The seaman's medical instructor : in a course of lectures on accidents and diseases incident to seamen, in the various climates of the world ; calculated for ships that carry no surgeon ... / by N.D. Falck.

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THE SEAMAN'S Medical Instructor,

IN A COURSE OF

LECTURES

ON

ACCIDENTS AND DISEASES

INCIDENT TO SEAMEN,

IN THE VARIOUS CLIMATES

OF THE WORLD.

CALCULATED FOR

SHIPS THAT CARRY NO SURGEON.

The Whole delivered in a plain Language, and founded on a long and ſucceſsful Experience.

By N. D. FALCK, M. D.

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M, DCC, LXXIV.

THE PREFACE.

IF we conſider the many benefits that navigation contributes to commerce in general, and how much the proſperity of nations are indebted to its ſource, we muſt without heſitation declare ſeamen, a moſt reſpectable part of mankind; and if we reflect a moment, on the many hazards and perils they are expoſed to on that precarious element, and the advantages we reap from their toil, the common feelings of human ſociety, muſt awake and remind us, not only how much we are obliged as ſocial members, even from a motive of ſelf-intereſt, to ſtudy their preſervation, but as fellow creatures, how forcibly our duty calls us to give them every aid in our power, and to lighten the burthen of their many toils.

A ſhip at ſea may be conſidered as a floating kingdom; and the ſubjects, however few in number, are not only liable to the ſame accidents as thoſe on ſhore, but to many more, peculiar to that precarious and fluctuating element that ſurrounds them. For this reaſon there are many things requiſite to be known by the mariners beſides the art of conducting a ſhip from port to port.

Of all the various knowledges that diſtinguiſh the human ſpecies from the brute creation, what is of more value than that which tends to the preſervation of life and health? I believe that every man who is actuated by motives of philanthrophy will with me wiſh, that mankind in general would advert more to it in the principles of education, than what they at preſent do. Indeed it is aſtoniſhing that ſo valuable an acquiſition, as to have ſome knowledge of the body we poſſeſs, and its preſervation, ſhould be ſo totally neglected, as to be entirely excluded from education; an acquiſition that not only

enlivens

enlivens the mind, but in itſelf is ſo very eſſential to our exiſtence; yet what is more to be wondered at, is, that a ſeaman who launches into the main ocean, is cut off from every aſſiſtance, in caſe of an accident or ſickneſs, and rendered wholly unable to give the leaſt aid to himſelf, or thoſe who are entruſted to his care. Large ſhips I own are exempt from this obſervation: but are not the lives of men on board of ſmall ſhips equally as valuable, and worth preſerving, as thoſe of greater burthen?

I am not the firſt who has had the welfare of ſeamen at heart; various writers, and men of abilities too, have preſented the world with obſervations, that undoubtedly have proved beneficial to that claſs of men; but then theſe books were neither intended, nor fit to be put into the hands of ſuch ſeamen, as actually ſtand moſt in need of thoſe very obſervations they have made, and only intended for the peruſal of men of phyſical talents; nevertheleſs they merit for their labour public thanks,

as uſeful members of ſociety. But if we take an impartial view of the number of ſeamen, I believe the greateſt part are employed in ſmall ſhips, that either carry no ſurgeon, or (I am ſorry to ſay it) ſometimes one they had better be without; eſpecially in war time, when they ſtand moſt in need of a good one.

To benefit theſe men, and at the ſame time to make that benefit univerſal, is the plan I have aimed at; and I believe this is the firſt attempt of the kind; at leaſt I know of none whoſe ſteps I have followed in this deſign.

Should I aſk phyſical writers why they have neglected ſo valuable a part of ſociety as ſeamen, in giving them their friendly inſtructions reſpecting their health, I doubt not, but the majority would reply, that the education of maſters of ſhips and ſeamen in general, has not enabled them to underſtand a ſubject ſo much above their comprehenſion, or ſphere. But if ſeamen have not the advantage of an extenſive education, are they diveſted there-

fore

fore of common ſenſe and underſtanding? and is it not poſſible to deliver them inſtructions, dreſſed in ſo plain a language as to adapt it to their capacity?

Nevertheleſs, though men of abilities have not thought ſeamen worth their pen, others have; but ſuch whoſe purſuit in life has been ſtimulated by motives of a different caſt. Thoſe have furniſhed ſeamen not only with directions to cure *all* diſeaſes, but even given them medicines to do it with, into the bargain; or to ſpeak more ſeriouſly, given them directions how to uſe ſuch medicines as would yield the moſt profit to the apothecary, who with pretended wiſdom equipt them out: and I am apt to think, that kind of quackery has ſtoln away the lives of many valuable ſeamen.

It is univerſally aſſerted that ſeamen are not fond of reading; this in a great meaſure is true, but far from being a general rule; and though blind prejudice has given them an averſion to every thing *phyſical*, yet I will venture

venture to ſay ſo much in their behalf, that hitherto nothing has been offered to them that could alter their opinion in this reſpect, or open their eyes, in ſhewing them the beauties of that uſeful ſtudy, and in how ſmall a compaſs its true principles might be contained.

Phyſic like religion is rendered intricate and abſtruſe, the more it abounds in errors and abſurdities; but truth like the brilliant ſun, drives away all the phantoms of perplext myſteries, and proves that both alike are ſimple and beautiful, founded on reaſon, and that its moſt uſeful part is comprehenſive to common underſtanding. This pleads in favour of my attempt, and with every man of ſenſe, muſt overpower prejudice.

That I might the better ſucceed in my intention, I have begun the whole at the firſt principles, namely the mechaniſm of the human body; for I cannot ſee how any man can pretend to know the nature of diſeaſes, or preſume to adminiſter any thing with certainty, without he has ſome knowledge of the parts that

ſuffer;

ſuffer: this then is the ſubject of my firſt lecture; and to make it the more pleaſing, and to entice the reader to purſue, I have ſtript it of every thing pedantic, or the unneceſſary perplexing particulars, and confined myſelf to ſuch things only, as gives a conciſe and true idea of the whole animal ſyſtem; and if I may be allowed to judge from the opinion of ſome of my learned friends, I flatter myſelf, that my readers, phyſical or not, will give me their ſanction, as well with reſpect to plainneſs of language, as conciſeneſs of the ſubject, and the utility of ſuch a ſhort diſſertation, founded on experience, and ſtript of prejudice and errors.

The ſecond lecture contains equally as copious a ſubject as the firſt; contracted in a very ſmall compaſs, and which I hope will give as much ſatisfaction as the aforementioned.

Out of the whole *Matria Medica*, I have choſen but very few medicines, and theſe I have confined myſelf to throughout the whole

whole book. Many ſurgeons at ſea will not, I know, be contented with ſo ſmall an aſſortment; and I remember the time that ſuch an obſervation might have been applicable to myſelf; but as I have by long experience learned to ſhake off prejudices, and been taught by the help of philoſophy to pry into the nature of things in general, I ſolemnly declare, that now, I would venture to go to any part of the globe, not only with that little aſſortment of medicines I have mentioned, but even with many leſs. The *emetick tartar*, *ſublimate mercury* and the *bark* are powerful medicines; but they ſhould be in very ſkillful hands, otherwiſe they are rank poiſons, and therefore I have omitted them here; but ſtrictly ſpeaking, every good medicine is the ſame. I have two maxims in phyſick, which I ſtrictly attend to; one is, that to my friends I give the leaſt medicines; the other is, that the principal virtue of a medicine depends on its application.

The

The form of the medicine box, I have conſtructed ſo as it appears to me moſt convenient and handy; and every kind of medicine, I would adviſe to have labeled with their proper names, as well as with another mark that may take the eye at firſt ſight; and the more to prevent miſtake, one libel ſhould be fixt on the pot that contains the medicine, and the other on the box: for in medicines too much caution cannot be uſed.

One thing with reſpect to the medicines, I have omitted, and that is their quantity requiſite for the box, and their prices: I intended to have taken notice of this, but found that that could not with exactneſs be aſcertained, unleſs entering into another ſubject, and that would take off from the conciſeneſs of my plan. As I have however many other things reſpecting the benefit of ſeamen to offer, peculiarly reſpecting diſtant climates, I ſhall take notice of this, where it may come in, more pertinently to the ſubject: till then, that muſt be left to the management

of

of the apothecary who is applied to for fitting out the box. If he is a man of candour and judgment he cannot be much out of his calculation, when he knows the number of hands, and the voyage intended.

With reſpect to the other lectures, I have, as near as it was practicable, divided them into their different claſſes and ſections; at the ſame time the whole is ſo linked together, that one lecture muſt ſupport the other. And as I have throughout the whole courſe of the book differed more or leſs from the general mode of practice, I muſt hereby declare, that I have in this conſulted my own experience more than any other authority, without fear of cenſure, or hope of applauſe, any farther than of truth, and my own conſcience.

Though I have principally written with an intent to be underſtood by maſters of ſhips who carry no ſurgeon; yet I am well perſuaded that every practitioner, whether on ſea

or

or ſhore, will find many things to his improvement.

With reſpect to my receipts, they are ſimple and powerful; yet I do not enjoin ſo ſtrict a conformity to them, by the practitioner, who has an extenſive knowledge of the *materia medica*, and is prepoſſeſſed in favour of ſome particular medicines; but as he will diſcover my indications, it may ſerve greatly to compare that of mine with his own, and then he may judge for himſelf. I have touched very ſlightly on the requiſite diet for patients on board a ſhip; though this is an eſſential article regarding health in general: But I found that ſubject alſo of ſo very extenſive a kind, that it would ſwell the book; but as I have many valuable things to offer of the ſame nature, I muſt beg, that in the mean time, the reader will be ſatisfied with the univerſal obſervations in general; namely, that temperance is the principal object, and that patients who are deprived of exerciſe ought to have the moſt eaſy digeſting food.

food. Copper and lead are pernicious; but iron and earthen ware are safeſt either on ſea or ſhore.

In order to render the book as uſeful as my zeal has intended, I recommend it a fair peruſal, from the firſt page to the laſt; a book of this nature is apt to be looked into, only when advice is wanted: that method is wrong; and in ſuch a caſe, the beſt book in the world is apt to miſlead. It is not enough that we know what we are to do with ſuch and ſuch diſorders, but we ſhould previouſly know what the diſorder is; and how ſhall we know that, without having ſome idea of the evil before it comes on?

A book of this ſize is ſoon peruſed; taking a lecture or a ſection at a leaſure time on board, will ſoon ſend the reader through the whole; and I flatter myſelf, that one peruſal will lead to the ſecond, when then it may be referred to for advice with ſafety; and

I hope

I hope a ſtudy ſo eſſential to ſelf-preſervation, will be viewed in a more agreeable light, than it has hitherto been.

To compleat the whole, a copper-plate is annexed, wherein the moſt material utenſils are exhibited, which was ſcarce capable to be explained by bare diſcription, to men unacquainted with ſurgery.

To conclude, I muſt beg leave to obſerve, that the reſpect and eſteem, with which I have been conſtantly honoured by every worthy ſeaman, whoſe life and health were committed to my care, have I confeſs, ſtimulated my endeavours, to offer them this book as a grateful return. And I am happy to reflect, that my experience in life enables me to make it worth their acceptance. May they reap that benefit from it, which my heart has intended them; and this is all the reward I wiſh to obtain.

N. D. FALCK.

ERATTA.

Page 5. line 22. for cataplexy, read apoplexy. Page 6. line 16. read, that a preſſure on that part, not only occaſions an apoplexy, but even ſtops life itſelf. Page 26. line 17. for theirs, read thus. Page 35. for Sect. vii. read viii. and following ix. x. Page 61. line 4. for five or ſix, read about four or five. Line 21. for iniform, read inform. Page 91. line 18. read, in order to get into. Page 131. line 29. for purify, read putrify. Page 135. line 12. dele them. Page 142. line 2. from the bottom, read, and is a ſufficient. Page 158. line 6. for malignitus, read malignities. Page 239. line 7. read, the patient when not able to crawl to the tub, ſo revived &c.

To the BINDER.

The Copper-Plate and its Explanation are to be placed at the End of the Book.

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LECTURE I.

AN

Anatomical and Phyſiological Deſcription

OF THE

HUMAN BODY.

THE mechaniſm of the human body is ſo wonderfully, ſo curiouſly, and ſo wiſely contrived, that the more we examine it, the more we muſt with admiration acknowledge, that nothing but an ALMIGHTY BEING could be its author. This incomprehenſible BEING let us ever remember to reverence and adore, when we examine into the ſtupendous contrivance of our fabric; HE is the fountain, the benevolent upholder of nature, and all the creation; in whom we live, breath, and have our being.

SECT. I.

Of the Compoſition and cloſe Connection of Parts in the Human Body.

THE human body is compoſed of ſolids and fluids; theſe are ſo cloſely, and ſo intimately combined with each other, that we find upon a phyſical enquiry and examination, they are ſcarce ſeparable. They aid and give action to each other, and life depends not on each ſingly, but on the united, and on the ſeparate ſpur, and on the ſoul of activity each gives to the other: Their ſubſtances form the body, and their action produces the operation of the mind.

Whilſt every thing moves free and agreeable to the taſk preſcribed by nature, the automaton is in a ſtate of health; body and mind enjoy peace and tranquility. So cloſely are body and mind in the moſt perfect bond of friendſhip, that they ſhare pleaſure and pain ſympathetically with each other; and reciprocally contribute to each other's welfare.

With what ſatisfaction is the mind continually engaged to give pleaſure to the body! and with what alacrity are for ever the Members ready to obey the will! Happy harmony, by which we ſo wonderfully exiſt!

The

The *solids* are the canals and springs of life, and the *fluids*, which circulate in those canals, nourish them, and set the springs in action.

By the *solids* we understand,

1st. The *bones*; the frame and support of our wonderful structure.

2dly. *Gristles* or *cartilages*; which cover the ends of the bones, in order to make them move with ease and agility.

3dly. *Muscles*; the fleshy parts, which by a nervous sensation, are induced, either voluntarily or involuntarily, to contract or dilate themselves, in order to give motion to the various parts of our body, to which they are fastened or destined to move.

4thly. *Tendons*; the chords as it were, by which the muscles are fastened to the bones, so as to make them follow the contraction of the muscles.

5thly. *Ligaments*; the chords by which the bones are connected with each other, and which give a firmness to their contact and articulation.

6thly. *Arteries*; the canals which transport the blood from the heart, to all the parts of the body.

7thly. *Veins*; the canals which carry the blood from the remotest arteries (in the most minute parts of the body) back again to the heart, for a new rotation of the blood.

8thly. *Lymphatic Vessels*; which are small cellular canals, that convey the lymph in different parts of the body.

9thly. *Glands*; which are kernels formed to *ſecrete* or ſeparate various humours from the blood.

10thly. *Nerves*; theſe are medullary branches ſpringing from the brain, and diſtributed in the moſt minute parts of the body; ordained to give the act of ſenſation, as the ſoul of animal activity.

11thly. *Hair* and *nails*; theſe are a horny ſubſtance, and appropriated either for defence or warmth of the different parts where they are placed.

The *fluids*; are, 1ſt. *Blood*; which is circulated in the arteries and veins, and is the nutriment and ſource of life.

2dly. The different humours ſeparated by the glands from the blood; of which there are many, as the *lymph*, *ſerum*, *ſpittle*, *ſeed*, *chyle*, *urine*, *gall*, &c. appropriated to different uſes, as hereafter will be deſcribed.

3dly. *Fat*, and *marrow* in the bones; which are deſigned not only as a ſtore of nouriſhment, but to lubricate and warm the parts where they are lodged.

Theſe are the principal materials which compoſe our wonderful machine. There are various other parts mentioned by Anatomiſts, both ſolids and fluids; but as this is deſigned only to give a univerſal idea of the moſt material parts of the ſtructure of this ſtupendous fabric, we will let this definition ſuffice,

and

and now conſider with what order the principal organs of life act, either in conſort, or in oppoſition to each other.

SECT II.

Of the Brains and Nerves.

THE brains are by all Phyſiologiſts eſteemed the moſt myſterious organs of life, being the fountain of the nerves, the organs of ſenſation, and hence allowed by all to be the ſeat of the ſoul, or the *ſanctum ſanctorum* of the human underſtanding.

They are diſtinguiſhed into the common or great brain called *cerebrum*; the ſmall part called *cerebellum*; and the *ſpinal marrow*, which projects down the back-bone. The great brain is divided into two great lobes, ſeated in the upper and fore part of the ſkull, of which it takes in the greateſt cavity. It is ſo exceedingly ſenſible, that the leaſt preſſure puts an immediate ſtop to the ſenſation of the animal; and which is generally termed a *catalepſy*.*

* Hence in a fracture of the ſkull, or any other heavy contuſion, where the brain is compreſſed either by the fractured bone, or the extravaſated blood, the patient will remain in a ſtate of ſtupefaction, till either the fracture is reduced, or the extravaſated blood removed by trepannation; after which he immediately comes to himſelf, as if ſuddenly revived from a trance.

This part of the brain, though it is ſo exquiſitely ſenſible, ſeems to be deſigned by nature as preparatory to the *cerebellum*, the immediate root of the nerves.

The *cerebellum* is the leſſer, but the more material part of the brains. It is ſeated in the hinder cavity of the ſkull, (which for the ſake of protecting this exquiſite ſenſible organ, is remarkably ſtrong and firm) and from thence as the fountain of life itſelf, the nerves, the inſtruments of ſenſation in the whole animal frame, take their commencement: For whereas the other is ſo ſenſible, as that the leaſt preſſure will cauſe a ſtupor; this is ſo far ſuperior in point of exquiſite ſenſibility, that a preſſure puts a ſtop to life itſelf, (termed an *apoplexy*); and hence this part is the throne of all ſenſation.

From this *cerebellum* prolongates the marrow in the back-bone, called *medulla ſpinalis*, which is but a continuation of the ſame, and is equally ſenſible, and of the ſame ſubſtance with the former.

The whole brain, that is, the *great brain*, the *ſmall brain*, and *ſpinal marrow*, together with all the nerves which ſpring from thence, are covered with two coats, called the external ſtronger coat, *dura mater*; and the thinner and inner coat, *pia mater*; which continue with each nerve, even to its ſmalleſt ramification.

ramification. The whole in a living ſubject is in a continual motion peculiar to itſelf.*

From the *cerebellum*, and *medulla ſpinalis*, all the nerves take their commencement and origin. Ten pair ſpring forth from the part in the ſkull; the principal are thoſe which form the various ſenſes, taſting, ſmelling, hearing, and ſeeing, and that common to all, feeling. From the *medulla ſpinalis*, or marrow in the back-bone, proceed thirty pair of nerves, which ſpread themſelves variouſly over the whole ſyſtem.

All nerves have this in common with each other, namely, exquiſite ſenſibility; but in other reſpects they differ however widely; particularly the nerves deſtined for ſome of the external ſenſes.

It is from that common quality *feeling*, that they become the ſubtile ſprings of life; and give an edge to all the animal functions.

There is nothing ſo plentifully, and nothing more curiouſly interwoven with every other ſubſtance, as the nerves; and ſo amazingly quick is their ſenſation, that the very inſtant a ſingle nerve, even the ſmalleſt and remoteſt in the ſyſtem, is affected, the ſoul, or the common *ſenſorium*, is ſenſible of the identical part ſo affected.

* This motion in the brain is not unlike the periſtaltic motion; this is an obſervation too ſeldom taken notice of by anatomiſts, though evidently plain in living animals, and is of ſingular ſervice in phyſiological enquiries.

It has been aſſerted, that this amazing quick conveyance of the ſenſation of the nerves, is owing to a ſubtile nervous fluid; but on a rational reflection, and a juſt enquiry into the animal oeconomy, it muſt appear, that ſuch conveyance of a fluid is inconſiſtent with probability and experience: For, neither are the nerves tubulous, nor has there ever been diſcovered any circulating humour in them. And ſecondly, is it conſiſtent with reaſon, that a conveyance of a fluid from the toe to the finger, ſhould be ſo momentarily quick, as is ſometimes experienced in the gout, and other the like ailments? That the quick tranſpoſition of ſenſation of the nerves, is rather effected on a principle of *vibration*, appears more probable, and will admit of a more convincing experiment; which may be exemplified in the following manner: Suppoſe (in the language of a ſeaman) a rope runs from the top-maſt-head, or any other part of the rigging, to the deck, and is kept tought and free from any interception; then it will be evident, that the leaſt touch at one end will inſtantaneouſly be conveyed to the other end; in like manner the nervous ſenſation may be communicated, perhaps not unlike electricity; which ſimilarly will in an inſtant be conveyed to any part, by a direct communication, but equally ſubject to be intercepted.

Hence,

Hence, a paralytic limb will loſe, together with its irritable ſenſibility, its circulation of fluids, and its nouriſhment; and recover again when the preſſure or interruption is ceaſed. Hence alſo; ſpaſmodic contractions will be affected at the irritation of ſome principal parts, and from this inſtantaneous irritability, the motion of every part is thought to obey the will.

SECT. III.

Of the Heart and Lungs.

THE heart is a muſcular body, ſituated in the breaſt or cheſt, ſomewhat between the lobes of the lungs, and formed by nature to be the principal organ for the circulation of the blood and other fluids.

Its ſtructure is wonderful, and of a moſt curious piece of mechaniſm. It has two principal cavities, called *ventricles*, which are ſeparated lengthways by a wall, and diſtinguiſhed into the right and left.*

Each of theſe cavities or *ventricles*, have particular valves, call'd ears, or *auricles*; which perform the function ſomewhat ſimi-

* They might with equal propriety, be termed *anterior*, or foremoſt, and *poſterior*, or hindermoſt.

lar

lar to the ſuckers of a pump: By theſe contrivances the heart receives the blood from the veins, and expels it again by the arteries, to every part of the human body; in a manner that I ſhall hereafter deſcribe.

The lungs are organs immediately concerned in the circulation of the blood alſo; their function is to receive the air, to purify it, to circulate, and to diſtribute it in due proportion in the ſanguineous maſs, and to extract and expel that part of air already made uſe of; and thus act the part of ventilators in the animal oeconomy.

They are divided into two lobes. Theſe lobes are a continuation of little bladders, that have an immediate continuation with the wind-pipe, *aſpera arteria*. The wind-pipe from the larynx down to the very lungs, is protected externally with ſemicircular griſtles, in order to keep it always open, and ſo ſhelter it from external injury; when it enters the lungs it ſpreads itſelf into numberleſs branches like a tree, and ſends ramifications into every little air-bladder in the lungs.

All along theſe ramifications and the air-bladders, are arteries, veins, and lymphatic veſſels, which have an immediate communication with the heart, by means of the pulmonary arteries and veins.

Now

Now at the inſtant of *inſpiration*, theſe little bladders in the lungs are filled with air, which infuſes itſelf by the ſmall arteries into the whole maſs of blood; and at the *expiration* again, the air which has been made uſe of, and drawn from the neighbouring little veins, is again expelled by the wind-pipe through the mouth: And thus is *reſpiration* performed by alternate motions of the lungs; receiving the freſh, and alternately expelling the foul air again; thence juſtly may they be deemed the ventilators of the human *automaton*, and a principal organ of life, in the animal creation in general.

The upper part of the wind-pipe, which is in the *fauces* of the mouth, is called the *larynx*. This is the organ of voice.

In this animal mechaniſm is contained, all the variety of formation requiſite to every kind of ſound that can be performed upon any inſtrument whatever. Its parts are chiefly of a griſtly ſubſtance, at the ſame time exquiſitely delicate, with nerves and glands; from whence it is ſubject to diſeaſes on the ſlighteſt indiſpoſition.

In men it is larger than in women; hence their voice is rougher; which generally increaſes by exerciſe of the voice alſo. Its formation is very complex, and too tedious here to enter upon; we will therefore paſs

it

it over, and hereafter ſay as much as relates to its preſervation, and giving it relief when diſordered.

SECT IV.

Of the Circulation of the Blood.

WE ſhall now conſider the circulation of the blood; the grand ſource of our exiſtence. At the contemplation of which we muſt be loſt in admiration, at the wonderful wiſdom of its contrivance; and with uplifted eyes adore the cauſe of its motion!

The Heart, as I before obſerved, has two chambers or *ventricles*, diſtinguiſhed by the right and left; each of theſe chambers have alſo a valvular cavity call'd *auricle*, or ear. Each *ventricle* opens itſelf into an *artery* and *auricle*; and each *auricle* opens itſelf into a *ventricle* and *vein*. Theſe openings have valves, which open and ſhut alternately, and by this, prevent any confuſion or hindrance in the influx and efflux of the blood.

The right *ventricle* is the longeſt and greateſt, but weakeſt: From this ventricle ſprings forth the *pulmonary artery*, which ſpreads itſelf throughout the Lungs.

The

The right *auricle* is alſo the largeſt; in which opens itſelf the large vein, called *vena cava*; as the common trunk that receives the blood from all its branches ſpread over the whole human body.

The left *ventricle* is ſhorter, but the walls are conſiderably ſtronger than that of the right *ventricle*. Here begins the *aorta*, or the great artery, by which the blood is ſent to all the parts of the human body.

The left *auricle* is alſo ſomewhat ſmaller than the right; and in that opens itſelf the *pulmonary vein*, which returns the blood from the lungs, after it has received its neceſſary aſſiſtance from the veſicles of air in the lungs.

This premiſed and underſtood, the circulation is performed in the following manner:

The right *ventricle* being full of blood, contracts itſelf. This contraction is called the *ſyſtole*, by which it forces the blood through the *pulmonary artery* into every part of the lungs, even into every veſicle; where it receives a portion of the air, drawn in by the wind-pipe.

At the end of theſe *arteries* join the ramifications of the *pulmonary vein*, which receives the blood from the ramifications of the arteries, by *anaſtomaſation*; which, by little quantities, theſe veins gather gradually into little branches, and at laſt become one common

mon trunk, which empties the blood into the *left auricle* of the heart.

From the *left auricle* it is let, by means of a peculiar conſtructed *valve*, into the *left ventricle*; which, by a dilation called the *diaſtole*, receives it from its *auricle*.

Immediately upon this reception, the *ſyſtole* or contraction takes place, and the blood is forced into the great univerſal artery, *aorta*; by which it is farther tranſported into every part of the human body.

This *artery* ſpreads as it goes, and continually decreaſes in magnitude, as it becomes numerous in branches; until it terminates into the ſmalleſt ramification in the remoteſt part of the body.

The *ſyſtolic contraction*, and the *diaſtolic dilation*, which alternately take place in the heart, continue throughout the arteries from the great trunk to the remoteſt capillary ramifications,* by which means the blood is tranſported with more certainty and facility to the minuteſt part.

At the extremity of theſe arteries the veins take their commencement, in ramifications equally ſmall with the former; theſe take up the blood from the arteries, by many infinite

* Concerning this great act of continued ſyſtole and diaſtole, Anatomiſts have greatly varied; but from the ſtructure of the arteries, and the continued pulſation, this way of tranſporting the blood is confirmed both by reaſon and experience.

ſmall

ſmall quantities, and carry it gradually back from thoſe extremities to the heart again, for a new rotation.

Theſe veins commencing infinitely ſmall, but gradually gathering, become branches, and at length form one general trunk, called the *vena cava*, (or the great univerſal vein); and this empties itſelf again into the *right auricle*; from whence it is let again into the *right ventricle*, whence it came; then again forced into the lungs; thence back again into the left ventricle; from thence all over the whole body, and continues the Circulation.

SECT V.

Of the Joint Connection of the Brain, Heart, Lungs, &c.

THESE are the principal actions in the grand movement of the human automaton.

The nerves are the ſubtile ſprings of the ſenſation, by which the whole becomes ſenſible of irritation, and agitated to its functions. Their ramifications are extended *ad infinitum*, and ſo curiouſly diſtributed, that though there is not a part in the whole ſyſtem exempt from their ſpreading, yet they are

are diſtributed with ſuch regularity, that they don't interfere with each other. A regularity abſolutely requiſite to the order in the animal oeconomy: For whereever the vibration of the nerves is obſtructed, life or motion muſt in conſequence ceaſe.

The lungs are the ventilators in the ſyſtem: they receive and let in the air; they ſift it from all its groſs particles, and extract the uſeful parts from this univerſal element of life; thus they give from every little veſicle, a due proportion of extracted air to the blood by the adjacent veins; and by the neighbouring arteries, again extract the foul air from the circulated blood, which by the mouth and noſtrils is expelled again; at that inſtant a freſh quantity of air is drawn in again for a new ſupply.

Thus by intervals, the lungs, like a perfect ventilatory machine, repeatedly, and without intermiſſion, keep time with the *ſyſtolic* and *diaſtolic* motions of the heart, in exchanging freſh and foul air for the ſupport of this wonderful animal ſtructure. This is the function of breathing *reſpiration*, namely *inſpiration*, or the drawing in the freſh air; and *expiration*, the expelling the foul air.

The heart may be conſidered as the grand perpetual pumping engine, conſtructed on principles, ſo as to have the leaſt friction poſſible.

This

This curious pump, *the heart*, ſends the fluid of life, *the blood*, to all the parts, even the remoteſt in the whole machine. The *arteries* are the canals of the conveyance; they are ſtrong elaſtic tubes, whoſe fibres are of ſpiral direction, and receive from the heart a power of contraction; which is continued from the heart in the moment of the *ſyſtole*, even to the remoteſt and moſt minute ramifications; by which the blood is puſhed along to the minuteſt extremities. This is immediately ſucceeded with a *diaſtolic* reception of a freſh quantity of blood; ſo that on ſucceſſion, the *diaſtole* and *ſyſtole* is perpetuated not only in the heart, but throughout all the arteries, in a friendly correſpondence over the whole ſyſtem: And this conſtitutes the *pulſe*.

The veins, however, are ſomewhat of a different texture from the arteries; whilſt the arteries tranſport the blood by an elaſtic and pulſe-like contraction, the veins on the contrary, receive it from them at the extremities, in an eaſy and imperceptible gradation; for whereas the fibres in the arteries are in a ſpiral direction, elaſtic and ſtrong, the coat of the veins are tender, and the fibres more longitudinal.

Hence, the wounds in the arteries and veins differ greatly; for whilſt the arteries are for ever in a ſtrong agitation, the veins

perform their functions with leſs exerciſe; and therefore the wounds in arteries are always attended with danger, whilſt the veins heal eaſy. From the ſame reaſon alſo, the arterial blood differs from the venal; for as the arterial blood is ſent to all the Parts, as the grand nutriment, from whence the glands ſecrete their peculiar humours; the veins only tranſport it back again, to prepare it for a new rotation. Whence the blood in the arteries is of a high colour, and of a more alkalaſcent nature, than that in the veins.

Collateral with the minute ramifications of the veins and arteries, over the whole ſyſtem, are the *lymphatic veſſels*, which ſeparate from the blood as it paſſes along, a tranſparent lymphatic humour, adapted for the different parts, which they are connected with.* Theſe veſſels are materially different, from either arteries and veins in their ſtructure, and juſtly to be compared to a continuation of little cells; ſo conſtructed, as to tranſport the humours, without admitting a return.

From hence we ſee plainly how theſe three organs, the *brains*, the *lungs*, and the *heart*,

* An opinion has lately been broached, that the lymphatics are all abſorbing veſſels, of the ſame nature with the lacteals, and that they all join to empty themſelves in the ſubclavian vein to the common maſs of the blood; but this to me, ſeems too general, and contradicts experience.

are

are concerned, and mutually assist each other in the actions, and circulation of the fluid of life; nothing could move without the sensation of the nerves; these could not exist without the blood, from which they receive their support; the blood could not circulate without the heart, arteries, and veins; and in them it could not move with a necessary freedom, except its being supplied with a sufficiency of air from the lungs: So that evidently all three are so interested in this grand movement, that the stopping of the one, must needs be the stopping of the whole.

SECT. VI.

Of Chylifaction and Nutrition.

IN the preceeding we have briefly considered the state of the fluid of life, and mechanical instruments of their motion in the human machine. In this we will consider how the whole is supported, and the vital lamp, from time to time, becomes supplied.

Under this consideration we will examine the canal of food, and the various changes the morsel undergoes from the time we take it in our mouths, till the nutriment is reduced

to blood, and the remaining droſs is expelled the body as uſeleſs.

The animal functions towards *chyliſaction* and *nutrition*, are *maſtication*, or chewing the *food*; *deglutition*, or ſwallowing; *digeſtion*; *chyliſaction*; *nutrition*; and the *excretion* of the *fæces*.

In order therefore to underſtand this clearly, it becomes neceſſary to deſcribe the organs which nature has formed for the requiſite performances thereof.

In the firſt place then, *ſmelling* is that ſenſation which nature has given to every animal, that has a choice of food, as the firſt ſafe-guard to inform it of any thing agreeable or diſagreeable, uſeful or pernicious to its body; its ſeat is in the noſe chiefly, but we find by experience, that it has a friendly connection with our palate and ſtomach; for the effluvia of any thing will either create a deſire, or give us the greateſt averſion to every ſubſtance that throws out a flavour.

