard to the degrees and quickneſs of growing. Towards puberty we frequently remark a ſudden alteration, in others it happens ſometimes later, ſo that in a very few months, the body grows more in ſize and ſtature, than it had done for two years together before. It is well known, that young people, when ſeized with feveriſh diſorders eſpecially of the acute ſort, if they eſcape, grow taller as they recover; becauſe the humors from the force of the fever are impelled through the veſſels, which by that means become ſtretched out and dilated, whilſt the bones too, not having as yet acquired their full hardneſs, eaſily yield to the ſame impreſſions; but the diſorder ceaſing, the cauſe of this ſudden growth will ceaſe alſo, and yet I have ſeen ſome perſons grow ſurprizingly

prizingly more after their recovery, than during the continuance of the diſeaſe.

Doctor *Simpſon*, to prove that the menſtrual flux does not ariſe from a plethora, obſerves, that doctor *Friend* ſuppoſes a *plethora* to be gradually and daily accumulated, between each menſtrual period, particularly confiding on what *Sanctorius* has aſſerted, that the bodies of men encreaſed in weight one or two pounds every month. Now doctor *Keil* in his tables has demonſtrated juſt the contrary.——Beſides, if the menſtrual diſcharge depended upon the gradual accumulation of a *plethora*, the periods would neceſſarily be retarded, whenever the quantity of humor was leſſened by any evacuation, or whenever this accumulation was prevented by inanition or abſtinence.——Now doctor *Simpſon* boldly appeals to the teſtimony of all phyſi-

cians, the leaſt converſant with practiſe, whether they ever ſaw a ſtoppage of the monthly periods by bleeding during the intermediate interval?—— It has even frequently accelerated them—*etiam vulgo compertum eſſe*, ſays *Hoffman*, *ſecta ante tempus menſtruorum vena liberiorem eorum fluxum fieri.*

In conſequence of theſe difficulties, doctor *Simpſon* denies a *plethora* to be the cauſe of the menſtrual diſcharge; but propoſes another; for he was of opinion that the body did not ceaſe to grow becauſe the parts becoming more ſtrong, too powerfully reſiſted any farther extenſion or elongation, but becauſe the extending and elongating power was diminiſhed for as long as there is a greater reſiſtance in the flexible veſſels, the fluids impelled through theſe veſſels by the force of the heart, will diſtend and lengthen them the more, and on the other hand, the more

freely

freely they paſs through theſe veſſels, the leſs will be their extenſion and elongation. He therefore imagines, the body to have arrived at its ακμη or full growth, when all the veſſels are moſt free, pervious, and open, ſo as to give an eaſy paſſage to the fluids impelled; whence he concludes, the growth does not ceaſe, becauſe the parts cannot yield, but becauſe the force and efficacy of the diſtending powers are leſſened, or greatly impaired.

He ſupports his opinion by obſerving that if in an adult any obſtacle ariſes to the free circulation of the humors from an obſtruction in any of the viſcera, theſe viſcera will immediately be immenſely enlarged, as many medical obſervations have demonſtrated it in the liver, ſpleen, kidneys, &c. Thus in ſteatomatous ſwellings the more the matter ſecreted from the blood is accumu-

cumulated in the follicle, the more it preſſes upon the neighbouring veſſels; theſe veſſels in their turn encreaſe in bulk the more they are diſtended by the impulſe of the blood thus impeded in its free circulation.

From theſe conſiderations, therefore, he concludes, that the menſtrual flux itſelf is the reaſon, why the *uterus* comes to its own full growth, and then ceaſes to grow; for when once the blood is diſcharged into the cavity of the *uterus* from the mouths of the veſſels, or into the ſinuſes firſt filled in the ſubſtance of the womb, the circulation of the humors by the uterine veſſels will be very free, the diſtending and elongating power will conſequently ceaſe.——But when the *chorion* and *placenta* cloſely adhering to the internal ſurface of the womb, in its time of impregnation obſtruct the free paſſage of the blood, the womb again encreaſes in

in its bulk, and becomes of a remarkable ſize.

Again; he maintains the gradual encreaſe of the uterus to be the cauſe of the menſtrual irruption; for there always is a ſecretion of a thin liquid within the cavity of the womb to keep it moiſtened, and prevent the concretion of its ſides. Now theſe minute exhaling veſſels are very ſmall, and at length dilate more and more as the womb becomes enlarged; and ſo at laſt tranſmit the red globules of blood—then it is that the *menſes* begin to flow, and which may very well happen without a plethora of the whole body. But as the blood has now a free paſſage through theſe dilated orifices, the reſiſtance to the blood propelled through the uterine veſſels is taken off, the dilating cauſe will ceaſe of courſe, they contract themſelves by their own proper effort, till at length, allowing no

more

more red blood to paſs, they only ſecrete the very fine fluids as formerly, and thus the menſtrual flux ceaſes ſpontaneouſly. By the ſame way of reaſoning he explains why the *menſtrua* in ſtrong robuſt women, give over ſooner; becauſe the texture of their veſſels being firmer, while the dilating power is weaker, the veſſels will be much ſooner and more powerfully contracted—whilſt women of a ſoft and delicate texture, have frequent and copious diſcharges.——

It muſt be acknowledged that medicine owes much to mathematical and phyſical reaſoning in general, by which the common properties of bodies are explained, and provided the *data* are true, the theory built upon them will prove ſo beyond contradiction. The laws of hydraulics may be applied to the human body; it conſiſts of canals, and liquids moving through them, as

alſo

alſo ſinuſes, receptacles, &c.——And yet all the phænomena are not to be explained by hydraulics. Our canals have a living principle in them; they are indeed dilated by the liquids impelled by the force of the heart, and by their own elaſticity return again to their former diameters, our veſſels are nevertheleſs acted upon by other cauſes beſides theſe, that can neither be underſtood nor explained by hydraulics. Many ingenious men have endeavoured to determine the proportion the trunks of the veſſels bear to the branches, and the branches to each other, and the diverſity of angles by which the different branches go off from the particular trunks, &c. But theſe are not ſufficient to give us a clear idea of every particular to be obſerved in our bodies; by a change of thought alone our canals become in a moment changed, ſo that they ſhall either quickly dilate, or

as ſuddenly become contracted. A perſon in perfect health ſuddenly ſtruck with terror, turns pale immediately—An immodeſt expreſſion haſtily thrown out before a baſhful girl, will throw a vermilion all over her face, neck and ſhoulders.——Theſe and many other ſimilar reaſons, incline me to think that all the things which happen in the human body cannot by any means be explained by the general principles of bodies, though we be ever ſo well acquainted with the particular ſtructure of the parts—it is by obſervation only that we know they are ſo, though how or in what manner they became ſo, is a matter not ſo eaſily underſtood, if indeed underſtood at all.

The body, about the time it comes to be fit for generation, undergoes ſeveral alterations, inſomuch that phyſicians entirely truſt to the age of puberty for the hopes of curing ſeveral

of

of the moſt obſtinate diſtempers, which they could not effect by the power of the moſt approved medicines, this we particularly obſerve in epilepſies, &c. Comparative anatomy will teach us how ſurprizingly the genital organs alter in animals when the ſeaſon of generating approaches, and they ſwell with venereal rage.

*Menſtruis copioſioribus profluentibus morbi oboriuntur; at non prodeuntibus accidunt ab utero morbi*, ſays *Hippocrates: Galen*, in his comment upon this aphoriſm, very juſtly obſerves that *Hippocrates* preſaged all the diſorders of the body from the copious diſcharges of the *menſes*, becauſe from too great a loſs of blood, the body neceſſarily became cachectic; but when the *menſtrua* did not come away, then the *uterus* became liable to diſorders, either becauſe the veſſels were too rigid, or that the blood was too largely accumulated

in

in the ſubſtance of the *uterus*, or from both cauſes concurring together; and hence ſays, we are to expectinflammatory, ſcirrhous, eryſipelatous and carcinomatous affections—theſe diſorders we frequently ſee happen at that time of life when the menſtrual flux begins to leave the ſex, eſpecially thoſe who formerly have had it in a free and copious manner, and that it has ſtopped too ſuddenly.

Difference of climate, habit of body, and various ways of living occaſion a great diverſity in the menſtrual diſcharges—the women in *Lapland* menſtruate but little; in hot countries the *menſes* come away in great abundance; in a lax habit of the body, theſe diſcharges are always more copious, in women of a firm and robuſt conſtitution the quantity is ſmall—thoſe who live at their eaſe, and fare ſumptuous and luxurioufly, menſtruate in large quantities;

quantities; while the country peaſant, hardened by daily labor and fatigue, diſcharges ſcarce any thing, and yet enjoys good health.

*Hippocrates* in ſpeaking of the quantity diſcharged during the time of menſtruation ſays, "*at omni mulieri, ſi ſana ſit, prodeuntes menſes moderati ſunt, qui ad duarum Atticarum heminarum menſuram, aut paulo plus vel minus, idque ad biduum vel triduum, manant. Longius autem tempus, aut brevius, morboſum aut ſterile eſt.*" Moſt authors take the attic κοτυλα to be equal to the Roman *hemina*; but the cotylæ were alſo called pounds which contained twelve ounces of meaſure, which were equal to ten ounces in weight, that is as much as the weight of the Roman *hemina*. Various have been the diſputes and conjectures of the learned concerning theſe meaſures, this laſt however ſeems to be the moſt plauſible; and though there

may be ſome difference between the Attic *cotyla* and the Roman *hemina*, yet it does not appear to be very material towards the ſettling the quantity of the menſtrual flux; phyſicians ſeem to have ſettled the quantity to twenty or twenty-four ounces, whether they reckoned by weight or meaſure—*Freind* fixes it at twenty, and then computes how much blood ought to be accumulated daily in order to conſtitute this menſtrual plethora.

*Aſtruc* after obſerving the vaſt difference in this reſpect to be met with in different women, nay even in the very ſelf-ſame woman at different times, is of opinion that at a medium, the limits of this variation might be ſettled from eight ounces to ſixteen; though there are alſo inſtances of women in very good health, who yet menſtruate every month, ſome a greater, and ſome a leſſer quantity than even this. *Haller* reckoned ſix or eight ounces the ordinary

nary quantity of the menſtrual diſcharge, doctor *Brudnell Exton* ſays it rarely exceeds four ounces. *Du Hahn* took the following method to determine the quantity of the menſtrual diſcharge; he poured ſome freſh drawn blood, while warm, the quantity of which he perfectly and preciſely knew, upon a piece of linen, then marked the linen exactly how much it was ſtained. By frequently repeating this, he arrived to that degree of exactneſs, that he would for any wager determine the quantity of blood received upon any piece of linen, and thus could very nicely determine how much blood was diſcharged from the *uterus* during the time of menſtruation; he found ſome women loſt three ounces, others four or five, not ſo many who voided half a pound, very few ten ounces, unleſs where the uterus was any ways diſeaſed. While the internal ſurface of

the *uterus* remains in ſuch a diſpoſition, as readily to allow the human *ovum*, containing the tender embryo, to adhere and grow to it, a woman will ever continue prolific. To this aptitude the menſtrual flux, though but in a ſmall quantity, appears greatly to contribute, nay, though that very rarely happens, ſome women have proved pregnant, who never had the menſtrual diſcharge, inſtances of which are to be met with in the writings of *Schenk* and other phyſicians; their veſſels, probably, were ſo diſpoſed as to be pervious indeed and commodious for the reception of the human *ovum*, but yet not ſo far dilated as to allow red blood to paſs, for it is often obſerved of women who are deprived of their *menſes*, that in place of blood, a ſmall quantity of a thinner fluid comes away at fixed ſtated times. It is the ſame caſe perhaps with the *uterus* in women who give

give ſuck, many of whom I have known to conceive, though they have had no returns of the *menſes* ſince the time of their delivery. Daily experience informs us what a remarkable conſent there is between the breaſts and the *uterus*. Thus in a virgin come to maturity, the breaſts begin to ſwell, whenever the *uterus* is ready for menſtruation; in childbed, as the *lochia* on the third day are leſſened, nay frequently entirely ceaſe, the breaſts quickly fill, and if the woman ſuckles her child, the lochia return again, whilſt the milk paſſes freely from the nipples; but if ſhe does not give ſuck, the breaſts ſubſide, and what paſſes by the *uterus* is at firſt whitiſh, and then afterwards of a bloody caſt, ſo that, *cæteris paribus*, the *lochia* flow a longer time and in greater abundance, with thoſe who do not give ſuck. I have ſometimes obſerved that in nurſes, in

the room of their *menſtrua* they have diſcharged a ſmall quantity of a thin whitiſh liquor from the *uterus*, and upon a farther dilatation of the veſſels, ſome blood has followed in ſeveral, though not in others. At this time alſo, it is probable, had they been put to their huſbands, they would have in all reſpects been diſpoſed for conception, for according to *Galen*, conception chiefly takes place when the *menſtrua* are nearly ſtopped—for then thoſe veſſels upon the internal ſurface of the *uterus* are juſt ſo much contracted, as to exclude the red globules, yet open enough to let a thinner fluid paſs; the ſame, ſays he, is the caſe in the beginning of *menſtruation*. Whence in nurſes who conceive without any return of their *menſes*, it would ſeem that the *uterus*, with reſpect to its veſſels, is in the ſame condition as when the *menſes* are about to flow, or beginning to give over;

over; that is, the veſſels are not altogether contracted, but only ſo far, as in the place of blood, to let the thinner humors only paſs off. Might not this be the caſe, where women have conceived without ever having had their *menſes*?

The ſigns, when the *menſes* are about to flow are very well deſcribed by *Moſchio*. The breaſts ſwell, a weight and itching are felt about the *pubis*; they grow lazy, feel a heavineſs in the kidneys, ſometimes a pain, they yawn and ſtretch themſelves, their cheeks fluſh and then it goes off again, they are ſometimes maukiſh and ſeem to loath every thing—theſe are the moſt common and uſual ſymptoms which precede or accompany the menſtrual flux; many complain of a rigidity or ſtiffneſs in the muſcles and tendons of the neck, others again are troubled with an head-ach.