It is performed by means of a ſubtile ſpreading of nerves, peculiarly delicate; which continues through the membrane of the noſe, the roof of the mouth, gullet, and the very ſtomach.

Taſte is the next ſenſation, which nature has given us, not only as a diſtinguiſher of proper food, but a ſenſation from which we receive many luxurious pleaſures; and to

the indulgence of this ſenſation, moſt evils and plagues to mankind, take their origin.

The tongue is the principal inſtrument of that peculiar quality; but if we examine ſomewhat cloſer into this affair, we ſhall find that the ſoul of pleaſure and pain of that ſenſation, as well as that of ſmelling, has its ſeat in the ſtomach; for that which will taſte pleaſing and good at the firſt approach, will ſoon loſe its reliſh when the ſtomach is gratified: and, if any thing taſtes diſagreeable, the ſtomach receives it with reluctance, and will ever incline to diſcharge it again.

The tongue is an inſtrument (if I may be allowed the term) very curiouſly conſtructed; it is moved by a variety of muſcles, and ſerves not only for taſting, but alſo as a labourer, to ſhovel and to turn our meat between our grinders; ſo that nothing may eſcape being well maſticated, and intermixed with that fine digeſting balſam, the ſpittle, in order that it may be eaſily ſwallowed.

Beſides this, it makes the moſt requiſite inſtrument for the noble and excellent faculty of ſpeaking; which forms one of the principal characteriſtics that diſtinguiſhes man from the brute creation.

The gullet or *oeſophagus*, is the canal which conveys drink and food from the mouth to the ſtomach; this canal is a muſcular, tendinous, and vaſcular tunic.

The commencement of it is in the mouth, and is called the *pharynx*; a curious ſtructure, that receives the food, and by its contractive motion, and the help of the tongue, forces the aliment into the ſtomach.

The ſtomach is much like the bag of a Scotch bag-pipe; it lies immediately under the *diaphragm* or *midriff*, covered partly on the right ſide with the liver, and on the left ſide with the ſpleen. The left and ſuperior part, is continued with the *oeſophagus*; and the right and inferior part, or orifice, commences the *inteſtines*.

The firſt orifice is called the mouth of the ſtomach; and the ſecond the *pylorus*, or *porter*: At the porter there is a curious valve which lets the aliment out by ſmall parcels into the inteſtines, where it undergoes its various other changes.

The ſtomach has three teguments, a *muſcular*, a *tendinous*, and *nervous coat*; this *nervous coat* has another ſlimy one, but this in reality, is a delicate lining, interwoven with nerves, and the ramifications of fine blood veſſels.

The *inteſtines* or guts, are a continuation of the ſtomach, they are a canal which is generally reckoned ſix times as long as the ſubject it is taken from; it is diſtinguiſhed in ſmall *tenuia*, and wide *craſſa*.

Each

Each again is divided into three parts: the *tenuia*, or ſmall narrow inteſtines, are the *duodenum*, or twelve finger-gut; the *jejunum*; the *ileum*: The wide or *craſſa*, is divided into the *cæcum*; the *colon*; and the *rectum*.

Throughout the whole canal of inteſtines are numbers of little veſſels, called *lacteals*, which lead the chyle, extracted from the aliment, into a *receptacle*, which is lodged in the *meſentery*, and from thence, by another duct call'd the *thoracic duct*, is carried along the back-bone upwards, and joins to the left ſubclavian vein, where the *chyle* gradually commences to be blood.

This ſhort deſcription we will let ſuffice, and now enter upon the action itſelf.

The morſel now, which is deſigned for food, is taken into the mouth, maſticated with the teeth, turned about with the tongue; and as the mouth is at work, the *ſaliva* or ſpittle is ſqueezed from the ſalival glands, and thus intermixed with the aliment; when enough chewed and moiſtened with this ſaliva, it is conveyed to the *pharynx*, or ſwallow, which receives it, and, by its contraction, forces it into the *oeſophagus*; and by a repeated contraction, is carried down into the ſtomach.

There it is again moiſtened with a *ſaponaceous liquid*, or *pancreatic juice*; by which

and by a perpetual motion of the ſtomach, it is brought into a ſtate of digeſtion; then by ſmall degrees entered through the *pylorus* or porter, into the firſt diviſion of the gut, the *duodenum*.

This gut is about twelve fingers long; and whilſt the aliment is there, it is intermixed with the gall, which is a liquor ſeparated by the liver, and contained in the gall bladder; this liquor, the gall, is carried into the *duodenum*, by a ſmall duct, called the *ductus cyſticus*; where alſo enters another kind of liquor called the *pancreatic juice*.

When the aliment is thus prepared, and fit for a particular ſtate of diſſolution, it is carried into, and through the *jejunum*. This gut is in length about twelve or thirteen hands breadth, and its motion ſomewhat briſk; through which the aliment paſſes pretty quick, and hence, generally is ſomewhat empty.

As it paſſes through this part, the chyle is ſeparated from it by the lacteals, which are ſmall veſſels that ſeparate the chyle from the aliment, and abound there more than in any other part of the gut.

From thence it comes into the *ileum*; that is the longeſt of all the diviſions of the guts, and is in length about twenty-one hands breadth; it has a great many circumvolutions, and next to the *jejunum*, has many lacteals to ſeparate the chyle.

Now the aliment comes into the wide gut, and gradually becomes fæces; and firſt, the *cæcum:* This part is rather an appendix only, and hangs from the main part like a finger to a glove. The uſe of this gut has been much controverted by anatomiſts; it ſeems however, very propable, that this appendix is deſigned to keep the aliment in for further digeſtion, as it now begins to putrify, and becomes fæces or excrement.

From thence it enters the *colon*, which is a long, and very winding inteſtine; it runs up along and about the liver, touches the gall bladder, and the ſpleen; from thence it deſcends again to the *os ſacrum.* It has but few lacteals, and is, as it were, the laſt drainer of the fæces: It is this inteſtine which is the ſeat of the cholic, and of moſt other complaints of the belly.

Next to this comes the laſt and ſtraighteſt, the *rectum*; this gut is cloſely adherent to the *ſacrum*, and ends in the fundament; which is provided with muſcles to open and ſhut the *anus*, in order to contain the fæces, and diſcharge it.

The mechaniſm of chylifaction in the human body differs from the brute creation in general, except that moſt contemptible of the whole, the hog; to which it bears a very near reſemblance, inſomuch that there is very little diſtinction.

Both

Both have that advantage over the generality of terreſtrial animals, that they are confined to no particular food; which favours greatly the luxury of the one, and the beaſtiality of the other.

The brute creation are generally diſtinguiſhed into *carnivorous* and *granivorous*: The firſt is that kind which feeds upon fleſh; and the latter upon grain and vegetables. Upon examination however, we find, that the ſtomach and guts are peculiarly adapted to their food; and that graſs agrees no more with the dog, than mutton does with the horſe.

But man is ſo happily made, that any thing which is food, is proper for him, and he may become uſed to it; and their's is either carnivorous or granivorous.

The whole canals, from the ſtomach to the anus, is in a continual vermicular motion, which is called the *periſtaltic motion*; by this the aliments are diſſolved, and diſunited; and as they paſs along, are drained by the lacteals, of their *nutriment* or *chyle*.

Theſe lacteals are, by means of a membrane (with which they are ſurpriſingly interwoven, and connected to the whole canal) called the *meſentery*, lead regularly into one common ciſtern, lodged almoſt in the middle of the inteſtines, in that membrane, called the *receptacle of chyle*; and from thence the

chyle

chyle is carried by a duct up along the backbone, called the *ductus thoracicus*, into the left *ſubclavian vein*, where it gradually commences to be blood.

By this mechaniſm we are nouriſhed, and the ſubſtance of our food converted into blood, and tranſported through the whole animal machine, for the ſupport of every part of its wonderful compoſition.

As all animals which feed upon fleſh, are more ſubject to diſeaſes, nature has provided them with theſe advantages: that when any thing is obnoxious to their nature, and received into their ſtomach, or their being over loaded, it can diſcharge itſelf of ſo troubleſome a burthen, by vomiting, which is effected thus: when the inner coat of the ſtomach, which is irritable and nervous, is ſtimulated by whatever is obnoxious, it will cauſe in the whole ſtomach, a contraction; and by that, force its contents to the ſhorteſt direction of evacuation, namely, by the canal of the oeſophagus, through the mouth. This expulſion is peculiar to carnivorous animals only.

Purging or diſcharging by the fundament is common to all animals of whatever kind; and is performed by an irritation in the inteſtines, by which the periſtaltic motion is increaſed; to this I muſt add a reverſion of the ſecretion of the lacteal veſſels, by which the

the humours are increaſed, the motion accelerated, and the fæces diſcharged, without giving any nouriſhment to the body, and conſequently the ſyſtem diminiſhed.

Digeſtion is that act by which the aliment or food is prepared, ſo as to produce a good chyle, and conſequently good blood, for the nouriſhment of the body. Though no animal has a more delicate ſtomach than man, yet it muſt be obſerved, that none has a ſtomach better adapted for all kinds of food.

Whence therefore in the common courſe of life, temperance and gentle exerciſe is what nature requires to maintain health. But nothing becomes more obnoxious to that bleſſing, than gluttony, voluptuouſneſs, and idleneſs.

SECT VII.

Of the Bones, Muſcles, Ligaments, Tendons, and their Connections.

THE bones may be conſidered as the timber-work of the human frame; by which this wonderful fabric is ſupported, and kept in its due form, that the whole may be brought into its various movements, without confuſion or obſtruction to each other.

The

The bones are the moſt ſolid parts of the human body, compoſed of hard and indurated fibres, ſtriated over each other, in a manner peculiar to that ſubſtance. The bony fibres are in themſelves inſenſible, yet as the parts are variouſly diſtributed with arteries and veins, and that the nerves muſt neceſſarily have a ſhare in their formation, they have a peculiar ſenſibility, which is perceptible in ſome parts more than others; they cannot ſtrictly ſpeaking, be deemed quite inſenſible.

The whole bony frame is covered with a tendinous and nervous tegument, called *perioſtium*; except ſuch parts of the teeth as are deſigned for maſtication, which are provided with a peculiar enamel, that is harder than the reſt of the bony ſubſtance.

The *perioſtium* is exquiſitely ſenſible, and is the ſafe-guard to the ſubſtance of the bone, which is delicately tender notwithſtanding it is not ſo ſenſible as the ſkin that covers it; inſomuch that it will become *carious* on the leaſt expoſure to the air, or the attack of any foreign body of matter whatever; whence in wounds and fractures in general, great attention ſhould be paid to the ſubſtance of the bone, being very ſubject to become *carious* and to *exfoliation*, which is of the greateſt conſequence; but of this I ſhall ſay more in another place.

The

The marrow is principally designed for the nourishment of the bones; which is evident from its being plentiest in young people, when the bones are strongest; and that when it is deficient, they become brittle, and lose their tenacity.

The marrow is contained in a cellular substance, partly in vesicles of a nervous texture, and partly bony cells. At the ends of the long bones the texture is more spungy than in the middle, where the cavity is less, but the substance is most compact. Though anatomically there is no perceptible circulation in the bones, yet, that a circulation is actually existing, is evident, from a liquor oozing out from the ends of a fractured bone in the living animal; by which a fractured bone again unites, and this is called the *callus*; and whilst in its liquid state, resembles the white of an egg, which gradually ossifies, and becomes as hard as the main substance of the bone.

The number of bones differ somewhat in various subjects; ordinarily they amount to two hundred and fifty-two: In the head sixty-three; in the trunk seventy; in the arms and hands sixty; and in the legs and feet sixty.

As the bones are the support of the animal fabric, I have inserted in the next page, a catalogue of the human skeleton, which occasionally may be referred to:

A Skeleton of the Human Body.

BONES in the HEAD.

The SKULL.

The Forehead.

Os Frontis — — — 1

The Hindhead.

Os Occipitis —— —— 1

The Sides of the Head.

Ossa Parietalia — — 2

The Temples.

Ossa Temporum —— 2

The Basis of the Skull.

Os Ethmoides —— 1

Os Sphenoides —— 1

The Bones of Hearing.

Ossicula Auditus —— 8

The FACE.

The Upper-Jaw.

Ossa Malæ —— —— 2

—— Maxillare — — 2

—— Unguis —— —— 2

—— Nasi — — — 2

—— Palati —— —— 2

Os Vomer —— —— 1

The Under-Jaw.

Maxilla Inferior —— 1

The Teeth.

Dentes Incisivi —— 8

——— Canini —— 4

——— Molares —— 20

The Tongue-Bone.

Os Hyoides, is composed of 3

— 63

BONES in the TRUNK.

The Spine.

Vertebræ Cervicis —— 7

——— Dorsi —— 12

——— Lumborum — 5

The Ribs.

Costæ Vera — — — 14

—— Spuria — — 10

The Shoulders.

Scapula —— —— 2

Claviculæ —— 2

The Hip and Bason.

Os Sacrum, is composed of 6

Os Coxygis, is composed of 3

Ossa Innomenata, composed of

—— Ischium — — 2

—— Ilium — — — 2

—— Pubis — — — 2

The Breast.

Sternum, is composed of 3

— 70

UPPER EXTREMITIES.

The Upper Arm.

Os Humerus — — — 1

The Under Arm.

Ulna —— —— 1

Radius —— —— 1

The Wrist.

Ossa Carpi — — — 8

The Hand.

Ossa Metacarpi —— 4

The Fingers.

Ossa Digitorum —— 15

— 30

UNDER EXTREMITIES.

The Thigh.

Os Femoris —— —— 1

The Knee Pan.

Patella —— —— 1

The Leg.

Tibia —— —— 1

Fibula —— —— 1

Ancle.

Ossa Tarsi —— —— 7

Foot.

Ossa Metatarsi —— 5

Toes.

Digitorum —— —— 14

— 30

The connection of the bones are in various ways; thoſe connections that are deſigned for reſt, are by cloſe contact of parts, and are called *ſutures* or *ſeams*; ſuch are the bones of the ſkull with themſelves and the face. Thoſe connections which are deſigned for motion are called *articulation*. Some of the articulations have but an obſcure motion, as the ribs with the back-bone, and the back with itſelf, &c. Others have an angular motion, as the elbows and knees; and others again have an univerſal motion, as the arm-bone with the ſhoulder, and the thigh-bone with the hip. The *ſutures*, and ſuch connections as have no motion, are merely duſtailed into one another in cloſe connection; but thoſe articulations that are deſigned for motion are connected by cartilages, either in cloſe contact, or ſo as to move ſlippery over one another.

The ligaments are thoſe tough tendinous parts, by which the articulations deſigned for motion are joined together; at ſome parts they cover the joints only, and at others, they are immediately faſtened to each other, beſides the external coverings; thoſe ligaments are very ſtrong and elaſtic, and have a cloſe connection with the nerves that paſs by them.

The ſurrounding ligaments of all moveable joints, form a *capſular-bag*, which contains

tains a ſlippery liquor, called *ſynovia*, that lubricates the ends of the bones covered with *cartilages*, that they may move with eaſe and agility over one another.

Muſcles are the fleſhy parts on the human body, appointed for motion. They are a compoſition of arteries, veins, nerves, and tendons.

Muſcles are generally divided into two kinds; thoſe for neceſſary or involuntary motion, and thoſe for voluntary. Some again are faſtened at each end to ſome of the bones at their extremity, and contract themſelves in a ſtraight direction; others again are annular, or in the form of a ring; and by this manner open and ſhut. The firſt kind are generally divided into three parts, the head, belly, and tail. The whole muſcle begins and ends in a tendon, by which it is faſtened to the part it is deſigned to move; which, when the belly of the muſcle contracts itſelf, muſt conſequently draw both bones nearer together, faſtened to the head and tail; and thus performs the motion. Some of theſe muſcles act in conſort, and others in oppoſition to each other.

The tendons are the principal parts of the muſcle; and that part thereof, as before obſerved, which is faſtened in the bones, namely, at the head and tail of the muſcle, and is the chord, as it were, by which the limb is brought into motion.

A tendon is a hard, ſubſtantial, flexible, and elaſtic body, which, at the head of the muſcle, is very compact; but as it enters the muſcle, ſpreads its fibres over the whole body, gathers again at the tail, in as compact a manner as it began, and continues in this chord-like texture till it faſtens itſelf at its appropriated place.*

The tendons and ligaments are of equal ſubſtance, and differ in nothing but their various uſes; namely, the ligaments to connect the articulation; and the tendons, or the ends of the muſcles, to give motion. The muſcles are a compoſition of the tendinous fibres, plentifully intermixed with ſmall ramifications of blood veſſels; all which compoſe the fleſhy part thereof. Hence, the tendons being white and hard, the muſcles gradually grow ſofter and redder in the middle of them; and they verge gradually to become tendinous at the tail, the ſame as the head.

Hence, from the cloſe texture of the tendons, they are very painful when wounded, or otherwiſe hurt; but as the muſcles are ſofter and more pliable, their wounds and other accidents are of leſs conſequence, and not ſo dangerous as the former.

The number of muſcles are undetermined, for though the principal muſcles are ſo diſtinct that they cannot be miſtaken as to their

* It muſt be obſerved however, that tendons take on many various forms, as different as the muſcles; which would be too tedious here to particularize.

form

form and uſe, yet there is ſo great a number of ſmall ones, or ſo many of the great ones capable of being ſubdivided again, that anatomiſts have not, as yet, agreed about their number.

SECT. VII.

Of the Urinary Organs and Genital Parts.

THE *kidnies*, the *ureters*, the *bladder*, and the *urethra*, are the principal urinary organs. The kidnies receive two arteries called the *emulgent arteries*, from the great arterial trunk, called *aorta*, before deſcribed; they each ſend alſo two veins back again, accompanying the arteries to the *vena cava*. Whilſt the blood is circulated in the kidnies, the urine is ſecreted in many ſmall quantities, and carried from each kidney by a tendinous tube, the bigneſs generally of a ſmall gooſe quill, called the *ureter* to the bladder. The *ureters* enter the bladder between its *lamillas*, ſo as not to admit of a return. Hence, a bladder in its natural poſition is both wind and water tight, and if reverſed, is neither.

The bladder of urine is of a tendinous and nervous texture, and capable of great extenſion, but at the ſame time exquiſitely

ſenſible. The neck of the bladder is very muſcular, and by this forms a *ſphincter*, or annular muſcle, by which the urine is retained; and as it is of a very ſenſible nature, this part is ſubject to inflammatory conſtrictions; great pain, and many evils have there been occaſioned, either from venereal caſes, or gravelous complaints.

From the neck of the bladder to the end of the *penis*, is the *urethra*; which canal ſerves for the emiſſion of the urine, as well as that of the ſeed.

The whole is lined with a number of very little glans, to lubricate and protect the ſenſitive lining from the ſharpneſs of the urine.

Theſe are the urinary organs. We will in the next place, proceed to the organs of generation.

The *teſticles* are the principal inſtruments for forming the human ſeed; they are generally two in number. The teſticles receive the blood, of which they ſecrete the ſeed, from the *aorta*, about the ſame parts, whence the emulgent arteries project. Theſe arteries run down from the aorta to the teſticles, in a very contorted and winding manner, accompanied by the veins which return back again from the teſticles, and fix themſelves in the aſcending *vena cava*. Theſe contorted and interwoven veſſels are called the *ſper-*

matic

matic veſſels, which carry the blood from the arteries in little quantities, and ſlowly return it again into the great vein.

Whilſt the blood is circulated in the teſticles, the ſeed is ſecreted in them; but as it is ſecreted, it is tranſported back again from thence by tubes, called *vaſa deferentia*, towards the neck of the bladder, where there are two irregular bladder-like veſſels, wherein the ſeed is contained, and kept for uſe, called the *veſiculæ ſeminales*.

In theſe ſeed bladders the ſeed is kept for uſe, till it is wanted. They are remarkably delicate and nervous; and when they are filled with ſeed, they ſtimulate all the organs of generation with a deſire for venery.

The *penis*, or the manly member of generation, is partly covered with the common ſkin; the foremoſt part of which, that covers the glans, is called the *præpuce*. This *præpuce* is tied underneath to the ſubſtance of the *penis*, by what is called the *frænum*.

The inner part of the penis is compoſed of two kinds of bodies, the *cavernous bodies* of the *penis*, and the *cavernous body* of the *urethra*. The firſt are bodies enveloped in their peculiar teguments, and make the greateſt part of the *penis*. Each of theſe bodies takes its origin from the erecting muſcle of the *penis*, which is near the *pubis*; through each of them goes an artery

and a nerve, which ſpread themſelves through theſe bodies.

Theſe bodies are full of cavities, which have all a communication with one another. The cavernous body of the *urethra* continues from the *bulb*, near the neck of the bladder all along to the end of the *penis*, and includes the *glans*, or the nut of the yard; and is much of the ſame ſubſtance with the former. At the back of the *penis*, goes along the large vein, called the *vena penis*, which ſpreads itſelf all along into numberleſs branches that connect themſelves with the ramifications of the arteries throughout all the cavernous bodies; and from thence is cauſed the erection, as I ſhall preſently deſcribe. The *glans*, or the nut of the yard, is remarkably delicate and ſenſible, as being the ſeat of pleaſure in coition; it is alſo of a cellular ſubſtance, and in one continuation with the cavernous body of the urethra.

Its ſenſation is greatly heightened by the *frænum* being tied underneath, from the *præpuce* to that part which keeps it, as it were, in an agreeable conſtriction when erect.

The penis is allowed two pair, and a ſingle muſcle. The firſt pair is the *erectores*, which take their origin from the fleſhy protuberances of the *iſhium*, and loſe themſelves in the cavernous body of the penis. The ſecond pair of muſcles is the *tranſverſales*;

ſales; theſe take their riſe near the foremen-tioned, and faſten themſelves at the root of the penis. The fifth is the *accelerator*, or the odd muſcle; this muſcle takes its com-mencement from the cavernous body of the *urethra*, and graſps the whole penis, and adheres to the *ſphincter* of the anus; the muſ-cles aid and aſſiſt each other in the erection of the penis, which happens in the follow-ing manner:

At the influx of the animal ſpirits, the *vena penis*, or the great vein in the penis is ſomewhat contracted, whence the blood is forced into the cavernous bodies of the penis and that of the urethra, as the reflux of the cir-culating blood from the arteries is hindered; hence, the cellulæ of the cavernous bodies are obliged to ſwell up and diſtend all the parts, and thus make the penis turgid and erect; when the penis is further titillated by the friction of coition, the parts become gene-rally irritated to an agreeable conſtriction, whereby the ſeed ruſhes from the ſeed-blad-ders into the urethra, and is thus forcibly ejected in the time of ejaculation; then the whole fabric ſlackens, the conſtriction of the great vein relaxes, the blood regains its free cir-culation, and the penis becomes ſlack again.

Theſe are the faint out-lines of the geni-tal parts; but to have a full deſcription and comprehenſion of the peculiar properties of

the genitals of both ſexes, and alſo the ſacred act of generation, I recommend to a ſerious peruſal of the anatomical and phyſiological deſcription of the genital parts of both ſexes, in my *Treatiſe on the Venereal Diſeaſe*, where they will find a full and ſatisfactory account.

SECT. VIII.

Of the Skin.

THE whole human automaton is covered with a ſkin, the mechaniſm of which is not leſs curious than what we have already deſcribed.

It is a texture curiouſly interwoven with an infinite number of tendons, arteries, veins, nerves, and lymphatic veſſels. The tendons form the net-work of the whole, and give it an elaſticity, from whence it requires a muſcular motion; and the reſt add each their parts, as I ſhall hereafter deſcribe.

The ſkin, univerſally over the whole body, is divided into three parts; but in moſt parts it is found to have four.

The external, is the *cuticula*, or ſkarf ſkin; this is a horny and inſenſible ſubſtance, formed by nature as a ſhelter for the next part

part of the ſkin, which is exceedingly ſenſible; on examination it appears to be a horny ſubſtance, and as it were, little ſcales continued from the immediate ſkin, which on any external injury, ſuch as repeated friction, fire, ſcalding, or bliſtering, ſeparates from the main ſkin. The next is the real ſkin, called *cutis*; This is ſtrongly interwoven with tendinous and nervous fibres, interſperſed with numberleſs ramifications of arteries, veins, and lymphatic veſſels; whence it is not only exquiſitely ſenſible, but elaſtic, and on the leaſt injury, ſubject to bleed. On the external ſurface is a very thin *plexus*, called the *reticulare*; which has the tinge of the natural hue of the ſkin, and diſtinguiſhes the complexion of the *negro*, the *tawny*, and *white*, from each other.

The ſtructure of the *cutis* is peculiarly curious, and may juſtly be conſidered as a continued *ſecretory* and *excretory gland*; or more properly, like the bark of a tree; for whilſt there is continual tranſpiration from the body, it, at the ſame time, is capable to abſorb the ſubtile particles of whatever ſurrounds it, and exclude the groſſer. Over the whole ſurface are innumerable little *pores*, which are nothing but the little openings of the various lymphatics, and of the blood veſſels correſponding with their peculiar *glandules*, called the *milliary glans*; between thoſe on the

the hairy parts, the hair is planted as it were, with their diſtinct roots, correſponding with the hue of the ſubject they belong to. Theſe *pores* widen or contract according to the internal or external warmth of the body; which when they contract, cauſe a kind of roughneſs, or continuation of little warts; and on the contrary, when dilated, ſmooth the ſkin. Next to this follows the fat ſkin, or *membrana adipoſa*; which is a continuation of cells, wherein the fat is contained, and has an immediate communication with the neighbouring blood and lymphatic veſſels. This part is not univerſal, for ſome parts of the face, the genitals, &c. are without it, The laſt of all is the *membranoſa*, a thin parchment-like texture, which adheres ſpontaneouſly to whatever part it covers, either the *perioſteum*, the *tendons*, *ligaments*, or *muſcles*.

Theſe are the four principal diviſions of the ſkin; but that which is the principal, is the ſecond mentioned, namely, the *cutis*; on which I ſhall have occaſion to offer ſomething hereafter, that may prove of the greateſt advantage to the ſea-faring people, for whoſe benefit I have particularly intended theſe Lectures.

SECT. IX.

SECT. IX.

Of the External Senſes.

FEELING is the univerſal ſenſation of the nerves, on which all other ſenſes depend, as the ſubtile ſpring of life itſelf. What it is, and whence it proceeds, has already in the foregoing been explained; namely, a ſenſation of the nerves, by which we perceive an idea of *hard* or *ſoft*, *wet* or *dry*, *hot* or *cold*, or in general terms, *pleaſure* or *pain*. The peculiar ſeat thereof ſeems to be placed at the ends of our fingers; whether this is the abſolute ſeat ordained by nature, or rendered ſo by cuſtom, is not my buſineſs here to enquire; perhaps, both conjoin to make it there moſt perfect, as beſt ſuited for that purpoſe.

Taſte is the next ſenſation of the nerves, regarding an immediate approach and action of ſubſtances themſelves, in order to diſtinguiſh betwixt the nature of foods, by which we are enabled to form an idea of *ſalt*, *ſweet*, *ſour*, *bitter*, *ſharp*, or *mild*; which according to their mixture and proportion, render *taſte* agreeable or diſagreeable. Its ſeat is principally in the tongue; but that it extends to the very ſtomach itſelf, is evident, from the immediate conſent of parts; namely, that what

what is disagreeable to the palate, will ever be nauseous to the stomach: Of which I shall say more hereafter.

Smelling is that sensation given to the animal creation, as a friendly messenger of taste, in order to enable us the better to chuse our food. It is actuated by means of the *olfactory nerves* spread in the *pituary membrane* of the nose, and has an immediate communication with the brain; which nervous plexus is actuated by odorous particles, exhaling from substances, by which the olfactory nerves are stimulated agreeably, or disagreeably, as the first intelligence to the palate, or to the whole consent of the nervous system.

Hearing is that sensation of the nerves which is occasioned by the vibration of the air, and forms the sound, which enters the cavity of the ear, and tremulates and puts in action, the organs of hearing The ear is perhaps as curious a piece of mechanism to our conception, as any part whatever we shall meet with in anatomy.

To the organs of hearing we must reckon the external and internal *auditory*, divided by a thin membrane, which is a thin spreading of nerves, called the *drum*; within this, or in the internal cavity, we observe,

1st.

1ſt. Four little bones called, from their forms, the hammer, *malleus*; the anvil, *ancus*; the ſtirrup, *ſtapes*; and roundling, *orbicularis*. 2dly. Their peculiar muſcles. And, 3dly. Two conſiderable cavities, the *labyrinth* and *aqueduct*. How hearing is actually brought about, Anatomiſts have not as yet agreed; and which would be too tedious here to enquire into. That the little hammer is perpetually moving on the *tympanum*, according to the different ſounds, may be one part; which, however, is greatly aſſiſted by the other organs.

The *labyrinth*, with many turnings and windings, penetrates through the ſcull and forms part of the aqueduct, by which the ſound is modulated and magnified, ſo as to cauſe the diſtinction between them, and convey the idea of their ſonorouſneſs to the common receptacle of ſenſation.

Seeing is that great faculty by which the form, colour, and motion of objects is repreſented to our ideas. The principal conveyer of this wonderful ſenſation, is the *optic nerve*; the eye is a teleſcope finiſhed to the greateſt perfection; or like a *camera obſcura*, where objects are pictured to the utmoſt nicety, and a due proportion obſerved in their nature. It is a globe enrolled with a ſtrong tendinous coat, and filled with three kinds of humours perfectly clear

clear and tranſparent, which differ in nothing but their various degrees of liquidity and form. Each of theſe humours is encloſed in a delicate thin tranſparent membrane. The external coat of the eye is called the *cornea*, from its reſemblance to horn, being a continuation of the *dura mater* and *pia mater*; and is every where opaque, except at the entrance of the light, which is called *pupilla*, and projects ſomewhat beyond the ſpherical form of the eye, ſimilar to the cryſtal of a watch. Inſide the *cornea* it is lined with a ſpreading of the optic nerves, called the *retina*, where objects are reflected; by which the ideas are immediately conveyed to the brain.

The humours are the following: The *aqueous humour*, the moſt external, which is deſigned for collecting the rays of light; the ſecond is the *cryſtaline humour*, which is in the form of a magnifying lens, and inveſted with a ſubtile tranſparent tegument, and ſo curiouſly fixed, as to be contracted and dilated, according as the objects are near, or removed from the eye; and accordingly the cryſtaline humour requires to be flattened or thickened; the laſt is the *vitrous humour*, which fills the remaining cavity of the eye; this humour ſerves to ſpread the objects again on the *retina*, and arrange them in their natural order, ſo that the picture of the objects

objects viewed, may be preſerved in its due proportion and regularity.

Now the act of viſion is performed thus: The convex tranſparent part of the *cornea* faces at once every object which comes within the direct lines thereof, and this is termed a *full view*.* This view enters through the aqueous humour, where the whole is contracted according to its convex and concave form, ſo as to make it fit to enter the *pupilla*, which is a muſcular continuation of the *ſclerotis*, and called the *uvea*; and from thence the whole view paſſes through the cryſtaline lens, by which the view is again magnified, and paſſed through the vitrous, and the whole depicted on the *retina*, in the ſame concave curve, and at equal angles in which it was firſt received, and apparently the ſame magnitude; thence repreſenting the objects in their natural perfection, figure, colour, magnitude, and motion.

When, however, an object is ſingled out of the whole view for particular attention, the *uvea* then contracts or dilates, which, together with the muſcular action of the whole ball, proportions all the humours ſuitable to the magnitude and diſtance of the

* It is the general received opinion, that objects are reverſed in the repreſentation on the *retina* of the eye. This is however a miſtake; I hope on another ſubject to prove this in a full and ſatisfactory manner.

object

object under examination, and the quantity of light; and to make the eye more capable, the lids are frequently moving, in order to moiſten and varniſh, as it were, with a liquid preſſed from the innermoſt gland, called *canthus major*, to keep the ſurface ſmooth, and aſſiſt its tranſparency. If this intenſe looking is continued beyond the ſtrength of this noble organ, it relaxes from its proper deſtined expanſion, and the objects are rendered obſcure.

Darkneſs is eaſe and reſt to the eye, becauſe it is then out of action; whilſt light always keeps it in exerciſe: And in diſeaſes of the eyes, light ſhould be kept away as much as poſſible.

Here then I ſhall beg leave to conclude this ſhort deſcription of the wonderful ſtructure of our frame; which when we duly conſider, will never fail of filling our breaſts with a ſenſe of admiration; and induce us to lift up our ſouls with reverence and gratitude, to that incomprehenſible GREAT CAUSE, by whoſe wiſdom we are formed; and by whoſe goodneſs we exiſt.

LECTURE

LECTURE II.

ON THE NECESSARY MEANS AND MEDICINES REQUISITE TOWARDS RESTORING HEALTH.

HAVING, in the preceding lecture, given a general view of our wonderful ſtructure, I ſhall, in this, endeavour to lay a foundation of the healing art, in order to aſſiſt nature when impaired by the attack of diſeaſe, or any unforeſeen accidents.

But that I may become uſeful, and yet conciſe, I will, without loſs of time, lead the reader to the principal diſtinction between health and diſeaſe; for without forming a proper judgment of an ailment, there can be no reaſonable intention of cure. I ſhall

 therefore

therefore beg leave to ſolicit a ſerious attention to the following important obſervations, particularly, as they are founded upon the pureſt principles of *phyſic*, authenticated by happy ſucceſs in an extenſive practice, and communicated by the dictates of a candid and well diſpoſed heart, that wiſhes Exiſtence only as a uſeful member to ſociety.

SECT. I.

Of the Pulſe.

WHEN we conſider the admirably curious ſtructure of the human mechaniſm, it muſt clearly appear, how eaſily the animal oeconomy may become diſordered. But ſo kind has the ALLWISE AUTHOR of our exiſtence been to his creatures, that on the ſlighteſt indiſpoſition, the whole ſyſtem is ſenſible of the leaſt diſagreeable ſenſation; and every part, with a ſocial and ſymphathetic friendſhip, is ready to relieve the fabric from whatever is obnoxious, and cauſes the diſturbance.

As nothing has a greater ſhare in life than the blood, ſo nothing likewiſe on the leaſt indiſpoſition, is ſooner ſet in commotion, and gives the alarm, than this very liquor, in which life itſelf is contained; and the circulation

culation of this fluid in the arteries, furniſhes us with the greateſt prognoſtic, namely, the *pulſe*, by which we may, with any degree of certainty, judge of the ſtate of the body, and foretell good or bad events. How beneficial it is then to be acquainted with this knowledge, I ſhall leave to every rational being to determine.

Every artery in the living body conſtitutes a *pulſe*, as has been explained in Sect. V. in the foregoing lecture.

And it is demonſtrative from ſimple reaſon, that the pulſation of ſuch arteries muſt be in proportion to their magnitude, greateſt in the heart, whence they take their origin; till the vibration muſt gradually be loſt to the touch, as they become inſenſibly ſmall, and loſe themſelves in their ramificatory capillary tubes.

The artery which is moſt convenient to our examination, is that which lays immediately to the touch on our wriſt, below the thumb, on the radius, juſt below the knuckle of that bone; and it is there we are beſt able to diſtinguiſh the pulſation of the arteries, as being moſt expoſed to the external touch; becauſe it is immediately between the ſkin and the flat of that bone.

Thus much premiſed, we will firſt conſider the *pulſe* in the ſound ſtate; and next

make a compariſon with that in people labouring under diſeaſes.

In a full grown man, in the vigour of health, the pulſe ordinarily beats once to every ſecond, that is, 60 times in a minute, 3600 in an hour, and 31,536,000 times in a year. It varies however in different ſubjects, according to the ſtature, temperament, condition, time, and action of the ſame; inſomuch, that two perſons equally in a good ſtate of health, ſhall, however, differ widely in their pulſes. Yet, notwithſtanding, there are peculiar ſigns, which will ever make a true diſtinction between health and ſickneſs; practice however is requiſite to form a proper judgment of ſuch diſtinction.

In order to lay a proper foundation to underſtand the nature of this great prognoſtic, I ſhall divide the pulſe into the following claſſes:

1ſt. *A full, ſlow*, and *regular pulſe*, denotes a perfect ſtate of health; for whilſt the blood moves regularly in the arteries, without pain to the nervous ſyſtem, or diſturbance to the animal oeconomy, the pulſe will beat preciſely regular, without trembling, fluttering, hurry, diſtinction, or feebleneſs, and diſcover to the touch, a peculiar eaſineſs; and this, every one, who wiſhes to become maſter of that ſubject, ſhould carefully attend to.

2dly. *A*

2dly. *A full* and *quick pulſe*, indicates a fever; for by the irritation of the nerves, the vibration of the arteries are accelerated. If a gentle perſpiration attends it, it may be deemed ſalutary; and with this pulſe it appears, that nature makes a vigorous effort to expel what is obnoxious: therefore in ſuch a pulſe, a gentle perſpiration generally gives relief.

3dly. *A full*, *quick*, and *hard pulſe*, denotes great irritability in the nerves, and a redundancy of blood; this is the pulſe of a fever; and here bleeding, if timely applied, is very requiſite, as alſo medicines which promote perſpiration.

4thly. *A ſmall* and *quick pulſe*, denotes an irritability in the nervous ſyſtem, and a contraction of the arteries; this is generally the pulſe which attends ſudden ſhocks and frights, as alſo in the cold fits of agues. The cauſes ſhould carefully be attended to: if, from a ſudden ſhock, bleeding is uſeful; but in the latter caſe, it is hurtful. It ſeldom laſts long, and a full feveriſh pulſe generally follows, and the ſtate of the patient ought here to be the guide: for, the ſame pulſe may proceed from too great a plenty of blood, as well as from a deficiency; conſequently requires different treatment; and this ſhall be pointed out more fully hereafter.

5thly. *An irregular full pulſe*, is at all times a bad one; many may be the cauſes,

and generally denotes a great confuſion in the nervous ſyſtem, and in the circulation of the blood. This pulſe is generally the attendant on violent inflammations, phrenzy, delirium, &c. and if it continues any time, forebodes great danger: bleeding in time is greatly requiſite, and other remedies, in order to aſſiſt the nerves, and bring the circulation to its proper regulation again.

6thly. *An irregular ſmall pulſe*, is frequently the attendant of an emaciated conſtitution, putrid fevers, and conſumptions; and this dangerous pulſe too generally forebodes the approach of death. The more irregular the pulſe grows, *ſmall*, *weak*, *trembling*, and leaves off by irregular intervals, the ſooner diſſolution is at hand; till at laſt, the pulſe entirely diſappears, and life ceaſes. But dangerous as this pulſe is, yet it muſt be obſerved, that it often appears in the ſtrongeſt conſtitutions, as in ſudden emotions of the mind, falls, &c. or in a ſwooning. This is alſo the laſt and the firſt pulſe in ſuffocations; or in other words, the ſtruggling pulſe between life and death.

Theſe few diſtinctions of the pulſe we will let ſuffice, as they, when properly attended to, will in all caſes enable us to make a true diſtinction between health and the different ſtages of ſickneſs, and accordingly direct us to a true method of cure.

SECT. II.

SECT. II.

Of the Effects of Bleeding.

THERE is, perhaps, not a greater remedy in medicine than bleeding; but good and effectual as it is, yet I will venture to ſay, there is none more pernicious than this, if injudiciouſly applied. As I value the life of my fellow creatures, I would at all times caution them againſt the injudicious application of this operation, being perſuaded, that more have loſt their lives by the lancet, than by the ſword, and peſtilence itſelf. Not to be tedious on this important ſubject, I ſhall give here ſome very few rules, whereby a patient may be judged in a proper ſtate for bleeding; and likewiſe, where that operation ought to be avoided: for all the ſervice we can poſſibly hope and receive from bleeding, is to leſſen the quantity of blood, by which the whole body becomes relaxed, conſequently leſs liable to the inflammatory irritation, that a too great quantity of blood might occaſion; but on the contrary, if the ſolids are but weak, and the blood poor, we only augment the evil by bleeding, which we would wiſh to remove, as thereby the ſyſtem becomes weakened, and not able to diſengage itſelf from the obnoxiouſneſs it is incumbered

with; and thus proves the very deſtruction it was intended to remedy. The notion of drawing off the bad blood by bleeding, is very erroneous and abſurd; the whole is too intimately mixed, and will ever generate the ſame again till the diſeaſe is removed.

Bleeding is requiſite

1ſt. When a ſtrong robuſt perſon, of a full and ſanguine complexion, by accident receives a heavy contuſion; a broken limb; or a wound, whereby the parts become inflamed; a fever like to enſue; and that the pulſe becomes hard and full, the veins diſtended, &c. &c.

2dly. When ſuch a perſon receives a great ſhock, fall, terror, or any other ſtrong emotion of the mind; whereby the blood becomes rarefied, or threatens a fever.

3dly. In the beginning of pleuriſy, peripneumony, ſudden and violent fevers, great colds, &c. as alſo ſcalding, burning, apoplexies, convulſions, palpitations, ſuffocations, and all ſuch dangerous violent diſorders; in theſe caſes only bleeding is uſeful, and then it ought to be performed immediately, and with great moderation: ſix or eight ounces is enough from the ſtrongeſt man; if requiſite, it may be eaſily repeated, but if overdone, it is not ſo eaſily repleniſhed.

Bleeding

Bleeding in general is hurtful

1ſt. In agues, notwithſtanding the violent paroxyſm of the hot fit, becauſe the ſolids are here too much relaxed.

2dly. In all contagious diſtempers; this is a circumſtance worthy the greateſt attention. Reaſon and experience prove that bleeding here is very improper; for by bleeding, the contagious miaſmata is drawn only the more into the whole maſs of blood, and this is the fatal ſtumbling block, by which thouſands have loſt their lives. The manner of treating ſuch diſtempers with ſucceſs, I ſhall ſhew in its proper place.

3dly. In all old ſtanding diſeaſes, where there is a low, weak, though quick pulſe; for in ſuch caſes bleeding is very improper, as the ſyſtem is already too much reduced.

4thly. In all dropſies, ſcurvies, lentors, conſumptions, &c. for here inſtead of bleeding and leſſening the power of the ſolids, the patient wants ſtrengthening, and has no blood to ſpare.

5thly. In all rheumatic and gouty complaints; for here nature muſt be aſſiſted in order to throw off what is painful, by ſuch means as will ſtrengthen the ſolids, expell what is obnoxious, and prevent it from returning to the blood, or falling upon ſome more important part.

6thly. In all venereal caſes, particularly if recent; as by bleeding, the pox will unavoid-

ably

ably be the conſequence; as the venereal virus will be abſorbed in the whole maſs of blood.

7thly. In all paralytic caſes, and ſuch weakneſſes where the ſtrength of the body is already impaired.

8thly. *and laſtly*, In the time of other evacuations of the body; as purging, fluxes, bloody fluxes, &c. and particularly when the body is in a ſweat, or perſpiration. From this, I hope, the good and bad effects of bleeding will be underſtood in many other caſes, which would be too tedious to mention here; I ſhall therefore proceed to the operation of bleeding itſelf.

SECT. III.

Of the Operation of Bleeding.

BLEEDING is thought in general to be a very ſimple performance; but in fact, there is not an operation in all ſurgery, requires more care, or is liable to more dangerous conſequences, if ill performed.

It is not only the opening a vein, but it is to open it properly, (taking care not to prick an artery or tendon) to take away a ſufficient quantity of blood, and to heal up the orifice again.

In the bend of the arm are three diſtinct veins, the *head*, *median*, and *baſilican*.

The ancients, before the diſcovery of the circulation of the blood, fancied the *head*, or upper vein, carried the blood from the head; the *median*, or middle, from the breaſt; and the *baſilican*, from the liver, &c. but this idle conjecture is laid aſide, as being highly abſurd. When it is remembered what was ſaid in the firſt Lecture, in Sect. V. of the circulation of the blood, it will then plainly appear, that all theſe veins become one before they enter the body; ſo that there can be no difference as to their quality in being opened: either therefore, which lays moſt conſpicuouſly eaſy, is the vein that ſhould be choſen; for the arms of people differ in this reſpect, as much as their features.

In order to chuſe therefore properly, examine with the finger how the veins lie; if upon a flat hard ſubſtance, it is a tendon; if a pulſation is perceived, there is an artery; both which ought to be avoided if there is a vein that lays more free and conſpicious to the ſight and touch. If however it cannot be avoided, the vein ought to be opened with the greateſt caution, for the pricking of a tendon would not only be exquiſitely painful, but endanger the arm by inflammation, and even life itſelf; and the pricking of the artery would endanger the patient's bleeding to death, or elſe form an *anaureſma*, (which is a bag of blood protruding from the artery) equally

equally dangerous to the life of the patient. In general the middle vein is the ſafeſt and moſt convenient, provided it does not croſs the tendon: for the upper vein lies frequently very deep, and is but ſmall, and the lower frequently croſſes a tendon, or lies immediately over an artery.

However, one or the other will frequently ſuit, and, with caution, the operation may be performed with eaſe.

As to the choice of the arm, it can make no difference in regard to the effect, whether it is the right or left, for the veins of both arms end at laſt in the great trunk of the *vena cava*, before they enter the heart. To the operator, however, the right is the handieſt, and to the patient, the left is moſt convenient. In that arm however where the beſt vein offers, that ſhould be choſen.

When the arm is fixed on, then tie it up. The place ſhould be on the upper arm, about two inches from the bend, and the vein fixed on to be bled, firſt drawing up the ſkin a little, and laying on the ligature twice round the arm, drawn together with a draw knot; the reaſonof laying on the ligature above the intended orifice of the vein, is plain, as it ſtops the reflux of the blood, which is tranſfuſed from the heart by the arteries towards the fingers, from thence taken up by the veins, and by the ligature prevented from

flowing

flowing back again, and conſequently diſtends the veins, and ſwells them up.

When the ligature is laid on, (which may be a garter, or a piece of tape, about five or ſix feet long) and the veins are ſwelled up, then open the vein. Bend the lancet ſo that the blade and handle may make an acute angle; take the blade between the thumb and fore finger in the right hand, if the right arm is bled, but if the left arm, the lancet ought to be held in the left hand,* and open the vein obliquely, ſo that the lancet cuts all the while, ſtretching the vein a little downwards with the oppoſite thumb. The lancet ſhould cut a little ſlantingly, for if perpendicular, it would not only cauſe much pain, but be apt to ſlip through the vein, prick a tendon or artery, and occaſion dangerous miſchief.

The orifice ſhould be ſomewhat obliquely in the vein, neither directly lengthways, as the veins would be apt to ſlip, and the orifice not ſufficiently opened to let the blood paſs freely; neither ſhould the opening be right acroſs, as thereby the vein might be divided, and the blood not be eaſily ſtopt, or the orifice heal up. When now the vein is

* This is the proper method of bleeding; for a bleeder ought to be equally dexterous with the left hand as with the right, which cuſtom ſoon makes familiar; but thoſe who are awkward with the left hand, muſt ſtand behind the left arm to bleed, which method may be adapted rather than to riſk danger.

well

well opened, let the blood run, (the arm a little bent) till it changes to a higher colour, the ſureſt ſign of being enough, and this will be in about four, ſix, or eight ounces, according to the conſtitution of the patient. This ſimple rule I would adviſe to be attended to, for whatever may be pretended about preſaging the quantity of blood beforehand, certain it is, it cannot be aſcertained but in the time of bleeding.

When it is time to leave off, ſlacken the ligature, and gradually untie it, when generally the blood ceaſes to run; draw cloſe the orifice, and wipe it clean all round. Let the patient bend the arm a little, and cloſe the orifice very cloſe, then lay a four-folded dry compreſs, the bigneſs of a crown, of clean tolerable fine linen rag, and tie the arm up: lay the ligature (a garter or a piece of tape about four feet long) at the middle of the compreſs, the one half round the upper arm, the other on the lower arm, alternately, ſo that they always croſs each other in the bend of the arm on the compreſs, till at laſt it is either tied or pinned; care being taken that it neither be too tight or too ſlack, ſo that the arm may be bent or extended with tolerable eaſe. Let the ligature remain on twenty-four hours, when all will be cloſed up.

What is to be done if unfortunately a tendon or an artery ſhould be pricked, I ſhall mention hereafter.

SECT. IV.

SECT. IV.

On the requiſite Medicines to be uſed at Sea.

AS my greateſt ambition in this life tends only in becoming uſeful, I ſhall ſtudiouſly avoid that falſe pride of appearing learned.

There is perhaps not a medicine in the modern *materia medica*, but what I have examined into, and opportunely experienced the virtue of; but ſo often have I been deceived in my expectations, that out of the many hundreds, with which I am acquainted, there are not above a ſcore, or at fartheſt two, which in any caſe whatever I ſhould expect any benefit from. Yet I mean not to throw out prejudices, for every phyſical man has his favourite medicine, and we are all apt to praiſe the bridge that carries us well over.

The little aſſortment of medicines however, which I here offer, I know from experience to be good, and as ſuch I recommend them. I have plowed the ocean myſelf, viſited moſt climates in the known world, and in my practice on that precarious element, drawn ſuch obſervations, as makes me happy to think, that they may prove uſeful to a claſs of men, who daily experience the uncertainty of human life.

In the firſt place I ſhall draw the plan of a ſea medicine box, as may ſuit a ſhip that carries no ſurgeon; in which I ſhall endeavour to be ſo plain as I hope will prevent any miſtake.

The

The MEDICINE CHEST.

1 Lancets, Sciſſars, Probe, Spatula, Teeth Inſtruments 2 Syringes 3 Clyſter Pipes & Bladder 4 Scales and Weights	A. Spt. of Wine and Camphor.	B. Liniment of Soap.	C. Sweet Oil.	D. Sweet Spirit of Nitre.	11 Camomile 12 Balm 13 Sage 14 Saſſafraſs 15 Oatmeal
	E. Honey.	N. Calom.	O. Fine Prec.	P. Me. Oi.	G. Elixir of Vitriol.
		Q. Rhub.	R. Jalap.	S. Ipecac.	16 Cinnamon, &c. 17 Allum 18 Chalk 19 Salts
5 Splints 6 Bandages 7 Rags 8 Tow 9 Lint 10 Tapes, Thread, Needles and Pins	F. Yellow Baſilicon.	T. Liq. L.	U. E. O. Pep.	W. I's. Ba.	H. Elixir Proprietat.
	I. Linitive Electuary.	K. Turner's Cerate.	L. Fever Powder.	M. Stomach Powder.	20 Diachylon Plaiſter 21 Mercurial Plaiſter 22 Bliſtering Plaiſter

Of the Utenſils.

FIRST then, I ſhall ſpeak of the utenſils and the inſtruments which muſt neceſſarily belong to a medicine box, be it ever ſo ſmall.

In the box, No. 1.

Lancets: There ought to be three or four, and they ſhould always be kept clean and bright in a caſe, free, as much as may be, from the dampneſs of the ſea air. The beſt method for this is, to wipe them often with a dry clean linen cloth, warmed by the fire, (taking care in the wiping of them, that the blade of the lancet lays upon one of the handles, by which the point is preſerved) and when properly cleaned, wrap the whole caſe up in a large piece of dry paper. Let it be a conſtant rule, to clean them well every time they are made uſe of.

And here I muſt remark once for all, that all iron or ſteel inſtruments are ever beſt preſerved clean and bright, by rubbing them clean with a warm dry cloth, and then wraping them up in clean dry paper; by which method I have preſerved my capital inſtruments with the ſame brightneſs, as they came out of the workman's hands throughout my voyages, notwithſtanding they have been made uſe of, and frequently too.

The notion of oiling or greaſing inſtruments is very erroneous, and ſo far from preſerving them, that it will never fail of making them more ruſty. The wiping them quite clean and dry, and wrapping them up in warm dry paper, is certainly the beſt ſecret for keeping all iron or ſteel bright at ſea, and deſerves ſtrictly to be attended to.

Sciſſars: There ought at leaſt to be two pair, one for common uſe, and the other for particular purpoſes; and if the laſt mentioned are crooked, they are certainly much the better, being very handy on many occaſions. The beſt pair ſhould be carefully preſerved as already directed.

Probe: A probe is very requiſite for ſearching of wounds, &c. it ſhould be of good ſilver, and the ſmaller it is in thickneſs, even like a ſmall wire, the better for uſe, as it will bend and twiſt agreeable to the place it is to ſearch. At one end it ſhould have a neat ſmooth button, and at the other, be triangularly pointed, like a ſail needle, in order to wrap lint round it to clean ſores with; its length ſhould be ſix or eight inches.

Spatula: 'Tis not much matter what the ſpatula is made of, whether ſilver or iron, be it what it will, (provided it is neither braſs nor copper) one end ſhould be flexible, ſo as to be handy in ſpreading ſalves upon

upon lint, or for other the like purpoſes; whilſt the other ſhould be more ſtiff, being very uſeful for preſſing the tongue down, in looking and examining the throat. It ſhould be about ſix or eight inches long, and an inch broad.

Biſtouries and *Inciſion Lancets:* A biſtoury, or neat ſharp cutting knife, is very uſeful indeed in many caſes. And a large *inciſion lancet*, in the form of a common lancet, except that the point inclines more one way, is very neceſſary for opening apoſthumes, and where a collection of matter has been formed.

Teeth Inſtruments: Of the whole tribe there is certainly none more univerſal than the key; this ought to have three different hooks, and ſo that they may ſhift and unſhift, according as the operation requires. The gum lancet I have no notion of, I never ſaw any occaſion for it, and am apt to think it rather an hindrance to the operation. The inſtrument ſhould be kept clean in the ſame manner as I have ſaid before.

2. *Syringe:* Each box ought at leaſt to have two. Ivory is the beſt ſubſtance they can be made of; they ought to be pretty thick and ſtout, as they are liable to warp. A ſmall one with a neat pipe, ſlender, and a button to it, will be very uſeful for the clap, or other caſes, where injections are requiſite. A larger one for the ulcerated

ſore throat, or other the like caſes, where quantities are required to be injected.

3. *Clyſter Pipes* and *Bladders:* There ought to be ſundry. I would have them previouſly mounted; and to prevent the bladder from being decayed, or eaten up by vermin, or moths, fill them up with wormwood; a method I have found very effectual.

When they are to be made uſe of, they are eaſily ſoftened by a little lukewarm water.

The general method of mounting the bladder on the pipe, is, by the aſſiſtance of a cork in the pipe, which is to be drawn by a ſtring, when the clyſter is injected; for my part, I found it always a hindrance; and therefore inſtead of the cork, I always choſe to ſecure the whole with a ſtring, tied with a ſlip knot, which when the pipe is introduced, is much more eaſily undrawn.

A clyſter ſyringe of pewter, that holds at leaſt a pint, or a pint and an half, is far more preferable at ſea, and might eaſily be made with an additional pipe, by which a man may be the operator himſelf.

4. *Scales* and *Weights:* This is a requiſite article, in order to proportion the doſes of medicines. The ſcales need ſcarce any deſcription, as they require no more than their being of an equal length, and the whole in equilibrio.

The

The *Apothecaries weights* come in the following order, and ſignified by theſe characters:

1 ℔—A Pound is 12 Ounces.—℥xii.
℥i.—An Ounce is 8 Drachms.—℥viii.
℥i.—A Drachm is 3 Scruples.—℈iii.
℈i.—A Scruple is 20 Grains.—gr.xx.

Theſe marks are generally ſtampt upon the pieces. As a pound and ounce are not generally uſed in the proportioning of doſes, they are omitted in the common little boxes prepared for that purpoſe. The reſt, drachms, ſcruples, and grains, are marked upon the requiſite pieces; and which at the firſt inſpection may eaſily be underſtood.

I ſhall next proceed to another diviſion of the cheſt or box.

5. *Splints:* Of thoſe there ſhould be at leaſt four pair; two pair for broken legs, and two pair for broken arms. They are generally made of very thin deal boards, paſted on leather, and ſlit, ſo as to bend to the parts applied, ſideways, but remain ſtiff length ways.

Paſte-boards may however be made uſe of with good ſucceſs; and if the paſte-boards are kept in ſheets, they have the advantage, that ſplints may be made of them occaſionally; but by fomentation they are apt to become ſoft and flabby, which ought to be guarded againſt.

Bandages:

6. *Bandages:* There ought to be three or four long ones, two or three yards each, torn length-ways off an old ſheet, not too much worn, ſtitched together ſo as not to make a ſeam, three fingers broad, and neatly rolled up, ſo that they always may be ready for uſe.

7. *Rags:* are a moſt requiſite article at ſea, and I can only ſay, the more there are the better. They ſhould by all means be clean, and neither too coarſe nor too fine.

8. *Tow:* is alſo a very requiſite article. A good large bundle ſhould be provided, and it ſhould be cleared from the ſhaggins, as they render it ſtiff and unpliable: the grey is generally the beſt for medicinal purpoſes.

9. *Lint:* ſhould alſo be ſomewhat plenty; but as this may be made at leiſure, the quantity of that is not ſo material. Lint in the common method is beſt made from rags torn length-ways, about three fingers broad, and the tranſverſe thread drawn by the help of a knife.

10. *Tape:* is very uſeful, particularly that of two fingers breadth, and ought to be pretty fine. At leaſt a dozen of yards ſhould be provided.

Needles, threads, and *pins* ſhould by no means be omitted, being highly uſeful on many occaſions.

Secondly. I ſhall now proceed to the herbs, which need but be few, as they are very ſubject to decay.

11. *Camomile flowers* are much uſed by ſome, and ſuppoſed to ſtrengthen the ſtomach; I could never think them of that effect. When however a vomit is given, camomile tea is very uſeful, and promotes greatly the operation; but it ſhould not be made too ſtrong: as much as may be taken between three fingers, pouring on it a quart of ſcalding water, and thus made into a tea. But that kind of tea ſhould not be too often repeated, unleſs it particularly agrees with the ſtomach.

12. *Balm*: This is an excellent herb on many occaſions; it is cooling, and there is not a tea I have more to recommend to ſea-faring people, let their ailment be what it will; it is of a balſamic and healing nature, and will not eaſily pall on the ſtomach, except where there is an univerſal weakneſs in the ſyſtem; where then what is more warming to the body than balm, may with propriety be added.

13. *Sage:* This is an herb of a more hot nature; and in fevers ſhould be uſed with caution, unleſs where a tranſpiration is required. It promotes urine and perſpiration, in many caſes it may be uſed with the balm, and then makes a very good tea, both for the ſick as well as thoſe in health.

14. *Saſſafras:* This is one of the warming and balſamic woods, which, if it is mixed with

lignum vitæ chips, makes an excellent decoction for all rheumatic complaints, and where the blood wants to be diluted or purified.

15. *Oatmeal:* This article cannot ſtrictly be deemed a medicine, yet, as water-gruel is frequently wanted, that of oatmeal I think the beſt; beſides, it is excellent for making poultices, being of a ſoftening and rich quality. But if it ſhould be wanting, *pounded biſcuit* will anſwer the purpoſes. In regard to diet, I ſhall ſay more in its proper place.

16. *Cinnamon:* This is a neceſſary article at ſea, as it is of a gentle aſtringent nature, together being very warming, and is undoubtedly the beſt of all the ſpices, where the bowels are weak. Its peculiar uſes I ſhall ſpeak more of hereafter, when I come to treat on looſeneſſes and fluxes, and ſuch diſeaſes where it is uſeful.

17. *Allum:* This aſtringent medicine is very uſeful for gargles, for ſcurvy gums, and various other uſes. Burned allum (which may be done by expoſing a piece on a fire ſhovel over the fire till it is bubbled up and become of a white cake) is an excellent medicine, for gently checking proud fleſh in ulcers; beſides which, it makes an excellent tooth powder.

18. *Chalk*, is as neceſſary an article as any medicine, and ſo uſeful is it in long voyages, that a ſhip ſhould be well ſtored with it; for

it

it is not only an excellent abſorbent, and will ſtop fluxes, when made uſe of in decoctions for that purpoſe, but, makes alſo a great purifier of water, and thereby contributes greatly to the preſervation of health; as I ſhall hereafter further take under a ſtricter conſideration.

19. *Salts:* Glauber's purging ſalts, is a medicine which has had many virtues aſcribed to it; as a cooling purge it is very well, but further I cannot recommend it: An ounce, or an ounce and an half is the doſe; and it will be beſt to diſſolve it in a tea cup of water over night, ſo that it may be taken early in the morning, and worked off with drinking gradually ſome tea after every motion.

20. *Diachylon plaiſter:*

Take lytharge fine prepared one pound, oil of olive one quart, boil them over a gentle fire, putting into the pan a little water, ſtir it all the while, and take care it does not burn; continue boiling, till it becomes of a conſiſtency of a plaiſter, and make it into rolls; which, according to art, is beſt done before it is quite cold, upon a wet marble ſlab, and wet hands, and then put up in paper, previouſly rubbed over with ſome ſoap, to prevent it from ſticking.

There is not a medicine ſo generally uſeful for all hands on board, as this very plaiſter, in caſe of cuts, bruiſes, or ſores of any kind; it is not only the medicine box that

that ſhould be well provided with it, but every man on board, I adviſe to have a roll, and ſome ſpread on cloth in his cheſt; for in every little accident, a cut, a broken noſe, or broken ſhin, &c. to which a ſeaman is liable, nothing is handier, and nothing is more beneficial than this plaiſter, as it will prevent inflammation and feſtering, heal it up, and prevent ſmall ſores from becoming great ones.

21. *Mercurial plaiſter:*

Take of the diachylon one pound, purified mercury half a pound, triturate the mercury with a little hog's lard or terpentine, then melt the diachylon, and incorporate the triturated mercury into it.

This is principally fit for venereal caſes, for buboes, and other hard tumours; it may alſo be put to ſhankers and very bad ulcers; but it ſhould never be uſed unleſs neceſſity requires it.

22. *Bliſtering plaiſter:*

Take Spaniſh flies eight ounces finely powdered, common drawing plaiſter one pound, melt the plaiſter and ſprinkle the powdered Spaniſh flies till all is well incorporated, then make it into rolls according to art.

This is intended for riſing bliſters. In regard to the uſe of this, I have only to obſerve, that it ſhould be made uſe of only, when

when the greateſt neceſſity requires it; that is, in bringing on a cryſis of a fever, which I ſhall point out in its proper place. At preſent I ſhall only ſpeak of its application. Whatever place is intended to be bliſtered, either the neck, between the ſhoulders, or the calf of the leg, let the place firſt be cleaned with a little vinegar, and rubb'd till it becomes red, then let the bliſtering plaiſter, the bigneſs of the palm of the hand, pretty thickly ſpread,(beſt upon leather)be laid on the part, and remain there for about twelve hours, and be tied on, that it may not ſhift: at that time the bliſter will riſe; let it be cut to let the water out, (but care ſhould be taken not to pull off the ſkin, as is frequently practiced) dreſs it with *Turner*'s *cerate*, ſpread upon a thin rag, (or what is ſtill better, dry lint) and let that dreſſing be ſhifted once every twelve hours, till all is healed up.

I ſhall now proceed to the inner part of the cheſt.

A. *Spirit of wine camphorated.*

Take ſpirit of wine rectified one quart, camphor two ounces, mix it, and let the camphor be diſſolved in it.

This is an external application, for bruiſes and other inflammations, where diſcuſſion, or diſperſion of humours is neceſſary, its chief benefit is in ſprains, diſlocations, and fractures. I have this however to obſerve with the camphorated

camphorated ſpirit, that though it is exceedingly uſeful in the forementioned, and in ſome rheumatic caſes, yet it ſhould be uſed with caution, and not too plentifully, as it is liable to dry up the veſſels, and might incline the limb to waſting, if too freely made uſe of.

B. *Liniment of ſoap.*

Take ſpirit of wine rectified one quart, diſtilled oil of roſemary one drachm, camphor one ounce, caſtile ſoap half a pound; cut the ſoap ſmall, and let the whole be mixed and diſſolved.

This is an excellent external medicine for ſprains, rheumatiſm, bruiſes, &c. this medicine is commonly called opideldock, and in all ſuch caſes is far ſuperior to the ſpirit of camphor ſingly; unleſs where the conſtitution is ſluggiſh, and requires a greater ſtimulus; in general, however, this excellent compoſition will ſupply the place of both. *

C. *Sweet oil:* This ought to be pure and good; it is of many uſes in medicine, which I ſhall treat of as occaſion requires.

D. *Sweet ſpirit of nitre.*

This is a ſpirit diſtilled from ſpirit of wine one quart, and ſpirit of nitre half a pound, according to the art of chymiſtry.

* Since theſe compoſitions are ſo eaſily made, they might occaſionally be prepared on board; Inſtead thereof, I would adviſe the ſeaman to furniſh the box with camphor and ſoap; and inſtead of rectified ſpirit, good rum or brandy will anſwer equally as well.

In regard to its virtue, it is an excellent medicine in moſt acrimonious caſes, and acts principally as a gentle diuretic; beſides this, it is of an antiſpaſmodic and antiputreſcent quality, and therefore uſeful in all kinds of inflammatory diſorders, particularly of the putrid kind of fevers; which I ſhall, in the courſe of this work, take notice of.

E. *Honey:* This is a uſeful article, which ought to be plenty, and of the beſt kind; it is particularly uſeful for making gargles, clyſters, poultices, &c. &c. as ſhall be farther ſpecified.