The continuance of this menſtrual flux varies, in ſome women it holds a longer, in others a ſhorter time, in moſt however it is over in three or four days; it is always counted beſt to drop gradually, and to flow uninteruptedly till it entirely ceaſes. Sometimes, it happens that the *menſes* flow two or three days, then ſtop, and preſently after return again.——Women under this caſe find this ill convenience that all the other ſymptoms return, which uſually precede the eruption of the menſtrua, particularly a head-ach and a troubleſome ſtiffneſs in the neck, till the blood again flows from the *uterus* as uſual. We may very nearly determine, by the authority of *Hippocrates*, the quality of this blood which comes away by the menſtrual flux — *prodit autem ſanguis, qualis e victima, citoque concreſcit, ſi mulier ſana eſt.* Now it is univerſally known, that the ancients choſe

choſe the moſt healthy animals for their ſacrifices — and the blood of healthy animals, eſpecially if it ſprings from an artery, very eaſily and very ſpeedily coagulates. Prudent phyſicians who mean to act properly towards the cure of the menſtrual obſtruction, are ever careful to diſtinguiſh properly, whether the diſorder ariſes from a real and true obſtruction of the *menſes*, or whether the want of that diſcharge is owing to any other preſent or preceding cauſe — in the former caſe, a *plethora* will follow, and their color will be intenſely red — but if it ariſes from any other diſorder, they will be altogether pale and of a bad conſiſtence. ——— Hence a diverſity in the method of cure will be highly neceſſary — for a *plethora* will require bleeding, when an obſtruction ariſing from a bad habit of body, will demand quite a different treatment.

ment. A paleneſs may attend a ſuppreſſion of the *menſes* even where a *plethora* really exiſts; for it is well known that good ſound blood, when drawn from a vein, and left ſtanding in a clean veſſel, will ſeparate into two parts, viz. into a thin liquid *ſerum* and a *coagulum*. If all this *ſerum* be poured off, in a very few hours a freſh quantity of *ſerum* will be ſeen, the red part gradually diſſolving, the greateſt part of which may be thus converted into a yellow or greeniſh yellow-colored *ſerum*.

Now the veſſels too greatly diſtended by the *plethora* loſe part of their force, by which they were wont to act upon their contained fluids, the humors therefore will not be ſo well condenſed and worked up, and the red part of the blood will be melted down into a *ſerum*, the redneſs of the body will conſequently gradually decreaſe, and ſo occaſion a paleneſs.

The

The pains of the loins and groins muſt neceſſarily happen, becauſe the ſinuſes of the *uterus* being very numerouſly diſperſed through its whole ſubſtance, become turgid with the accumulated blood, the veſſels therefore which run in between them, will be neceſſarily compreſſed, the neighbouring veſſels will be more filled, and conſequently more diſtended. "*Quum menſes latuerint* ſays *Hippocrates, dolor detinet imum ventrem, illique pondus incumbere videtur, lumbi & ilia dolent.*"

*Tabarranus* a very ingenious anatomiſt obſerves that there is a very free communication between the veins and cavity of the *uterus*; for upon blowing into the veins, he obſerved the cavity of the *uterus* and *vagina* to be filled with air, and again blowing air into the orifice of the *vagina*, he ſaw the veins belonging to the *uterus*, *vagina*, and *ovaria* all ſwell up. When therefore

therefore the *uterus* is in a ſound condition, there muſt be a very quick and eaſy reſorption by the uterine veins.

It would ſeem therefore that *Hippocrates* from this eaſy reſorption had taken his proofs of fœcundity, when he obſerves, "*Mulier ſi utero non concipiat, ſcire autem velis an conceptura ſit, veſtibus obvolutam ſubter ſuffito: atque ſi odor quidem ad aures & os uſque per corpus tibi pervadere videatur, ipſam noſce per ſe infœcundam non eſſe.*" Hence it is very evident, that ſhould the purulent corrupted humors, by ſtagnation, ſettle here, they may, by being reſorbed, bring on the worſt of *cacochymia's*, and ſo diſorder every function: though ſomething muſt alſo happen, from a tranſlation of matter that has been ſo reſorbed, to all the various parts of the body.

"*Menſes non ſupprimi*, (ſays *Hippocrates*) *utile: ex talibus comitiales morbi fiunt*,

*fiunt, ut arbitror, quibuſdam, ventris ſubductiones diuturnæ, quibuſdam autem hæmorrhoides.*" And in another place "*Morborum omnium uteri cauſæ ſunt*; and *Celſus*, "*quibus fœminis menſtrua non proveniunt, neceſſe eſt, capitis acerbiſſimi dolores ſint, vel quælibet alia pars morbo infeſtetur*"; thus marking out the moſt uſual ſymptom which attends an obſtruction of the *menſes*, namely, a moſt inveterate and violent head-ach, and acknowledging that great influence which the *uterus* has over all the parts of the body.

From a variety of faithful obſervations, it is certain, that the blood, on account of ſuppreſſed *menſtrua*, being retained and ſo of courſe accumulated within the body, will frequently find itſelf moſt ſurpriſing paſſages. This indeed is chiefly accounted for from the veſſels being greatly diſtended by the *plethora*, and ſometimes break-

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ing, or even without breaking, being dilated ſo much as to allow the blood to paſs by means of anaſtomoſis; and yet this doth not ſufficiently prove, why this ſhould more frequently happen from a plethora, occaſioned from a ſuppreſſion of the *menſes*, than from blood accumulated in the body from any other cauſe.

The very ſame cauſe which opens the uterine veſſels (which I publickly confeſs I know nothing of) might have the very ſame effects, if applied to other veſſels of the body. That this cauſe however of whatever kind it may be, muſt lie in the veſſels themſelves, independent of the heart's peculiar action, is very demonſtrable; for notwithſtanding the heart goes on in one uniform courſe of action, yet a diſturbed motion is ſometimes obſervable in particular arteries, preceding hæmorrhages—thus a pulſation felt in an

ulcer,

ulcer, frequently declares an hæmorrhage to be near at hand, a pulſation in the left *hypochondrium*, as often precedes a copious bleeding at the noſe, even in perſons ſeemingly in good health. *Mulieri menſtruis deficientibus, ſanguinem ex naribus bonum*, ſays *Hippocrates*.

It is obſerved by this ſame divine phyſician, that the hæmorrhoids do not appear before the time of puberty, nor after the age of forty-two: now the menſtrual flux is pretty nearly limited to the ſame period of time. We have the teſtimony of very eminent phyſicians of the quick and ſurpriſing relief they have ſeen procured from the application of leeches to the hæmorrhoids, in a ſuppreſſion of the *menſes*. I have known ſeveral women, who have had an evacuation of blood every month, both by the hæmorrhoids and from the *uterus*, and the deficiency of one of

theſe

theſe diſcharges has been curiouſly ſupplied by the abundant diſcharge of the other—nay even according to ſome authors, the hæmorrhoids are not only to be found in the *Inteſtinum rectum*, but about the *uterus* itſelf—*Hæmorrhoides quidem raro in mulieris ſinu inveniuntur, ſed frequentius in collo matricis & orificio ejus, naſci ſolent.* vid. Harmon. gynæc. part. poſter. Spach. p. 33.

When we conſider the communication between the breaſts and the *uterus*, we ſhall have no reaſon to be ſurpriſed to ſee the blood derived, upon a ſuppreſſion of the *menſes*, into the breaſts and ſo ſometimes paſs out at the nipples. *Hippocrates* obſerves, "*At concluſi uteri menſes ad mammas remittunt, & ad pectus aſcendere cogunt.*" *Ambroſe Parey* gives us the caſe of a woman who monthly menſtruated at the breaſts, ſo as to be obliged to have three or four cloths in readineſs to receive the blood.

Though

Though the veſſels of the ſkin in general allow a paſſage only to the moſt fine and ſubtle parts of the fluids to paſs through them, yet they are ſo capable of dilatation, that they will ſometimes diſcharge the blood itſelf. It has been obſerved, that the ſweat which is thrown out in conſequence of hard labor and exerciſe in the very hotteſt months of ſummer, has tinged the linen red, and more particularly under the armpits.——

The menſtrual blood, when it cannot obtain a paſſage by the uſual outlets, will force its way through different parts of the body; of which many inſtances and curious caſes may be ſeen in the writings of the learned.——

We ſhould be very attentive how we act with our patients about the time of their beginning to menſtruate, otherwiſe we may commit many errors in practice of the moſt dangerous con-

ſequence; for at this time they may be ſeized with other diſorders, which may not depend upon the approaching menſtruation, but ariſe from cauſes extremely different; and yet it is no ways uncommon to ſee every thing aſcribed to this cauſe only, not alone by ignorant women, but even by phyſicians, leſs attentive to every minute particular circumſtance, while they are engaged, or rather overhurried by a large and extenſive practice, I have known very powerful emmenagogues propoſed in the beginning of the ſmall-pox, when it has been attended with a pain in the back, a redneſs of the face, a ſhivering and ſome other febrile ſymptoms.——Mothers are frequently too ſolicitous, at a certain period of life, and almoſt oblige phyſicians, to adminiſter every remedy they can think of, to bring down the *catamenia*. Whereas it is the proper buſineſs of nature,

nature, ſo to diſpoſe the *uterus* by ſlow degrees, and gently dilating the extremities of the veſſels, properly to ſend forth the menſtrual blood.——

When therefore the uſual time of life is at hand, and both the breaſts begin equally to ſwell; when we obſerve the body ſuddenly to grow, and that the face looks more than commonly florid; if at the ſame time a pain in the loins, and in the ſmall of the back, a ſtiffneſs and an obtuſe pain about the neck and groins be perceived, we may then be pretty certain that the female body is diſpoſed for the menſtrual eruption. It will then be proper to aſſiſt the firſt efforts of nature by gentle bathing, friction of the legs and thighs, and the milder emmenagogues. In ſome, though not very often, the firſt *menſtrua* flow without any uneaſineſs, and, the veſſels of the *uterus* being once opened in this man-

ner, the after-periods have gone on regularly, without any of theſe forementioned ſymptoms; at leaſt they ſeldom appeared, or when they did, were never very ſharp or ſevere.

The *hymen* naturally allows a ſufficient aperture for the paſſage of the menſtrual blood: but it is ſometimes obſerved to degenerate into a very denſe membrane, without any opening whatſoever. *Diemerbroeck* affirms he once diſſected a young woman three and twenty years old in the publick anatomical ſchool, and found this membrane entirely continued, without any perforation at all, and ſo ſtrong and firm, as to have reſiſted the moſt vigorous efforts of the ſtouteſt aſſaults any male champion could have made upon it.——Theſe are called *atretæ* or imperforated; we met with ſeveral ſuch inſtances in medical and anatomical writers. Præternatural membranes of this kind are

not

not only to be met with near the orifice of the *vagina*, but much higher alſo—a ſurprizing caſe of which we find in *Ruyſch*. A woman big with child (ſays he) had ſuffered moſt intenſe labor pains, inſomuch that her cries filled the whole neighbourhood with her diſtreſsful condition, nor could ſhe haſten her delivery by the moſt powerful and ſtrongeſt efforts—being ſent for, "*invenit membranam hymenem, integram, valde craſſam & a fœtus capite, exitum quærente foras extenſam.*" He found the membrane *hymen* entirely whole, immenſely thick, and protruded by the head of the fœtus in its endeavors to make itſelf a paſſage. This membrane he divided with a pair of ſciſſars, introduced upon a director, for fear of injuring the child's head—the labor however was by no means advanced, for another mem-

brane preſented itſelf, obſtructing the paſſage of the *vulva* a little higher up—which being alſo divided, a fine ſtout male child was immediately brought forth, without injury to the mother, who in a few weeks was perfectly recovered, and both ſhe and her boy were in good health, when *Ruyſch* firſt publiſhed this very remarkable caſe. What is moſt to be wondered at, is, that this woman ſhould, notwithſtanding this double membrane, be enabled to conceive at all.——

A ſuppreſſion of the *menſtrua* ariſing from ſuch a cauſe, is eaſily cured by the hand of a ſkilful ſurgeon—and this may be very eaſily known, viz. if at the uſual time, all the ſigns of the menſtrual flux appear, without the leaſt diſcharge; if the ſame ſymptoms return monthly, and the *uterus* at the ſame time grows more and more turgid, and

occaſions

occaſions the belly to ſwell; if this ſwelling is obſerved chiefly about the lower part of the *abdomen*, is of a ſpherical form, ſmooth, ſoft, and equal; or when you preſs it, nothing is perceived like the ſtirring of a child—if this diſorder has continued for ſome time, and the ſwelling encreaſes ſo far, as greatly to exceed the common ſize of a woman with child, a little before the time of delivery.

It is neceſſary in the cure, that the menſtrual flux come away in due time, and in proper quantity; but as the cauſes which prevent this may be various, ſo do they require different methods of treatment. Nothing general therefore can be determined upon this ſubject; but, in order to the obtaining of a ſucceſsful cure, we muſt be particularly attentive to every minute cauſe which may occaſion a ſuppreſſion

of the *menſes*; for if the moſt powerful emmenagogues are adminiſtered, when theſe outlets, by which the blood ſhould naturally flow, are entirely ſhut up, they may do much miſchief, without the leaſt probability of doing ſervice. It would be in vain to attempt to bring down the *catamenia* in a pale leucophlegmatic girl, where, for want of ſound wholſome blood, the functions are all languid and diſordered, unleſs we firſt endeavor to ſtrengthen the lax and debilitated habit, ſo that by the power of the viſcera, and the veſſels, the nouriſhment ſhe takes may be converted into good blood. If, on the contrary, the uterine veſſels are ſo conſtricted, as not to be eaſily dilated and give an eaſy paſſage to the blood, an oppoſite method will be neceſſary; this reſiſtance of the veſſels is to be overcome by the uſe of ſoft and emollient

mollient remedies, both externally as well as internally preſcribed.——

The legs and feet receive their veſſels from the external iliac arteries, the uterus too not only receives them from the hypogaſtric but from the ſame external iliacs, and communicates by various *anaſtomoſes*, it will therefore be very evident, when the veſſels of the feet relaxed by warm bathing, and motion accelerated in thoſe parts by friction, a greater quantity of blood will be derived toward the *aorta*, where it divides into the iliacs, and ſo cauſe a greater preſſure upon the veſſels of the *uterus*, and ſo dilate their extremities, as to give an eaſy vent to the menſtrual diſcharge.