F. *Yellow baſilicon:*

Take olive oil, yellow bees wax, yellow roſin, Burgundy pitch, of each half a pound, turpentine two ounces; melt the whole, and mix them properly.

This is an external digeſtive application to cleanſe ulcers, and to make them diſcharge good matter, by which the inflammation will abate.

G. *Elixir of Vitriol:*

Take ſtomachic elixir one pint, oil of vitriol four ounces; mix them, and filter it through paper.

This is an excellent elixir for weak ſtomachs, that proceed from bile and other cauſes of indigeſtion; it is alſo a great ſpecific againſt the ſcurvy, and the like habits; as alſo in feveriſh complaints. The doſe is from 20 to 40 or 60 drops, in a little water.

H. *Elixir proprietatis:*

Take of myrrh in powder one ounce and an half, ſuccotrine aloes in powder an ounce, ſaffron four ounces, of dulcified ſpirit of vitriol ſix ounces, of rectified ſpirit of wine twenty-four ounces; digeſt them in a ſand heat for four days, and then pour off the elixir from the dregs.

This elixir is an excellent ſtomachic, it will promote digeſtion, ſtrengthen the ſtomach, and create an appetite; it will alſo keep the body gently open, and on that account be of great benefit againſt many ailments in the bowels. The doſe is about a drachm or two, or a middling ſpoonful; to be taken either by itſelf, or in a glaſs of wine, and makes a moſt agreeable bitter.

1. *Lenitive Electuary:*

Take dried figs one pound, tamarinds, caſſia, french prunes, each half a pound, ſena leaves eight ounces, coriander ſeed four ounces, liquorice root three ounces, double refined ſugar two pounds and an half; reduce the ſena and coriander to a powder, and ſift it through a ſieve, boil the figs, caſſia, prunes, and liquorice into a pulp, and ſtrain theſe alſo, then mix the powder gradually amongſt it, and make it, with the help of the ſugar, into an electuary.

This electuary is a gentle cathartic, keeping the body coolly open, and therefore very uſeful in fevers, and weak conſtitutions when openneſs of the body is required. The bigneſs

neſs of a large nutmeg is a doſe, which may occaſionally be repeated.

K. *Turner's cerate:*

Take olive oil a pint, yellow bees wax and prepared calamine ſtone, of each half a pound; melt the wax and oil, and mix the calamine ſtone: keep ſtirring till it is cool.

This is a healing cerate, very uſeful in ſcalds and burns; as alſo to dreſs bliſters with; likewiſe for the external dreſſing of ſores, when near healing, or to keep other dreſſings on.

L. *Fever powders:*

Take purified nitre powdered half a pound, crabs eyes prepared four ounces, cinabar of antimony finely prepared two ounces, calomel one drachm, and mix them.

This is the celebrated antiſpaſmodic powder of the great *Stahl*, with ſome conſiderable amendment by means of the calomel; which, in the courſe of a long practice, I have found the moſt beneficial for fevers. There is not a kind of fever to which mankind are ſubject, either at ſhore or at ſea, but what this powder may with ſafety and with great benefit be applied. A ſcruple, or half a drachm is a doſe, and which may be repeated, as the ardency of the fever ſhall require.

M. *Stomach powder:*

Take purified nitre prepared and chalk, of each eight ounces, nutmeg two ounces; reduce

all

all to a fine powder, and let them be properly mixed.

This is an excellent powder againſt the heart-burn, or other crudities of the ſtomach and bowels; for whilſt it abſorbs the crudities and accidities in the firſt paſſage, it is at the ſame time a gentle digeſtive, and withal a carminative: Hence in heart-burn, belching, and other diſagreeable ſymptoms of depraved appetite it is highly uſeful.

N. *Calomel:*

This is a dulcified mercury, made of ſublimate mercury four ounces, pure quickſilver three ounces; intimately mixed, and ſublimed ſix times, according to the art in chymiſtry.

This is the ſafeſt and gentleſt of all mercurial preparations, and if judiciouſly adminiſtered, may be deemed one of the greateſt of all medicines. I ſhall therefore be ſomewhat particular on this head. In the firſt place, it ſhould be faithfully prepared; and ſecondly, levigated as fine as is poſſible; to do this therefore, I have in my Treatiſe on the Venereal Diſeaſe, recommended it to be ground with a little water on a flat marble, to the fineſt degree poſſible, and then dried up for uſe. The fineneſs of this excellent medicine is of the greateſt importance, and ought to be ſtrictly attended to, for not only much miſchief has been done by its rough particles in the bowels, but it muſt follow, that

the

the finer it is, the farther it goes. And with all mercurials, it ſhould be ſtrictly obſerved, the leſs quantity we can make do, the more we may hope for ſucceſs.

There is not an acrimony in the human body but what may be corrected by this univerſal antacrid medicine, if properly adminiſtered. In venereal caſes, it ſhould be one of the firſt, and the principal remedy throughout the cure; but care ſhould be taken that the quantity be ſmall, and adapted to the ſtrength of the patient, and to prevent it from falling on the ſalivary glands, and thence to produce ſalivation. The doſe ſhould never exceed one grain, a quantity ſufficient for twenty-four hours, except where there is evacuation, or other diſcharges of the body required; in which caſe it may be occaſionally increaſed, eſpecially in malignant fluxes, or when purges are given, or in other evacuations.

It may be made up in many forms; the beſt, however, is in pills, with a little flower and water, &c. or it may occaſionally be mixed up with other medicines, as I ſhall frequently have occaſion to ſpeak of.

O. *Precipitate:*

This is made up of equal weight of Quickſilver and compound Aqua Fortis, well mixed, evaporated to dryneſs, in a broad bottomed veſſel, by a ſand heat, according to the art of chemiſtry; in which operation it turns red.

This is an excellent medicine, applied to all kinds of ulcers, as it will correct the malignity of the matter, take off fungous fleſh, bring on a kind ſuppuration.

It will alſo clear the ſkin from all kinds of breaking-out, and perfectly deſtroy lice, nits, &c. It ſhould, however, like the former, be levigated very fine, for thereby it loſes greatly its ſharpneſs, and becomes more efficacious. It ſhould alſo be mixed with ſome cerate, ointment, or other dreſſing, and never, or very ſeldom, be uſed by itſelf, as I ſhall hereafter point out.

P. *Mercurial Ointment:*

Take hogs lard eight ounces, purified quick-ſilver one ounce, Venice turpentine two drachms; rub the mercury into the turpentine in a mortar, till the quickſilver diſappears, then mix the whole together.

This is popularly called Unction, and peculiarly uſeful in venereal caſes, as alſo to deſtroy a particular vermin called *Crab-Lice*, and other foulneſſes. But I muſt here give a caution againſt the too free uſe of mercurial ointment, as it is not only apt to bring on ſalivation, but if the mercury is adulterated with lead, (as ſometimes is the caſe) it is liable to occaſion many incurable pains in the limbs; and by this the remedy may prove worſe than the diſeaſe.

Q. *Rhu-*

Q. *Rhubarb.* This is a neceſſary article in all kind of fluxes, and relaxations in the bowels; for, beſides that it purges gently, it has withal ſuch an aſtringency as to brace up the weakened veſſels, and to reſtore their proper tone again.

The doſe of rhubarb is one ſcruple; which ſhould be mixed with ſome fine chalk, or *Stomachic Powder.* (M.) about equal quantity, particularly in the beginning of fluxes.

R. *Jalap.* This of all purging medicines is undoubtedly the beſt, when purging is required. The doſe is from a ſcruple to half a drachm, mixed up into a draught, with a little ſyrup and water, or any other form. A grain or two of calomel is ever a proper addition, let the caſe be what it will, that requires purging.

S. *Ipecacoanha.* This is the beſt of vomiting medicines; to be given about a ſcruple, either iniform of a little draught, or in a bolus.

Vomits are often of more benefit than purges; not ſo much on account of cleanſing the ſtomach, as by the agitation it gives to the whole body; whence it is brought into perſpiration, and thereby promotes the circulation of the fluids that was obſtucted.

T. *Liquid Laudanum:*

Take purified opium one ounce; cinnamon and cloves, of each one drachm; white wine one pint, ſteep them for a week without heat, and filter it for uſe.

This

This is a medicine of much uſe in painful and reſtleſs diſeaſes, but ſhould never be had recourſe to, unleſs the greateſt neceſſity require it. For, whilſt it lulls the nerves from their irritation, it is apt to weaken their tone, and by that, greatly leſſen the ſtrength of the whole body; but where really requiſite, it is a happineſs that eaſe can be given, by which to relieve nature in pain that it may be reſtored again to tranquillity. The doze of this tincture is from 10 drops upwards to 30.

U. *Eſſential Oil of Peppermint:* This is one of the moſt grateful nervins in the whole materia medica; and at the ſame time the leaſt ſtimulant. In all caſes where there is weakneſs and feebleneſs, I would adviſe this in preference of ſpirit of hartſhorn, or any other ſtimulant whatever. It warms the ſtomach, comforts the bowels, and infuſes a livelineſs over the whole nervous ſyſtem. The Doſe is from 3 or 4 to 6 drops, on a little lump of ſugar, and diſſolved either in a glaſs of wine, or water; which may be repeated occaſionally, without the leaſt hurt to the conſtitution.

W. *Turlington's Balſam:*

Take St. John's worth a ſmall handful, rectified Spirit of wine two quarts; digeſt them for a few days, then ſtrain and filter the extracts; then take Angelica-root, Olebanum, Myrrh, and Socotorine Aloes, of each one ounce; Styrax, Benzoin,

and

and Peruvian balſam, of each an ounce and a half; digeſt the whole in a ſlow heat for ſome days, and filter the balſam off for uſe.

This is the genuine receipt of the celebrated *Turlington's Balſam*, and an excellent medicine it is, for many purpoſes. Externally, it is an efficacious remedy for all green wounds, cuts, bruiſes, &c. if immediately applied.

But particularly for internal uſes, its virtues are great: It warms the ſtomach, promotes good digeſtion, enriches the blood, warms the whole ſyſtem, and, above all, is a ſovereign remedy in all rheumatic complaints. The doſe is about a tea-ſpoon full, in a glaſs of wine, or any other convenient vehicle; and on all occaſions, where bitters are made uſe of, this ought to have the preference, being one of the beſt ſtomachics. But at the ſame time it ſhould be obſerved, that where there is a fever in the ſyſtem, it ought to be avoided, as it is remarkably heating in its nature, and therefore agrees beſt with cold conſtitutions, and where the habit is weak.

Here then I ſhall end this lecture; and only obſerve, that though there are various other medicines of the greateſt importance, as well for external as for internal uſes, I have purpoſely avoided them, as their application requires more care, than what we may expect from men who have not made medicine their peculiar ſtudy. At the ſame time I muſt alſo confeſs, that the fore-mentioned will be ſufficient,

ficient, if managed as I have already intimated. it is a maxim with me, 'tis not ſo much the medicines themſelves whereon the ſucceſs depends, as the judgment requiſite to know how and when properly to make uſe of them.

I muſt likewiſe take notice, that I have purpoſely adhered as cloſe to the recipes of the Diſpenſatory as I could with propriety, becauſe it may the better ſuit the apothecarys' ſhops in all parts of the world; and that when a medicine is wanted it may the eaſier be ſupplied. It would have been an eaſy matter for me to alter every medicine in its compoſition; but I conceive this would have tended but to raiſe difficulties in procuring them, and taken away from the general utility of the book.

LECTURE

LECTURE III.

OF

ACCIDENTS,

AND THEIR

Proper Method of Treatment.

I Shall now proceed to the actual aſſiſtances that the human body ſtands in need of, when the order of health is impaired. This is the nobleſt office, in which mankind can poſſibly give aid to each other.

Health is certainly the greateſt bleſſing this ſide of the grave; and what ſervice can we render

render to our fellow creature, ſo valuable, as to aſſiſt him in the hour of diſtreſs.

From this conſideration it naturally follows, what caution it alſo requires, and how circumſpect every one ought to be, who takes upon him that noble office.

Before therefore I begin this important lecture, let me requeſt of the reader the ſtricteſt attention, and never to act before the ailment, as well as the method of treatment is thoroughly underſtood; ſince nothing leſs than health, and even life itſelf, is liable to be the forfeit of a fatal error.

Mankind are ever liable to accidents, how cautious ſoever their conduct in life may be: But ſeamen, particularly are more ſo; not only from their occupation, but from the precarioufneſs of the element on which they are dependant, and which ſo often expoſes them to the moſt imminent danger.

I ſhall divide the accidents of bodily dangers, into falls, wounds, bruiſes, diſlocations, fractures, ſcalding, burning, and drowning; and treat on each part ſeparately, in as plain a manner as is in my power.

SECT.

SECT. I.

Of Falls.

THE man who falls, is partly bereft of his ſenſes, or his preſence of mind, and particularly ſo the more timorous he is of his own preſervation; add to this, becauſe he is unaccuſtomed to it; for cuſtom makes us familiar in every thing: Thence we perceive the different effect in different perſons in their falling; for ſome will fall with a good deal of judgment, prevent ſome unlucky blow or other; whilſt another ſhall fall as heavy as a dead log, or like one drunk, without having the leaſt chance of ſaving himſelf in any ſhape. I remember once I fell from the puttock ſhrowds of the fore-top, but providentially eſcaped without the leaſt injury, my watch chain having catched ſome how, which I endeavoured to ſave. I confeſs this in a great meaſure was owing to good fortune; at the ſame time I was naturally very active, and having acquired a ſlight of jumping off the main-deck into the hold of a light ſhip, I thereby had habituated myſelf to ſtop my breath, and a preſence of mind which principally ſaved me when I thus fell in good earneſt. I only mention this

this to ſhew, that the greateſt miſchief in falling proceeds from timorouſneſs and ſurpriſe. I knew a wag, who would play pranks that way to aſtoniſhment; he could let himſelf fall from any part of the rigging, catching as he came down like a cat, make all hands come round to his aſſiſtance, and then laugh at their credulous good nature.

A man who falls is apt to loſe his breath, particularly if he is not very careful, and has not preſence enough to ſtop it the moment he finds himſelf fall; and the inſtant he loſes his breath, he loſſes alſo his mental faculties; conſequently comes motionleſs and expoſed to every fatality. Thence we generally find a man, who has fallen from a conſiderable height, lays motionleſs like death on the ſpot, even though he has not received th leaſt injury otherwiſe.

The Method.

WHEN I have been called to ſuch an accident, and found my patient motionleſs; I have untied his neckcloth taken him by the coller of his jacket, and ſhaken him heartily; which in the ſpace of half a minute has brought him to, with a heavy ſigh. Next I have bled him without loſs of time, but not too copiouſly; after which I have examined

mined him, and acted according to circumstances.

A person falling is liable to a number of dangerous consequences, not mentioning immediate death. The consternation, the shock, fright, terror &c. are as alarming and dangerous as the external hurt itself. The brain, and the blood vessels in that part are very delicate, and by the shock, as well as the want of respiration, they often burst; thence an apoplexy is liable to hurry the patient from the stage.

A fever generally attends a fall, which ought to be strictly attended to; after, therefore, the patient is bled, and seems to have recovered his reason, he should have every six hours a dose of the *Fever Powders*, (L.) and drink some balm tea, in order get into a gentle perspiration, which will in this respect soon recover his health again, and enable him to do his duty.

SECT. II.

Of Wounds.

A Wound is an unnatural separation of any part of our body, whereby the order of circulation is hindered, the solids divided, and the fluids let out; suddenly caused by some violent means or other. But when such a separation

paration becomes ulcerated, it loſes the apellation of wound, and is called a ſore, or ulcer.—This diſtinction is requiſite to be taken notice of; for wounds and ſores are often confounded, which ſhews not only ignorance, but as their nature is materially different, their method of treatment is not leſs ſo; and ought therefore previouſly to be underſtood.

Wounds are beſt diſtinguiſhed into three different kinds; cut wounds, bruiſed wounds, and gun-ſhot wounds. I ſhall briefly ſhew how to treat each in particular.

Cut Wounds.

A Cut wound is barely a ſeparation of parts; and the ſharper the inſtrument with which the wound was made, the eaſier will the wound be to heal up again.

It is however a natural thing to obſerve what parts of the body is wounded, for tho' nature is kind in uniting the parts, yet ſome parts are more eaſier healed than others.—Obſerve therefore

The different Methods.

If an artery is wounded (which is known by the blood being of a florid colour and ſpinning out by ſtarts) care ſhould be taken to have

have it ſtopt to prevent bleeding to death. But in this you ſhould not be too ſcrupulous. Two or three ounces from a wound makes a great ſhew; and very often a little blood loſt is of great benefit to the healing. Should, however, the blood guſh from the wound violently, eſpecially from an artery, make a compreſs of lint, ſtrewed with *Powder'd Allum*, (17) which ſecure well on the parts with a roller, laying over it a compreſs, with *Spirit of Wine and Camphor*; (A) if that ſhould not be yet ſufficient, put a piece of money in a compreſs, and ſecure it on the wound, that is, provided the part of the body will admit of it, ſuch as the arms or the legs, &c.

Let the ligature, or the firſt dreſſing, lie on for two or three days, and, if no hindrance to the patient, longer. If all theſe things are not ſufficient, recourſe muſt be had to the needle.

In every other kind of cut wounds, care ſhould be taken to have it firſt cleaned with ſome water; (a ſmall matter of vinegar, and brandy may be mixed with it) next, let the lips of the wound be well cloſed, dreſſed with dry lint, and *Turlington's Balſam* (W), and over which, a compreſs with *Camphor Spirits* (A).

Plaiſters, ſalves, &c. in green cut wounds, are altogether needleſs. All that is required to healing, is to keep the wound clean, to

give

give it reſt, and not to aggravate it with any thing acrimonious. *Turlington's Balſam* (W) is admirable, but yet it ſuits ſmall wounds better than large ones.

As a finger is very liable to be cut, and ſometimes gives a great deal of trouble, I will here give a ſimple and expeditious remedy:—If you have cut your finger, waſh it in a little ſalt or freſh water; tie it round with a good long thread, not too tight, — take care that your wooling may keep on without being removed; and a day or two will heal it up, without any farther plaiſtering. If inflammation attends the wound, methods ſhould be taken accordingly, by bleeding, fever powders, &c.

Of Bruiſed Wounds.

THESE kinds of wounds are of a worſe nature, and are not ſo kind to heal as the former; for here the parts ſeem to be torn to pieces, ſo that there is not only a ſeparation of parts, but a deſtruction of a great many tender fibres all round the wound.

Hence we ſee in ſuch caſes a great deal of ſwelling, inflammation, and pain attend it; for the blood being hindered, the circulation naturally ſwells up the parts; and the nerves being lacerated alſo, muſt occaſion great pain.

Hence

Hence it muſt follow, that nature muſt firſt get rid of the obnoxious and torn part before ſhe will conſent to unite the wound again; and this muſt be performed by ſuppuration.

In ſmall caſes, nothing is more beneficial than *Diachylon Plaiſter*, (20) which aſſuages the inflammation, corrects the acrimony, and brings the wound to a good ſtate.

Broken ſhins often occur on board a ſhip, which is of that ſpecies of wounds. And as from ſuch a caſe, (though in general ſlighted) many evils have ariſen, I would caution the mariner to apply immediately *Diachylon Plaiſter* (20) to a broken ſhin; by which he will prevent having an ulcerated leg; a thing very troubleſome.

If the bruiſed wound is on other parts, and the parts all round are bruiſed, care ſhould be taken that it is cleaned as before directed, and a pledget of lint, with *Yellow Baſilicon*, (F) will be neceſſary; over which a compreſs with *Spirits of Wine and Camphor*, (A) or rum, may be applied; and afterwards, when it begins to heal, it may be dreſſed with dry lint.

As theſe kind of wounds are liable of becoming ulcers, great care ſhould be taken in the beginning to treat them properly.—Wounds in general ſhould not be dreſs'd or look'd to too often; in general it aggravates the parts, and retards healing. A wound

ſhould

ſhould not be opened the firſt three days after the firſt dreſſing: nature is very kind, and requires care only to repleniſh what is deficient.

When an ulcer has commenced, ſee the treatment under that head.

Gunſhot Wounds.

THESE are the moſt terrible of all ſorts of wounds; for it is not only the contuſion that attends them, but frequently the ball forces ſtrange things, as cloaths, &c. into the wound with it.

Gun-ſhot wounds at beſt are tedious in their healing, but very often, from their nature, liable to mortification, and thence become dangerous. Beſides, it is ſeldom that the fleſhy parts alone are wounded, but they frequently penetrate into the very bones themſelves.

The firſt care in gun ſhot wounds, is to extract the ball, or whatever is forced into the wound; in the next place, the wound ſhould be dreſſed with *Yellow Baſilicon*, (F) mixed with fine *Precipitate* (O).

No. 1.

Take Baſilicon one ounce, fine Precipitate one ſcruple, and mix them.

The parts all round ſhould be well fomented with warm claret, intermixed with *Spirits of Wine and Camphor*.

If

If the patient is full-bloody, and no blood loſt by the wound, he ſhould be blooded, and immediately treated as a patient in a fever.

If the pain in the parts become violent, eight or ten drops of *liquid laudanum* (T), together with thirty or forty drops of *ſweet ſpirit of nitre* (D), ſhould be given once, twice, or thrice a day. If the wound begins to diſcharge plenty of matter, it ſhould be dreſſed with the ſame dreſſing often. But if the parts become black, very fœtid, the patient in great pain, and grows faint, a mortification is to be feared; which I ſhall treat of in its proper place.

When the ſuppuration is unkind, and the parts are much inflamed, a poultice will be very proper.

No. II.

Take oatmeal (15) *or (if that is not on board) biſcuit pounded about three ſpoonfuls, honey one ſpoonful, water a ſufficient quantity to boil it into a ſoft poultice; in which put of ſweet oil about half a ſpoonful. This poultice ſhould be renewed twice a day at leaſt, and put on as warm as poſſible it can be borne.*

As gun-ſhot wounds are apt to degenerate into malignant ulcers, I ſhall refer the reader to the treatment of ulcers in general.

SECT. III.

Of Bruiſes.

BRUISES, in whatever degree, have more or leſs ſome blood and other veſſels torn and injured, and may properly be conſidered as wounds under whole ſkin. It is from the tearing to pieces blood veſſels, whereby the blood extravaſates from their natural channels, that occaſions the ſwelling. If the bruiſe is but ſlight, the veſſels are ſoon enabled to circulate the humours; but if the contuſion is great, the extravaſated humours are apt to corrupt, and make a collection of matter; thence an apoſthume and ulcer muſt naturally follow.

Bruiſes on fleſhy parts are not ſo bad by far, as on the joints, becauſe the fibres in the muſcles are more pliable, and ſooner unite; the ligaments on the joints are very rigid, and extremely ſenſible; for which reaſon alſo, they are generally more painful and tedious in their cure.

The firſt intention is to diſperſe the extravaſated humour, and to ſtrengthen the tone of the injured fibres. To this intention the parts ſhould immediately be bathed with *ſpirit of wine and camphor* (A). But if the bruiſe is immediately on the joints, the *liniment of ſoap* (B) is ſtill ſuperior. A bandage over the part,

part, ſo as to keep it in reſt as much as poſſible, is alſo of great ſervice. If, however, the part is ſo very much bruiſed, that there appears a collection of crumous blood, and that an apoſthume is actually the conſequence, recourſe may be had to the above poultice in order to ripen it the more, and bring it the ſooner to a head; and then treat it as a common ulcer. But that ſeldom is the caſe.

If the contuſion is great, and the patient is full of blood, bleeding is neceſſary; for in ſuch a caſe a fever is apt to enſue, which ſhould be guarded againſt, and the patient treated accordingly.

SECT. IV.

Of Diſlocations.

THERE are many accidents by which a limb may become diſlocated; the reduction of which is a material point in ſurgery. But if a ſurgeon is not at hand, a man ought nevertheleſs, not to remain in that painful and deplorable ſtate, that endangers not only the limb of becoming uſeleſs, but even the loſs of life itſelf.

I ſhall proceed therefore in my directions as plain as poſſible, avoiding every expreſſion that may render this operation prolix.

It

It muſt firſt of all be remembered what was ſaid of joints, articulations, and ligaments in the firſt lecture under that head. We muſt thence obſerve, that a diſlocation of the upper arm with the ſhoulder is the moſt common that happens, becauſe of the great variety of motion, and the flatneſs of the head of the arm bone, and the cavity of the ſhoulder blade. Next to this is the thigh bone, with the hip. But this is done by much greater force, and therefore more troubleſome in reducing. All other joints that are angular are ſeldom really diſlocated, being ſtronger ſecured, and cannot be ſeparated from their articulation, without firſt tearing the ligamentous capſula that ſurround them; yet nevertheleſs, ſome are ſubjected to be partly diſlocated; and this is what is commonly called ſprains.

Diſlocations may be from two cauſes; firſt from violence, ſecondly from weakneſs of the ligament. In the latter caſe the reduction is the eaſieſt, but the limb is apt to ſlip out again by the leaſt accident.*

* I remember a man who frequently had his ſhoulder diſlocated, and was his own operator in reducing it again. The firſt time the accident happened in the ſhip I was ſurgeon of, I was naturally called to his aſſiſtance: "Stop Doctor, (ſaid Tom) I have got a tackle in my cheſt, and I will ſoon bouſe it in again; and ſure enough, he had a pully, with which he immediately reduced it.

I ſhall

I shall briefly consider each kind of dislocation, that an accident makes a man liable to.

Dislocation of the Arm with the Shoulder.

THE dislocation of that, may be two ways; (viz) downwards, and forwards; but it cannot be backwards nor upwards; except some part of the shoulder-blade be broke.—— The best method to examine the patient what kind of dislocation it is, (especially to one unacquainted with these branches of surgery) is strictly to compare both shoulders, and the difference will be very plain, both to sight and touch.

If the dislocation is downwards that is, the head of the arm-bone, slipt in the arm-pit, there will be a cavity on the top of the shoulder, different from the sound arm, and the elbow will be drawn upwards, without being able to be moved either towards the body; or so, as the patient to put his hand out without the greatest pain.

When this is found to be the case, then, in order to reduce it, set the patient low, on a steady seat. Take a napkin or towel, of which make a girt; put one part over your neck, and the other part under the arm-pit. Let an assistant hold the patient steady, another take hold of the patient's arm, with the elbow bent, and extend it gradually; then with both your

your hands take the arm, and whilſt you lift up the arm by help of the napkin reſting on your neck, you preſs gently down the arm with your hands like a lever; in the mean time the aſſiſtant extends, and thus you reduce it; which you will hear by its ſnapping: upon which the patient will be able to move his arm in all kind of direction, without much pain.

If the head of the arm-bone is diſlocated forwards, there will be a cavity backwards on the ſhoulder, and the elbow will ſtick backwards, and remain motionleſs, with great pain. In this caſe, as before, let the patient ſit low, and with the help of the napkin, and aſſiſtances, firſt extend the arm forwards; then like a lever bring the head of the bone in its cavity; which, like the former, will be perceived by a ſnapping, and the voluntary motion of the patient's arm.

When the ſhoulder is reduced, ſecure the whole with a long double-headed bandage, croſs-wiſe over the ſhoulders, and round the body. Foment it night and morning with *ſpirits of wine and camphor* (A). Keep the arm cloſe to the body, with the elbow bent, and wear it in a ſling, that it may be free from motion till it is well.

Diſloca-

Diſlocation of the Elbow, or the Knee.

THE elbow, as I ſaid before, is very ſeldom diſlocated, unleſs fractured, and the ligament tore at the ſame time; and when ſo, the caſe is terrible. But very often thoſe joints receive a wrench, which, though nothing out of its place, is often very painful, on account of the many tendons that ſurround the parts. The only thing in ſuch wrenching, is to foment it with *ſpirit of wine and camphor* (A), or elſe the *ſaponaceous linament* (B). The ſame method ſhould be obſerved with the knee, ſecuring it well with a bandage, in order to give it reſt to recover: For reſt is a principal remedy.

Of ſpraining the Wriſt, or Ancle.

THE wriſt and ancle are complicated joints, and thence capable of a great number of motions, and ſubject to a variety of ſprainings, but not a perfect diſlocation; nevertheleſs, they are very painful, and ſometimes tedious in getting well. Whatever be the matter, the ſick part ſhould be compared with the ſound, and the difference is ſoon ſeen.

If it ſo happens, that there appears a perceivable difference, the parts ſhould be gently extended, and reduced; and all that is to be done, is the ſecuring it well with a bandage, and fomenting it with *Spirits of Wine and Camphor*, (A) or, what is yet better, *Liniment of Soap*. (B)

The thumb, however, is liable to be diſlocated, which is eaſily perceived; which ſhould be immediately reduced, and ſecured with a bandage, and treated as already directed.

Diſlocation of the Thigh Bone.

THE articulation of the thigh bone with the hip is ſimular to the ſhoulder, with regard to the head of the bone, and the pan in which it moves, except that it is much deeper. It muſt be a great force that drives it out of its articulation, and conſequently very difficult to be reduced. It may either be diſlocated inwards, or backwards.

If the diſlocation is inwards, which is the moſt common, the toes will be turned outwards, and the whole leg and thigh will be ſomewhat ſhorter than the other; ſo likewiſe, if it is diſlocated backwards, the leg and thigh will appear ſhorter, but the toes will be bent inwards. The beſt way of determining, as I have ſaid before, is to make a juſt compariſon of the ſick and ſound leg.

The

The reduction is somewhat difficult, and will sometimes baffle the most experienced surgeon, because the acting muscles are very strong; and when they have first begun to contract the parts, they will not easily suffer themselves to be relaxed. Nevertheless, lay the patient upon his back or on the sick side, upon a steady table; let an assistant hold him fast, another extend the thigh, so as to have the knee bent; the operator having a napkin resting on his neck, and under the thigh of the patient, similar to the method directed before by the shoulder; and then with both hands bend the thigh, as with a lever, into its socket again; when it will give a loud spap, coming into its proper place.

It very frequently happens in this heavy dislocation, that either the articulation is not reduced, or that it immediately slips out again when reduced; so that the patient will never recover the former use of that limb more. In this case nature is very kind, and the part where the bone slips into will become callous, and form as it were a new acetabulum; by which the patient in time comes to walk, though (as it may be supposed) but lamely. In the course of my practice I have met with but two perfect dislocations of the thigh, both of them perfectly recovered; but it must be remembered, they had youth on their side, and the greatest care joined to favourable circumstances.

At

At beſt however, it is an ugly accident, for it is not only that the ligaments that ſurround the joint are generally torn, but very often the thigh bone is fractured at the ſame time. It requires more ſkill than one would ſuppoſe, to determine which is the caſe, whether a fracture, diſlocation, or both; and am apt to believe they are often confounded with each other.

When the diſlocation is reduced it ſhould be well ſecured with a long double headed bandage; the patient kept ſtill, the part well fomented, and if requiſite, ſome blood taken away: a fever generally attends, which ſhould be duely taken care of.

On the whole, diſlocations when they proceed from violence, are ſometimes attended with ſevere ſymptoms, the parts being very ſenſible, and it will require ſometime for the patient to recover his ſtrength again.—Care therefore ſhould be taken to keep the parts warm, and give them as much reſt as poſſible.

A ſtrengthening plaiſter ſpread upon leather, and put for a conſtancy round the parts after the inflamation is gone of, will alſo prove of ſingular ſervice.

SECT.

SECT. V.

Of Fractures.

WE come now to fractures. There is ſomething terrible in the ſound of *broken bones*; and yet in common they are by far more eaſier managed and healed than a diſlocated joint: nature is very kind; from the fractured parts of a broken bone, there exſudes a gelatenous matter called *Callus*, that very ſoon glews them together again, and makes them ſtronger than ever. As eaſy as a fracture is ruined, as eaſily it may be well treated. I ſhall therefore lay down ſome few rules, which if properly obſerved, will ever be attended with ſucceſs, as they are founded upon happy experience, in my own practice.

In the firſt place, a fracture ſhould be reduced as ſoon as poſſible. Secondly, the part ſhould have as much reſt as poſſible till the callus is formed, or the bone knitted together again. Thirdly, bandages ſhould not be laid on too tight. Fourthly, camphorated fomentations ſhould not be too plentifully made uſe of. Fifthly, the habit of body ſhould be kept in a ſtate of health; and Sixthly, the diet during the time ſhould be wholeſome and ſparing.

With

With regard to the reduction, it was formerly a great error for a limb to be ſtretched out in an extenſive poſture; for the extenſion of the muſcles contracted the limb, and made the reduction both painful and troubleſome.

I ſhall here recommend a better method; namely to have the muſcles in a flexible poſition, during the operation and the cure. But to proceed to particulars.

A Fracture of the Scull.

THis accident is frequently attended with many bad ſymptoms, and often requires the operation of the trepan; which I ſhall here paſs over, being too prolix for this place. I have only to obſerve, that we have frequent inſtances of the patient doing well without any other help than bleeding; and where there is no ſurgeon on board, this is the only remedy firſt to fly to, and gives the greateſt chance for the patient's life: next to this, ſhave the head, and treat him as circumſtances ſhall direct, without meddling with the fracture, any farther than applying gentle fomentations, with *flowers of chamomile* (11) boil'd in claret, and ſome *liniment of ſoap* (B) added to it; and if there is any wound, have it properly dreſſed as directed in the article of wounds.

Frac-

Fracture of the Arm.

IF the upper arm is fractured, proceed in the following manner:

First of all be ſure it is a fracture; to know this, put one hand on the middle of the arm, and the other on the elbow, move it gently to and fro, and if there is a fracture, you will find it crackle by the touch, which ſometimes is ſo diſtinct as to be heard. The arm at the ſame time is ſomewhat ſwelled, and either the patient cannot move it, or elſe it is attended with very great pain.

When the fracture is certain, then proceed in the following manner; Let the patient ſit upon a low chair, or cheſt, let an aſſiſtant hold him ſteady, and let another lift up the arm, and extend it gradually, horizontal to the ſhoulder, keeping the elbow bent ſomewhat all the while.

Then with both your hands gently preſs the fractured bone, ſo that it may feel perfectly joined again. Sometimes it happens that the ends of the bones are ſomewhat ſlipt over each other; in which caſe, extenſion is the more requiſite.

When this is done, then take a bandage of about two yards long, firſt rolled up, and wrung out of *ſpirit of wine and camphor* (A.); begin near the elbow, and lay it ſmoothly on, laping over a little; and proceed gradually till it comes to the ſhoulder, and then return with it back again till it is done.

This

This bandage ſhould not be too tight, nor too ſlack, but ſo as immediately to ſuit the arm exactly. Over this bandage again, lay a double folded rag, called a compreſs, ſo as to cover the bandage; and over this again two ſplints, one above, and another below; which tie gently together with ſome tape in three places. Then put the arm into a ſling; cover up the whole arm and hand, and let the patient go to reſt.

If the fracture is upon the under arm, the reduction is a little more difficult; but only in the care it requires of reduction. As there are two bones in the under arm, it ſhould well be examined which it is, or if both. In reducing of it, let the arm be bent as before; one aſſiſtant to hold the patient, one to hold the elbow, and another the wriſt; gently extending, till the fracture is reduced, as before directed, and the bandage, compreſs, and ſplints, put on according to the ſame Method.

In this fracture the wriſt and hand ſhould be kept from moving; as the motion of their muſcles will be apt in a great meaſure to hinder the bones from uniting again.

A fractured Thigh-bone.

THIS is of very great importance; which, from its ſituation, and the ſtrength of the muſcles, in general, even by the beſt method is very difficult to reduce.

Let

Let the patient lay on the oppoſite ſide, and with the knee bent; let the limb be extended by aſſiſtances, and carefully ſet it according to the ſituation, ſimilar to the beforementioned method.

This limb requires a very long bandage, and very large ſplints. The method of treatment muſt be as before, and the patient muſt be well ſecured in bed. He ſhould not lie conſtantly upon his back in a ſtreight poſture, as formerly was practiſed; but moſt part upon either ſide, with his knee bent, which ſhould be kept bent as much as poſſible; if he can lay chiefly upon his ſick ſide, ſo much the better; he may alſo move a little his joints, in order to prevent them from growing ſtiff.

A fractured Leg.

THIS accident is more common, and therefore ought to be paid the greateſt attention to.

To know for certain whether the leg is fractured, let the patient lay on his back or on either ſide, with his leg and thigh bent, ſo that the muſcles are entirely at eaſe, and out of action. Let an aſſiſtant hold up the leg by the knee; then take with one hand the ancle, with the other the middle of the leg, and move the ancle to and fro, holding the other

other hand ſteady, and if you feel a crackling, and the patient feels great pain in thoſe parts, the leg is certainly fractured; particularly if the patient could not ſtand upon it before. This being fully diſcovered, we muſt next examine which bone is fractured, the *Tibia* or *Fibula*; and then proceed in the following manner.

Let the patient lie as before directed; one aſſiſtant holding the knee in a bent poſition, another holding the leg near the foot, both gradually extending.

Then with both your hands reduce the fracture, by gently preſſing it with the palm of your hand while it is extending. Then lay on a long roller; or, what is ſtill better, a many-tailed bandage, which is made thus: Take nine or ten ſlips of linen, about two inches broad, encreaſing from twelve to twenty inches in length, laying over each other about half an inch. The whole bandage muſt be ſecured with a ſlip of linnen behind, ſo as to make the breadth of the bandage the length of the leg; either of theſe muſt be previouſly wrung out in camphor ſpirits.

If you make uſe of the roller, begin laying it on from the ancle, going gradually upwards, folding each round over half an inch at a time; and under the calf of the leg, give the bandage a ſingle twiſt, by which it will always ſuit. Continue this till the whole is finiſhed.

Over

Over this again put a compreſs, and then put on the ſplints, (previouſly bolſtered with ſome tow) which ſecure with tape, as before obſerved with the fracture of the arm.

The many-tailed bandage is however ſuperior to the roller, in the fracture of the Leg. The method of laying it on is this: the patient laying upon his back, with his thigh lifted upwards by the aſſiſtant, put the bandage under the calf of the leg; then begin from the ancle upwards, folding over alternately the tails of the bandage, ſo that they ſecure each other. When this is compleated, put over the whole a *Compreſs*, as before directed, as alſo the *Splints*; or in the room of common ſplints, put on the new invented ſplints of Mr. Sharp; of which a ſhip ſhould have three or four pair of different ſizes, both for the right and left leg.

When this is performed, the patient ſhould be put to reſt as ſoon as poſſible; and he will lay eaſieſt upon the ſide where the fracture is, with his thigh and leg bent forwards. This poſition ſuits not only beſt on board a ſhip where the motion is continually apt to diſturb the ſick part, but is alſo moſt natural both for eaſe, and for healing; as the muſcles are all at reſt, and adds firmneſs and eaſe to the body.

Compound Fractures.

WHEN a fracture is attended with a wound, it is needleſs to obſerve, that the caſe is of a more dangerous nature. If the contuſion has been ſo great, as to ſplinter the bones, ſuch ſplints as are looſe, and ſeem to prick through the fleſh, ſhould by all means be removed. Violence muſt however be avoided; for by a little patience, nature will of her own accord ſeparate and diſcharge them.

Gentleneſs ſhould ever be obſerved in ſurgery, though not a timid weakneſs, by being defective in dreſſing properly. The reduction of the fracture ſhould be conducted the ſame as before, with this difference, that always a many-tailed bandage ſhould be choſen, ſo that it may be opened when requiſite.

The dreſſing of the wound ſhould be the ſimpleſt poſſible; for the nature of bone is ſo delicate, that it will neither bear to be much expoſed to the air, nor ſuffer any greaſy ſalve or ointment to come near it; both are liable to corode it, and bring on a carius, which is of a moſt dangerous tendency. Dry lint therefore is the beſt, particularly near the fractured bone.

In ſhort, it is to be treated cautiouſly, like an ulcer, and the greateſt care to be taken, that

that the arm, leg, or whatever fractured part it is, be kept ſteady, and no oftener dreſſed than what is abſolutely neceſſary.

Concluſive Obſervations on Fractures.

IN the obſcure times of ſurgery, various medicines were applied to broken bones, with a notion to unite them the ſooner. This, however, is entirely exploded from modern practice.

The inflammation that generally attends fractures requires however a fomentation of *Camphor Spirits* (A), in order to diſperſe the obſtructed humour; but if there is no inflammation, the part undoubtedly is the better without ſuch applications; as then there will be nothing to hinder a free circulation; for which reaſon, fomentation ſhould be uſed as ſparingly as poſſible.

It is well known too, with what difficulty the fractured bones were ſet formerly, owing principally to the limb being ſtretched out in a poſition that excited all the muſcles to contraction. This is alſo here obviated.

In reducing therefore a diſlocation or fracture, the muſcles ſhould be as much at reſt as poſſible, both in the operation, as well as during

ing

ing the whole time of the cure. It is for that very reaſon my direction in this reſpect differs from what has been delivered to us by authors on that ſubject, particularly ſuch, as might be expected to fall into the hands of a ſeaman.

Another error has been practiſed, namely, the laying on the bandage very tight. It was ſuppoſed, that that would ſtrengthen the limb, and make the bone ſmooth; but it has ſometimes prevented the bones from growing together at any rate. The bandage to be ſure ſhould not be too ſlack, for then we might as well lay it aſide entirely. A bandage certainly is neceſſary, but merely as a ſupport, and it ſhould never be tighter than what the patient can well bear.

In ſimple fractures, the firſt dreſſing ſhould be ſo permanent, as to have no need for being removed, at leaſt for ſix, ſeven, eight, nine days, or more; if the patient don't feel uneaſy. For my own part, having ever been ſucceſsful in fractures, I have not opened the firſt dreſſing for a fortnight, and ſometimes three weeks.

The laying ſtretched upon the back when a leg is fractured, is altogether needleſs, troubleſome, and even a hindrance to the healing. The patient ſhould have a good wide cot, and ſo that it may ſwing pretty eaſy; or elſe entirely confined, when the ſhip has much motion; and having the leg well ſecured with ſplints,

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he may safely lay on what side he pleases, provided he does not sit up in the bed (though he may out of it) for the first three weeks; for that strains the muscles very much.

The diet should be sparing, the body kept open, and a temperate warmth should be preserved, in order to promote perspiration. Drinking of strong liquors should by all means be avoided, and the diet should be as fresh as the circumstances will permit.

Six weeks is generally the time allowed for the cure; that however is no certain rule. If the fracture is simple, and the constitution good, then at a month's time a small trial may be made by the help of crutches, or a trusty mess-mate, in a calm day; but if it occasions the least pain, it should be postponed.

This is then all I have of consequence to observe in simple fractures; which holds good also with compound ones, except that the wound requires to be dressed oftener; but the greatest care should be taken, that it is done in a manner, so as not to disturb the knitting of the bone.

SECT.

SECT. VI.

Of Scalding.

SCALDING is another accident of much conſequence, which ought to be remedied by times, in order to prevent the many evil conſequences of inflammation it is liable to produce.

I muſt firſt of all refer the reader to what I have ſaid on the ſkin, Lect. I. Sect. VII. for farther than this we will not ſuppoſe a ſcalding proceeds, unleſs it is very dreadful indeed.

The nature of ſcalding then, is this: the hot water coming upon the body, ſeparates immediately the ſcarf ſkin from the real ſkin, thereby opens the lymphatic veſſels, ſo that they diſcharge their lymph under the cuticula, and thence ariſe bliſters. But withal, the heat of the water irritating the nerves, they are excited to contract and conſtrict the delicate veſſels, and hinder the circulation; thence enſues the fiery colour and inflammation, and create acrimonious tendencies. Thence we learn, that a relaxation of the ſolids is to be relaxed, and the humours to be rectified.

The moment a man has ſcalded himſelf, immediately apply *Turner's Cerate* (K), ſpread upon a rag, to the part. What is equally as efficacious, and ſometimes better, is the *Liniment of Soap* (B). If notwithſtanding this, bliſters

bliſters ariſe, open them not, but let them remain with the application on them, whereby a cure will ſoon be facilitated; but if they break open on their own accord, or that the ſcarf ſkin was ſcalded off, then apply on the ſore, *Turner's Cerate* (K), intermixed with a little *Calomel* (N), and levigated *Precipitate* (O), which will prove very beneficial.

No. III.

Take Turner's Cerate (K) *one Ounce, Calomel, and fine Precipitate* (O) *of each ten grains, and mix it.*

This ſpread upon a little lint will prove a fine healer. If the *Diachylon Plaiſter* (20) can be applied, it will alſo prove ſo powerful an antiphlogiſtic, that any other will be unneceſſary.

SECT. VII.

Of Burning.

THIS is of the ſame nature with ſcalding, but is liable to become more pernicious, in proportion to the bulk and heat of the body that does the miſchief. If it is ſlight, the treatment is equal with the former; but if it has penetrated deeper, it follows, that the inflammation is greater, and conſequently the treatment requires more care.

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If the ſore ſo burned is deep, and thence an eſchar in the parts, digeſtive medicines ſhould be applied. It will not be amiſs to put a little Mecurial ointment (P) in the poultice. If the inflammation is very great, *Bleeding*, and other methods requiſite to prevent a fever, ſhould be obſerved. In general, the ointment No. III. will ever be found Efficacious.

SECT. VIII.

Of Drowning.

A Man who unfortunately falls over board, and is taken up for drowned (immediately) ſhould not be given up for loſt. As this is a circumſtance of the utmoſt conſequence to a ſea-faring man, I ſhall think my time well rewarded in explaining the method of recovery contributing to the preſerving the life of my fellow creature.

There are different ways of drowning; and according to the nature of the accident, the probability of recovery is founded.

A man, before he comes into the water, may receive an unlucky blow, that will not only ſtun him, but make him expire his breath (which is generally the caſe in high falls) as before obſerved. In this caſe his ſenſes are benumm'd, and by the inſpiration apt to draw

draw in a quantity of water into his lungs inſtead of air; thence, both from the blow, and from the total ſtoppage of reſpiration, he may have ſome blood veſſels burſt, both in the lungs and in the brains, whereby he is inſtantly irrecoverably dead, beyond all hopes. In this caſe it may happen, that either way, ſeparately, is enough to kill him.

A man may alſo, in the very act of drowning, ſwallow a prodigious quantity of water; not only filling his ſtomach and inteſtines; but thence forcibly infuſe the water into the lacteals, thereby overload them, and force it into the blood veſſels that they burſt. The great quantity of cold water will alſo be apt to chill the ſtomach and inteſtines; thereby deſtroy the ſenſibility, and prevent them from performing the periſtaltic motion; and by the univerſal conſent, deſtroy the whole nervous ſyſtem, which is the ſpring of life, that promotes the blood to circulation, and conſequently ſtops the animal motion, and life itſelf.

But the moſt common way of drowning is by ſuffocation; namely, a ſudden conſtriction of the reſpirative organs; whereby the ſupply of the air is cut off, and conſequently the circulation of the blood muſt ſtop. This is verified by the frequent inſtances we have of people drowned, who have ſcarce any water, either in their bellies or in their lungs.

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To understand this properly, we must first observe, that a continual supply of fresh air is requisite for the circulation of the blood; partly and principally for its motion, and partly from the nourishment the blood actually receives from the air. In the next place, we must also consider, that the lungs, appropriated barely for respiration, are so very delicate in the irritability throughout the larynx, aspera, bronchea, and vesicles themselves, that the least heterogeneous particle stimulates them to a convulsive expulsion, of what seems obnoxious to them, and thence excites a cough. But, when the parts are too irritating, the lungs are excited to a universal constriction, and occasions strangling. This we find is the case when in drinking or swallowing our aliment, that the least morsel happens by mischance coming the wrong way (as it is called) that is, into the larynx, occasions a heavy cough, or even a suffocation; to obviate which, nature has formed the epiglottis in the larynx, like a flap, that opens in respiration, but is always shut in the act of deglutition, except by some mischance or other, that it becomes lame, and unable to do its office.

These circumstances considered, we shall not only be able to account for the act of drowning, but discover the principles that furnishes

furniſhes us with probabilities of reſtoring life again.

I have mentioned three kinds of drowning that at preſent occurs to my memory; and unleſs that ſome blood veſſels, either in the lungs or in the brains, or in ſome other principal viſcera are burſt; or, that the lungs are ſo much filled with water, as to be unable to recover their reſpirative functions again, (which is ſeldom the caſe) or, that the whole nervous ſyſtem has received a univerſal paralytic ſhock by the chill of the Water in the ſtomach, ſo as to be robbed of its irritability, either way of drowning is recoverable. For the whole myſtery conſiſts, in ſetting the animal automaton or clock-work in motion again; to ſtimulate the nerves to their ſenſation; to ſet the heart a pumping; and the lungs, in order to puſh forward the fluids, in reſpiration. I could ſay much on the ſubject; but philoſophy aſide, let us endeavour to recover the man to life again.

The Method to recover a drowned Perſon.

THREE things are to be the intention to reſtore life in a perſon taken up for drowned.

1. To liquify the fluids. For the moment the circulation of the fluids is ſtopt, the blood and

and lymph congeals; and after this, putrefaction gradually commences.

2. To ſtimulate the nerves. For on the irritability of the nerves life itſelf depends; and which ſets every thing in the animal fabric in motion.

3. To reſtore reſpiration. For without this, neither can the blood circulate nor the nerves have ſenſibility.

The moment therefore you receive the perſon drowned, ſtrip him of his wet cloaths, and wrap him up in three or four dry blankets; if his belly is ſwelled with water lay him acroſs a chair or barrel upon his belly, in order to make him void the water; but in this ſpend not much time, but be as quick as poſſible. Take a good quantity of ſalt, the more the better, with which employ three or four handy men to rub him all over;—his temples, his wreſt, his arms, his breaſt, his back, his groins, his knees, his ancles, &c. let this friction either be by the hands or rough woollen cloaths pretty briſkly; and, whilſt this is doing, let one apply his mouth to that of the patient, ſtop his noſtrils, and with all effort blow gradually into his lungs, and try to make him breathe. If the lungs are open to this, there is a good proſpect of recovery, and let the breathing into the lungs be briſkly repeated. In the mean time, try to open a vein in the arm; if the head is bloated, as it frequently is, open the

jugular

jugular vein, or whatever vein that appears diſtended in and about the head.

On ſigns of life, continue the friction briſkly, rub ſome *eſſential oil of peppermint* (U) in and about his noſtrils. If he recovers, at firſt he will open his eyes, heave his breaſt, his heart will beat, and gradually he will move ſome of his limbs. If he opens his mouth put a little ſalt in it at firſt, next give him the following draught.

No. IV.

Take eſſential oil of peppermint (U) *ſix drops, upon a lump of ſugar, which diſolve in a table ſpoonful of elixir proprietatis* (H).

If he inclines to vomiting, promote it with decoction of *cammomile* (11) or a vomit of *ipecacuanha* (S); beſides all this, blankets ſhould continually be warming, ſo as to preſerve a warmth of the body.

If he is fortunately brought to life, put him directly into a warm bed, and give him a doſe of the *fever powder*, and let him drink freely of good ſage punch, in order to promote a perſpiration, which is here very requiſite.

No. V.

Take ſage about a pugil (that is as much as you can well take betwixt three fingers) *on this pour boiling water, one quart; to which add ſugar and good old Jamaica rum, ſufficient to make it agreeable, but not too ſtrong.* Or inſtead of this give him ſome mulled wine.

A fever always attends a patient after the recovery of Drowning; therefore care ſhould be taken when he is brought to himſelf, that he is not over heated by liquor; as this is liable to throw him into a diſeaſe as dangerous as the narrow chance he has juſt eſcaped.

Should however the above methods not ſucceed, you muſt not deſpair. If the lungs, or the larynx ſeem ſo contracted that it appears impoſſible to blow breath into him by the mouth, recourſe muſt be had to *bronchotomy*, that is, opening the wind-pipe betwixt the third and fourth cartilage; to which a man ſhould put his mouth and inflate the lungs; the throat ſhould be tickled with a feather, a little pepper blown up the noſtrils and the body here and there ſcratched with pins, or ſmall wounds made in the legs and arms, and plentifully rubbed with ſalt. If there is ſalt enough to do it, the patient ought to be covered all over.

We have inſtances that patients, after two hours application, have been brought to life again; therefore every means poſſible ſhould be tried. Of all the various ſtimulants, ſalt, or pot-aſhes, is the beſt; ſpirits muſt not be made uſe of, nor indeed vinegar, in the time of recovery; as that is liable to congeal the blood, and prevent it from circulation, till the recovery is procured; when the ſage punch, or mulled wine, or ſome other cordial may be proper. Spirits of hartſhorn, if it is on board may alſo, with propriety, be held to the noſe, or poured

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a little down the throat, as that is ſtimulating, but not coagulating.

When at length the patient has recovered, let him take the forementioned draught No. IV. as alſo the warm ſage punch No. V. and take all poſſible care for his recovery.—If Bronchotomy was obliged to be performed, let the wound carefully be waſhed, cloſed, and dreſs'd with dry lint; over which lay a compreſs with warm claret intermixed with *camphor ſpirits*; and the more to favour the healing, let his head conſtantly be inclined; reſt ſhould alſo be promoted as much as poſſible, for which purpoſe 8 or 10 drops of *liquid laudanum* will be very proper; likewiſe ſilence ſhould be ſtrictly impoſed on him; and that ſhould be a material object to be obſerved, by thoſe who tend him. In every reſpect elſe, let him be treated as is directed under the head of fevers and other circumſtances, as they ſhall occur.

Here then I ſhall conclude this lecture, and beg leave to obſerve, that as mankind are ever liable to accidents, particularly that claſs I have here devoted myſelf to ſerve, it behoves us ever to be provided with preconſiderations, that we may be always ready to give our friendly aſſiſtance in the hour of diſtreſs. In time of need, the mind is too much hurried to read with any attention; and dangers particularly from accidents admits of no delay.

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The prudent ſeaman, eſpecially the father of his Crew will therefore make himſelf acquainted with all theſe circumſtances in his hours of tranquillity, by which he may ever be ready with his friendly aid, and receive the bleſſing of him that is benefited by his Humanity and generous care.

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LECTURE IV.

ON

EXTERNAL DISEASES,

AND THEIR

CURE.

IN this lecture I ſhall treat of external diſorders, which may take their origin either from injuries, or from internal acrimony of habit; for whatever diſturbs the animal œconomy, prevents the natural order of the fibres, and thoſe again when in diſorder, corrupt the fluids.

Be the cauſes what they will, certain it is, that there is a ſtrict connexion between the external and the internal parts, to which due regard ought ever to be paid. I ſhall without delay proceed to their various kinds.

SECT. I.

Of Inflammation.

WHEN either the ſolids are ſo injured that they will not tranſmit the circulation with their natural freedom; or when the humours are become ſo acrimonious, as to conſtrict the ſmall tubes, that part of the fluids becomes confined in them, there muſt then of courſe be an obſtruction of the circulation of the fluids, thence accumulation muſt follow and conſequently ſwell the parts. And this is the nature of an inflammation.

The blood being obſtructed, the parts muſt naturally ſwell; the blood being forced into the ſmall lymphatic veſſels, thence proceed the redneſs; and laſtly, from the veſſels being diſtended and irritated by the ſtagnated humours, proceeds the pain.

An inflammation terminates three different ways. When the ſolids relax, or the fluids become attenuated, ſo that the accumulated humours diſperſe, and are admitted a free circulation again, it is termed a *reſolution*; and this is the beſt and moſt favourable way for an inflamed and tumified part to terminate.

When ſome of the ſmall veſſels by the over-ſtretching of their contained humours break, together with the lymphatic veſſels, and

and the extravaſated blood intermixed with lymph is converted into matter, it is termed a *ſuppuration*; this is alſo a favourable way of termination, provided the matter is properly concocted and diſcharged, and the parts properly healed up again. And this ought to be the ſecond indication when the firſt does not ſucceed.

When however the impriſoned humours incloſed by their tubulæ are inſpiſſated, and mix irregularly with the ſolids that contain them, obſtinate tumours are apt to enſue. This is the third kind of termination, and ſhould be avoided if poſſible; for it either becomes tedious, or occaſions malignant ulcers; which in glandulous parts are the firſt foundation of cancers.

But, when the humours that are obſtructed gets malignantly corrupted into a pernicious acrimony, and ſtimulate the diſtended ſolids, ſo that they ſtretch beyond their natural tone, without admitting any circulation, the parts become inſufferably painful; the patient is reſtleſs, anxious, and attended with an acute fever; the humours become offenſive and fœtid, and the parts at length turn of a livid colour, and this is then called a *gangrene*. Gradually the parts begin to purify and grow black, the humours acquire a cadaverous fœtor, the ſolids loſe their natural texture, and die. This is called a

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Sphacelus, or mortification; and unleſs the mortified parts are removed from the ſound, death muſt inevitably be the conſequence.

Theſe are the different terminations of inflammation; and whether the cauſe is from external injuries, or from internal acrimony, the indication muſt ever be the ſame. I ſhall conſider each ſeparately.

Of Reſolution.

INFLAMMATION that attends wounds, contuſions, &c. ſhould be diſperſed by the application I have already mentioned in the foregoing lectures, viz. *camphorated ſpirit* (A), or *linement of ſoap* (B), the firſt ſuits beſt the fleſhy part, and the latter the inflammation on the joints and tendinous parts. But when with the inflammation a wound is compounded, and is obſtructed in its ſuppuration, recourſe ſhould be had to poultices; as thereby the fibres may be the more relaxed, ſo that the ulcer may the freer diſcharge the matter, thence drain the inflamed part of the obſtructed humour, and conſequently remove the cauſe of the inflammation.

Of Suppuration.

WHEN an inflammation ariſes from an internal cauſe, there generally is ſome acrimonious humour that wants to be diſcharged; in this caſe reſolvents is not always ſafe, as it is ever apt to increaſe the the pain and inflammation. Of that kind are the boils and ſwellings under the armpits, hams, and other parts. In this caſe, poultices ſhould be applied as warm as poſſible; the ingredients may be oatmeal, or biſcuit powdered, honey and a little butter, warm and largely applied. When the ſwelling increaſes, grows red, and acquires a top, together with conſtant throbbing, it is a ſign that matter is forming, which is the more confirmed by its growing ſoft. When the fluctuation of matter is actually felt, and that the top becomes ſomewhat of a black and yellow colour, it then is mature for being opened, in order to let out the matter, which is beſt performed with a lancet: this being done, apply the poultices again. And when the matter is fully diſcharged, lay on the diachylon plaiſter, in order to heal up the part. Should however an ulcer be the reſult, it muſt then be treated accordingly, as will be directed under that head.

Of

Of Tumours.

WHEN inflammations will neither diſperſe nor come to ſuppuration, it is apt to form hard tumours; ſometimes they are indolent, at other times very painful. In this caſe, nothing is better applied, than *mercurial plaiſter* (21), and eſpecially if there is any venereal taint in the habit. At the ſame time, whenever tumours are diſperſing, care ſhould be taken to uſe internal medicines, in order to correct the acrimony, and a purge now and then, in order to incline the humours to be carried off. If, however, they incline to ſuppuration, poultices ſhould be again applied; and to bring them ſooner to a head, purges ſhould be omitted, till after the matter is diſcharged.

Of Mortification.

A Mortification has two degrees; gangrene, the beginning, and ſphacelus the compleated mortification. When an inflammation will neither diſperſe, ſuppurate, nor become indurated, but, on the contrary, increaſe with a burning inflammation, and is prodigious painful; when the ſwelling continually increaſes, the parts become uncommonly tender, attended with a numbneſs; the colour

colour changing from a fiery red into a livid aſh colour, and the cuticula ſeems to ſeparate on the touch, a gangrene has commenced. In this melancholy caſe there is no time to loſe.—Apply the following powerful medicine, which in a gangrene, and even a ſphacelus, has proved beneficial to a miracle.

No. IV.

Take Mercurial Ointment (P) *one ounce; Calomel* (N) *and Powder'd Precipitate* (O) *of each one drachm; Oil of Peppermint* (V), *one drachm; them. Spread this upon a rag, and apply it to the gangrenous part.*

If a ſphacelus has commenced, the ſkin turned livid, attended with a cadaverous fœture, and ſeems to the touch to be rotten, it muſt be ſcarified to the quick with the lancet, and then the above remedy applied. But if it has already reached the bone, (which a mortification ſoon will) and ſeems to make a rapid progreſs, all external remedies are of little avail, and nothing but amputating the limb can ſave life. But as that operation ought to be performed by a ſkilful ſurgeon, I ſhall therefore omit it here; only obſerve, that there are very few caſes, but that this dreadful cataſtrophe may be prevented, if timely aſſiſtance is given.

To conclude this ſection, I think it requiſite to obſerve, that a gangrene and ſphacelus, or mortification, is far from being ſo often the caſe as many from the pain they undergo

undergo, are apt to perſuade themſelves. A common boil, whilſt it is in an inflamed ſtate, is ſometimes ſo very painful as to put the patient in a fever, and will be exceſſively tender. But, notwithſtanding, a ſuppuration is the reſult.

A gangrene and mortification is only to be dreaded, when a whole limb is inflamed, ſuch as an arm, a leg, &c. When the inflammation is dreadful, that the blood can find no paſſage at all, but is obſtructed on all ſides, then the part muſt naturally die, and become cadaverous. The cauſe of this misfortune may be either a heavy contuſion, a compound fracture, a gun-ſhot wound, or an internal malignity of the bone itſelf; and as a caution, I muſt alſo add, that pricking a tendon in bleeding may occaſion this dreadful malady.

There is another kind of mortification which proceeds from a bad habit of body, a poorneſs of conſtitution, or when the whole maſs of blood is corrupted by the ſcurvy. This ſhall be taken notice of in its proper place.

SECT.

SECT. II.

Of Ulcerations.

THIS is a part of ſurgery that many pretend to, but what very few really underſtand. There are however laws in the animal œconomy, which when they are violated, leads us to trace its many evil conſequences.

An ulcer is a diſſolution of ſolids, occaſioned by acrimonious humours, which not only act ſpontaneouſly upon each other, but prevert the remaining circulating part from the formation of unnatural ſubſtances

Exulceration, ſtrictly ſpeaking, is what every part of the animal fabric is ſubject to; from the external ſurface, to the very ſubſtance of the bone itſelf. In this ſenſe, every eruption, as well as the carius of the bones come under that denomination; but more particularly, the corruption of the ſofter parts on the ſurface of our body, is here the ſubject.

I ſhall not enter into a detail of the many kinds of ulcers generally enumerated; they have all in common an corruptive acrimony, and a depraved accretion of excreſcence in their nature; which differ only, according to the parts ulcerated, and the habit of body; and I

have ever found in my practice, that one proper method ſerves for all; I ſhall therefore in a ſimple manner give ſuch directions as will ever be attended with ſucceſs.

The principal intention is to correct the malignity of the humour peculiar to ulcers; to bring them into a good ſuppuration, and nature, all kind Nature! will perform the reſt.

When an ulcer is inflamed all round, filled up with fungous ſubſtance, of various colours, the matter thin, ſerous, and is very fœtid; then firſt waſh the ſore gently with ſome good ſoap ſuds, or let the part ulcerated be ſteeped in it for ſome little time, which will draw out the malignity; then apply the following dreſſing:

Take the powder of burn'd *Allum* (17), and with a little lint dab it all over the fungous part, then ſpread a pledget of the ſalve mentioned in gun-ſhot wounds, No. I. and over which apply a good warm poultice there alſo mentioned. Let this dreſſing be repeated twice or thrice a day, till the inflammation ceaſes, and the fungous ſubſtance becomes reduced; when then, the waſhing, the allum and poultice may be left off, but the mentioned ſalve continued till the ſore looks of a pale red, and begins all round the edge to heal up.

Cleanlineſs is very commendable; but in this caſe, when a ſore looks well, the matter becomes of a pale yellow; wiping ſhould be very ſparingly; and then, dreſſing once a day

(the

(the morning) is full ſufficient; for by wiping, and often meddling with it, the ſmall granulations of the fleſh is hindered from growing, and healing is retarded.

A ſore leg is very troubleſome, and very often attended with pain and expence, to no purpoſe. It generally ſwells, is inflamed and troubleſome at night. Let the leg be bathed every night, (with the open ſore) in ſome good warm ſoap ſuds; or inſtead of that, take what you can have plenty of, namely, ſea water. If you can have it warm, it is well, if not, make uſe of it cold, rather half a dozen times of the day, than omitting it altogether; and by dreſſing the leg as before directed you'll have reaſon to thank me for my good advice.

Sometimes the bone is affected; in which caſe, the cure with the beſt dreſſing in the world will frequently be tedious. A ſore of this kind will not heal till the bone has diſcharged a ſcale, (termed *exfoliation*) But tedious as it is, very often it is made more ſo, by unneceſſary trouble. Without intending to give offence to my brother ſurgeons, I have frequently ſeen bad conſequences attending methods taught with diligence in hoſpitals; take my word for it, you will do no good with your ſcraping tools, throw

throw them over board, and you'll ſucceed better than uſing them in this caſe.