*Warmth* in the feet is particularly ſerviceable at the time of menſtruation, *cold* on the contrary very deſtructive: all the viſcera of the abdomen are badly affected

affected when the feet are intenſely cold, no wonder therefore that a ſuppreſſion of the *menſes* ſhould happen in conſequence of a contraction of the veſſels. Warm bathings and frictions of the feet therefore are highly ſerviceable in driving off the cold, and recalling and encreaſing the heat in the lower extremities of the body, as they accelerate the blood's motion, and derive at the ſame time a greater quantity of humors into the legs and feet; ſince however the lower extremities receive their blood from the external iliac arteries, but the *uterus* chiefly from the hypogaſtric, it will evidently follow, that the more the veſſels of the legs and feet are tumefied and ſwelled, ſo much leſs will be the preſſure upon the uterine veſſels; and therefore if by means of warm bathing and fomentations and frictions of the

legs

legs and feet the blood's motion is accelerated through the iliac arteries, the paſſage of the blood through the crural artery may be impeded or leſſened, the force and quantity of blood moving through the uterine veſſels would certainly be encreaſed, and ſo remove ſuch obſtacles, which could not have been done by any other means.

Venæſection is only neceſſary in a ſuppreſſion of the *menſes*, when all the ſigns of a *plethora* are preſent; for if they are defective, from a ſcarcity of good blood, in bodies already exhauſted by former diſeaſes, *repletion*, not *evacuation* is, then the remedy. Nor even, when the *plethora* itſelf ſhall have degenerated into a *cacochymia*, is it then always requiſite to open a vein, but rather to take ſome other evacuant remedies, which, without leſſening the quantity of good blood, may draw

away

away the peccant humors out of the body, or ſo change them as that they may again acquire the nature and diſpoſition of the ſound humors.—" *Hydrops in ventre a menſtruis magna ex parte, vel omnino deficientibus plerumque oritur*, ſays *Manningham*:" if a dropſy then is once formed from this cauſe, who would venture to preſcribe bleeding? and yet it may be of ſervice in the ſuppreſſion of the *menſtrua* itſelf, which was the original cauſe of that dropſy.

Since the circulation of the blood has been known, the advantage of bleeding in the feet, to encourage the menſtrual diſcharge, has been more clearly underſtood; and although indeed it is not of ſervice in every ſuppreſſion of the *menſes*, yet it is greatly ſo in many caſes. If a tenſion and ſenſe of weight be felt about the pubes

and

and groins, and a pain about the loins, at the time when the menſtrual period is at hand, we know that the uterine veſſels are quite full and diſtended, though the extremities of the arteries opening into the cavity of the *uterus* may not, at the ſame time, be ſufficiently dilated to allow the diſtending blood to paſs. Should theſe veſſels then, after warm bathing particularly by way of vapor, be relaxed, and the motion through the repleted veſſels be, at one and the ſame time, encreaſed, we may then pronounce there are hopes of getting ſo far the better of that reſiſtance, towards their extremities, as to procure an eaſy diſcharge of the menſtrua, and of courſe a relief to all theſe troubleſome complaints.

The *plethora* diſtends the larger veſſels, alters the ſecretions through the ſmaller veſſels, compreſſes the veins, and

and ſo by the tumefaction of the larger branches ſhuts up the extreme orifices of the ſmaller arteries, whence a free circulation is prevented. Whilſt the uterine veſſels then are thus diſtended, they will be unable to contract themſelves, or to ſend the blood forward which is contained within them, and every thing conſequently will tend towards ſtagnation. As ſoon as a vein is once opened in the feet, the blood will be driven more rapidly and in a larger quantity into the crural artery, the uterine veſſels will not be ſo much preſſed, nor ſo greatly diſtended; hence the arteries will begin to contract themſelves and ſend the blood forward into the veins, which may now freely empty themſelves into the iliac veſſels, which are at this time not ſo much diſtended: hence a free circulation through the ſubſtance of the *uterus* will return, the further-

furthermoſt extremities of the arteries will be eaſily dilated, and the *menſes* before ſuppreſſed, be again reſtored.—

The circulation of the blood, it is well known, is greatly obſtructed in plethoric people, and, the veſſels being too turgid, they ſeem dull, ſtupid, and ſluggiſh. As ſoon however as this plenitude is taken off by a plentiful bleeding, the motion through the veſſels is reſtored, the pulſe before obſtructed riſes, and becomes quicker and ſtronger, the body acquires a ſudden vigor and briſkneſs, and a circulation of all the humors is again reſtored to all the veſſels. This is applicable to the *uterus* diſtended in its veſſels by the accumulated blood, which cannot paſs through the extreme orifices of the veſſels—bleeding in the feet therefore obviates all this, and brings on a free diſcharge of the menſes. If the

menſtrual

menſtrual diſcharge be ſuppreſſed upon account of an univerſal fulneſs, then, after bleeding, the antiphlogiſtic purges, which diſſolve and evacuate the humors without encreaſing the circulatory motion, may have their uſes.——"*Si vero menſes*, ſays *Hippocrates, omnino non prodeant, pro morbo craſſi, lenti, & glutinoſi redduntur; imprimis igitur ventrem ſurſum ac deorſum purgare oportet.*" for there are even hopes, from the very ſhock itſelf given to the body by purgative medicines, that the menſtrual flux may be promoted, while, at the ſame time, every thing that is tough, viſcid, and glutinous is removed and carried off; but care muſt be taken nevertheleſs not to raiſe an *hypercatharſis*, which may occaſion weakneſs from too great an evacuation—for this reaſon in the *materia medica*, among the uterine purgatives of this claſs, are reckoned

*myrrh*,

*myrrh, gum ammoniac, bdellium,* &c. which move the belly moderately, and even require a larger doſe to effect it; whilſt at the ſame time their aromatic flavor, ſo benign to the nerves, fills the whole courſe of the firſt paſſages, diſcuſſes the flatulencies ſo frequently troubleſome in ſuch caſes, and rouſes the languid action of thoſe *viſcera* by a grateful and yet not too heating a *ſtimulus*.

Aloes is a good purgative in theſe caſes, it purges downward, and ſtrengthens the ſtomach, this is confirmed by *Celſus*, "*ſed medicamenta ſtomachum fere lædunt; ideoque omnibus catharticis* aloë *miſcenda eſt.*" This medicine in a leſſer doſe, and frequently given in the quantity for example of three or four grains, and mixed with the above-mentioned aromatic gums is of excellent efficacy in a ſuppreſſion of the

menſes, as alſo when a cuſtomary diſcharge of blood by the *hæmorrhoids* happens to be ſtopped—

The great Dr. *Mead*, in order to attenuate and diſſolve the fluids when ſtagnating in the veſſels from too great a viſcidity, recommends mercury ſix times ſublimed — but above all the black hellebore, which he declares ſeldom or ever to have found to fail—he uſually gave a tea ſpoonful of the tincture twice a day in a little warm water.

Different authors have recommended different methods; but the remedies are almoſt always of ſuch a kind as act either by encreaſing the motion of the humors, or by their diſſolving power, or by thoſe both united together. But if the expulſive powers are rouſed up into action by theſe ſtimulating medicines, before what is to be expelled, is properly attenuated, or the outlets by

by which it is to be diſcharged are ſufficiently pervious, all the complaints will be exaſperated from the uſe of hot emmenagogues, and dangerous hæmorrhages happen in different parts of the body, from the veſſels of the uterus remaining ſo obſtinately conſtricted.—The ancient phyſicians were very careful in this particular, and uſed every method to diſpoſe the veſſels to an eaſier dilatation, before ever they attempted warm emmenagogues; or they at leaſt joined emollients along with them.

If the eighth part of a grain of *colocynth* be adminiſtered every three or four hours, it will not act as a purge, but will be of wonderful efficacy in languid phlegmatic habits, as it encreaſes the heat and motion by a gentle and moderate ſtimulus; it may be very conveniently mixed with *myrrh*,

*galbanum*, or any other gum recommended under this head.——

"*Mulieres*, ſays the *Coan*, *autem ſicciore victus ratione ſic uti oportet, ſicca namque cibaria ad muliebrium carnium mollitiem magis ſunt idonea & meraciores potus ad uteri & fœtus nutritionem meliores exiſtunt.*" Daily experience confirms the truth of this obſervation, for where women indulge themſelves too much in that very bad cuſtom of drinking warm watery infuſions, and at the ſame time uſe little or no exerciſe, they become delicate, relaxed, and inactive, are very ſeldom prolific, and when they do conceive too frequently ſuffer miſcarriages; *Lycurgus* therefore, as a very wiſe legiſlator, exerciſed the bodies of the Spartan virgins in running, wreſtling, throwing the quoit and javelins, ſo that the very root of the fœtus, taking ſtronger engraftment

in

in bodies ſo healthy, might grow more vigorouſly, and that they themſelves, bearing their offspring with ſuch activity and briſkneſs, might encounter the pains of child-bearing with more eaſe and ſafety—thus did he take care to extend his attention to the future offspring; knowing that the ſoft and delicate, even when joined to ſtout and robuſt huſbands, produce but a puny, weak, and ſickly progeny——*τα μαλθακοι σωματα των παρθενων, δρομοις, και παλαις, και βολαις δισκων*, &c.

Plut. Vit. Lycurg. p. 47, t. 1.

## *Of the Diſeaſes of Women with Child.*

HIPPOCRATES, among the moſt certain marks of conception, reckons the following; a ſhivering cold, then an univerſal heat, a chattering of the teeth, a convulſion of the joints and other parts of the body, and a torpid ſenſation in the *uterus*—another chief indication "*ſi mulieri* (ſays he) *purgationes non prodeant, neque horrore, neque febre ſuccedente, ciborum faſtidia, ipſi accidant hanc gravidam eſſe ratione dicito.*"

Some women with child are obſerved to complain of a univerſal *nauſea*, or loathing, inſomuch as to have an averſion to every kind of eatable what-

whatſoever—many are only partially ſo to ſome particular food—others again will long for things, about which they were heretofore very indifferent: I have known ſome married ladies, who, from this appearance only, were well aſſured of their being with child, though no other previous ſymptom had determined it. Women frequently, while breeding, are attacked with violent tooth-achs; others again are ſeized at that period with pains in the ears, and that on one ſide of the head only, to which they were never ſubject before. In ſhort many and various are the ſymptoms which attend women in the beginning of pregnancy.

However, it has been univerſally acknowledged by men of the greateſt eminence as well as experience in the practice of midwifery, that the ſigns of pregnancy, eſpecially in the firſt

months of conception, are not entirely to be depended upon.——

There is nothing in which a phyſician may ſo ſoon forfeit his character as in his determining about the pregnancy of women; he ſhould give his opinion with the utmoſt caution.— "*Qui utero gerunt, iis os uteri connivet.*" *Galen*, in his commentary upon this aphoriſm, looks upon this cloſing up of the *uterus* as one of the moſt certain ſigns of pregnancy, when the midwife can reach it with her finger; for in the beginning of conception it ſometimes lies higher up in the *vagina*; but in order to draw a certain concluſion by which the pregnancy is to be determined, for the orifice of the *uterus* may be diſeaſed, inflamed for inſtance, or ſchirrous, it is requiſite, that the *os uteri* be not only ſhut, but feel ſoft likewiſe.

The

The blood retained in pregnant women is not ſo much intended for the uſe of the *embryo* itſelf as of the *uterus*; from this uterine blood the finer humors are ſeparated for the uſe of the *embryo*, but no red blood comes near it in the beginning of conception. I have had occaſion to examine ſeveral of the ſmalleſt embryos excluded together with the membranes and the *placenta*; but I could diſcover no red blood, either in the little body of the embryo itſelf, or in the membranes, or in the *placenta*, which at firſt, as it is well known, covers the whole ſurface almoſt of the *chorion*. But the *uterus* being entirely vaſcular, becomes gradually diſtended, ſo that its cavity, ſo ſmall in women not with child, ſhall by degrees be ſo dilated, as to be able to contain the *fœtus* together with its ſecundines, and the water collected in the membranes.——

The

The antient phyſicians as may very demonſtratively be proved applied every thing they had ſeen and obſerved concerning the *uterus* of animals (for they had never ſeen any other) to females of the human ſpecies. Thus the diviſion of the cavity of the *uterus* into right and left, which we find in the forked *uterus* of brutes, is very unjuſtly aſcribed to the human *uterus* —The womb of brutes is membranous and very thin—the human womb is quite of a different conſiſtence.

*Mauriceau* obſtinately defends the opinion of the ancients and particularly of *Galen* concerning the thinneſs of the gravid *uterus*, and this he endeavors to prove by a variety of authorities: he was ſhocked to think that many very eminent anatomiſts ſhould imagine that a gravid *uterus*,

by

by a kind of miracle in nature, the more it was diſtended ſhould encreaſe the more in thickneſs. He even appeals to their ocular inſpection, whether there is not an abſurdity in maintaining ſuch an opinion.——He would have the ſame thing obtain in the *uterus* which is obſerved to take place in the urinary bladder, which when empty, appears thick, but thin and membranous when diſtended with urine — he confeſſes indeed, that in the bodies of women, who have ſuddenly died ſoon after delivery, he has found the uterus near the breadth of two fingers in thickneſs, but this he attributed to the contraction of the uterus when empty—he owns alſo that the uterus has been found thick in women who have died without being delivered — but inſiſts on its being preternatural, and occaſioned by inflammation, and from the afflux of hu-

mrs

mors after the long and fruitleſs pains ſuffered in the time of labor.

*Daventer*, a celebrated man-midwife, and who has wrote profeſſedly upon this ſubject, refutes this opinion with great judgment.—*Littre* accidentally ſaw what *Mauriceau* earneſtly wiſhed for, in order to be convinced of the thickneſs of a gravid *uterus*; he ſaw it about eight lines thick (a French line is the twelfth part of an inch) in a woman, who, on the eighth month of herpregnancy, was killed by a fall.—

*Mery*, a celebrated writer, ſaw the ſame thing in a woman who died about four hours after her delivery—from which it is plain, that the thickneſs of the empty *uterus* is not owing to its contraction, as *Mauriceau* imagined; for a full *uterus* exhibits the ſame appearance.—

*Daventer* obſerves very ingeniouſly that the thickneſs of the womb is one

cauſe

cauſe which prevents the *fundus* from being eaſily inverted after delivery, and by forcing its way through the capacious orifice of the *uterus*, bringing on a troubleſome *prolapſus*, eſpecially when the placenta is removing; if the *uterus* was thin and membranous, ſuch events could hardly be prevented—this ſeldom happens as the ſame perſon who was a very diſtinguiſhed practitioner in midwifery declares, and then only (to uſe his own words) *ſi ſcilicet inſigniter fuerit tenuis, tunc quidem circa manum complicatur inſtar lintei madidi, neque tam cita tam faciliſque contractio eſt; quod mihi non arridet; quin potius mallem, eum conſuetam ſervare formam, & ſtatim a partu rite contrahi, & circa manum nondum retractum claudi, quod multo pauciora ſymptomata tunc extimeſcenda ſint.*"

The ingenious Dr. *Noortwyck* having conſidered this ſubject thoroughly well,

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is of opinion that the *uterus*, for the moſt part, retains its former thickneſs—the gravid uterus, according to him, appears not much to exceed the natural thickneſs of the uterus before impregnation; whence he very juſtly infers that in women with child, the ſubſtance of the uterus may ſometimes encreaſe, ſometimes remain the ſame, and if it ſometimes chance to become thin, it muſt be conſidered as a rare and extraordinary caſe. Now ſeeing the uterine veſſels do not all run in the ſame plane, but by various interſtitial diviſions, between the lamellated ſubſtance of the *uterus*, and that theſe veſſels are, during the time of pregnancy, conſiderably dilated and replete with blood; it will be very evident that an attenuation of the *uterus* could not at this time take place according to the rules of nature, but if it did, muſt have been owing to ſome preternatu-

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ral or morbid cauſe. Again, the greater the quantity of blood is, with which the uterine veſſels are diſtended, and of courſe more dilated, ſo much the more will the ſubſtance of the *uterus* be encreaſed in thickneſs, whence we eaſily ſee why it differs in thickneſs in different ſubjects—the ſame author very accurately deſcribes how capacious thoſe veſſels may be found and how large the ſinuſes of the *uterus* may be when filled with blood and communicating with the *chorion* and *placenta*.——

The celebrated *Albinus* has alſo given us five drawings by which we may obſerve how large the veſſels are, which fill the ſubſtance of the *uterus* during the time of geſtation; whence *Du Graaf* compared the *uterus* in women big with child, to a ſponge filled with blood, and was amazed to conſider how the ſame after delivery, ſhould

ſhould ſo contract, as to return to its former dimenſions in the ſpace of ſixteen days; the blood which diſtended the veſſels of the *uterus* during the time of pregnancy, going off by the flowing of the *lochia*.

It is evident that the menſtrual blood, which in women with child according to the laws of nature is retained within the body, ſerves not only for the accretion of the *fœtus*, but is alſo neceſſary for the diſtending and filling the veſſels of the *uterus* at the ſame time. How admirably does this correſpond with the doctrine of *Hippocrates!* "*Ubi enim mulier utero gerit, paulatim a toto corpore ſanguis in utero defertur, & in orbem id, quod in utero eſt, circumſiſtens, ipſum auget.*"

The human *ovum* not only everywhere contiguous to the concave ſurface of the uterus but connected with it, is perpetually cheriſhed by the con-

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ſtant warmth of the red blood plentifully contained in the ſubſtance of the ſurrounding womb; and thus an incubation goes on within the woman's body, which in oviparous animals is performed without their bodies; and thus we ſee to what admirable uſes the blood is aſſigned which was before accuſtomed to diſcharge itſelf monthly, but is now retained within the uterine veſſels, and contributes to fill and diſtend them by a gentle and gradual dilatation. The great *Harvey* aſcribes the firſt part of the formation and growth of the embryo to the red blood; nay he maintains it to exiſt even before the heart or veſſels, and that with it, life itſelf, begins, on its entrance into the world, and expires with it when life is in its laſt period.——

It is well known, that in a fecundated egg the firſt rudiments of the chick may remain a long time con-

cealed, without any ſigns of life or encreaſe. Let a due degree of heat, whether by the ſitting of the hen, or by any other methods, be applied, and we immediately find motion, life, and a gradual encreaſe, and that indeed in ſo quick a progreſſion, that in the ſpace of twenty days, the moſt minute *molecula*, before eluding the acuteſt ſenſe, ſhall now exhibit a chicken in full perfection, which having, by its own native force, broken through its ſhell, in which it had been impriſoned, running about at perfect liberty. That plentiful circumfuſion of warm blood continued through the uterine veſſels, ſeems in like manner to be of no inconſiderable aſſiſtance towards the growth of the human *embryo*.

Sometimes the *omentum* ſeems to be convolved and twiſted by the riſing of the *uterus* — if therefore, either from the

the compreſſion of the womb, or from any other cauſe whatever, the *omentum* becomes dry, and ſhrunk up, the concretion of its *lamellæ* may be apprehended; nor ſhall we be able, after delivery, to diſentangle it, ſo as to replace it properly: *Ruyſch* frequently obſerved hard tumors, of an oblong ſhape, remaining in the *abdomen* after delivery, and confeſſes he was long doubtful what to think of them, till in the diſſection of a dead body, he diſcovered the cauſe, for he ſaw "*omentum duos fere digitos craſſum, tres digitos latam, ſpithamam cum dimidia longum, & in ſubſtantiam adipo-carnoſam degeneratum, atque inſuper ſcirrhoſum.*" But this bulky maſs (as repreſented in his tables) adhered above to the bottom of the ſtomach, and below to the *fundus uteri*; it therefore ſeems very probable, that the *fundus uteri*, when it aſcended, had raiſed the *omentum*, and

preſſed it to the bottom of the ſtomach, and firmly attached itſelf to it, and that after delivery the *uterus* contracting drew the attached part of the omentum along with it, and ſo produced that oblong tumor in the abdomen.

In caſe a nauſea, vomiting, or loſs of appetite continue too long, a filthy collection of depraved humors may ſometimes be lodged in the ſtomach and in the *primæ viæ*, which ſhould be carried off, and the more eſpecially if attended with diſagreeable belchings, a bitter taſte in the mouth, or a foul tongue—a gentle purge of rhubarb is in this caſe of great uſe, any of the rougher kind are dangerous.——If there is no great *plethora* (and if there is, after taking away a little blood from a vein) a little generous wine may be allowed in ſmall quantities, and they almoſt give inſtantaneous relief, this is agreeable to the ſentiment of *Hippocrates*,

" *meraciores*

" *meraciores potus ad uteros & fœtus nutritionem meliores exiſtunt.*"

The very rapacious and abſurd longing of women with child is remarkable though not to be accounted for—*Tulpius* ſays he ſaw a woman who during the time of her pregnancy eat *fourteen hundred herrings.*——My father-in-law, a gentleman of the ſtricteſt honor and veracity, told me of a woman big with child who came into his rope-walk and looked very wiſhfully at a barrel of tar, and every now and then ſlily dipped her finger into it, which ſhe as eagerly put into her mouth—obſerving this he ſpoke to her, and aſked her whether ſhe had any inclination for ſome; ſhe replied that ſhe had, and would be thankful if he would permit her to dip a penny roul into it, he told her ſhe might, and as many more as ſhe pleaſed—he ſaw her

do ſo, and eat it with a devouring appetite.——

Fainting fits frequently happen from the turgid *uterus* preſſing upon the iliac veins, whence a great quantity of blood being retained in and below the *pelvis*, prevents its return to the heart, at leaſt ſome part of it, whence the force of the heart is much weakened.—

A difficulty of breathing is moſtly obſerved towards the cloſe of pregnancy, when the belly is ſo big, as to give very little room to the diaphragm to move downwards, and the abdominal muſcles are ſo greatly diſtended as to be unable to give their aſſiſtance.

*Mauriceau* abſolutely forbids the uſe of diſcutients, in ſwellings of the breaſt, but to leave all to nature—he charges thoſe who attend women upon thoſe occaſions not to preſs them when thus ſwelled too much by wear-

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ing the cloths too tight above them, for fear of doing miſchief.

We may very properly diſtinguiſh the times of abortion into three different ſtages; the firſt when the *placenta* diſengages itſelf from the *uterus*. It is well known that the human *ovum* adheres moſt firmly to the *uterus* at the place where it is connected by means of the *placenta*, with which the large veſſels of the womb communicate, which when this communication is deſtroyed, pour out a greal deal of blood, which ſtill encreaſing, gradually looſens the adheſion of the *chorion* to the *uterus* till it diſcharges itſelf by the *os uteri*; this is called the ſecond ſtage of abortion. The third and laſt is, when the *fœtus* comes away before its due time.

Now if the ſymptoms which uſually attend the firſt months of pregnancy be remembered, it will very

eaſily appear how frequently the deſtruction of this tender connexion of the *fœtus* with the *uterus* may be apprehended. Vomiting or any ſhock to the *abdomen* only, may produce this accident, eſpecially if they be ſtrong and frequent, and it will be ſtill more dangerous if the veſſels of the body happen at the ſame time to be full of blood. —— And therefore it is, that abortions moſt commonly happen about the third month; becauſe the connexion of the *fœtus* to the *uterus* is as yet but feeble, and in women of a ſanguine habit who have been ſubject to large menſtrual diſcharges, the uterine veſſels are very turgid and full of blood. Bleeding indiſcriminately in every woman with child is by no means neceſſary, nay nor always proper, and frequently is of a bad tendency.

Women who are accuſtomed to have large menſtrual diſcharges when they are

are not pregnant, who feed richly and luxuriouſly, and uſe little or no exerciſe, are frequently plethoric in the firſt or ſecond months of their pregnancy; to ſuch I have generally and univerſally adviſed venæſection, conſcious that they otherwiſe run the riſque of a miſcarriage—the ſame precaution is neceſſary, upon a violent fit of anger, when I have in an inſtant ſeen the veſſels filled and turgid, the face red and tenſe, and the eyes blood-ſhot.——It is too general a practice nevertheleſs; and phyſicians have not the courage to oppoſe it, for fear, if any ill conſequence attend the neglect of it, it would be aſcribed to them.—" *Mulier utero gerens,* (ſays the incomparable *Hippocrates*) *vena ſecta abortit, eoque magis, ſi fœtus grandior fuerit.*" However daily experience informs us that this does not altogether hold true, for a miſ-

a miſcarriage does not always follow bleeding.——If a woman be pale and languid, the phyſician will certainly not direct blood to be taken away, but if on the contrary ſhe is ſanguine, warm, and the veins are turgid and full, if ſhe has an head-ach, a running at the noſe, or feels a tenſion about the loins, *pelvis* and groins, then indeed he will open a vein to prevent an abortion which might happen from too great a plenitude of the veſſels, always at the ſame time remembering what *Celſus* has excellently laid down, " *mulieri prægnanti poſt curationem quoque viribus opus eſt, non tantum ad ſe, ſed etiam ad partum ſuſtinendum: non quidquid aut intentionem animi aut prudentiam exigit, protinus ejiciendum eſt; cum præcipua in hoc ars ſit, quæ non annos numeret, neque conceptionem ſolum videat, ſed vires æſtimet, & ex eo colligat, poſſit, nec ne, ſupereſſe*

*quod*

*quod vel puerum, vel unum, vel in una muliere, duo corpora, ſuſtineat.*" From the whole context of this paſſage it is evident that the diſpute is only, whether in caſe of diſeaſes it was right to bleed women with child, and not whether the ſame was neceſſary in ſound healthy pregnant women. We have frequent opportunities in practice to be convinced that bleeding in acute and inflammatory diſeaſes is highly neceſſary, and that too, often repeated even in the time of pregnancy. High-ſeaſoned meats and ſpices and every thing acrid and ſharp ſhould be avoided or at leaſt very ſparingly uſed, for a ſoft and mild diſpoſition of the mother's humors is of great advantage to the child in that tender condition. "*Prægnantibus hypochondrii dolor malum;*" now if the *fundus uteri* aſcends obliquely towards the right ſide (for when

when *Hippocrates* puts this word in the ſingular number, he always means the right *hypochondrium)* it will preſs the bulk of the inteſtines towards the concave part of the liver, where the gall-bladder, biliary ducts, and trunks of the *venæ portæ* are ſituated, and will by that means produce a number of diſorders.——

There is ſome danger when the lips of the *pudendum* ſwell, and are œdematous, becauſe ſuch a ſwelling may obſtruct the expulſion of the fœtus; yet œdematous ſwellings of this kind eaſily yield; and I have ſeen a woman, who had theſe parts ſurpriſingly ſwelled, and though ſhe obſtinately refuſed to do any thing for it, yet went through her labor extremely well, though the midwife, frightened at the enormity of the tumefied parts, had deſpaired of ſucceſs.

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Neither is the cure of this troublesome ſwelling ſo difficult, for, by ſlightly ſcarifying the lips of the *vulva*, the watery lymph eaſily finds a paſſage, and the ſwelling ſoon ſubſides.——A bliſter might alſo be applied with very good ſucceſs; it muſt however be ſo laid on, as partly to lie upon the ſwelled lip of the *pudendum*, and partly upon the adjacent part of the thigh.

An inflammatory ſwelling of the lips of the vulva attended with a fever is of infinite danger, eſpecially when delivery is near at hand, for the interior parts of the vulva are generally inflamed at the ſame time; and the moſt ſkilful practitioners in midwifery have always obſerved that women ſo affected die very ſoon after the delivery—for the parts ſo inflamed when they are hard preſſed upon, or very roughly handled, very ſoon become gangrenous;

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this therefore is very naturally to be feared, when the child's head in time of delivery preſſes and ſqueezes theſe inflamed parts, nay even ſometimes lacerates the ſwelling.

A flux of blood from the *uterus* in women with child is ever to be ſuſpected; though there may not always be a little degree of danger attending it—but when it happens during the higheſt degree of diſtention of the uterine veſſels, that is in the laſt weeks of geſtation, it then becomes highly dangerous; whence the following rule is laid down as a certain practical maxim, "*Quo partui propior eſt mulier, eo periculoſior eſt hæmorrhagia uterina.*"

Hence numbers of women eſcape who have had this uterine diſcharge in the ſecond, third, or fourth month: abortions moſtly happen at thoſe periods, ſeldom after.——*Puzos*, a very celebrated

brated man-midwife, obſerves, that during his whole practice, he had very ſeldom known any carried off by a flooding before the fourth or fifth month of pregnancy, unleſs it was attended with ſome other dangerous diſeaſe, or had been unhappily deprived of the neceſſary helps in theſe caſes. He much feared for the conſequences, when the ſame thing happened in the ſeventh, eighth, or ninth month; for notwithſtanding the hæmorrhage may not be ſo very violent before delivery as in other abortions, yet very many of theſe die ſoon after they are delivered.——

The *placentæ* of abortions are more difficult to bring away than thoſe of a fœtus arrived at its maturity, becauſe the umbilical cord is very tender and more liable to break with the ſmalleſt force, and in younger fœtus's the *pla-*

*centa*

*centa* is proportionably larger and occupies a larger ſurface in the *uterus*.