The bones, though the hardeſt, are the moſt delicate parts in the whole body; but when it is affected, nature forms a new perioſtium over the ſound part, and gradually puſhes forward the decayed ſcale. This wonderful work is performed by nature only, and muſt not be diſturbed. By ſcraping, and boring of it, the tender perioſtium will only be moleſted, the ſound bone will become foul again, and ſo you may go on for ever; and I never ſaw a ſore of that kind healed up by this improper method, till nature overpowered art, or the ſurgeon was tired with ſcraping, perforating, &c. but I have known many amputations in conſequence of it, and many lives loſt in conſequence of that again; yet there is no rule without exception. There are caſes where operations of that kind on the bones is required; but that ought to be referred to a judicious and experienced ſurgeon.

When the ſore remains fungous, the proud fleſh ſprouts out in little bunches, and the matter is muddy and ſtinking, it is almoſt a ſure ſign the bone is foul; and if you examine with a probe, you may generally feel it, or even ſee it, and the bone, is ſometimes black, brown, &c. and generally very rough on the ſurface. In ſuch a caſe, continue the dreſſing as before obſerved, and frequently

examine

examine whether the ſcale looſens; at the ſame time examine (not too roughly) which way the ſcale inclines, alſo the bigneſs of it; and if there is a probability of extracting it, ſo that the fungoſity only ſtops it, then freely uſe a biſtoury to make way for it; but in this be not in too great a hurry, for care ſhould be taken (as I have ſaid above) not to extract the ſcale, till the ſeparation from the freſh bone is mature.

If an ulcer is ſinous, inject in the ſinus, a mixture of burnt allum and water, viz.

No. VII.

Take water two ounces; burnt allum (17) *two drachms; mix them well for injection.* After two or three dreſſings with this, inject the *antacrid injection.*

No. VIII.

Take two ounces of water, with one ſcruple of calomel (N), as I have deſcribed in my treatiſe on the venereal diſeaſe.

This is the proper management of ulcers in general, and will ever be attended with ſucceſs, even in the moſt inveterate kind. In venereal ulcers, the mercurial ointment with the precipitate, may be applicable, eſpecially in ſhankers. I ſhall therefore end this ſection, for having directed the management of the worſt of ulcers, the inferior kind will of courſe yield to the ſame method.

SECT.

SECT III.

Of Diſeaſes of the Skin.

UNDER this head I ſhall conſider all kinds of breaking out, excluſive of that, which attends inflammatory and acute fevers, as they are all of one nature, and will all yeild to one method of cure.—All proceed from a corrupted humour, which nature endeavours to expell from the body, by driving them to the ſurface, as that is the leaſt reſiſting part.

Of the Itch.

THE itch may either proceed from original acrimony, or it may be catched from a meſſ-mate who is infected with the diſeaſe. In itſelf it is of different kinds, but the diverſity in this reſpect depends principally on the habit of body afflicted with it. Sometimes it is dry, ſcaly, and attended with very great itching; in that caſe, it proceeds generally from a ſcorbutic habit, and is attended with a ſlow inward fever. Sometimes it is more moiſt, and utters itſelf with bladders all about the hands, particularly betwixt the fingers, and a ſufficient teſtimony of the diſorder. The principal indication is to purify

rify the blood; and in the mean time recourſe may be had to external means. A purge is firſt requiſite.

No. IX.

Take powder of jalap (R) *one ſcruple; calomel* (N) *three grains, mix it with a little ſugar and water, and let the patient take it early in the morning, working it off with balm or any other tea*; after this ſome pills may be made of calomel.

No. X.

Take ſtomach powder (M) *two ſcruples, calomel* (N) *one ſcruple; ſugar about one ſcruple; mix them, and with a few drops of water make it into a maſs, and divide it into twenty pills.* Of which let him take one every morning and night.

Externally make uſe of the following:

No. XI.

Take Turner's-cerat (K) *two ounces;*
Precipitate (O) *two drachms;*
mix them.

Let this be ſparingly rubb'd on the itchy part; if it ſhould be too hard, mix with it a little ſweet oil. When the pills are all uſed, another purge like the former may be given; after which if requiſite, a few of the ſame pills, one every night, will not be amiſs. Should it be very obſtinate, a little *mercurial ointment* (P) about one drachm to the above quantity may be added; particularly if the ſhip is in a warm climate. Should theſe medicines ſeem to affect the mouth, as people

ple vary much in this reſpect, a purge will ſet all to rights again. This is a ſafe and expeditious method of curing the rankeſt itch, even of the worſt kind. If however there is a fever attending, a few *fever powders* (L) ſhould be given when going to reſt, in order to promote perſpiration; at the ſame time uſing the before mentioned medicines. In regard to the ſcorbutic itch, that I ſhall take notice of, under the title of that diſorder. During the cure of the itch, a decoction of the *ſaſſafras* (14) ſhould be drank, as that is a great purifier of the blood.

Of Boils.

BOILS are ſometimes very troubleſome, and at times exquiſitely painful; eſpecially when they are on tendinous parts: they are always a ſign of foul blood, and nature very often that way frees the body from diſeaſes. They may frequently be diſperſed in the beginning of their coming, by preſſing, and gently pinching them: but unleſs they are very numerous, ſuch a method is unſafe; becauſe it forces into the blood again what nature endeavours to diſcharge. The beſt method is to bring them to a head as ſoon as poſſible, to which purpoſe I ſhall here recommend a paſte that is very powerful.

No. XII.

Take oatmeal and make it into a paſte with honey (E); *this will ſpeedily ripen them, and facilitate the collection of matter.*

Should

Should the boil not open of its own accord, and matter ſhould be obſerved to fluctuate in it, open it with the inciſion lancet; and continue with your honey paſte, till the core is diſcharged; when the *diachylon plaiſter* will heal it up.

Of Ring Worms, Daw Worms, &c. &c.

THESE are very troubleſome, and though at firſt they ſeem but inſignificant, very often they lay the foundation to ſtubborn evils. In fact they are but a peculiar kind of itch; and the very ſame remedy that is recommended above for the itch, is equally powerful to remove this: what neceſſity is there then, of increaſing words with a tedious deſcription of their various appearances; ſince they will all yield to one ſubſtantial remedy?

Of the Morbis Pedicularis, or, *Louſy Diſeaſe.*

IT is an unhappy circumſtance on board a ſhip, when a man is afflicted with this filthy diſtemper; and ſuch a man is as pernicious to a ſhip's crew, as a rotten ſheep in a whole herd. If it proceeds from a lazy filthineſs of body, a gentle waſhing with a good ſcrubbing-bruſh, and rubbing the back

with the boatſwain's towel,* is a pretty amuſement enough to circulate the blood and to excite cleanlineſs. But ſometimes this diſorder has its ſeat in the very blood itſelf, and that filthy vermin will breed under the ſkin, and eat their way through, by cluſters.--I have opened boils as big as pigeons eggs, from which large bunches of lice have followed the lancet.

Theſe patients are in every reſpect wretched, and are actually objects of pity. They generally have a pale, ſullen, heavy, half-ſtarved, cowardly, in ſhort a louſy, look; habitually lazy, and ſeem to be void of every manly paſſion; neither good nor ill-natured; and are ſtimulated by nothing but puſilanimity; and as they ſeem neither ſick nor well, I ſay they are objects both of pity and contempt; though the latter is unjuſt, becauſe they cannot help it.

The reaſon of all this wretchedneſs is becauſe the blood is degenerated into a lifeleſs maſs of pituitous corruption; and wants that ſpirit which gives a reliſh to life. Hence we ſee in this one inſtance, how much the mental faculties depend upon the ſtate of the body.

In order to cure this unhappy patient, the blood muſt be purified, and the whole ſyſtem

* A cat of nine tails.

ſtimu-

ſtimulated to a briſk circulation. Nothing leſs than mercury will do the one, and ſtimulants together with exerciſe, effect the other.

In the firſt place give him the following medicine.

No. XIII.

Take ipecocuanha (S) *one ſcruple; jalap* (R) *ten grains; calomel,* (N) *four grains; make it into a draught or bolus.*

Let him take this in a morning upon a faſting ſtomach, and let him drink plenty of chamomile tea after every vomitting; then give him the following electuary.

No. XIV.

Take lenitive electuary (I.) *two ounces; black pepper powdered, two drachms; calomel* (N), *one ſcruple; mix them.*

Of this let him take every morning one tea ſpoonful; upon which let him rub himſelf all over with the mercurial cloth as follows, till he comes by this exerciſe into a breathing ſweat, at leaſt for an hour; and for the reſt of the day keep him in continual exerciſe.

No. XV.

The mercurial cloth.

Take a cloth or rag as much as half a yard ſquare, upon which ſpread one ounce of mercurial ointment; let the patient work this into the cloth with his hands, ſo that it is equally all over alike.

With this cloth let him rub his wriſts, arms,

arms, shoulders, top of his head, his back, knees, waist, thighs, and legs; and continue this rubbing once every morning with the same cloath for a whole month, putting the cloth in his pocket when he has done.

His sores may be dressed with the above ointment No. XI. The decoction of sassafras, and a dram of spirits, with a little *Turlington's Balsam* after his morning's exercise, will prove greatly to facilitate the cure. This is the method I have pursued with this filthy disorder; and I have succeeded to my most sanguine expectations. And by this, I have been fortunate enough to be the means of making men again, of wretches that were a burden to themselves, and a nuisance to the people that were obliged to associate with them.

SECT IV.

Of Promiscuous Disorders.

HAving thus treated on the most material ailments that want immediate assistance, I shall in this section consider promiscuous disorders, that have no relation to each other; but set them down as they occur to my memory.

Of

Of the Tooth-Ach.

THOSE who have experienced the tooth-ach, beſt know how much they have wiſhed for eaſe. No man can preſerve attention to his affairs, who has bodily pain; and a ſevere tooth-ach is enongh to diſturb both body and mind.—But what is to be done?

Tooth-achs are of two kinds;—It may either proceed from cold, or from a decayed tooth, or from both. If the tooth is decayed, the ſooner you have it out the better; but if your tooth is ſound, then it is as unreaſonable to draw it, as it would be to fling you over-board, becauſe you feel the pain. In regard to drawing the tooth, take this direction.

To draw a Tooth.

OBSERVE firſt, what tooth it is; and ſhift the hook on the key inſtrument accordingly. Ordinarily the hook is to be inſide, and the comb outſide. When this is adjuſted, wrap a little rag on the comb of the key, ſo that it may bear a little ſoftly on the gums---Then ſeat the patient ſteady on a chair or cheſt, (and if he is a coward, let ſomebody hold his hands, but a man of ſpirit will not want this officiouſneſs) place yourſelf right before him---then fix the inſtrument on the tooth, the hook inwards, and the comb outwards; the hook on the

tooth

tooth close to the gum, pushed a little towards the jaw-bone, and be careful that you have hold but of one tooth, and the right one.

When your instrument is fixed as gentle as possible, without giving pain, (for if you fumble too long, and give pain, you intimidate the patient) I say then, when you have fixed your instrument properly on all sides, so that you have the condemned tooth, and no more; then shift your hand so, that you may have a good and firm hold, allowing for the turning of your hand.—Thus being ready, give your hand a gradual, and steadfast turn, and wrench the tooth out of its socket. In this you must be calmly resolute, neither spare your strength if requisite, nor let an untimely compassion get the better of your duty; but keep your hold till you have performed the operation. When the tooth is out of its socket, it will somtimes hang a little by the gum; introduce your fingers, and they may nimbly perform the rest if requisite.—-It will sometimes happen, especially by the grinders, that a little of the jaw bone follows, sticking to the tooth;—let this not frighten you, it is sometimes impossible to avoid it; but not to frighten the patient with it, pick it off before he perceives it.

The moment the tooth is out, introduce your thumb and fore finger, and compress the socket of the drawn tooth; by which you replace

replace every thing in order again; and after which, one dram of good old ſtingo, for waſhing the mouth, and another for comforting the heart, will make the patient forget all the pain he felt in the operation.

This method is certainly the moſt ſubſtantial for the tooth-ach. But ſometimes this is not practicable, either becauſe that the ſtump is ſo rotted as not to ſuffer a hold; or that none on board are intrepid or capable enough to perform the operation; in this caſe a Palliative will be very acceptable.—*Turlington's Balſam* (W), upon a little lint put into the hollow tooth will frequently give eaſe, a *little Spirits of Wine and Camphor* (A), or if very raging, a *little Liquid Laudanum* (T). But as I have ſaid, they are only palliatives; and neither ſpirits, or any thing elſe can be depended upon for a certainty. Sometimes ſtopping up the hollow tooth with wax, with lead, or ſometimes putting in a little ſaltpetre will give eaſe—each method may do, and each method may fail: ſo that ſometimes if the tooth is not extracted, all powerful *Patience* at laſt muſt ſtep in and prove the beſt doctor, till nature recovers, and comforts the patient with the balm of Eaſe.

Very frequently a cold occaſions this troubleſome pain; in which caſe the head ſhould be well muffled up, in order to bring on a perſpiration, and a bliſter behind the ear

alſo of ſingular ſervice—rubbing the face alſo with ſome *ſpirits of wine and camphor* is of great benefit, and attention ſhould be had, if there be any fever in the ſyſtem.

Of ſore Eyes.

BAD weather ſometimes will effect the eyes, whence they will become raw and blood ſhot; which ought to be remedied in time, in order to prevent further inflammation. In this caſe make the following eye water.

No. XVI.

Take Alum, One Scruple.
Fine Sugar, Two Scruples.
Spirit of Wine, and Campor (A) *Ten Drops.*
Freſh Water, Three Ounces.

Mix them in a vial, and hang it up ſo that it may ſettle; then pour off the clear into another vial, which keep for uſe.

Of this excellent eye-water, drop a few drops into the blood-ſhot eye, which in a little time, will bring it to health again.—If the eye lids are raw and inflamed, *Turner's Cerate*, or what is yet better, No. XI. which prove very beneficial.—Should the inflammation be very heavy, apply the following poultice, from which you may expect great benefit.

No. XVII.

Take Oat-meal, and Sugar powdered an equal quantity,

quantity, and make it into a poultice with the yolk of eggs; upon which pour a few drops of the ſpirit of Camphor.

This kind of poultice you will find very cooling and agreeable to the eye, in order to aſſuage the pain; or take the following.

No. XVIII.

Take the white of an egg upon a ſtone, or pewter plate, which rub with a piece of alum, till you get a fine white cream-like ſubſtance.

This is a fine cooling application. The Camphor agrees very well with ſome people, but with others it will not, in which caſe the laſt is preferable; or the *ſpirits of camphor* may be rejected from the other receipts.

Of the Ear-Ach.

THE cauſes of that complaint are many. I ſhall only here obſerve two kinds; namely that proceeding from cold, and that which is occaſioned from hardened ear wax.

In the firſt caſe, be very cautious how you tamper with your ears—a few drops of the ſpirit of Camphor upon a bit of lint, and that gently put into the ear, will ſometimes perform great benefit; but never drop any thing conſiderable into the ear itſelf; it is frequently dangerous; from more reaſons than what I here have room to enter into.

In caſes where the ear wax is hardened, put

put in a little slice of *rusty bacon*, or a *bit of fat ham*, which you will find very powerful in softening the ear wax; and then with gentleness you may pick them; take care however not to go too deep.——Ear-ach frequently follows a heavy fit of sickness; in which case you can't do any thing better with safety, than keeping them warm.

Of Hoarseness, and Sore Throat.

THere are many degrees of this ailment. I shall first mention that of a common cold; which is either without a fever, or only a slight one.

Immediately on perceiving symptoms of a sore throat, a gargle should be applied. This, make of the following ingredients.

No. XIX.

Take vinegar, and water, each four ounces.
Alum powdered half an ounce.
Honey about a good spoonful.

This gargle should be used two or three times of the day——if it is warm, it is so much the more powerful——a mouthful at a time is sufficient. If the palate is down,

No. XX.

Take alum powdered, common salt, of each two drams, black pepper, ten grains, mix it into a powder.

Of this powder take a little on the tip of your

your ſpatula, and apply it to the palate, when it will immediately ſhrink up; and frequently make the perſon who before was hoarſe, ſpeak immediately quite clear again with a diſtinct voice; then proceed with the gargle as above directed.

But if the ſore throat is of a more malignant nature, the parts inflamed and ſwelled, the patient ſeeming almoſt ſtrangled, and attended with a high fever; it is certainly the quincey, and ſhould be treated accordingly. In this caſe you muſt bleed freely and repeatedly, and give the fever powders, as will be directed in the treatment of the fever, and the management of the quincey.

The gargle notwithſtanding ſhould be plentifully uſed — a bliſtering plaiſter betwixt the ſhoulders, and if need requires, on the calves of the legs, the bigneſs of the palm of the hand, will alſo prove of ſingular ſervice; and in every reſpect the treatment, as I ſhall obſerve under its proper head.

SECT.

SECT. V.

Of the Venereal Diſeaſe.

I Have written and publiſhed a full treatiſe of this diſeaſe; divided in three parts; namely, I. An anatomical and phyiological deſcription of the genital parts of both ſexes. II. An ætiological enquiry in the various ſtages of this diſeaſe. III. A true and rational method of cure. Nevertheleſs I ſhall here conciſely give a ſafe method of the cure, in its various local degrees. But to thoſe who would wiſh to know more circumſtantial the true nature of that malady, and of the animal œconomy, I muſt refer to the above treatiſe.

The venereal diſeaſe may be conſidered in different degrees; namely the *firſt* and *ſecond infection*.

To the firſt, I conſider the gonorrhœa or clap, the phimoſis, paraphimoſis, chordee, priapiſm, ſhankers, dyſuria, bubo, ſwelled teſticles, and venereal excreſſences, in their various degrees, in a local ſtate. To the ſecond infection, I conſider thoſe diſeaſes that proceed from the venereal virus, infecting the whole maſs of blood; namely cutaneous diſeaſes; glandular diſeaſes; diſeaſes of the bones; dry pox; and the confirmed lues itſelf.

The

The first infection is what I shall here briefly consider, and give such remedies, which though simple and few, will prove efficacious. But the second I shall here only consider in the general.

Of the Gonorrhœa

THE gonorrhœa or clap, commences with an agreeable tickling in the urethra, attended with a thin limpid ouzing, which however soon degenerates into a disagreeable pain. A discharge of sharp fetid matter, gradually commences with a scalding of urine; the præpuce and glans sometimes swells, with inflammation and a painful involuntary erection, which adds considerable pain to the patient, and under which, the whole system seem disordered.

When all these symptoms appear, there is no room left to doubt a confirmed clap.

The first thing to be done, is to take some of the *fever powders* (L) in order to promote a perspiration, and to abate the scalding of the urine.

In the next place, and which is the principal object; have immediate recourse to my *antacrid injection*, which is simply this,

No. XXI.

Take clean water one ounce,
Calomel (N) *one scruple,*
Mix it, and shake it when it is made use of.

Let

Let this be injected up into the urethra, three times of the day, which if duely performed will stop the evil in its first bud; and prevent all the generally attending consequences. For it perfectly eradicates all the malignitius of the venereal virus; prevents shankers, priapism, chordee, and any farther spreading of the infection. At the same time the calomel should be given internally, namely the pills, No. X. to be taken every morning one.

Of the Phimosis, and Pariphimosis.

A Phimosis is when the præpuce is so swelled, that the glans cannot be uncovered; and a Paraphimosis is when the præpuce is swelled behind the glans, so as not to cover the glans. Either way proceeds from the venereal virus having insinuated itself into the præpuce.

If the *injection*, No. XXI. is made use of in time, all this will be prevented; but sometimes it is of a very stuborn nature. If the inflammation is very great, the poultice, No. II. should immediately be applied, to which it will yield; being of a very powerful quality, particularly, if to the poultice *mercurial ointment* (P) two drachmes is added, by which it becomes an immediate antidote to the venereal virus.

Of

Of the Chordee, and Priapiſm.

A Priapiſm is an involuntary erection; and the chordee is a ſtricture in the urethra, by which the penis is bent either ways, according to the ſeat of the contraction, this however is generally downwards; whereby it makes the involuntary erection prodigiouſly painful.

It proceeds from ſome impriſoned virus in the urethra; which together with its contraction, irritates the penis to erection.

The *antacrid injection* No. XXI. will generally, if timely applied, prevent this; but if by neglect, or the great virulence of the venom, it has actually commenced, recourſe ſhould be had to mercurial ointment; which ſhould three or four times of the day be rubed on the penis. Should the priapiſm be very violent, the poultice, No. II. with the addition of *mercurial ointment* (P) muſt be applied.

Of the Dyſuria.

THE dyſuria is a ſcalding of the urine in the urethra; this likewiiſe is obviated by timely uſing the *injection*, No. XXI. or No. VIII. But when it is actually become troubleſome, drink plentifully of diluting drinks,

drinks, ſuch as *balm tea*, &c. and take a few fever powders which will ſoon ſet this to right again; particularly as that is a ſymptom which generally vaniſhes, as the diſeaſe becomes milder.

Of Shankers.

THeſe are little ulcers coming upon the glans, the frænum, and the præpuce of the yard. They are not only troubleſome, but ſometimes tedious in the cure; the *antacrid injection* No. XXI. if timely applied, will generally prevent them.

But ſometimes theſe very unwelcome viſitors will appear even without a clap; and then they generally gain great ground, before timely remedies can be applied.

The *injection* No. XXI. ſhould in this caſe be injected betwixt the præpuce and glans; but if this is not ſufficient, apply the following.

No. XXII.

Take mercurial ointment, two drachmes; calomel (N), *two ſcruples; precipitate* (O), *ten grains. Mix it into an ointment.*

By the dreſſing with this, all the ſhankers will ſpeedly heal up.

If warts ſprout out, they ſhould immediately be cut off, with a pair of good ſharp ſciſſars, and then dreſſed with the above ointment.

Shankers,

Shankers, when they appear, without a previous gonorrhœa or clap, ought always to be taken as a forerunner of the pox itſelf; and the patient muſt have immediately recourſe to the *mercurial pills*, No. X. one to be taken night and morning, in order to prevent the threatening evil conſequences.

Of the Bubo.

A Bubo is a ſwelling that appears on a venereal infection, ſometimes in one, ſometimes in both groins. This ſwelling proceeds either from a tranſpoſed virus, or comes as the firſt meſſenger of a venereal infection.

A bubo appears with ſymptoms of a heavy dull pain in the groin, which on examination diſcovers itſelf with a little kernel that is painful to the touch: If left to itſelf it gradually encreaſes both in bulk as well as in pain, and at length forms a collection of matter.

The moment a bubo appears, take a purge, No. IX. rub the part in the groin with *mercurial ointment*, and ſpread a *mercurial plaiſter* the bigneſs of a crown-piece, which, (the hair being removed,) lay on the part; let it remain on, till it ſeparates from the ſkin, and the ſwelling is diſperſed; the patient ſhould be kept warm, and not have much

exercise; at the same time the body should be kept open.

By this means the bubo will soon disperse, and the virus be destroyed in its first bud. But if it has already gained too much head to be dispersed, and matter is formed, it becomes larger and soft, and a fluctuation of matter is felt, then suppuration must be promoted; and when ripe be opened as soon as possible, for an outlet of the matter.

When it is come to its maturity, (that is the matter plainly perceived,) open it and dress it like an ulcer, first with the ointment, No. I. and when it discharges pretty well, dress it with the ointment, No. XXII.

By this managment, though easy, you will not fail of success.

Of Swelled Testicles.

THE venereal virus is liable to attack the testicles, which makes one of the most disagreeable circumstances of all venereal diseases; sometimes one, and sometimes both will be the seat of this complaint.

It begins with a heavy dull pain, attended with a disagreeable tightness in the spermatic vessels, leading from the testicle into the bowels. Gradually the testicle swells, becomes hard and grows very painful, and if not timely remedied, a suppuration, or a

scirrhus,

ſcirrhus, or even a gangrene and ſphacelus, may be the conſequences.

The moment the pain in the teſticles is perceived, remove the hair all round the ſcrotum, and apply a mercurial plaiſter ſpread upon leather; over which put a ſuſpenſorium, and tie it up to the body as tight as it can be born; which together with a purge, No. IX. will not fail of giving immediate relief.

The patient ſhould be kept as quiet as poſſible; for hard labour not only retards the cure, but becomes very painful. Should this not be ſufficient, apply the poultice, No. II. with the mercurial addition as warm as ſufferable, and repeat it as often as it is neceſſary for keeping it warm to the part. By this method it will not fail of diſperſing.

Should it however againſt all expectation come to a ſuppuration, it muſt be opened the ſame as another apoſthume, and treated accordingly. But ſhould a ſcirrhus, or a mortification enſue, extirpation is the only recourſe. For which ſee my treatiſe.

Of Venereal Excreſſences.

BEſides all theſe diſorders before mentioned that are the conſequence of impure coition, there is one more to be mentioned, and that is a variety of diſagreeable excreſſences, which ſometimes ariſe about the penis, the ſcrotum

ſcrotum perinæum, and about the fundament.

When theſe appear, I generally take it for granted, that the pox is in the blood, and the patient ought to be treated accordingly.

If there is a poſſibility of extirpating them, either by a biſtaury, or a pair of good ſharp ſciſſars, it ought to be done, and dreſſed with the following ointment.

No. XXII.

Take mercurial ointment (P), *and precipitate* (O) *equal parts: mix them.*

The roots of theſe ſtubborn companions are frequently ſeated very deep; if this is particularly taken notice of, together with proper internal medicines, the excreſcences taken away at the root, and the ointment applied, they may all of them ſoon be drove off from the field.

Of the ſecond Infection.

IN regard to the ſecond infection, this is too tedious here to enter into, and to do properly juſtice, I muſt refer the reader to the treatiſe itſelf.

All I have at preſent to ſay, is, that my method of cure is particularly eaſy and ſimple, in itſelf; and I am happy to think at the ſame time, that it is more efficacious, than any former method, or practice, made uſe of.

The *antacrid injection* No. XXI. is the moſt efficacious for ſubduing the gonorrhœa, and all the evil conſequences in that part; and the

other

other mercurial preparations in the manner I have recommended them, is equally powerful.

I am utterly averſe to ſalivation; it is uſing mercury as a poiſon; very few have ever been cured by it, and thoſe few have been more indebted to their good conſtitution, than the treatment which they have with ſo much danger undergone. But many, very many, have had their conſtitutions ruined by ſalivation, paſt the art of man to recover; and thouſands have been ſent miſerable objects to the grave.

I am alſo averſe to bleeding in venereal caſes, unleſs the greateſt neceſſity requires it; for in general it ſerves only to infect all the fluids, ſince the veins emptied, will naturally abſorb from all parts of the body, and thence liable to infect the whole maſs of blood. Purging needs but be uſed very ſparingly.

Mercury inwardly taken, ſhould be uſed with the greateſt moderation, and taken in very ſmall doſes; for with ſuch judicious management it becomes one of the beſt medicines in the whole Materia Medica; but if abuſed, it is converted into a poiſon. The decoction of the ſaſſafras ſhould be plentifully made uſe of during the whole courſe of the venereal diſeaſe.

And laſtly, from the real effect that the mercury has on the blood, I muſt add, that

the ſame gentle method with reſpect to its internal uſe, as is recommended for the firſt infection, muſt alſo be purſued for the ſecond infection; let the malignities be ever ſo bad, even in the moſt inveterate diſeaſes of the bones themſelves; with this difference, that in proportion as the diſeaſe is engrafted, time muſt be allowed for the cure.

Nature may be led by the gentle hand of aſſiſtance, and tenderneſs; but he who attempts to do good by main force, acts as a fool, and deceives not only himſelf, but thoſe who are ſo unfortunate, as to truſt to his pretended ſkill.

SECT. XVII.

Of the Bite of Venomous Animals.

IT has been obſerved by all diligent inquirers into nature, that poiſons are of two kinds, with reſpect to their effect in the animal œconomy. One kind will deſtroy if taken inwardly, but not have ſuch ill conſequences in wounded parts, externally. Another kind will be fatal in wounds; at the ſame time it does not affect the viſcera.

The

The firſt which deſtroys internally, are poiſons, either from corroſive minerals, or vegetables; but of the latter, namely what ſeems innoffenſive taken in the mouth, is the poiſon that follows the bite of moſt venomous animals whoſe poiſon are natural; ſuch is the ſcorpion, the adder, the rattle ſnake, &c. whoſe poiſon have by various experiments, been found to be attended with no ill conſequences internally taken. This was known to the antients, as well as to us; for we find Celſus, * to have ſpoken of this in his medical works.

Without any farther preface, I ſhall proceed to give the immediate remedies for ſuch unfortunate accidents as happen by the bite of theſe animals.

To Cure the Bite of a Rattle Snake.

THE poiſon from this venomous beaſt, is more deadly than any other of the ſerpentine tribe. If its venom by a wound is infuſed into the blood, a mortification, and ſpeedy death muſt follow.

The part bit, ſhould immediately be ſuck-

* *Nam venenum ſerpentis, ut quaedam etiam venatoria venena, quibus Galli præcipue utuntur non guſto, ſed in vulnere nocent. Ergo quiſquis, exemplum Pſylli ſecutus, it vulnus exſuxerit, et ipſe tutus erit, et tutum hominem præſtabit. Medicin. lib. v. c. 27.*

ed

ed with the mouth, either of the patient itſelf, or one who will riſk himſelf to be ſo much the friend of the wounded. Dr. Mead has recommended, that oil ſhould be held in the mouth all the time of ſucking, but we have it from good authority, that the ſpittle itſelf is an antidote to that kind of poiſon.

It is needleſs to ſay, that the perſon who ſucks the poiſon, ſhould frequently ſpit out, as not to run the riſk of ſwallowing it; and care ſhould be taken, that his mouth is free from ſores, or wounds.

When this is performed for a quarter of an hour, the part ſhould be dreſſed with *mercurial ointment* (P). Sweet oil is much recommended, and may be plentifully uſed as an embrocation to the inflamed part; particularly if the oil is impregnated with camphor.

No. XXII.

Take oil (C) *two ounces*; *camphor, one ſcruple*; *mercurial ointment, one drachm*; *mix it.*

The patient ſhould take a vomit of *ipecacuanha* (S) *one ſcruple*; and a few drops of the eſſential *oil* of *peppermint* (U), on a lump of ſugar, and diſolved in water, which ſhould be repeated after the operation of the vomit as often as occaſion requires. The fat of a rattle ſnake, is accounted a ſovereign ſpecific, if applied immediately to the wound-

ed

ed part, and the patient drinking a decoction made of *ſnakeroot*.

The ſame remedy here recommended to the bite of a rattle ſnake, (namely, ſucking the freſh made wound) is alſo recommended to all other venomous bites. The *viper*, the *adder*, the *ſantapea* or *ſcolopandra*, the *ſcorpion*, *tarantula*, &c.

That oil is an antitode, (or as we may ſay a poiſon) to all theſe venomous animals is evident from their expiring in great agony, when oil is poured on them; but whether this effect is becauſe of the penetration it has on their bodies, or annihilating their poiſon, is as yet undetermined.

I was once told a ſecret for the ſting of a ſcorpion, avered to have been experienced, by a commander of a ſhip, trading to the bay of Honduras, viz. that the part ſtung by a ſcorpion ſhould be touched with the glans of the penis, which would immediately draw out the poiſon, without effecting the glans that touched it; and it differs not, whether the patient himſelf or any other perſon does it.—— If there is any virtue in this, I own it is beyond my comprehenſion.——I thought proper however to mention it, though I cannot adviſe it as a ſafe experiment, unleſs farther confirmed by thoſe who have actually experienced it.

I have however a great opinion of mercurials

rials in ſuch exigencies; and would adviſe recourſe to be had to it immediately, both external as well as internal; this we are at leaſt aſſured of, it cannot be attended with danger.

SECT. VII.

Of the Bite of a mad Dog.

THERE are many ſurprizing things in nature, in ſo much, that ocular demonſtration can only convince us of their exiſtence. Amongſt thoſe wonderful phenomenons, the direful effect of the bite of a mad dog is equally aſtoniſhing as it is melancholly.

That dogs and wolves are more liable to madneſs of this kind, called the *Rabies*, is becauſe of their deficiency of external perſpiration; and are obliged to ſupply that defect with their open mouth and their lolling-out the tongue; whence their blood is ſubject to become overheated, and thence generate a malignant inflammation, which infects the ſaliva with this direful poiſon. But the aſtoniſhment is, why it ſhould have ſo very powerful a contagion as to infect the maſs of blood of every animal that receives the

the leaſt atom of it? Yet ſo it is, confirmed by ſad experience.

From frequent obſervation we are able however to communicate ſuch ſigns, which attend the ſymptoms of madneſs in a dog, whereby we may the better avoid the danger of being plunged into the moſt deplorable miſery by this wretched animal.

The Signs of a mad Dog.