I twice had an occaſion to attend a woman in an acute continued and putrid fever, in conſequence of ſome grumous concreted blood remaining in the *uterus* after a three months abortion; one of theſe died in the fourteenth, the other was carried off on the ſeventeenth day of the diſeaſe.

*Mauriceau* has obſerved that women with child are in the utmoſt danger who miſcarry while they are under the attack of a continued fever which generally is of the remittent kind, and more particularly ſo if the breaſt be affected; he ſays, he ſaw many of theſe to his great concern die very quickly after the miſcarriage; *Hippocrates* was aware of this when he ſays, " *Quæ utero gerentes a febribus corripiuntur, & vehementer citra manifeſtam cauſam extenuantur,*

*tenuantur, pariunt difficulter & periculoſè, aut abortientes periclitantur.*"

That a woman with child through great loſs of blood may be carried off by an hæmorrhage or flooding from the uterus, is not the only danger we have to apprehend; for though ſhe may get the better of this, there is ſtill more to fear from the great loſs of blood, and ſudden and frequent faintings, that is, of her falling into very difficult diſorders of the chronic kind, as a cachexy, dropſy, &c. we may alſo in conſequence of long continued and frequent *ſyncope's* expect that the blood ſtagnating in the heart and larger veſſels, may form itſelf into polypous concretions.

During the time of pregnancy, the veſſels of the *uterus* are continually enlarging, when the time of delivery approaches, they muſt conſequently become large and capacious, ſo that when

the *placenta* is ſeparated from the *uterus*, the wide orifices of the enlarged veſſels, muſt pour out the contained blood in a full uninterrupted ſtream; but a flooding of this ſort is far more dangerous, becauſe in pregnancy the uterus continues to be filled up, whereas after delivery, when once the *placenta* is brought away, the empty womb may then contract itſelf, and ſo leſſen the capacity of the veſſels, and of conſequence diminiſh the hæmorrhage or flooding.

An hæmorrhage from a rupture of the veſſels contained in the umbilical cord is a circumſtance which very rarely happens. *La Motte*, an eminent practitioner, declares he never met with ſuch an inſtance but once. He was aſſiſting at a labor, where he expected an eaſy and natural delivery: the waters were formed; but juſt as they were ready to break, he obſerved his

his hand ſtained with a little blood, and (as it very frequently happened) ſo concluded the child would ſoon follow. A little after, the waters were broke, and the child's head preſented itſelf, but a large quantity of blood guſhed out at the ſame time, which encreaſed at every labor pain. He was firmly perſuaded, that the hæmorrhage muſt be occaſioned by the looſening of the *placenta* from the *uterus*; neither could he now turn the child, in order to haſten delivery, by extracting it by the feet, becauſe the head was got down into the *pelvis*, and the woman's labor pangs were become ſo violent, and continual. The patient, being however a woman of great reſolution and courage, and conſcious of the danger ſhe was in, ſo forwarded the delivery by her repeated and ſtrenuous efforts, that in a very ſhort time ſhe brought forth a girl, but very weakly;

what had rendered the labor ſo tedious and difficult, was, that the umbilical cord had twiſted itſelf three rounds about its neck—the woman happily eſcaped, and had ſeven more children without any the leaſt accident happening to her: ſoon as the infant came away, the flooding ceaſed immediately, and upon examining the umbilical cord, it appeared that one of the varicous knots, ſo often obſerved in the umbilical vein, having been opened, as it were by excoriation, had diſcharged its blood; this, from the mutual preſſure and attrition of each circumvolution of the umbilical cord round the infant's neck, might very eaſily happen. But it is at the ſame time very evident, that the true cauſe of this hæmorrhage could never have been known before the delivery had been well over; and till the membranes were already broken, this very

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ingenious ſurgeon could ſcarcely ſuſpect ſuch a circumſtance, for he had never ſeen any thing like it before in all his practice, and the looſening of the *placenta* from the *uterus* had always been moſt generally conſidered as the cauſe of this uterine diſcharge.

Naturally the human *ovum*, by every part of its ſurface adheres to the cavity of the *uterus*, which effectually prevents any thing from paſſing out by the uterine veſſels; and even at the time of delivery, when the fœtus is come away, hardly any blood, or very little at leaſt follows, although the *chorion* is on every ſide ſeparated from the *uterus*, during the excluſion of the child, but as ſoon as the *placenta* is diſengaged from the *uterus*, the blood then comes away in a large quantity, and not before. During the time of pregnancy the veſſels of the *uterus* are continually enlarging,

conſequently when the time of delivery approaches, they become very large and capacious, ſo that when the *placenta* is looſened from the *uterus*, we muſt then expect a full and uninterrupted ſtream from the wide orifices of the enlarged veſſels; if therefore the blood comes away in large diſcharges from women in the time of pregnancy, we may reaſonably take it for granted that the *placenta* is ſeparated from the *uterus*, either entirely or in part.——Now a flooding of this ſort is far more dangerous, becauſe in pregnancy the *uterus* continues full; whereas after delivery, when the *placenta* is once brought away, the empty *uterus* contracts itſelf, and thus leſſens the capacity of the veſſels and of courſe in a great meaſure ſtops the hæmorrhage. But there may be other cauſes to bring on a flooding as may be ſeen at large in *Mauriceau*, *La Motte*, and

and other eminent writers in midwifery.

*Noortwyk* injecting a branch of the iliac artery of a gravid uterus, obſerved the wax penetrated very deep into the veſſels of the *placenta* and *chorion:* upon lifting up the preparation and attempting to ſeparate the *human ovum* from the *uterus* to which it was connected, he could plainly diſcover the *chorion* to be joined to the *uterus* by a true cellular ſubſtance, which might eaſily be ſeparated upon the ſlighteſt attempt; in like manner he obſerved the *ovum* to adhere to the womb in general, but about the *placenta* the adheſion was much ſtronger, and the veſſels at this place more numerous.——

*Lewret* has remarked that when a woman with child was obliged to uſe mercurial frictions for a *lues venerea,*

and by which the fœtus was alſo cured, he found manifeſt proofs of mercury in the water contained in the *amnios*, for it had a leaden color and when rubbed upon copper changed it white, and this ſo much the more, by ſo much the more mercury had been uſed in the friction.

It is very juſtly eſteemed a pretty certain ſign of a ſpeedy delivery, when in the time of delivery a ſmall quantity of blood is obſerved when the waters are formed, as the midwives term it, and greatly dilating the orifice of the *uterus* appear on the outſide of it a good way: for the membranes cannot poſſibly project out ſo far, but many of thoſe veſſels which ſerve to connect the *chorion* with the *uterus* muſt be broken, and ſo diſcharge that ſmall quantity of blood, with which we ſee the ſheets, and the hands of the midwives ſo gene-

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rally tinged. Nor can a very great quantity of blood at this time come away, becauſe, when theſe tender veſſels are broke through, they immediately collapſe, and the ſwelling occaſioned by the water fills up the orifice of the womb entirely; when the waters break, the infant's head immediately obtrudes itſelf, and ſo fills up the ſame orifice. "*Mulieri utero gerenti, ſi mammæ derepente extenuentur, ipſa abortit.*" Says *Hippocrates*; the reaſon of which is, that there may be danger; leſt on this occaſion the veſſels of the *uterus* breaking their connexion with the *placenta* and *chorion* in like manner collapſe, which can ſcarce happen without their being firſt emptied, whence an abortion is moſt likely to enſue, attended with an hæmorrhage from the uterus.

In women with child, unleſs it be very near the time of delivery, pains

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of the loins, if they continue long, are always to be ſuſpected; eſpecially if they return at intervals, and terminate towards the lower parts of the belly; for then they are real labor pains, by which the fœtus however immature, muſt be excluded; and the miſcarriage is frequently preceded by a very dangerous flooding.

Hæmorrhages from the uterus, notwithſtanding they ſeem to be entirely ceaſed, are very liable to return again—frequently the ſtoppage is owing to coagulated blood applied to the gaping orifices of the veſſels, and which are ſo well adapted to their diameters as to block up the blood and prevent its diſcharge—but when theſe clots drop off, the hæmorrhage returns, and that frequently in a larger quantity—great caution ſhould therefore be had upon theſe occaſions, eſpecially in women with child, who have once had the un-

unhappineſs to experience this miſfortune.

In violent hæmorrhages opiates and gentle ligatures on the veins only will be found very beneficial, ſtimulating cordials are injurious, inſtead of which we ſhould direct nouriſhing broths to be taken often and in ſmall quantities.

Whenever a dangerous flooding comes on, the child ſhould be immediately brought away, and as *Daventer* obſerves, "*quocumque tempore, ſive ante ſive poſt ſeptimum menſem*; but this ſhould however not be attempted, unleſs when it can be done without violently dilating the orifice of the *uterus*, and when it is ſo far open as eaſily to admit the operator's fingers.

## *Of Difficult Deliveries.*

A Few days before delivery the ſwelling of the abdomen deſcends; the ſwelling in the upper part of the abdomen ſubſiding, an unuſual pain is felt in the loins, urine comes frequently away, but with difficulty; a ſlimy humour flows from the vagina. Theſe ſymptoms afford juſt grounds to apprehend that the time of delivery is drawing nigh, though they do not amount to a certain proof; for at the time that the child is turned, which was before placed with its head towards the upper part of the womb, many of theſe ſymptoms occur. This turning of the child often happens on the eighth month of pregnancy, ſometimes

times ſooner, ſometimes later, and then delivery is thought to be at hand.—We ſhould however not be too forward in pronouncing our ſentiments about it. A woman with child is then moſt aſſuredly on the point of being delivered, when ſhe feels a pain in her loins, which is not continued, but recurs by fits; which pain paſſing by the ſides of the abdomen, ceaſes about the *pubis*, with the ſenſe of a *teneſmus*—theſe the midwives call true labor pains; but falſe if the pains are only felt in the abdomen, or if after having begun in the belly, they run back towards the loins: for theſe pains do not promote the delivery, but rather retard it, and ſhould they prove very troubleſome, ought to be removed by opiates, and then the true pains will come on. The pulſe then becomes higher and quicker, reſpiration appears to be more difficult whilſt the

woman

woman in labor, making an effort at every pang, keeps in her breath. All theſe ſymptoms encreaſe as delivery approaches, whilſt violent pains ſucceed each other with a rapid ſucceſſion: "*Aſſero autem* (ſays *Hippocrates*) *mulierem ubi pariat, crebrum ſpiritum emittere, &c. Tum vero potiſſimum crebro reſpirat, ubi partui proxima eſt, tumque maxime lumbis dolet; nam et lumbi a fœtu percutiuntur.*" *Mauriceau* farther ſays that the pudenda then begin to ſwell, and that women in labor are at that time ſubject to vomit; which he aſſerts to be no bad ſign, as it is vulgarly imagined, but an indication of an approaching delivery; this is confirmed by Sir *Richard Manningham*, who obſerves, that "*Vomitus vero inter puerperæ labores, ſi ſupra modo non ſint, nunquam non utiles ſunt.*" But we are not for that reaſon to prognoſticate a happy delivery, as unhappy accidents

may

may frequently happen unexpectedly and without any apparent cauſe—beſides if a vomiting follows as ſoon as the violent pains begin to ceaſe, we ſhall have reaſon to fear the womb is torn.

*Mauriceau* has alſo obſerved, that where delivery is at hand, the body of the woman in labor, trembles, eſpecially the legs and thighs; and that ſhe then feels no cold, but on the contrary feels a general warmth; this tremor however is by no means a bad ſymptom, but rather favorable—then or ſoon after, we ſhall find the humors which flow from the uterus, tinged with blood, which is juſtly regarded as a ſign of an approaching delivery.—

"*Apertio oris uteri mulieris gravidæ non ſemper parturitionis eſt ſignum certum; nonnunquam enim orificium adeo patefactum in quibuſdam invenitur, ut digitum inferri ſinat menſem ante partum*" is a remark of *Manningham*.

*Daventer*

*Daventer* prognoſticates a happy delivery, "*ſi uteri infima pars in pelvem illapſa fuerit, ita ut in limine vaginæ facile tangi poſſit: ſi os uteri, tenue, molle, lateque patulum ſit, et per aperturam oris uteri deprehendatur, infantem capite ad excluſionem prævio ſive prono ferri, neque brachio neque funiculo umbilicali intercedente: ſi ſimul aquæ in latitudinem ſe complanent, nonniſi facilis celerque partus expectandus eſt.*"

All theſe ſymptoms are favorable but yet nothing concluſive; for many things may happen to prevent an eaſy or ſafe delivery, ſuch as a circumvolution of the navel-ſtring round the neck or any other member of the child, an hydrocephalus, a ſwelled abdomen, or monſtrous configuration, &c.

We ſhould never attempt a ſpeedy delivery in women who lie in for the firſt time, however impatient they may be; for it is very unſafe; we ſhould rather

rather on the contrary proceed leiſurely, ſo that the parts may yield gradually, and not be violently and too ſuddenly diſtended; and we ſhould be very cautious at that time how we adminiſter warm and ſtimulating cordials; ſhould the patient be very languid and faint, and they are found neceſſary, we ſhould even in that caſe be very ſparing in adminiſtring them.

"*Mulieri uteri ſtrangulatione vexatæ*, ſays *Hippocrates*, *aut partus difficultate laboranti, ſternutatio ſuperveniens bonum.*" — Sternutatories however are not to be applied, eſpecially if the woman's face be red and turgid, her eyes much ſwelled, and her head very hot, before previous bleeding at the arms, otherwiſe there might be danger of burſting ſome of the veſſels of the head, and a mortal apoplexy be the conſequence.

*Levret* obſerves that when the entrance of the *pelvis* is of the larger ſize, the paſſage that leads from it is generally narrow and *vice verſa.* In the firſt inſtance, matters are conducted expeditiouſly in the beginning of delivery, but towards the end it is greatly impeded; for then there will be leſs reaſon to apprehend a *prolapſus uteri*, and the midwife can aſſiſt the woman in labor, by gently keeping in the *os coccygis*, which being crooked before ſuſtains the head of the child, and leaves a wider ſpace for its coming away.

Women who have in the earlieſt part of life been ſubject to the rickets have, by the univerſal teſtimony of the beſt writers in midwifery very difficult and hard labors; as they are generally hunch-backed, are lame or have their back-bone diſtorted — though doctor

*Brudenell*

*Brudenell Exton* obſerves that the ſtructure of the *pelvis* is not always ill-formed though the back-bone is diſtorted—be this as it will, it is certain that crooked and hunch-backed women have difficult labors, becauſe they breathe with difficulty, and therefore cannot ſo well exert themſelves in their efforts to forward labor.

If therefore the protruſion of the fœtus becomes difficult upon account of the cloſe connection of the bones, we ſhould endeavor to ſoften them by ſmooth and emollient unctions, fomentations and vapor-baths.

*Mauriceau* denies a compleat ſeparation of the bones of the pelvis, though he owns that their juncture may in ſome meaſure give way in the time of eaſy labor, but it cannot be denied, that in a difficult delivery the bones of the pelvis are ſeparated from each

other. This has been atteſted by the moſt eminent profeſſors in midwifery; they found the ligaments ſoft and dilated, and the bones themſelves ſeparated.

The womb ſometimes burſts in difficult delivery; although this happens rarely: the immediate cauſe of ſuch an accident is the kicking of the fœtus when ſhut up in too narrow a pelvis, eſpecially when the child is convulſed, which is frequently the caſe when it is at the point of death. The ſymptoms which precede a rupture of the womb are as follow: the fœtus having for ſome time remained motionleſs, is agitated ſuddenly, and occaſions the mother to feel violent acute pains in that part of the womb eſpecially which is threatened with a rupture; that is, about the fore part of the lowermoſt belly or epigaſtric region; theſe joltings return periodically, without any limitation

limitation to the intermediate ſpace of time; the laſt and moſt violent agitations which are fore-runners of the child's death come at length, and then the motion entirely ceaſes; for the fœtus generally dies convulſed; to theſe ſymptoms *Crantz*, a very eminent writer upon this ſubject, adds the following, "*vaſtum & diſtentum abdomen, retracta vagina orificium altum, dolores quidem veri, ſed violenti, ſine magnis intervallis frequentes, ſine partus progreſſu ingrati ſtatim ab initio aut medio naturalis nixus tempore, adſunt. Ruptis aquis, dolores vehementius inſtant, ſine intermiſſione improbi, ſine partus ſpe crudeles, ita mulierem diſcruciant, ut & ignarum vulgus his non enixam vehementer miretur, &c. donec tandem violentiſſimo ſubſultu elatus fœtus, contractum calcitru uterum perfodit, aut membro magis obtuſo dilaceret.*"

The ſame author afterwards conſiders whether the womb is broken whilſt the waters remain collected, or after they have been diſcharged from the womb the membranes being broken; and then concludes with this remark, "*nihil certi in hanc rem ſtatui poſſe; hucuſque vero in bene deſcriptis obſervationibus uterus ſemper poſt effluxas aquas ruptus eſt.*"

If the following ſymptoms happen, we may be aſſured that the womb is already burſt,—viz. If for example a fainting fit or great weakneſs ſhould follow, the mind being uninjured; if the face becomes pale, the pulſe is much weaker, if the abdomen ſwells with a big ſmooth tumor, attended with a ſenſe of an unuſual but not diſagreeable warmth; if the extremities are cold, and we perceive the face dropping with cold clammy ſweats, we may then

expect

expect the poor patient will not hold out long, but will generally die in convulſions. Sometimes when the rupture happens the byſtanders will hear the noiſe of a concuſſion, and after a fainting fit, the patient ſeems to recover; the motion of the fœtus is ſeldom or ever felt after this, the pains of delivery are at an end; the limbs of the child which could before be felt in the mouth of the womb, are now no longer to be perceived; that is if either the whole or the greateſt part of the fœtus adheres to the cavity of the abdomen—in that caſe by touching the abdomen the parts of the fœtus may be more eaſily diſtinguiſhed by the touch than they could be before, whilſt they ſtill adhered to the cavity of the *uterus*.

It has however been juſtly obſerved, that this ſeries of ſymptoms do not always occur; for ſome women with-

out any appearance of a rupture in the womb have died in a few hours, whilſt others may live ſeveral days, in whom there ſhould or at leaſt might have been various and different ſymptoms according as the fœtus which remains in the abdomen, preſſes and irritates the neighbouring viſcera. Nor does the *fœtus* always paſs into the abdomen upon a rupture of the *uterus*, for in an eaſy and natural birth, the child has been known to come out without the aſſiſtance of the midwife, the *placenta* immediately following it. The mother having died the ſame day, her body was opened, (ſays *Crantz*) and a rupture of the womb diſcovered.

We conclude the womb to be ruptured, and that the fœtus adheres in the abdomen, when we cannot perceive the part which was before touched in the orifice of the womb; if pure or congealed blood paſſes through the pudenda;

pudenda; if the orifice of the womb, as generally happens after delivery, ſeems inclined to cloſe up, or that the womb collapſes; the contrary ſymptoms indicate the fœtus to be either wholly or in part ſtill contained in the cavity of the uterus.

But as many of the ſymptoms of a burſt womb are taken from the diſcharge of blood which runs into the cavity of the abdomen, the ſame might happen in conſequence of any other hæmorrhage, although the blood be not collected in the abdomen. If the blood be diſcharged through the orifice of the *uterus* and *vagina*, the cauſe will be evident—but if the navel-ſtring ſhould be broken, the membranes being ſtill unhurt, or if the membranes ſhould be broke, and the head of the fœtus ſtop and fill up the mouth of the womb, the ſame thing would happen, the cavity of the womb

will

will be filled with blood, the fœtus being convulſed through inanition will ſtrike the womb, the woman in labor will become extremely languid and pale, and many other ſymptoms will come on ſimilar to thoſe which attend a rupture of the *uterus* either beginning or already happened; but this cauſe of an internal hæmorrhage, ſays *La Motte*, very rarely happens, and it never came under his obſervation but once in all his practice.

We find another caſe among the obſervations of *Levret*, where the umbilical chord was ruptured in the time of labor pains, and winding itſelf many times about the neck of the child, ſuffocated it. As the belly became more and more protuberant chiefly about the epigaſtric region, and felt hard to the touch, he apprehended an inward hæmorrhage, rather than a rupture of the uterus, for after an accident of that

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ſort, the abdomen indeed fills with blood, but then the tumor is ſmooth and ſoft, by which ſymptom we may diſtinguiſh a rupture of the womb from an inward hæmorrhage which fills the whole womb with blood. Thus though nothing could be concluded upon with a nice critical certainty, yet it was eaſy for ſo conſummate a judge as *Levret* to form a juſt diagnoſtic. For as the head of the fœtus filled up almoſt the whole vagina, and was not moved forward by the violent and frequent pangs which laſted four hours, there was reaſon to ſuſpect, that the umbilical chord twiſted round the neck or ſome other part of the child, retarded its delivery; that there was room therefore to fear that the *placenta* to which the chord adheres, ſhould ſeparate itſelf from the *uterus*, and an hæmorrhage ſucceed.——Nor was he chargeable with

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the commiſſion of any fault, in not knowing that the umbilical chord was broken, ſince that is an event which very rarely happens, nor can the phyſician or man-midwife know it to be ſo, ſo long as the fœtus fills up the whole orifice of the *uterus* with its head.

*Levret* is of opinion, and he was a man of great experience in theſe affairs, that no attempt ſhould be made to take out the *placenta*, unleſs the midwife be certain that it is in ſuch a ſtate, as to admit of an eaſy excluſion, which it is, if before delivery, during delivery, or immediately after, there is a large diſcharge of blood from the *uterus*, for then we know that the *placenta* is at leaſt partly ſeparated from the womb, and that therefore an entire ſeparation may be reaſonably expected, if the navel-ſtring be cautiouſly and gently pulled.——Nor ſhould the attempt be made, till we have

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reaſon to imagine the womb has contracted itſelf. For ſometimes the womb though diſengaged from the fœtus which greatly dilated it, ſinks down flat and flaccid, eſpecially after a hard labor, the whole abdomen then feels even, ſoft and flabby, but when the womb is contracted, and cloſes up its orifice after delivery, we then find a ſwelling like a pear tolerably hard and circumſcribed; this evinces us that the womb is much contracted, and that we have no cauſe to fear too large an hæmorrhage will enſue upon taking away the *placenta*. He was therefore for immediately taking away the *placenta*, if the hæmorrhage ſhewed that it was prepared for coming out, ſo that the entirely cleared womb might be the better able to contract itſelf, and ſo leſſen the flooding, for the blood by being detained runs into clots, and forms large lumps, which would

would again require much trouble to remove. Nay if ſuch a large lump was to ſtop up the orifice of the womb, and the flaccid womb not contract itſelf, the hidden hæmorrhage continues, and the whole cavity of the womb would be filled with blood, and the poor woman would fall into a violent *ſyncope*. A ſign of this dangerous ſituation, is if upon touching the abdomen the *uterus* appears large and ſoft; the only thing to be done in this caſe, is immediately to thruſt your hand into the cavity of the uterus and pull out theſe grumous clots, ſo that the womb may contract itſelf, and cloſe up the open veſſels.

The happy delivery moſtly depends upon the perfect ſtructure of the pelvis; for, if the paſſage be too narrow, it is plain that the fœtus muſt paſs with great difficulty, nay it will be ſometimes impoſſible. ——Though it

may

may, upon the firſt appearance, ſeem very extraordinary, yet have there been inſtances where, unleſs midwives have been very cautious, the too great breadth of the pelvis may do injury. For, in order that the delivery may be ſafe, the fœtus ſhould, by the efforts of the mother, be protruded through the orifice of the womb, gradually dilated; and the womb be at the ſame time ſo ſupported, as not to endanger its falling down; this may happen if the entrance of the pelvis be too wide, the womb in that caſe will deſcend with the fœtus, the orifice of the womb being ſcarce open, as it is not ſufficiently ſtimulated by the pains of delivery, unleſs the womb be ſuſtained by a proper narrowneſs of the pelvis. *Deventer*, from long experience knowing that this happens, adviſes midwives to examine the ſize of the pelvis when they are ſent for

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to women in labor, and not to be too confident, however favorable appearances may be, for there may otherwise be danger of a *prolapsus uteri*, This mischief may be prevented, if the midwife with her hands supports the uterus descending with the fœtus, lest it protrude from the pudenda. Thus by artificial means is a prop contrived for the womb, which the too great size of the pelvis would not have allowed. There is no doubt but that the womb, by its own contraction, acts in such a manner as to promote delivery.—*Hemsterhuys*, so long since as the middle of the last century, observes "*quod gravidæ canis uterus, abdomine aperto, suo nixu solo, diaphragmate & musculis abdominalibus non adjuvantibus, fœtum excluserit.*"—And there are many reasons to believe that the womb of a human creature has the same power. When the pains

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of delivery are at hand, the ſkilful midwife, by touching the orifice of the womb, perceives this, though the lying-in woman feels no pain; nay by properly irritating the womb, they excite it to drive its contents out of its cavity. After the death of the mother, the womb has by its own force driven out the fœtus: in a living perſon it often diſſolves the placenta, which is left after the child is brought away, and drives it out when diſſolved; it alſo diſcharges the clotted blood which happens to fill up its cavity, and being very much diſtended at the time of pregnancy, returns to its former ſize. Men-midwives have often felt their hands ſtrongly compreſſed upon putting them into the womb. *Ruyſch* diſcovered the ſubſtance of the uterus to be muſcular, and this has been ſince confirmed by the obſervation of others.

*Ruyſch* ſeems to have been ſo much convinced of the ſtrong contraction of the womb (long before he obſerved the muſcular fibres of it) that he was of opinion that the orifice of the uterus being cloſely ſhut up, or the head of the fœtus ſtopping it up, the humors contained in the womb might by the Fallopian tubes be forced into the cavity of the abdomen and into the pelvis. Nay, and what is ſtill more remarkable, the womb in a delivery of the moſt difficult kind, ſeems, by tranſudation as it were, to have forced blood out of its own ſubſtance into the cavity of the abdomen, which after death has been there found in large clots. A woman died in conſequence of a very hard and difficult labor, the fœtus was not excluded; we found the whole anterior ſurface of the womb covered with clotted blood, which could not be

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ſeparated from it—being ſpread out upon a table, it had the appearance of a cake of coagulated blood, of the length of fifteen thumbs in breadth; a foot broad, and three lines in thickneſs.——Upon the cloſeſt examination, no veſſel was found ruptured, nor was there one drop of blood to be obſerved throughout the whole cavity of the abdomen; ſo that it is very probable that the blood was forced out of the very ſubſtance of the womb by tranſudation, by the violent and forcible efforts of the poor ſuffering creature. This may often probably be the caſe in very difficult labors, ſo that the worſt conſequences may be feared to ariſe from this corrupt extravaſated blood, being melted and deſtroying the viſcera contained in the abdomen, for it is hardly credible that ſuch a quantity of clotted blood, ſo

collected in the abdomen, can be returned into the course of circulation.

Of a bursting of the womb, *Gregoire*, a famous professor of midwifery in Paris some years ago, gives us sixty instances, during the course of thirty years practice; amongst others he relates one where he perceived that the womb being broken at the side of the placenta, the fœtus with its feet touched the diaphragm of its mother.—In another, he took notice that the head of the child and the whole right side, being without the womb, the other parts remained within, so that the fœtus rode as it were with straddling legs upon its mother's womb.