THE dog with ſymptoms of madneſs evidently diſcovers a malignant fever; he runs confuſedly forwards; the tongue hangs out of the mouth with much ſlabber; his head hangs downwards; his eyes look dull and heavy; his tail is drawn up between his legs; and in every reſpect he has all the ſign of confuſed wildneſs and pain; he runs confuſedly forward, and ſnaps about him without diſtinction of perſons or fear. He is always reſtleſs; will neither eat nor drink; and is terrified at the ſight of water; the tongue hanging out of his mouth, grows black; and at laſt expires a ſpectacle of horror, unleſs the poor beaſt is put out of his miſery, and thereby many dreadful conſequences prevented.

The Effect of the Bite of a mad Dog.

So ſubtle is this fatal poiſon, that the ſymptoms do not appear immediately; but the part bitten will ſometimes even heal up, the ſame as any other wound; and two, four, or ſix months after the injury, the ſymptoms of the malady will appear and gradually reduce the patient to the moſt deplorable ſtate in nature.

The firſt ſymptoms of the diſeaſe are, a pain in the part where he was bit, which gradually ſpreads all around; the whole body in general is attended with a dull heavy pain, a laſſitude and wearineſs. The mind grows depreſſed and anxious, together with a loſs of appetite and a nauſea at the ſtomach; and, in particular, a difficulty of ſwallowing, ſore throat, and accumulation of ſpittle.

Soon theſe ſymptoms encreaſe. The peculiar ſoreneſs of the throat, which renders the ſwallowing liquids very painful, begins to create the utmoſt horror and dread of every thing that is liquid; and this firſt gives riſe to the *Hydrophobia*, or dread of water, which compleats the patient's miſery in this terrible diſorder.

The eyes become full and ſtaring, the face bloated, florid intermixed with lividneſs; the mind is impaired; rage, luſt and miſchief, agitates the confuſed will; at length,

convulſions,

convulsions, foaming of the mouth, priapisms, and seminal emissions, barking, howling, and endeavouring to bite every thing near, ends the wretched life of the most deplorable object in nature.

Of the Cure of the Bite of a mad Dog.

WITH respect to the remedies, we have had many delivered to us; but few indeed with success. Before I enter on the best method that I know, by experiment, to recommend, I must beg leave to mention a peculiar successful instance, in the course of my practice, in this deplorable case.

A mad dog on shore, in the West-Indies, bit two men, one belonged to my ship's crew, the other to a ship in the same harbour; both were bit in the calf of the leg. It happened that the surgeon of the other ship and myself were immediately at hand at the time of the accident. I was for cutting the part bitten fairly out without delay; to which the man of my ship readily consented; and it was done accordingly upon the spot, having fortunately my pocket instruments about me. But this operation was not approved of by Mr. E—; nor suited it the timidity of the man belonging to his care; it was therefore omitted.

When I had performed the operation, viz. (as near as I can guess) I cut more than an ounce and a half of flesh out of the gastrocnemius muscle every where round

round the bitten part) I ſpread a pledget with baſilicon, mixed with precipitate, and laid it on the wound, having firſt let it bleed, perhaps ſix or eight ounces; over the pledget I laid plenty of dry lint; and when he was carried on board, I fomented it with ſpirits of wine and camphor, in which *ſublimate mercury* was diſſolved (about one grain to about four ounces of the ſpirit). Inwardly I gave him one grain of calomel every morning and night for at leaſt a fortnight. The ſore I continued to dreſs with mercurial ointment; which within a month healed up perfectly ſound. From the mercurial treatment, the patient had a ſmall ptyaliſm, which I checked by gentle cathartics. My patient, by this ſevere, though efficacious method, recovered perfectly well, and remained ſo at leaſt three months after the accident, when we parted. The other unfortunate man, however, had not ſo good luck; for, as I was afterwards informed (the ſhip going ſoon to ſea after the accident) the unhappy ſufferer died a horrible object, raving mad in the *hydrophobia*.

Mercury is certainly the greateſt antacrid we have; and I am firmly of opinion, that in this caſe it is the moſt powerful of any medicine that is yet known.

The cold bath is ſtrenuouſly recommended by Dr. Mead; and ſince his recommending it, is

is generally practiſed on ſuſpicion of this misfortune; but in real caſes, very ſeldom with the wiſhed-for ſucceſs. Yet, Reaſon ſays much in its favour, and ſhould by all means be had recourſe to. Others have recommended ſtrong ſalt brine, which alſo is not to be rejected.

Before I lay down the method to be obſerved, I ſhall firſt give Dr. Mead's recipe in his own words.

"Let the patient be blooded at the arm "nine or ten ounces. Take of the herb called "in Latin, *lichen cinereus terreſtris*; in Engliſh "*aſh-coloured ground liverwort*, cleaned, dried, "and powdered half an ounce. Of *black pep-* "*per powdered, two drachmes*, mix theſe well "together, and divide the powder into four "doſes, one of which muſt be taken every "morning faſting, for four mornings ſuc- "ceſſively in half a pint of cow's milk warm. "After theſe four doſes are taken, the patient "muſt go into the cold bath, or a cold ſpring, "or river, every morning faſting for a month: "he muſt be dipt all over, but not ſtay in "(with his head above water) longer than "half a minute, if the water be very cold. "After this he muſt go in three times a week "a fortnight longer."

But to ſpeak my real ſentiments, I have no great opinion of this recipe; yet as other methods may be purſued along with it, I thought proper to inſert it, as in a malady of this

this consequence, nothing should be left undone that is practicable with propriety.

Celsus I think was the first who recommended cold bathing *; but indeed to a degree of drowning and reviving the patient again alternately. In the mania itself, it carries much reason with it in this miserable extremity, for the poor wretch at the eve of expiring, a spectacle of horror, may as well run the risque of drowning; and besides, the shock that plunging gives to the whole system, may probably work an alteration in the malignant habit.——But alas! when the hydrophobia has actually commenced; Death, and death only—can give relief! Yet let it ever be a maxim, (and especially with a seaman) *never* to forsake *hope*; for *despair* is only a punishment reserved for the damned. I repeat it; no means should be left untried, that has the least prospect of recovery.

But to avoid being tedious, I will proceed to the method I would have pursued in an accident of that terrible kind.

If you by the before description find that the dog who gave the wound is actually mad, then without a moment's delay let the piece

* *Unicum remedium est, nec opinantem in piscinam non ante ei provisam projicere, et, si natandi scientiam non habet, modo mersum bibere pati, modo attollere; si habet, interdum deprimere, ut invitus quoque aqua satietur: sic enim simul et sitis, et aquæ metus tollitur. Lib. v. cap. 27.*

bit,

bit, be cut fairly out; if that is not practicable, apply immediately the ointment made of *mercurial ointment* and *precipitate*, No. XXI. Over which apply *mercurial plaiſter*. Give one of the pills No. X. every morning and night, and continue this courſe for a whole month. Let the plaiſter remain on the place a good while after the ſore is healed up.

This method I purſued with a gentleman, and a little boy in New-York, who both were bit by the ſame dog, without provocation, the dog having never attempted the like before; upon which he was immediately ſhot, and was found to have all the ſigns of madneſs. ——The accident happened at noon, and I was immediately ſent for; but not being in the way, my aſſiſtant dreſſed it with baſilicon, and laid over it a compreſs with *ſpirit of wine and Camphor*, ſuppoſing it of no conſequence, as the wound was but very ſmall. But on my hearing of it in the evening, I went that moment to their aſſiſtance, removed the dreſſing and applied what I have before mentioned.

I was not miſtaken, for the ſore and all around, after ſome time grew angry, and had an unfavourable appearance; but with diligent attendance gradually became better——The little boy was bit deeper than the gentleman; His wounds were on both ſides of the *tendo achillis*: But the gentleman's wound was a

little above the *maleolus externus* on the right leg, inclining to the *tendo achillis*.

It was in the month of July—I ordered bathing every morning and night, which ſuited the ſeaſon. In the mean time, during three months, I gave one grain of calomel every morning and night; and every thing ſucceeded to our wiſhes.

But to return; ſhould the mercurial medicines go to the mouth, a gentle cathartic will divert this, for I am an utter enemy to ſalivation. If however theſe remedies are adminiſtered too late, ſo that, notwithſtanding all thoſe applications, the patient ſhould grow melancholy, have a difficulty in breathing, and a ſore throat; but eſpecially a pain in the ſore, or bitten part, recourſe ſhould be had to frequent cold bathing, or rather plunging; mercurials ſhould be continued, and every method purſued as will be adviſed in the putrid malignant fevers.

Should the patient however be ſeized with madneſs, care ſhould be taken that thoſe about him have no wounds where the leaſt of his ſpittle may be introduced; and that the deplorable patient is rendered incapable to make any wounds or miſchief on himſelf, or thoſe who attend him; as he will be apt to ſnap and bite about him like a dog. He ſhould be ſewed up in a hamock, to which his arms ſhould alſo be confined: in this method

thod he may, by help of a tackle, be plunged up and down in the ſea, but not his head under water. This is far ſuperior to the unnatural and cruel way of ſmothering with beds, where the patient has no chance at all left.

The ſubject is melancholy; but, willing to contribute all the relief in my power to the diſtreſſed, I have been inſenſibly led on; and ſummed up all that might promiſe ſucceſs. Innumerable are the remedies delivered to us, but few prove ſucceſsful if the caſe be real.

Of all, I never knew any meet with better ſucceſs than where mercury was concerned; and as I have been ſo fortunate as to have experienced the exalted virtue of that great medicine, in this and other deplorable caſes, I ſtand ſo much upon the firmer grounds, to recommend it beyond any other medicine that I am acquainted with at preſent.

To conclude, I think it requiſite to obſerve, that, dreadful as the bite of a mad dog is, when the poiſon has infected the unfortunate patient, yet this unlucky accident happens much ſeldomer, than mankind from the dread of the misfortune, are apt to apprehend it does. Many noſtrums are publiſhed as ſpecifics, and their virtue artfully confirmed, with caſes of being bit by dogs, that had however not the leaſt ſymptom of madneſs; and thence

thence cures enumerated, that could have no foundation on reality; by which artifices much miſchief has been done in real caſes. Due obſervance ſhould therefore be had to the ſtate of the dog that has given the wound, and the circumſtances attending; that either the patient may not be brought into unneceſſary pain, or that proper and ſubſtantial remedies may not be neglected.

LECTURE

LECTURE V.

OF FEVERS AND INFLAMMATORY DISEASES,

AND THEIR PROPER METHOD OF TREATMENT.

WE now proceed to the more internal diſeaſes; in which, the various ſteps that we intend to take of reſtoring health again, muſt be guided with the greateſt caution, as the ſeat of the malady is hid from our external examination.

It is for this very reaſon I deſigned previouſly to prepare the reader with the two firſt lectures; particularly the ſecond, I muſt beg the reader thoroughly to examine, and to underſtand; for on this will in a great meaſure depend the proper application of the various experienced remedies, which I here mean to unfold.

SECT.

SECT. I.

Of Fevers in General.

HIPPOCRATES, the father of phyſic, was wont to ſay, "A fever is ſo univerſal, that no patient dies without it." This is ſo true, that there is hardly an exception to it, even in the moſt momentary apoplexy itſelf.

To conceive this properly, we muſt obſerve, that every diminutive part in the animal fabric, like in a commonwealth, is endued with a ſenſe of ſelf-preſervation; and the whole fabric is in ſo ſtrict a conjunction with all its various particles, both ſolids and fluids, that nothing which may cauſe the leaſt diſturbance can paſs unnoticed; but, let the injury be where it will, every individual particle, as a member of the whole animal ſtate, feels the ſhock, and is immediately concerned for its own preſervation.

This then is the cauſe of a fever in the general ſenſe; and thence we ſhall be led to underſtand what this diſturbance in its nature actually is; namely, an unnatural action of the ſolids upon the fluids.

Now as the fluids are the moſt yielding parts, that muſt ſubmit to the preſſing motion

tion of the ſolids, we may without much difficulty, ſee one principle reaſon of its being ſet into a diſturbed commotion, when the irritability of the nervous fibrillæ are acted upon.

Again, when we conſider that the blood is liable to become acrimonious, and thence by its ſtimulus apt to act upon the coats of its containing veſſels, we ſee demonſtratively plain, how the ſolids are ſubject to be excited to act upon the very blood that ſtimulates them.

Moreover, as motion muſt naturally produce heat, and heat motion, and motion expanſion, and expanſion rarefaction, we at once bring to view the principal laws of mechaniſm, that governs the human automaton in the various degrees of health as well as diſeaſe. However, let me not forget to whom I write, but haſte to the point I am at.

A fever may proceed from many different cauſes, and may affect many different conſtitutions, and alſo produce many different effects; it is therefore juſt that a proper diſtinction ſhould be made.

Indeed, it is a ſubject that cannot be too minutely handled; becauſe it is ſcarce poſſible that there is a diſeaſe void of a fever in ſome degree or other.—But preciſeneſs and utility is the object I have in view.

SECT.

SECT. II.

Of Accidental Fevers.

HOW uncertain is human life! One moment in a perfect ſtate of health, the next perhaps no more; or confined under the painful ſenſations both of body and mind!

Every accident is liable, and unavoidably muſt bring on a fever; and this, like fire, ſhould be extinguiſhed in its earlieſt commencement. But in that, as I have before obſerved, the conſtitution ſhould principally be conſulted.

I have in the lecture of accidents, at every opportunity, recommended bleeding, but always with a proviſo, *if requiſite*; and, as this is of more conſequence than generally is ſuppoſed, I find it neceſſary here to expatiate farther on it.

In the firſt place, no man ſhould be bled who has loſt a conſiderable quantity of blood, unleſs indeed he was known in his ſtate of health to be very ſtrong and robuſt; and that the fever ſets on with ſuch fury, that the ſyſtem requires abſolutely to be reduced; for the ſolids and fluids have ſuch a ſtrict dependance amongſt themſelves, that they keep each other in an equipoiſe. If therefore the blood is of an acrimonious nature, and

at

at the ſame time impoveriſhed by leſſening its quantity, the coats of the arteries and veins will be the more ſtimulated; thence the fever will naturally encreaſe, and generate more acrimony; which at length will deſtroy the patient. I have been an eye witneſs more than once, that the fever has actually encreaſed upon every repeated bleeding, till the whole ſupply of life was ſpent; and all my perſuaſions have not been liſtened to till too late. Nay, a fever is ſometimes abſolutely neceſſary; and proves to ſome conſtitutions a remedy on its own account, provided it is properly treated, and kept within due bounds.

Secondly, If the conſtitution of the patient before the accident was but ſlender, and of a phlegmatic nature, bleeding ſhould be very little or cautiouſly performed; for the blood of itſelf being but poor, muſt naturally be impoveriſhed by being leſſened; and whilſt the tenſeneſs of the fibres is loſt, it is the more acted upon and rendered more acrimonious, and ſtill unable to ſtrengthen the tone of the irritated fibres; whence a relaxed body, together with a poor acrimonious blood, and all its evil tendencies muſt be the conſequence.

Let it once for all be obſerved, that all the benefit we can poſſibly hope and expect from bleeding, is to leſſen the whole ſyſtem, to reduce the quantity of the fluids, and to relax

lax the ſolids. This leſſening of the ſyſtem I muſt own is very often highly neceſſary; But, let us not fall into the ridiculous notion to ſuppoſe that bleeding will draw off the bad blood, and leave the good behind; far otherwiſe; the quantity of the blood is ſoon repleniſhed, but the quality becomes impoveriſhed.

The principle intention in fevers of whatever kind, ſhould be to promote perſpiration. This is the grand reſtorative of nature; and I cannot recommend it too much. Nature deſigned this evacuation in the formation of man; and by that, fevers were cured in time of yore, many ages before art contrived either lance or lancets.

But here let me not forget another great caution; namely, not to miſtake profuſe ſweating for perſpiration; for this is an extreme into which many have erroneouſly fallen. Nature frequently produces a ſweat without force or compulſion; and if ſo, it ſhould be favoured, but never brought on by ſtimulants, or ſtrong forcing medicines.

Perſpiration, ſweat and urine, are the natural evacuations intended, for the purifying the ſyſtem from animal acrimony; and when theſe excretions are in a juſt balance with the ſecretions of the fluids and motion in the ſyſtem, without pain or fatigue; then nature is at peace with itſelf.

Laſtly,

Laſtly, I muſt obſerve, that the ſtomach is an organ which, by the nervous conſent, carries on an immediate correſpondence with every part in the human fabric; whence this viſcera ſhould likewiſe ever be conſulted in fevers; that is, never to impoſe on it any aliment againſt its own inclination and appetite.

The want of appetite in a fever is a natural cauſe, and very often is in the patient's favour; but the miſtaken notion, that a patient muſt eat, even againſt his inclination, in order to recover ſtrength, is not only highly abſurd, but has been the deſtruction of many, who otherwiſe would have recovered, had they with patience waited the kind dictates of Nature.

Let the ſyſtem be free from diſeaſes, and the ſtomach will ſoon crave food, when there is a probability that the aliment may be converted into good blood; but whatever is forced into the ſtomach before that time, will inſtead of nouriſhing the body, only add fuel to the deſtructive fire, and encreaſe the already malignant blood.

Upon the principles of theſe obſervations, I ſhall lay down the rules that ſhould be religiouſly obſerved in accidental fevers; and when they are well conſidered, we ſhall find that they will hold good alſo in all other kind of fevers, notwithſtanding they ariſe from internal acrimony of the body; for the difference

difference is barely this, whether the fire is kindled within or from without;—but to proceed.

Whatever then be the accident, a fall, a wound, a fracture, diſlocation, bruiſe, &c. obſerve what the patient was before the accident.

If the patient was a ſtout hearty man, it naturally follows, that the fibres of his body were alſo in a rigid robuſt ſtate; and the quantity and richneſs of the blood was in a due proportion; for this very reaſon, health being at ſuch an *acmé*, a fever is the more to be feared, and ought ſtudiouſly to be avoided.

If this patient has not loſt any blood by the accident, by all means bleed him; but never exceed eight ounces at fartheſt; it is as much as the ſtrongeſt man ought to loſe at once.

In the next place, perſpiration ſhould be the principal object in view. To this end, let the patient immediately after bleeding go to reſt, and take a doſe of the *Fever Powder* (L); upon which let him drink plenty of *Balm Tea* (12); which will generally bring on a perſpiration.

If however the fever increaſes, the pulſe continues to beat hard and full, the head ach, difficulty of breathing, a great draught and delirium ſhould enſue, bleeding indeed may be repeated, provided it is within the ſame twenty-four hours; but if the ſymptoms come

come on beyond that time, then bleeding will ſeldom prevail, or do any good, but rather miſchief; for by this time, the fever is generally agitated by acrimony, and the blood is of its own accord poor enough without being made more ſo by bleeding.

In the ſymptoms which I mentioned, regard ſhould be had to the body being gently kept open, not by purges but by clyſters; for purges in fevers are precarious, and liable to bring on heavy fluxes. If the patient under this high fever is coſtive, give him the following clyſter.

No. XXIII.

Take warm water one pint, or ſomething more; in which ſcrape about one ounce of caſtile or hard ſoap, and let it perfectly diſſolve; then add a ſpoonful of honey to it, and let it be as warm as that it may be eaſily borne to your cheek.

Let the patient keep this clyſter within him as long as he can, till it comes away with a ſtool.

If the patient is ſick at the ſtomach, a vomit of *ipecacuanha* (S) or No. xxvi, will be very proper, and nothing in ſuch a caſe can be given more ſafety and better advantage; for it is not only the ſtomach that gets relieved, but the whole body is brought thereby into perſpiration, by the univerſal ſtrain it occaſions. After the vomit, or after the clyſter, give the following draught.

No.

No. XXIV.

Take of fever powder (L) *one ſcruple; common water or balm tea, one ounce or half a tea-cup full; then take a lump of ſugar, on which pour eſſential oil of peppermint* (U) *three drops; liquid laudanum* (T) *eight drops; ſweet ſpirit of nitre* (D) *thirty drops; and mix them with a tea-ſpoon.*

This draught will not only promote perſpiration, but it will comfort the ſtomach, and incline the patient to an agreeable reſt; by which he will be greatly refreſhed. If occaſion requires, it may be repeated every ſix hours.

If reſt comes of its own accord, the *liquid laudanum* (T) may be omitted; and if the ſtomach does not ſtand in need of any carminatives, the *oil of peppermint* (U) may alſo be omitted, &c. The conſtant drink when dry may be balm tea; in which, if it ſuits the palate of the patient, a ſlice of lemon may be put, and then ſweetened with ſugar.

The diet, as I have before obſerved, ſhould be ſparing; and the patient's palate in this ſhould principally be conſulted. The following water gruel, or rather wine ſoup, or whatever other name it may acquire, I have often ordered to my patients at ſea; and which has ſuited moſt ſtomachs, and proved an agreeable meſs.

No.

No. XXV.

Take oatmeal, or pounded biſcuit, a couple of ſpoonfuls; water, a quart; a ſmall handful of raiſins; a little allſpice, a little mace, tied up in a fine rag; which boil together in a tin ſaucepan till conſumed to a pint and a half; then add a gill of good wine, red or white, and ſweeten it with ſugar to ſuit the palate. You may put a little lemon peel in, to give it an agreeable flavour.

A little roaſted freſh meat will hurt nobody; and broths moſt certainly are good, particularly if the body is coſtive; but when the body is inclined to looſeneſs, I have known the beſt broth to produce a dangerous flux; and this ſhould be taken notice of.

If the patient however who has met with the accident is of a puny weak conſtitution, or has loſt a ſufficient quantity of blood by the wounds, bleeding then is not ſo requiſite as in the former caſe; though the treatment otherwiſe muſt be equally the ſame.

By this method of proceeding, there is little fear but that the patient will ſoon perfectly recover, even in the higheſt fever that may ſuddenly befal a man from an accident; provided the injury is not of a dangerous tendency. But as an acrimonious habit of body is liable on its own accord to diſeaſes, it is eaſily imagined that an accident may become acceſſary, and heighten the malignity; hence often

often a fever of that kind is liable to degenerate into a malignant one, or even from the accident itſelf, when of a dangerous nature; and this I ſhall explain as I proceed. I ſhall therefore leave the accidental fever that proceeds from an external cauſe, and proceed to thoſe which take their origin internally.

SECT. III.

Of a Cold.

THE fever now to be treated of is the moſt common amongſt mankind; eſpecially ſeamen, who are ever expoſed, to have the perſpiration obſtructed. It however would ſave many from the grave, and almoſt as many from being food for the fiſh, was it a little more regarded than what it actually is.

The ſound of a cold is ſo gentle, that cuſtom has almoſt made it effeminacy to pay any regard to it; and yet, if we maturely examine, we ſhall find the moſt malignant, acute, and mortal diſeaſes, firſt make their appearances by the ſymptoms of a cold,——But let us proceed to particulars. A cold is an obſtruction of perſpiration; which may become

become deſtructive to the animal œconomy if neglected, in ſo much, that it may be conſidered as the firſt foundation of moſt diſeaſes.

In my treatiſe on diſeaſes of the lungs, I have enumerated the many cauſes of a cold to which mankind are liable, and their precautions to avoid them. To ſea-faring men, I have one principal cauſe to mention whereby they make themſelves ſubject to colds, and ſow the ſeed of many dangerous diſeaſes in their ſyſtem, and that is their careleſsneſs in ſhifting, after getting wet; in this reſpect, I have however a remedy to offer, which is as valuable and as efficatious to their preſervation, as it is eaſily put in execution. The remedy is ſimply this:

A man who has been expoſed on duty in the rain, and is become thorough wet, ſhould not only ſhift himſelf in dry cloaths, but previouſly waſh all over with ſea water: if he carefully obſerves this, he will never get cold on that account. I have not only experienced this perſonally many times, but ever found it productive of ſalutary effects to thoſe I have perſuaded to it.—If we but make ſome obſervations on the accidental occurences that happen at ſea, we ſhall ſee the juſt foundation of this. When do we find a man who is continually waſhed by the ſea to have a cold? while on the contrary a

foul rainy day, will almoſt breed a general ſickneſs.——Theſe obſervations firſt brought me on the notion of waſhing the body with ſalt water, and having verified it by experiment, I ſoon ſaw the propriety of it; namely, that the freſh water being of a ſluggiſh nature, and having a tendency to putrefaction, is not only apt to infuſe a putreſcency into the ſyſtem, but from its ſlimy nature apt to clog up the pores, and thus obſtruct perſpiration; whilſt on the contrary, ſalt water is not only antiſeptic, but ſtimulates the pores of the ſkin to their ſecretory and excretory functions.——Nay ſo perfectly have I experienced this remedy, that I have perſuaded the people to ſalute one another by way of play with buckets of ſea water on a foul rainy day, and with pleaſure I have experienced that they have all remained briſk and hearty after it, and evidently ſeen the difference, that on a ſimlar day the ſea water play being omitted, ſcarce one who has been thorough wet, eſcaped a cold in ſome degree or other.——I muſt not forget, that a draught of grog is likewiſe no bad preſervative. But this is beſt taken when the watch is out, and that reſt and ſleep can be indulged upon it, as that will then be apt to throw them into a gentle perſpiration; whilſt however their watch is upon deck, the beſt warmth is that which is produced by excerciſe; except liquors is taken with the greateſt moderation.

But

But when a cold has actually commenced, care ſhould be taken immediately to have it ſubdued in time. The term cold however is a very vague expreſſion, that includes a great many diſorders, occaſioned by an obſtruction of perſpiration, which all in turn ſhall be taken notice of: But as I am now on the ſubject of fevers, I ſhall confine myſelf to that at preſent, and conſider the cold as it affects the body univerſally; namely head-aches, a weakneſs in all the limbs; intermittent fevers, intermixed ſometimes with fluſhes of heat, and at other times ſhivering, chilling, &c.

Theſe are not only the ſymptoms of a cold, but of almoſt all inflammatory fevers; which in fact, the cold is a commencement of. Now all that nature requires is a perſpiration; for thereby the impriſoned acrimony is expelled, and which nature is always engaged to throw off from the ſyſtem.—To this intention, if the patient is rich of blood, bleeding ſhould be performed; but with ſuch caution, as I have before recommended. Next give the *fever powder* (I), together with a good quantity of balm tea, or if the conſtitution is of a phlegmatic habit, ſage tea, or even ſage punch (No. V.) will not be improper; but care ſhould be taken, that if there is much fever, all thoſe things ſhould be omitted, as it is liable to increaſe the fever,

fever. If there is a nauſea at the ſtomach, give a vomit: take the following:

No. XXVI.

Take Ipecacuanha (S), *one ſcruple: ſugar a little lump: water half a Tea cup full, and make it up into a draught.*

This vomit ſhould be well worked off with chamomile tea, or even common luke warm water; firſt letting the vomit operate, and then drinking plenty of the water after every operation. When this is over, the patient ſhould keep his bed or hammock, and take either the *fever-powder* (L), or the before mentioned draught, No. XXIV.

The catarrhal fever, and all the other ſymptoms of cold, viz. cold in the head, cough, hoarſneſs, &c. generally keep one another company, leave the patient generally at one time; and in fact, one method of cure, namely, promoting a perſpiration, ſerves for all; for thereby the obſtructions become removed, and nature is reſtored to its primitive tranquillity again.

SECT.

SECT. IV.

Of Intermitting Fevers, and Agues.

THERE is ſcarce a diſeaſe that makes a patient more wretched, and unhappy, than the fever and ague. The cauſes of theſe kind of fevers is principally from a pituitous, or ſlimy blood, together with its being loaded with acrimony; and a flaccidity of the moving fibres.

They are divided into various claſſes; though in fact all of one nature. When the ague with its ſucceeding fever comes on regularly every day, it is called *quotidian*, or every day's ague; when every ſecond day, *tertian*, or third day's ague, and when every third day; a *quartan*, or fourth day's ague. There are many other claſſes as ſubdiviſions of theſe, but they are the mere ſpeculations of phyſical pedants, who are ever ſworn enemies to plain underſtanding, and delight in perplexities; which therefore, we ſhall neither ſpend paper nor time upon to recount.

Suffice it, let their paroxyſms return at what ſtated period of time they will, either regularly or irregularly, they differ in nothing but this, that the farther the fits are diſtanced, the ſeverer they generally are, when they come on; and the more regular, the more obſti-

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nate in their cure; though in this even there are exceptions.

It is ſurpriſing to imagine, how many different opinions have been ſent into the world concerning the returns of the periodical fits of the ague; and equally aſtoniſhing, how few with any probability of truth or reaſon.

I ſhall not here enter into an enquiry of this nature; certain it is, that at the ſtated times of theſe returning fits of the ague, there is an obſtruction in ſome particular part of the ſyſtem, that correſponds with the ſtated time of the circulation of fluids in ſuch parts—which when diſturbed, effects by the nervous conſent, the whole animal ſtructure.

The principal intention in all intermitting fevers, ſhould be to correct the petuity and acrimony of the blood; to remove the obſtructions; and to ſtrengthen the ſolids.

With reſpect to the blood, it is an inevitable conſequence, that when it is loaded with a vicidity and lentor, that it will ever occaſion a depraved nutrition; and hence we ſee, that people labouring under agues, and intermittent fevers of any kind, have a depraved appetite, and many diſagreeableneſſes in the firſt paſſages.

The intermittent fever and ague approach with the following ſymptoms, viz. a heavy dull head-ach, a ſhivering chill all over the body, with a yawning, &c. pain in all the limbs attended

tended with wearineſs, a nauſea at the ſtomach, a depreſſed pulſe; which after it has laſted for half an hour, changes into a burning heat, a throbbing head-ach, pain in the loins, and in every limb, a great draught, a *full hard pulſe*, and which at laſt terminates in a profuſe ſweat; this ſeems to give the patient eaſe, for one, two, or three days; and then attacks the patient with the ſame ſymptom, increaſing every time, and reduces the patient both in body and ſpirit.

The firſt thing to be done is to give a vomit, like No. XV. and XXVI. This is beſt taken at the approach of the cold fit, and worked well off with plenty of luke warm water. After the operation of the vomit is over, let the patient take the following draught.

No. XXVII.

Take fever powder (L), *thirty grains*; *calomel* (N), *one grain*; *elixir of vitriol* (G), *ſixty, or ſeventy drops*; *eſſential oil of pepper-mint* (U), *four drops upon a little lump of ſugar*; *to which add water, half a tea cup-full.*

This draught will not only promote perſpiration, but help to diſſolve the ſizyneſs in the blood; and may therefore be repeated every ſix hours, for a few days. But the patient ſhould alway be kept moderately warm upon it, that it may work by perſpiration.—

This

This ſimple method I have known put the patient to rights again, after a ſevere onſet.

But ſometimes this wretched diſorder will require more powerful medicines to keep it in ſubjection. When the fibres are debilitated, and the blood ſtill retains its viſcid corruptive quality, the ague is apt to hang on the patient a long time, the ſucceeding fever apt to melt the patient down to a mere ſkeleton, and even deſtroy him. In this it is requiſite to brace up the ſolids, and to infuſe an aſtringencey into the blood.

To this intent, the Peruvian bark is now frequently preſcribed, and if judiciouſly adminiſtered it is an excellent medicine; but as it is liable however, to be improperly given, and then productive of irrepairable miſchief, I have purpoſely omitted it in this catalogue; nevertheleſs, I ſhall give in its ſtead a medicine, ſuperior both in virtue, and by far more ſafe in the application; not only in this kind of complaint, but in ſcorbutic caſes, as I ſhall hereafter take notice of. The medicine is this,

No. XXVIII.

Elixer of Iron.

Take a quantity of ruſty iron, the ſmaller the pieces are, the better, for the leſs quantity will do; pour on it good ſtrong vinegar, ſufficient to cover it; let them ſteep till the vinegar becomes of a deep brown colour, which it ſoon will, and at length

length acquire a conſiſtance of a black elexir. The veſſel ſhould be either ſtone or glaſs; but what is yet better is an iron pot, which of itſelf will contribute to the medicine.

If the patient therefore, after the vomit, and the above draught, is attacked again with the fit of the ague, and ſucceeding fever, have immediate recourſe to your elixir of iron.——-Let him take after the fever is off, every three hours, a table ſpoonful of the elixir, and ſhould it ſeem to come up again at firſt (which it ſometimes will, particularly if the ſtomach is yet foul) give immediately another ſpoonful, and repeat this at leaſt three times of the day.

A little gentle exerciſe upon taking the elixir is highly beneficial; and if it throws a gentle warmth over the body, and brings it into a gentle perſpiration, you are ſure of ſucceſs.

The quantity of it ſhould be adapted to the condition of the patient, and the ſtrength of the ſtomach; if it ſits eaſy, a larger quantity may be taken, and ſeldomer; and if it is more nauſeous, a ſmaller doſe and oftener.—Should the fits ſeem obſtinate, the following electuary may be uſed; and is a powerful ſpecific.

No. XXIX.