We not only read of the cleft womb, but the abdomen itself has been known to make a very loud crackling noise in a difficult labor, and that the fœtus has come out through this very aperture,

ture, the placenta taken thence, and the viſcera of the abdomen ſeen by all the by-ſtanders. Yet the lying-in woman was perfectly recovered by the ſimple application of butter, mixed with white ſugar, the ſcar left; much reſembled that which is made on a wound made by a blunt needle. This ſurpriſing caſe would ſcarce be credible, had it not been ſtrongly confirmed by the affidavits made before a magiſtrate by the eye-witneſſes, and the ſame atteſted by the midwife and another woman who drew out the placenta; and is now preſerved by the ſecretaries of the Edinburgh ſociety.

The immediate cauſe of a burſt womb, as deſcribed by *Levret*, is the kicking of the fœtus whilſt it is incloſed in too narrow a pelvis, eſpecially too when it happens to be in convulſions, which often is the caſe juſt before its death; if the womb, at that

time, ſhould be urged by its own force, together with the efforts of the mother, we are much to fear this accident of the womb may happen. Moreover it is to be conſidered that the force of the muſcles is conſiderably encreaſed by convulſive motions—That theſe misfortunes have happened to the womb is confirmed by the obſervations of many writers of eminence and authenticity, and are collected by the celebrated *Crantz*, who wrote an admirable treatiſe *de rupto utero*.

The excellent *Deventer* recommends it ſtrongly to midwives, in caſe they find by the touch that the pelvis is narrow, not to preſs their patients to make forcible efforts, whilſt they feel the pains of labor, as there will be no haſte to accelerate it; the chief hope upon this occaſion, is, that the head of the fœtus will be inſenſibly lengthened by a ſlow and gentle effort, and ſo be

enabled

enabled to paſs theſe ſtreights.—For this reaſon, no medicine ſhould be adminiſtered, nor any art employed to encreaſe the violence or the frequency of the pains, though this is often inſiſted upon by the woman in labor as well as by the by-ſtanders.——The bones of the pelvis conſiſt of ſeveral different bones, which ſeem to have a power of mutually receding from each other, in order to give the fœtus a free paſſage; theſe are connected by intervening cartilages and ligaments, and have been obſerved to ſwell, to ſoften, and to grow flexible on the approaching delivery, ſo that they might be better enabled to yield and give way; but then theſe things ſhould happen gradually, and it is therefore better that the delivery ſhould not be too precipitate, eſpecially if it be the firſt labor the woman has gone through. The patient ſhould at that time be

placed in the moſt convenient poſition, whether in a bed or chair, ſo that the *os coccygis* may be able to yield freely, and not be preſſed by the weight of the body or of the cloaths. Nay, when the fœtus preſents its head in the paſſage out of the pelvis, *Deventer* adviſes the midwives to preſs back the *os coccygis* equally on all ſides, by introducing the back part of the hand into the vagina, the palm of it bearing upwards, and by theſe means to extract the fœtus which is ready to come away.——

It requires a very nice attention to diſtinguiſh a ſyncope from death in pregnant women—and this more eſpecially where they have in their lifetime been ſubject to fainting-fits and hyſterical diſorders, and have been ſeized with a violent ſyncope at the time of their pregnancy—for then they turn pale, the face falls, becomes wan

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and ghaſtly, the extremities are cold and hard, and both pulſe and reſpiration ceaſe entirely. I well remember having been ſent for in great haſte to a woman with child in her fourth month; ſhe had been previouſly ſo exhauſted by a *cholera*, and with ſudden and copious evacuations in five hours, that after being ſeized with convulſions, ſhe fell into a real ſyncope, ſo that ſhe was thought to be dead by all about her when I arrived.—I ſucceeded but very little for the firſt quarter of an hour, though I ordered her extreme parts to be well rubbed, warm cloaths to be applied, and both her tongue and noſtrils to be ſtimulated with ſpirituous remedies; her friends even appeared offended at my tampering (as they imagined) with the body; I notwithſtanding proceeded, and after a few minutes, I perceived ſome motion in the carotid arteries; ſhe opened

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her eyes, groaned, and gradually came to herſelf: her exhauſted body was by degrees reſtored by a good nouriſhing diet, and her ſtrength by cordials, ſo that ſhe perfectly recovered; on the ſeventh month ſhe was delivered of a living child, but ſo weakly that it lived a few days only.

That moſt infallible criterion of certain death, the putrefaction of the body, cannot here take place, for the fœtus muſt certainly periſh firſt; we may ſometimes wait two days or longer, before the body begins to ſmell—under theſe circumſtances we ſhould have recourſe to the Cæſarian operation, in order to preſerve the child, if poſſible.——When however upon a very cloſe, careful, and very exact examination, no ſymptoms of life appear, if no reſpiration, no motion of the arteries, or warmth is perceived; if the face was ghaſtly before death, the eyes dull

dull and obſcured by a viſcid covering, if the limbs be ſtiff, the extremities cold; if the lower jaw be fallen, and remains ſo, if no ſudden and copious evacuation precedes, ſo that we may ſuſpect a real ſyncope, if the motion of the humors, now ſtill and diſcontinued, can be ſtimulated by no remedies—in that caſe, if there be not a phyſical, yet is there at leaſt a moral certainty of death, which may be ſtill farther aſcertained, if no ſigns of ſenſe or motion are obſerved upon applying fire to the body.

## *Of the Diſeaſes of Childbed.*

"*CERTO certius autumo,* ſays *Ruyſch, uterum ſeſe ſummopere movere in partu, omneſque partus conatus naturales ab utero fere pendere. Qui conatus poſt partum non raro adeo vehementer perſeverant, ut uterus ſemet ipſum invertens e corpore procidat. In aliis puerperiis, paucis horis a partu, expertus ſum, uteri motum adeo fuiſſe evidentem, ut obſtetrices imo & puerperæ ſæpius mihi dixerint, alium fœtum adhuc in utero reſtare.*"

The *uterus* after delivery ſhould be cleared of all the clotted blood, &c.

and

and that as much as poſſible with the hand, for warm and ſtimulating medicines would be at this time very injurious to the woman. Warm water may be injected into the womb for that purpoſe which ſoftens and diſſolves, and thus we may reaſonably hope that what is retained will by theſe injections be waſted away, and if it ſhould not immediately have that effect, this advantage may at leaſt ariſe from it, the putrefaction is thus prevented, and the continuance of the clotted blood, &c. in the womb will be rendered leſs dangerous; and this injection may be repeated with ſafety.

*Mauriceau* has obſerved that too large evacuations after delivery, are ſometimes occaſioned by the thick excrements accumulated in the great inteſtines at the time of pregnancy. He was called to aſſiſt a lying-in woman, from whom the *placenta* had been taken

away

away a little too roughly, which brought on a violent hæmorrhage which continued five or ſix days. Although a few emollient clyſters had been thrown up, no excrements came away, but the clyſters only— : contrary to the opinion of many who were preſent, he directed a clyſter ſomewhat ſtronger than what had been adminiſtered, which had ſo good an effect that it filled a whole pot with hard excrements, upon which the ſwelling of the abdomen, which before was puffed up and much affected with pain, immediately ſubſided, and the hæmorrhage ceaſed. Half an ounce of the tincture of cinnamon diluted in ſix ounces of diſtilled balm-water or ſuchlike, given in the quantity of a ſpoonful every two hours, cheers and ſtrengthens the lying-in woman, and yet does no hurt by increaſing the motion of the blood.——

Fatal

Fatal conſequences are juſtly to be apprehended if the *lochia* come away but ſparingly, and the breaſts do not ſwell at the uſual time, eſpecially if there happens the leaſt appearance of a delirium, or that they ſpeak indiſtinctly. Some are ſeized with a violent head-ach, and that in ſo ſudden a manner, that they think their head has been ſtruck by ſome outward blow; this is attended with a tingling of the ears, a common ſnoring, the *riſus ſardonicus*, a *ſubſultus* of the tendons, ſtrong convulſions, and ſudden death. Upon opening the ſkull, a milky matter has been often found lodged in it. *Levret* ſays he frequently obſerved acute diſeaſes of the breaſt in women after delivery, which he very juſtly attributed to the ſame cauſe; the breaſts were flabby, when theſe diſorders were coming on, but when luckily the breaſts began to ſwell again,

a cure

a cure quickly followed—this metaſtaſis of the milky matter may fall upon other parts of the body, not ſo eaſily to be removed.—— *Chomel*, a very able phyſician, in a woman who was in her firſt lying-in, obſerved the belly to ſwell in ſuch a manner, that three weeks after delivery it was almoſt as big as towards the cloſe of her pregnancy. The navel having broke of its own accord, there iſſued forth a large quantity of a milky and ſerous fluid, of a very bad ſmell, and of a greyiſh color; two months after this rupture, the patient was perfectly recovered; he was of opinion that this tranſlation of matter was lodged between the duplicature of the peritonæum.——Practical obſervations confirm that theſe milky metaſtaſes may happen and affect different viſcera. In the winter of the year 1746 an epidemical diſeaſe was obſerved in women with child.

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The waters ran from them in their labor, after which the dry, hard, and painful *uterus* began to ſwell, neither did the *lochia* come away as they ought to have done. The diſorder began with a looſeneſs, attended with a pain of the belly, particularly at that place where we find the broad ligaments of the womb, the abdomen was tenſe, they complained of a head-ach, and were ſometimes ſeized with a cough. On the third or fourth day after delivery the breaſts, which then uſually begin to ſwell, grew flaccid, and they died on the fifth or ſeventh day. This diſeaſe for the moſt part attacked the poor only, eſpecially if they were brought to bed in the hoſpital. In the month of February this diſeaſe was ſo dangerous, that ſcarce one out of twenty eſcaped. Upon opening their bodies after death the milk was found coagulated and adhering to the

outward ſurface of the inteſtines, and a ſerous fluid ſwimming in the cavity of the abdomen: a like ſerum was found in the cavity of the breaſt of ſome of them, and in cutting the lungs they diſcharged a milky but putrid ſort of a lymph. Upon cloſely examining the ſtomach, inteſtines and womb, they appeared in a ſtate of inflammation, and grumous blood iſſued from the diſſected veſſels of the womb; we obſerved in many of them a ſuppuration of the *ovaria*.

May we not naturally therefore conclude, that ſuch a milky metaſtaſis may produce many diſorders, which we alone attribute to a ſuppreſſion of the *lochia*; and that too, juſt as it is carried to this or that part, and with the greater danger in proportion as it is tranſlated to ſuch as are more neceſſary to the vital functions, and whence it is not ſo eaſily again to be removed.

Thus

Thus for example, when it is thrown into the thighs and legs, we have reaſon to hope it may be brought into ſuch a ſtate as to diſpoſe it to be carried off through the ſeveral paſſages of the body, either by ſtool, urine, and above all by ſweats, by means of fomentations, frictions, &c. But ſhould it fall upon the inſide of the ſcull, death muſt be the conſequence. But it is very evident, that great care be muſt taken to diſtinguiſh between the ſwelling of the legs and thighs which happens after delivery, and that which happens in women with child from the diſtended womb compreſſing the veins, and which ſubſides ſpontaneouſly as ſoon as the woman is delivered, and the womb alſo ſubſides. For the firſt begins from the thighs and then deſcends to the lower parts, reſiſts the touch of the finger when it is handled, neither do they leave any remains of

an impreſſion when we take away the finger; the ſecond begins from the lower parts, aſcends gradually, is ſofter, and more eaſily yields to the preſſure of the fingers, for it is a true anaſarca ariſing from a compreſſion of the veins.

In an inflammation of the womb, the tongue is for the moſt part rough and as black as if it had been done with ink, and a pain is felt at the extremities of the fingers and nails.

The *uterus* in the time of childbed is more eaſily irritated than at other times, and will therefore on the ſlighteſt ſtimulus, or paſſion of the mind be ſo conſtricted, as inſtantly to ſuppreſs the *lochia* from which circumſtance many bad conſequences may be expected: for this reaſon men of the greateſt ſkill in midwifery when they attend women in labor are apprehenſive of danger, if the quickneſs of the pulſe

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which riſes at the time of delivery, abates not in an hour after, for then an acute diſeaſe uſually follows, and an inflammation of the uterus may juſtly be feared, together with all its terrible conſequences.

Women of a delicate conſtitution and who have been ſubject to hyſteric diſorders ſhould never quit their bed till the tenth day after delivery, otherwiſe they run the riſque of a *prolapſus uteri.* Women after they have been ſafely delivered, and repoſed themſelves for a few hours, ſhould try to make water, though they feel no inclination to do it, otherwiſe a troubleſome ſuppreſſion may follow.——

*Levret* has very judiciouſly divided the diarrhœa of women in childbed into the *critical* and the *ſymptomatical.* The critical generally begins on the third or fourth day after delivery; the excrements then voided are of a yel-

lowiſh or white color, or of both thoſe intermixed, which affords great relief, and is attended with no ſuppreſſion of the *lochia* or urine, but only with a ſlight diminution of them; the appetite and ſleep remain tolerable, the pulſe is regular and the abdomen is ſoft. The ſymptomatic diarrhœa on the contrary begins much earlier, and is immediately attended with ſlimy and black ſtools, which become ſerous and ſometimes purulent and bloody; the *lochia* are ſuppreſſed, the abdomen ſwells, the ſtrength fails, the appetite is deſtroyed, ſleep is baniſhed, and the urine paſſes in ſmall quantities, leaving a lateritious ſediment; the patient is thirſty, feels an inward heat, while the external parts of the body are cold.

The rules of art forbid us to ſtop a critical diarrhœa, neither is it ſafe to ſuppreſs the ſymptomatical, for ſo would putrefaction be locked up with-

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in the body. Our indication here is to correct the putrefaction already begun with efficacious *antiſeptics*, and to reſtore the ſinking ſtrength of the patient; but if any putrefaction mixed with the humors runs off by the veſſels and ſo brings on a weakening flux of the belly, it will more ſafely go off by urine and ſweat. *Hippocrates* after he had adviſed to relax the body, in a ſuppreſſion of the *lochia* by an emollient clyſter, particularly, adds, "*quod ſi facile vomuerit, etiam vomitus ciendus; ſatius autem urinam ciere, & ſudorem provocare.*" Gentle diluents which are uſually given to women in child-bed in pretty large quantities, promote theſe diſcharges tolerably well—ſweats however brought on by the warmth of a very hot chamber, bed-cloaths, or heating ſudorifics would be very injurious; they ſhould be encouraged only by warm diluting draughts and

the gentle heat of the bed-cloaths. By this means will the fatigue of labor be removed, and the milk fever be carried off.

*Sydenham* has very prudently adviſed the too long continuance of the remedies called Uterine; and he once, and once only, preſcribed laudanum, either by itſelf or mixed with uterine medicines, in order to compoſe the diſordered ſpirits; he diſcommends alſo the uſe of clyſters, nor would he have them repeated, if the ſecundines do not come away after one injection.

*Manningham* ſays, "*ſi ſuppreſſis lochiis uterus inflammetur, e brachio potius quam a pede, mittatur ſanguis*"—for the motion of the blood through the lower veſſels being accelerated, the inflamed womb will ſuffer the greater violence. —However women in labor ſhould not be too readily bled——.Several ſymptoms attend lying-in women which often

ten reſemble acute diſorders, which ſhould not by any means be treated like them.

The firſt milk which gathers in the breaſts after delivery is thin and ſerous, and very beneficial to the new-born infant, as it yields a thin nouriſhment, cleanſes the ſtomach and inteſtines of the filth which they contain, and at the ſame time gently relaxes the belly.

*Nannoni*, a famous Italian writer, has obſerved that if an inflammation ſeized the cellular part of the breaſt only and a ſuppuration enſued, the ſecretion of milk was not thereby impeded: but if on the contrary it affected the glandular part, in that caſe the ſecretion of the milk became greatly leſſened, and ceaſed entirely, in proportion as a greater or leſs part of the glandular ſubſtance was ſtuffed. He farther obſerved a ſlower ſuppura-

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tion in the glandular than in the cellular ſubſtance, and that the former was more in danger from a ſcirrhous hardneſs remaining.——I have known hemlock taken both inwardly and outwardly applied, happily diſpel ſuch tumors.——*Our publick as well as private practice does not hitherto ſeem to confirm this.*

This ſame writer never uſed unctions, but only, after applying the ſofteſt linnen towels, he conſtantly fomented the breaſts with warm water; and at night directed a ſmall poultice of crumbs of bread, milk, *&c.* Sometimes he applied a mercurial plaiſter to the hardened tumor.

## *Of the Diſeaſes of Children.*

LEVRET very judiciouſly adviſes us neither to bind or cut the navel-ſtring, except the child has firſt breathed.

But if the new-born child ſhould have a ſwelled pale face, and ſhould not breathe, or breathe but little, the umbilical cord ſhould be directly cut, though not tied, that a certain quantity of blood may run out, ſo that the lungs loaded with it, and not as yet dilated by a free inſpiration, may be dif-

diſengaged, for there would otherwiſe be danger of ſuffocation. As ſoon however as the child begins to cry, now freely breathing, the navel-ſtring is to be tied.

Tumors in the hind part of the head of children juſt born are dangerous, for they generally die convulſed; although theſe ſwellings in other parts of the head are not attended with the like danger.—The ſutures too far diſtant is alſo of bad omen; this uſually happens either becauſe they came out of the womb too ſoon, or becauſe the lymph preternaturally collected in the cavity of the ſcull, begins to form an hydrocephalus.

Women with the thinneſt and moſt diluted milk in their breaſts are the fitteſt nurſes for children, more eſpecially in the firſt months after they are born; when they grow ſtrong, and it ſhould then be thought neceſſary to give

give it thicker milk, another nurſe may be ſubſtituted.——

*Moſchion* ſays the diet of nurſes ſhould be *communiter, ſicut omnes homines ut ſana eſſe poſſit*——certainly a ſimple diet is beſt, ſuch as broth and the fleſh of young animals, roaſted or boiled; vegetables are alſo of ſervice, ripe fruits, not acid, new-laid eggs, *&c.* rich fat meats, ſour things, or ſalt or aromatics are injurious.

*Moſchion* adviſes nurſes not to give children ſuck at all times when they cry, but to examine, whether their cloaths be not too tight, or whether there be an excretion of urine, *&c.* for he ſays the child wants nouriſhment *ſi hypochondria cava ſint.* Too briſk a motion of the cradle may cauſe the milk to curdle in the child's ſtomach, we ſhould therefore be cautious in this matter; ſuch cradles are beſt therefore which do not ſtand on the ground but

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are ſuſpended by cords, and moved equally, and ſo vibrate like a pendulum, for when the motion is inſenſibly diminiſhed, they return to a ſtate of reſt, and continue ſo—when they ſtand on the ground, the inſtant you have done rocking, the child generally awakes.——

Children when weaned, ſhould begin with a more ſoft, and ſo proceed to a more ſolid diet; ſo that the viſcera may be gradually accuſtomed to the change.

Children generally enjoy a better ſtate of health when their bodies are open, than when they are bound; "*Quibus copioſe profluit alvus*, ſays *Hippocrates*, *& belle concoquunt, illi meliore ſanitate fruuntur.*" Worms of different kinds are found in different parts of the body.—*Du Verney* gives us the caſe of a child of five years old, who conſtantly complained of a vio-

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lent pain about the root of the noſe; it kept its bed three months with a ſlow fever; then violent convulſions followed; after death, a worm was found in the longitudinal ſinus of the brain, about the length of five thumbs breadth, much reſembling an earth-worm.

In *Baglivi* we meet with the hiſtory of a man of forty years of age, who was ſuddenly ſeized with violent pains of his ſtomach and its neighbouring parts, which laſted eight days; after which he was every half quarter of an hour convulſed both night and day, but which however was ſoon over, theſe convulſions were attended with a pale countenance and a privation of ſtrength.——

His body being opened, a worm was found in the cavity of the pericranium, hairy, alive and almoſt the length of four fingers breadth.—The

poor

poor wretch before he died, ſaid that he felt as if dogs were gnawing his heart and belly.——

The ſtomach and bowels abound with a glutinous ſubſtance; this ſlimy matter may afford a tolerable convenient nidus for the eggs of worms, in which they reſt themſelves, and by which they adhere ſo cloſely to the ſides of the inteſtines, as not hardly to be removed from thence by the periſtaltic motion of the bowels, nor by the aliments and excrements paſſing through the cavity of the inteſtines—and this ſlimy ſubſtance abounds in young ſubjects, it is for this reaſon they are ſuppoſed to be more frequently troubled with worms—nor is it wonderful, to find theſe worms ſometimes all over covered with this viſcid matter.

Smooth worms have been frequently voided by ſoldiers in camps, when attacked

tacked with the bloody flux, intermitting or remitting fevers. —— Doctor *Pringle* obſerves at the ſame time, that we are not to imagine theſe worms were the cauſe of theſe diſorders, but they exaſperated them.——

Worms are divided into three claſſes, the *round*, the *broad*, and the *aſcarides*: the round, called ſmooth alſo, are oftener found in the inteſtines than other human worms; they generally equal a writing-pen in thickneſs, ſeldom exceed that ſize, ſometimes they are ſmaller; their length varies, but very rarely exceeds a foot.

The *broad*, which are likewiſe called belly-worms from their ſmooth figure, and length, which is often immenſe: it is alſo called *vermis ſolitarius*, becauſe frequently found alone and through the whole length of the inteſtines.— *Andry* has given a full deſcription of

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this worm, and deſerves to be conſulted upon that ſubject.

The *aſcarides* are, as *Galen* defines them, "*Tenues quidem lumbrici in parte præcipue inferiori craſſi inteſtini procreati.*" They are of a ſmooth figure, very little and pointed at the ends, and ſometimes abound in great quantities about the extremity of the *rectum*, and come away with the excrements. They are very reſtleſs and extremely lively, and derive their name upon that account from the Greek ασκαριζειν, to dance, to leap and to be in conſtant motion. They are moſt troubleſome towards evening.

People who are troubled with worms ſwell immediately after eating, becauſe the whole ſwarm of worms creep towards the upper parts.

Children who are troubled with worms frequently have a cough, this

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is confirmed both by the authority of *Aetius* and *Freind.*

A variety of ſymptoms will prevail, according as the worms irritate or gnaw the various parts.——Worms have been found in the *kidnies* and conſumed them, in the *liver* which it deſtroyed.—

The worms of the inteſtines feed upon the chyle, and deprive the body of its nouriſhment; hence thoſe who are ſubject to theſe diſorders are conſtantly craving for food, and have a moſt voracious appetite.——They will alſo be pale and weak, becauſe as blood ſhould be made of good chyle by the action of the veſſels and viſcera, from which the other more ſubtile humors ſhould be ſeparated, it is evident that the red blood muſt be diminiſhed by the diminution of the chyle which is devoured by theſe little animals.——

They will be coſtive alſo—for when the diſeaſe gains ground, and the quantity of worms is encreaſed, the worms will conſume every thin fluid contained in the inteſtines, what is thick remains, and as the periſtaltic motion is diſturbed, it is not eaſily forced towards the anus; hence the bowels being filled, will dilate; their contracting force diminiſhes, and the belly will ſwell more and more—daily obſervation confirms this in children who are troubled with worms.

*Jacquin* obſerves that thoſe who eat a great deal of unripe fruits, and feed upon fiſh and ſalt proviſions are more liable to be troubled with worms, than thoſe who live upon a better diet—for this reaſon it is in general remarked that the children of the poor are much more frequently attacked with worms and ſwelled bellies. The Autumnal ſeaſon is more favorable to

this

this diſorder, than any other ſeaſon of the year—this is confirmed by *Hippocrates*—*Autumno maxime lumbrici & cardialgia.*

Dr. *Alexander Monro* among the various ſymptoms attending this diſorder, recites the following—*Diu obſervavi*, ſays he, *in illis hominibus pupillam eſſe dilatatam qui vermibus in ventriculo vel inteſtinis laborant, & ſi non pro ſigno pathognomico ſaltem pro ſyndrome ſive ſymptomatum concurſu & optima diagnoſi, haberi poteſt.* It is well known that if the intercoſtal nerve be cut in a living dog, the eyes grow dim, loſe their luſtre, ſhed tears, become hollow, the circumference of the eye is ſmaller, and the pupil contracted.——He concluded therefore that the intercoſtal nerve ſerves to dilate the pupil, and that its action is encreaſed whenever the nerves of the ſtomach and bowels

were irritated; this opinion of *Monro*'s is well confirmed by what Mr. *Jaquin* wrote to me while he reſided in America — where he obſerves the inhabitants are often troubled with worms, which are uſually attended with the following ſymptoms; *ſomnolentia, tormina ventris, oculi clari, ſed flaveſcentes, palpebra inferior flaveſcens, vel cæruleſcens, convulſiones ſubito lethales.*

The chief remedies for worms ſeem to be properly enough divided into three claſſes. Thoſe of the firſt claſs are rough and ſtrong; and it is expected that the periſtaltic motion of the inteſtines is ſo moved and preſſed by them, as to deſtroy the tender bodies of the worms, ſo as that they may the more readily be carried out of the body.——The ſecond claſs are ſuch as may poſſibly kill and deſtroy

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the worms by thir intenſe bad and penetrating ſmell. —— The third are ſuch as though neither hurtful by their roughneſs or ſtench have nevertheleſs been found upon repeated trials to have anſwered the purpoſe.

To the firſt claſs belongs that celebrated remedy preſcribed by Dr. *Mead*—The *Stann. Raſ. & Coral. rub.* —powdered tin may in many ways be deſtructive to worms, but it chiefly acts by its getting between the coats of the ſtomach and inteſtines and the worms, and ſo prevents their eaſily adhering to the ſtomach and bowels, ſo that when a purge is afterwards exhibited they are eaſily carried off.——

*Garlick* is a remedy belonging to the ſecond claſs—it encreaſes the motion in the fibres of the bowels, and ſo prevents the worms from ſticking to their ſides, and ſo be the more readily

conveyed out of the body by purges. *Aſſa fœtida* is alſo a good medicine for the ſame reaſon. *Hoffman*'s ſpecific in theſe caſes, conſiſted in pills made of *aſ. fœtid. myrrh croc. & merc. dulc.* The *valerian* root freſh powdered belongs to this claſs of medicines, and ſo may *crude ſulphur*.

*Fern root* is a ſurpriſing and certain remedy, and drives all ſorts of worms out of the human body, if we may give credit to the celebrated Mr. *Marchant*.

*Amatus* gives us a worm powder to which he aſcribes great power, viz. *corallin. ſem. Santon.* an. p. duas, *dictamn. alb. biſtort. tormentill.* & an. p. unam.——

*Boerhaave* recommended a compoſition which was made with ſaffron and myrrh, on which he poured twenty times the quantity of vinegar from the

ſtrongeſt

ſtrongeſt wine, in a high chemical vial, he boiled it for twelve hours, by percolation after boiling he ſeparated the vinegar enriched with the ſtrength of the ingredients from the dregs, upon the remaining part he poured one half of the former quantity, and boiled it as before; by diſtilling theſe two tinctures mixed together over a gentle fire, he thickened it ſo as to equal the remaining third part; the acid of the vinegar thus became ſufficiently concentred and impregnated with the virtues of the ingredients — he much commended this medicine—when the firſt paſſages were overcharged with putrefaction, a fœtid bile, thick viſcid phlegm, worms and ſuch other diſorders as aroſe from thoſe cauſes.—— This is to be taken from one to three drachms in mead or ſmall ſweet wine, in the morning on an empty ſtomach,

at

at leaſt twelve hours after the laſt meal.——I have known this medicine very frequently exhibited to great advantage.

Vitriolic and ſteel medicines have alſo been adminiſtered in theſe caſes with ſucceſs.

Phyſicians have frequently preſcribed bitter medicines to be taken inwardly, and then given clyſters of milk, &c.—and yet after all we do not find that bitters are ſo deſtructive to worms as it is generally thought.

The diſſection of many who have died of worms, evince us that the bowels and ſtomach, &c. have frequently been eaten through by them.

If the excrements which naturally turn yellow in children, ſhould on a ſudden become greeniſh at the time of their cutting teeth, convulſions are to be expected—becauſe we may conclude from that change of color that the

the *commune ſenſorium* and the whole nervous ſyſtem are deſtroyed.

A looſeneſs is of advantage, "*Quibus in dentitione alvus multoties ſubducitur, illi minus convelluntur quam quibus ita paucies*" is an axiom of *Hippocrates*, who farther obſerves that the winter ſeaſon was beſt adapted to the cutting of teeth, and that children get over it better *cæteris paribus* at this, than at any other ſeaſon of the year.

THE END.

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