Take ſtomach powder (M), *two drachmes; nutmeg powdered, one drachm; powdered alum* (17), *half a drachm; eſſential oil of pepper-mint* (V),

(V), *twenty drops*; *calomel* (N), *ten grains*; *honey* (E), *one ounce: the whole well mixed.*

Of this let the patient take every eight, or twelve hours, the bigneſs of a nutmeg, taking his elixir as before obſerved; and this will ever prove ſucceſsful in the moſt obſtinate caſe.

As patients of that kind at ſea, have ever a taint of the ſcurvy in their compoſition, or at leaſt have a tendency towards it, exerciſe and freſhneſs of food, will prove one of the reſtorative means. The malt decoction ſhould alſo be their drink, as well as in the ſcurvy.

To conclude, I ſhall only obſerve, that bleeding in agues muſt at all events be omitted, as being abſolutely pernicious, as it cannot fail of impoveriſhing the blood; which is the principle ſource of the diſorder. Alſo, in the intermitting time, exerciſe ſhould be obſerved, and the diet ſhould, when the ſtomach craves, be good. Sometimes indeed, the ſtomach is too ravenous and greedy; but that is a default which proceeds from the ſame cauſe as that which makes it loath its victuals; a vomit in either caſe is the moſt effectual medicine, and may be repeated as often as it is requiſite, without the leaſt fear of injury, particularly in this diſeaſe.

SECT.

SECT. V.

Of Putrid and Malignant Fevers.

I Shall on this head reſtrain myſelf from ſaying more than what is abſolutely requiſite to the cure. It ſeldom happens to infect a ſhip's crew at ſea, unleſs the ſhip has carried it from ſome place where the diſeaſe was contagious.

Though notwithſtanding, great ſickneſs on board may give riſe to it, if care is not taken to prevent it. I would therefore ever adviſe, in caſe of ſickneſs, to ſteam the birth with vinegar; namely, taking a veſſel with vinegar, in which put a hot iron, and thereby raiſe a a ſteam, which is a powerful preſervative.

A putrid fever may be generated from the contaminated atmoſphere of a ſick perſon, though it rarely is the caſe; yet prudence demands every precaution that is in our power.

The fever that I now ſpeak of is of the malignant kind, and peculiar to the hotter climates.

The patient is ſeized firſt with a ſhivering chilline ſs, which is ſoon ſucceeded with a weak unequal fluttering pulſe; the body is ſeized with a univerſal pain, together with a great debility; the mouth is hot and dry; the

the reſpiration depreſſed; and the mind labours under a heavy anxiety.—The fever continues, though not very high; and the pulſe not very full;—a delirium or elſe a ſtupor enſues; the urine becomes deep coloured, and has an oily ſkim at top; and the patient is in ſo imminent a ſtate of danger, that, unleſs a favourable criſis happens ſoon, twenty four hours rapid progreſs is liable to put him beyond all help. The firſt and immediate remedy ſhould be a vomit, No. XXVI, which is the grand ſtep to be taken in all fevers; not ſo much for the ſake of cleanſing the ſtomach, as for the univerſal eaſe it gives to nature.

The next ſtep is to correct the putreſcent acrimony in the ſyſtem; for which purpoſe make the following draught.

No. XXX.

Take fever powder (L) *one ſcruple; elixir of vitriol* (G) *thirty drops; ſweet ſpirit of nitre* (D) *thirty drops; calomel* (N) *two grains; eſſential oil of peppermint* (U) *four drops; upon a lump of ſugar; and half a tea-cup full of water.*

Let the patient take this draught every ſix hours; and after four have been taken, the calomel ſhould be omitted. If the nerves ſeem to be affected, the eſſential oil of peppermint may be increaſed. If a delirium ſhould come on, the *liquid laudanum* (T) from ten to twelve drops and upwards may be given in the draught.

I know

I know many will think it odd, that I ſhould give calomel in a fever; but all this is merely the effect of blind prejudice; a better medicine than calomel is not in all Nature, if judiciouſly applied; and ſo fortunate have I been in my ſucceſs with this exalted medicine in contagious fevers, that I have preſerved myſelf and my patients in the midſt of Death's ſpreading horror around us. But to proceed; if the patient continues to be dry on the ſurface of the ſkin, and perſpiration ſeems backward, a bliſter betwixt the ſhoulders, the bigneſs of the palm of the hand *, will greatly facilitate the criſis or turn of the fever; but let it not be erroneouſly ſuppoſed, that a bliſter will draw off the bad humour, or that it does good by ſuch an operation; for this notion has proved deſtructive to many patients. All the good a bliſter does is to ſpur on the animal function; by which ſometimes the acrimony is thrown off from the ſyſtem; but if thus irritating the ſyſtem be overdone, or wrong applied, it is productive of many additional evils to the diſeaſe; cauſes ſpaſms, ſtrictures, and other acute diſorders, that of themſelves may become mortal. Therefore bliſters ſhould never be uſed but when the body is defective of perſpiration, or when the debilitated ſyſtem is defective in its excretory functions.

When

* The method how to apply a bliſter is deſcribed under the article of Bliſter Plaiſter, in the ſecond ſection, p. 75.

When the patient is rid of the fever, a general weakneſs will be left behind; this is beſt aſſiſted with the *elixir of iron*; and now and then as a ſtomachic, a tea ſpoonful of *Turlington's balſam* (W), or ſome few drops of *oil of peppermint* (U), as alſo the malt decoction, and freſh diet.

Malignant fevers are generally attended with eruptions on the ſkin, which is ſometimes in favour of the patient, and therefore by no means to be hindered; but if there appears purple ſpots on the ſkin, and that they incline to turn black, it is rather a dangerous ſymptom, and indicates very little hope of the patient's recovery.

The ſame method as above muſt be obſerved; which if medicine can avail, will afford benefit.

On the whole, I have this to obſerve, that all acute fevers are liable to become malignant and putrid; and in my practice I never found, that there was any real diſtinction to be made in the method of cure, whether the acrimony was generated in the habit by diſeaſe, or introduced by contagion; and if I may be allowed to judge by compariſon, it muſt appear that my method is ſuperior to the more general doctrine; becauſe I have ever found it to be attended with much more ſucceſs.

LECTURE

LECTURE VI.

OF THE VARIOUS INTERNAL DISEASES, AND THEIR METHOD OF CURE.

HAVING in the foregoing ſaid what I thought moſt material to be obſerved in fevers, as the univerſal diſorder that attends almoſt every ailment in the human body, I ſhall for regularity ſake, treat on the moſt material diſeaſes, as they may ſeem to follow in order in the various diviſions of the human body; and be as conciſe in their deſcription and cure, as their nature will admit of.

SECT.

SECT. I.

Of Diſeaſes of the Head.

Of the Apoplexy.

THE apoplexy is a diſeaſe, wherein the patient falls down motionleſs, void of ſenſe and ſenſation, and is, in fact, a temporary death. It will ſcarce however admit of a ſtrict definition; for there are not only various degrees of this diſorder, but even different diſorders under the ſame denomination, that have quite diſtinct different cauſes for their effect. Many indeed may be accounted for, but many more cannot.

The brain is the root of the nerves, and conſequently the fountain of all ſenſation, and life itſelf. That part of the human fabric is extremely delicate, and blood veſſels plentifully diſtributed. When therefore theſe veſſels become either ſo diſtended with blood, ſo as to preſs the ſubſtance of the brain, that it is hindered from its motion, confuſion to the animal oeconomy muſt naturally enſue; thence an apoplexy in its various gradations is liable to be the conſequence; but as the veſſels in ſuch a diſtention are liable to break, and the extravaſated blood preſſing the brain more forcibly without a chance of diſperſing, we plainly ſee one reaſon

ſon, why ſuch a malady is apt to turn out fatal, as we find it ſometimes does.

Such cauſes may either proceed from external, or internal injuries; thence we ſee that a heavy fall, or contuſion on the head, may occaſion an apoplexy, or at other times, a congeſtion of blood to the head may produce the ſame malady.

Sometimes the patient is motionleſs; and to all appearance dead, and nothing but a faint pulſation remains; at other times there is indeed more ſigns of life, but more terrible in appearance,—namely a convulſive breathing and foaming at the mouth, without the leaſt ſigns of ſenſation or perception; in which caſe there is much to be feared, that veſſels in the brain are burſt.

However in all theſe extremities, nothing can contradict the indication of bleeding, except extream weakneſs, and debility of the ſyſtem; which here is very rarely the caſe. —After bleeding, a large bliſter between the ſhoulders ſhould immediately be applied, and treated as directed in the ſecond lecture, page 75.——A draught like No. XXX. will alſo be of ſingular ſervice, till the patient comes too; after which he will require ſuch treatment as is directed under fevers; for that diſorder will always attend the ſhock that the apoplexy gives to the animal ſyſtem.

Of the Frenzy and Delirium.

WHEN the root of the nerves are ſtimulated by acrimony, ſo as to heighten their ſenſibility, or ſet their regulated perception in confuſion, the ideas become bewildered, and the ſenſations act at random. This is generally the caſe with patients in acute and malignant fevers; and this conception differs from dreaming in this reſpect, that the phantoms of the confuſed imagination may be ſomewhat guided by the objects around them; as they may be ſaid to dream with their eyes open and full awake.

When the frenzy attends acute fevers, the blood is generally in a great confuſion, and the pulſe high and fluctuating. Yet bleeding ſhould by all means be avoided, unleſs indeed the diſorder has come on remarkbly ſudden. Bliſters here are requiſite; and in order to take off the ſtimulus of the nerves, give the patient the following draught.

No. XXXI.

Take Fever Powder (L) *one Scruple*; *Liquid Laudanum*, (T) *ten Drops*; *Spirit of Wine and Campher* (A) *twenty Drops*; *Eſſential Oil of Peppermint* (U), *four Drops upon a lump of Sugar*; *Water half a Tea Cup full.*

This draught may be taken every fourth or ſixth hour; and now and then a grain of calomel

mel may with great ſucceſs be added to it. Cooling clyſters in this caſe are alſo of ſingular ſervice; for example:

No. XXXII.

Take cold water, eight ounces; Nitre, or inſtead of this Fever Powder* (L) *two drachms; ſpirits of Camphor* (A) *thirty drops, mix them.*

If the patient is very coſtive, a little honey and ſoap may be added, previouſly diſſolved; which will both open the body, and promote urine.

For the reſt, every method muſt be taken as is already obſerved in fevers.

Of a Stupor, and Lethargy.

THIS is a ſymptomatic affliction, that attends accute and malignant fevers, in its nature quite oppoſite to the former; in which the nervous ſyſtem is benumbed, and have loſt their ſenſation; this is very apt to ſucceed, but ſeldom precede the Frenzy. When a patient lays in that kind of ſtupefaction in a continual doſing, there is in general little hopes of recovery; nevertheleſs remedies muſt be applied.

* The fever powder may be ſteept in a little water before hand, and the clear poured off, becauſe nothing but the nitre here is uſeful.

Bliſters here are very proper, and theſe ſhould be pretty large. Horſe radiſh ſhould be frequently held to the noſe, which has a reviving quality, and is very innocent with reſpect of adding acrimony to the ſyſtem.

A vomit has often in this extremity proved very beneficial; which the patient's weakneſs ſhould not retard, unleſs very weak and near the end indeed. The following draught may alſo prove highly beneficial.

No. XXXIII.

Take Sweet Spirit of Nitre (D) *one drachm; Eſſential Oil of Peppermint* (U) *ten drops upon a lump of ſugar; water one ounce, mix them.*

Let the patient take this every four or ſix hours, till he comes to himſelf again:

But care ſhould be taken that a good ſound ſleep, is not miſtaken for a ſtupor; for it frequently happens that a patient upon a favourable criſis will fall into a long ſound ſleep, that terminates all his danger; if therefore the patient breathes freely, and has a moiſtneſs all over the body, together with a tolerable regular pulſe, diſturb him not; but let nature finiſh her gracious work.—This kind of ſleep is materially different from the ſtupor, wherein the patient neither ſleeps nor wakes, but is equally inſenſible when the eyes are open, as when they are ſhut.

Of

Of a Violent Head-Ach.

A Violent head-ach often attends fevers, or comes ſpontaneouſly without; it generally precedes a delirium, as the irritation of the nerves is the principal cauſe thereof.

The firſt intention muſt be to draw the humours from the head. A compreſs with vinegar, in which is dropt a little ſpirits of wine and camphor, is of great ſervice, and will often have the deſired effect to carry it off. Warm foot-baths alſo is of great uſe; a bliſter may be applied, and the draught No. XXXIV. will alſo prove of great ſervice.

The head-ach may proceed from many other different cauſes, and in the general is only a ſymptomatic affection; therefore particular attention ſhould be had to the primative ſeat of the diſorder.---Frequently a foul ſtomach will occaſion the head-ach, and a vomit moſt times prove the beſt application.

SECT.

SECT. II.

Of Diſeaſes of the Neck.

THE diſeaſes in that part, are indeed very numerous; but as they have ſo ſtrict a connexion amongſt themſelves, the claſſes may be conſidered but very few; of which ſome have been already taken notice of.

Of the malignant Sore Throat.

EVERY body who is liable to catch cold, is frequently apt to have a hoarſeneſs and conſequently in ſome degree, more or leſs, a ſore throat. If a fever attends it, methods ſhould be uſed accordingly, as is mentioned under the head of colds: with reſpect to the throat, uſe the gargle, No. XVIII. pretty frequently, and the diſorder will ſoon go off again.

But when an ulcerated ſore throat is attended with a malignant fever and inflammation, it is called a quinſey; this caſe is alarming, and requires very careful treatment; for firſt we muſt obſerve, that the larynx is of a very complicate and curious ſtructure; and ſecondly, it is compoſed of various, and delicate materials; namely, cartilages, membranes, muſcles, and glands.

The glands are very numerous in the various parts of the compoſition, whence th

infl am

inflammation becomes not only painful, but is apt to ſwell up and obſtruct reſpiration; wherefore an inflammation in ſuch parts becomes highly dangerous to the life of the patient.

When the patient perceives a burning pain in the throat, and the parts all round ſwell up, reſpiration becoming difficult, add to this a horſeneſs, great difficulty in ſwallowing, there is no time to loſe, for immediate aſſiſtance is wanting.

Bleeding is indiſpenſibly neceſſary, particularly if the inflammation is ſudden; warm foot-bathing alſo is highly requiſite; to remove the humours downwards; a gargle ſhould alſo immediately be applied like the foregoing No. XVIII. with the addition of a little *camphor ſpirits*. Externally apply the poultice, No. II. and give the following draught.

No. XXXIV.

Take fever powder (L), *one ſcruple*; *calomel* (N), *two grains*; *liquid laudanum* (T), *twelve drops*; *water two ſpoonfuls*; *mix it into a draught*.

This may be given every ſix hours, for two days ſucceſſively; and this generally will break the diſorder. The patient ſhould be made to drink as freely as he poſſibly can; and perſpiration ſhould ever be promoted. A bliſter as the caſe requires, may alſo be uſed with much advantage. If the body is bound

bound, clyſters may tend to incline the humours to be drawn down from the part.

No. XXXV.

Take Glauber's ſalts (19), *one ounce and a half*; *honey* (E), *one ſpoonful*; *hot water, a pint and a half.*

Sometimes the inflammation is ſo very great, as to choak up both the paſſage of reſpiration, as well as that of deglutition; ſo that the poor afflicted patient can neither breathe, nor ſwallow; and is not only liable to be ſuffocated, but even ſtarved to death, beſides the danger from the malignant inflammation.

In this exigency, have recourſe to the following ſimple but excellent remedy.

No. XXXVI.

Take a pipkin, or a tin ſauce-pan, with a quart of water, a pint of vinegar, and two ſpoonfuls of honey; then take a funnel that will pretty well cover the veſſel; then take a piece of iron, or ſome old nails, or a little ſtone, or what you have handy; heat it red hot, and put it into the pipkin, and put on the funnel ſo that ſteam may aſcend through it. Over this let the patient hold his mouth, ſo that he breathes nothing but the ſteam; and to ſecure it the better, put ſomething over his head, that he may reap the more the benefit of it. When the ſteam ceaſes, heat it again as before. Inſtead of heating it with the iron, it may be ſhifted with boiling, but the former is generally more handy.

In

In the mean time, if the patient ſhould by the inflammation, be deprived of all nutriment, recourſe muſt be had to nouriſhing clyſters: milk in this reſpect is the beſt; but in want of that, fowl broth may be uſed; and if that is wanting, take water gruel. Milk however is ſuperior to all; I ſhall give a receipt of each kind.

No. XXXVII.

Take milk and water, of each a pint; cinamon (16), *one drachm; boil them and ſtrain the liquor; then diſſolve one ounce and an half of good loaf ſugar; add ſix drops of the eſſential oil of peppermint* (U), *upon a little lump of ſugar.*

No. XXXVIII.

Take half a fowl, bruiſe the bones, and cut the fleſh ſmall; this boil in three pints of freſh water, with about one drachm of cinamon; ſtrain it clear, and add as before, an ounce of ſugar, with a few drops of the oil of peppermint.—A tea cupful of good white wine may be added, if the patient is very weak, and not feveriſh.

No. XXXIX.

Take oat-meal, two ſpoonfuls; malt, one ſpoonful; cinamon, two drachmes. Boil it in two quarts of water for ſome time, till when it is ſtrained, it becomes one quart; put to it fine ſugar, ſix ounces; a few drops of eſſential oil of peppermint, and a tea cupful of good wine.

Theſe clyſters are perfectly ſafe, and very nouriſhing. Some have added ſalt to the animal

mal broth, perhaps through a notion to make it the more palatable, and ſo of courſe more nouriſhing; but probably they forget that the part they are now about to feed, differs widely from the depraved taſte of the palate.

Salt is ſtimulating; beſides, it indurates the aliment, that it never yields ſo much nouriſhment, becauſe it always oppoſes aſſimulation; and it is univerſally known, that ſalt victuals is by far, leſs nouriſhing than freſh.

The quinſey is ſometimes ſo deſperate, as to ſtrangle the afflicted patient, particularly if aſſiſtance is given too late; in ſo much that *bronchotomy*, or opening the wind pipe, has been the laſt reſource in this deplorable dilemma. I have mentioned this operation, in the third lecture, and have only to obſerve, that in this caſe little hope is left after that operation, on account of the great inflammation of the parts; though we have inſtances of its ſucceſs. If however the method which I have here laid down, together with ſtrict obſervance of managing fevers is duly obſerved, there can ſcarce be a failure of ſucceſs; for if I may be allowed to judge from my own experience and ſucceſs, it is merely neglect, in the firſt ſetting out of theſe diſeaſes, that for the moſt part, renders them ſo very deſperate and mortal.

SECT.

SECT. III.

Of Diſeaſes in the Breaſt.

UNDER this head, I mean principally to treat of diſeaſes of the windpipe, the lungs, and the pleura, or membrane that lines the cavity of the breaſt, and encompaſſes the lungs.

Of the Cough.

A Cough is generally occaſioned by a cold; unleſs it is ſymptomatic with other inflammatory diſeaſes, or the relict of a heavy ſickneſs; in which caſe, it is either near a-kin to, or elſe the conſumption itſelf.

If from a cold, it ſeldom is deep founded, and generally has its ſeat in the larynx, or in the wind-pipe; though indeed ſometimes in the lungs.

It generally begins firſt with a tickling in the throat, and occaſions a ſhort dry cough; which gradually becomes ſtrong, and is attended with a diſcharge.

It is ſurprizing what abſurd remedies are ſometimes given for the cough; as if they ſuppoſed

ſuppoſed that every thing taken ſhould immediately march at the word of command into the wind-pipe, and there ſet to work accordingly. Amongſt the many celebrated noſtrums, ſpermaceti, or whales fat is remarkably celebrated; it ſoftens the phlegm ſay they; but in fact, a little fat pork, or hog's lard will do equally as much good.—-- The truth of the matter is, the cough proceeds from an obſtructed perſpiration. When a perſon gets cold, he generally firſt feels a ſnuffling, and obſtruction in the noſe, then a ſore throat or hoarſeneſs, and laſtly a cough; all which is a gradual defluxion from the pituitous membrane, which reaches from the cavity of the noſe, all down the lungs. Whatever medicines therefore, are capable of yielding benefit, muſt be calculated to open and remove the obſtruction, and promote univerſal perſpiration; whence therefore we find it is impoſſible to cure one, without the other.—- Medicines neither do, nor is it fit they ſhould come immediately farther, than the top of the larynx; for if they happen to come into the wind-pipe, the moſt innocent medicine would certainly act the part of a poiſon.

The firſt indication therefore in a cough, is to promote perſpiration; for then nature will repair the reſpirative organs with the reſt.

Let

Let the patient take a draught or two of good ſage punch, No. V. and thereby promote perſpiration; and in order to continue this principal intention, and to aſſuage the ſlight inflammation in the throat, which the heavy cough occaſions; make the following electuary.

No. XL.

Take honey, or ſugar diſolved to ſyrup, two ounces; lemon juice, half an ounce; or elixir of vitriol, two drachmes; ſweet oil, one ounce; mix them into a linctus.

Take of this, every half hour, but half a tea ſpoonful; and ſwallow it gradually, ſo that it may as it ſlides by, do ſome ſervice to the larynx; and keeping the body all the time in a gentle perſpiration. This method is ſuperior to all your nonſenſical pectorals, which have nothing but quackery for their foundation; for whatever you may take for the cough, it cannot poſſibly have any other effect on the part, till the real cauſe is removed, than barely to touch the larynx; for all goes to the ſtomach, and undergoes the ſame chance as your victuals. Therefore ſtrike at the root of the evil; namely, to promote perſpiration; and all the reſt of the complaints will vaniſh, in conſequence of this principal intenton.

Of the Pleuriſy, and Peripneumony.

THE *pleuriſy* is an inflammation of the lining of the inſide of the pectoral cavity

vity and lungs; and the *peripneumony* an inflammation of the lungs themſelves.

Theſe two principal kinds of inflammation have given birth to the names of many other inflammations contiguous to thoſe parts, which I hope to be excuſed from entering into, as it is of very little ſignification to the proper treatment of thoſe diſorders; for I have often known the moſt ſkilful practitioner, to be miſtaken of theſe diſorders in his diagnoſtics, and yet been ſucceſsful in his cure. The ſigns of this inflammatory diſeaſe, is an acute fixt pain in the breaſt; on whatever ſide the diſorder is in, with a difficulty of breathing, and frequently attended with a ſmall ſhort dry cough, which however ſtings the patient like ſo many daggers. A conſtant fever attends with all its ſymptoms; which adds greatly to the patient's miſery.

On the immediate ſigns of theſe ſymptoms, bleeding muſt be had recourſe to; and if the inflammation is great, and the pain pungent, it muſt be repeated; though with ſkilful management. Bleeding may be repeated after the firſt twenty-four hours; yet in general it is needleſs, and ſometimes dangerous; for my own part, I never approved of it; nor have I ſeen any neceſſity for it. Perſpiration however ſhould be promoted.

If the pain is violent, let the patient uſe the following medicine.

No.

No. XLI.

Take ſweet Spirit of Nitre (D) *twenty drops; Spirit of Wine and Camphor* (A) *ten drops; Fever Powder* (L) *one ſcruple; mix it up with ſugar and water into a draught.*

Let the patient take this every ſix hours; if there is a great nauſea at the ſtomach, a ſmall vomit of twelve grains of *Ipecacuanha,* (S) may be given firſt, notwithſtanding it is great pain to the patient; and I have often known it productive of great good, and laid the firſt foundation to a ſucceſsful cure.

If the pain ſtill continues, twelve drops of *liquid laudanum* (T) may be added to the above draught; No. XLI. If the ſpirits of the patient is low, give the *eſſential oil of Peppermint* (U) to the quantity of three or four, or ſix drops upon a lump of ſugar, either put, into the draught above-mentioned, or give it by itſelf occaſionally.

To the inflammed ſide, warm cloths may be put wrapt up with a hot made trencher, brick, a bag of ſand, or whatever will retain heat; as that will greatly facilitate the internal reſolution.

Perſpiration is the principal object to be conſidered in this acute diſeaſe, and ſhould therefore be promoted; but every thing forcing that produces profuſe ſweats ſhould be avoided, as that only encreaſes the fever.

If

If the patient is very reſtleſs, the fever depreſſed, and greatly oppreſſed in reſpiration; bliſters may be applied; but if the patient can do without them, it is much better; as they very often are apt to encreaſe the inflammation.

Cooling clyſters, No. XXXII. which at the ſame time promote urine, is of ſingular ſervice; and in every reſpect methods muſt be taken, as have been directed in fevers, and the ulcerated ſore throat; as all theſe inflammatory diſeaſes are of one nature, and require almoſt one method of treatment. For farther particulars on this head, ſee my treatiſe on diſeaſes of the lungs.

SECT. IV.

Of Diſeaſes of the Bowels, and the Alimentary Canal.

DISEASES of mankind under this head are very numerous indeed; which are for the moſt part owing to their deviating too much from the common path of nature. But beſides all this, ſeamen are particularly liable; not ſo much indeed on account of luxury as the confined diet, and the different climates they viſit.

I ſhall

I ſhall in this be as conciſe as the ſubject will admit of, and confine myſelf to ſuch diſeaſes as occur moſt commonly; and by which others that are here omitted, may be underſtood.

Of a Depraved Appetite.

THere is nothing that people in general are more apt to fly to, when appetite fails them, than bitters; but if we conſider what bitters really are, and by what means they act in the alimentary canal, we ſhall find them, either only to ſtimulate the coat of the ſtomach, or elſe add to the ſtrength of the bile.

But generally the default of a bad appetite is a pituitous ſlime in the ſtomach, that prevents this viſcera from performing its part towards aſſimilation; and therefore we generally find that ſuch ſtimulants only ſpur it on for a little while longer, till at length it loſes its tone, ſo as to be wholly unable to prepare the food for a good nutrition; or elſe the ſtomach becomes ſo uſed to theſe forcing ſtimulants, as not to be able to do without them.

But this is not all; for in bilious complaints, when the ſtomach is moſt diſordered, bitters never fail of making evil worſe. The ſtomach is a delicate viſcera, and ſhould ever be the moſt cautiouſly dealt with. Whatever part of the human body is in exquiſite pain, the ſtomach

from the nervous conſent always partakes, and is apt to be depraved in its functions; whence a nauſea is liable to enſue; and in ſuch a caſe any ſtimulants, particularly where bitters are concerned, is ever of evil tendency.

In general however, a vomit is what nature points out; and which gives not only relief to the ſtomach, but aſſiſts in giving a general effort to the whole animal fabric. In ſhort, there are ſo very few caſes where bitters are of any benefit at all, except where the ſtomach has injurioufly been uſed to thoſe ſtimulants, that I have entirely exploded them from my catalogue; being perſuaded that every body will do better without them.

When the ſtomach loaths victuals, the mouth is ſlimy, has a bitteriſh taſte, and attended with ſour belching, and the victuals ſiting heavy on the ſtomach, nothing is preferable to a vomit.

This I know has alſo been carried into abuſe, as well as many other good medicines. ——Yet that ſhould be no rule; for if a vomit is properly and timely given, it will ever be attended with ſucceſs. Take here the following direction for a foul ſtomach.

Firſt take a vomit, and work it well off with bare luke warm water; then take every night, or when going to reſt, a doſe of *ſtomach powder* (M). If the ſtomach ſeems very weak, add a few drops of the *eſſential oil of pepper-*

peppermint (U), which will ſoon convince you of the good effects.

If you require a ſtimulant in the morning, take *Turlington's balſam* (W), about a tea ſpoonful in a glaſs of wine, previouſly put on a lump of ſugar, that it may the better incorporate: which is a good ſtomachic, and ever preferable to the cuſtomary bitters.

Dram drinking is another pernicious cuſtom, whereby many have been ſent to eternity long before the period of life preſcribed by nature; and of which I would adviſe every man, who has the leaſt regard for his health, to beware, as of a deadly poiſon.

On the whole, the want of appetite is what many complain of without reaſon. Some fancy themſelves very bad, becauſe they cannot eat their breakfaſt; thoſe I would adviſe to ſtay till dinner time; others again have no appetite for their dinner, unleſs they wet their ſtomach with a glaſs of Stoughton, or ſome other bitters: Thoſe ſhould eat nothing in the morning, or elſe ſtay till ſupper time.——In ſhort, nature ſhould be conſulted, both in the ſtate of health, as well as in diſeaſes, and her ſalutary dictates ſhould be followed.

The cuſtom of ſeaſoning victuals with ſtrong ſtimulating condiments is often prejudicial, and nothing ſhould be uſed with more moderation; for though it may warm and

ſtimulate

ſtimulate the ſtomach, yet, it frequently gives cauſe to great weakneſſes, and generally are the primitive cauſes of chronic diſtempers; as it hurries on the chylefaction, and thence is apt to feed the blood with many acrimonious humours.

This little diſſertation on depraved appetite I hope will ſuffice, and doubt not if attended to, that health and longevity will become the intimate acquaintances of the man who wiſhes to enjoy their bleſſings.

Of the Colick.

IF we conſider the length of the ailmentary canal from the mouth to the anus, namely ſix times the length of the ſubject they belong to; and if we conſider the delicacy of its ſubſtance, as alſo, the office for which it is ordained; we ſhall not at all wonder, that ſo many diſorders are incident to mankind in that part.

The colic however is the general term for various painful ſenſations in the inteſtines; though the cauſes as well as the ſeat, and the manner of its affecting the ſyſtem, is materially different

The general cauſe however, is a ſtimulant, which irritating the inner coat of the inteſtines to conſtriction; and whence a ſpaſmodic contraction, and a perverted periſtaltic motion is produced.

If

If the ſtomach is affected with the pain of the colic, ſo that a nauſea and reaching attends, or has been previouſly felt, a vomit is the firſt, and moſt expedient method to be had recourſe to; for by this, not only the crudities in the ſtomach gets diſburdened, but from the joint action on the internal canal, a ſtool or two is generally produced, by which frequently the offending acrimony is carried off.

When however this avails not ſufficiently, and the pain rather increaſes, particularly if the body at the ſame time is coſtive, recourſe ſhould be had to clyſters; for purges in this caſe, do not operate ſpeedily enough, and in caſes of coſtiveneſs, is not always ſafe. The clyſter No. XXIII. may be of great benefit, and if neceſſity requires it, occaſionally repeated.

But more frequently, it is from a nervous affection, and then carminatives prove the moſt effectual: in ſuch caſes give the following,

No. XLII.

Take eſſential oil of peppermint (U), *ſix drops on a lump of ſugar; elixir proprietatis* (H), *five large tea ſpoonfuls; wine or water, half a tea cupful.*

Let the patient take this immediately; a little *Turlington's balſam* (W) about a tea ſpoonful, alſo is very beneficial. If the pain

ſtill

ſtill continues violent; let ten or twelve drops of *liquid laudanum* (T), be added. Clyſters ſhould not be neglected, but plentifully adminiſtered; the ſame medicines as is given to the patient, may alſo be added to the clyſter.

The dry belly-ach, is a ſpaſmodic contraction of the inteſtines, and throws the patient into the greateſt miſery imaginable; clyſters is the only recourſe and anodynes, together with gentle mercurials will likewiſe prove beneficial; warm clothes and ſomething that can retain the warmth ſhould conſtantly be put to the bowels; and in great extremities, cold foot baths have often given immediate relief.

The billious cholic is of a dangerous tendency, and always attended with the bilious belching and vomitting of bile. In this caſe vomits is the only method to be uſed with ſafety; and if properly continued, as long as the bile is brought up, will never fail of ſucceſs. But bleeding in bilious complaints is ever pernicious. If a fever attends, method muſt be uſed accordingly.

Of Looſeneſs, and the Bloody Flux.

A Cholic is often the fore-runner of a looſeneſs, and if the looſeneſs is not too violent very often is ſalutary, and carries off many kind of diſorders in the body. But if a looſeneſs continues after twenty four hours,

it

it is time something should be done, in order to prevent a bloody flux.

If the flux is attendded with a nausea at the stomach, and an inclination to vomit, give without delay the following draught:

No. XLIII.

Take rhubarb (O) *one scruple; ipecacuanha, ten grains; stomach powder* (M) *fifteen grains; calomel* (N) *three grains; mix them and make it into a draught or bolus, with sugar and water.*

This probably will vomit a few times, and then occasion a few stools; but as the rhubarb has an astringency as well as cathartic quality, it will in general, after the purging has gently carried off the acrimony, act as an astringent; particularly if after the above draught, the following paragoric is taken.

No. XLIV.

Take oil of peppermint (U) *four drops upon a lump of sugar; liquid laudanum* (T) *eight drops; sweet spirits of nitre* (D) *twenty drops; mixt in a glass of wine.*

But if the patient still continues after these medicines, with great griping, a succession of stools, together with a *tenesmus*, (that is a perpetual inclination to go to stool) then give the following:

No. XLV.

Take rhubarb (O) *ten grains; stomachic powder* (M) *fifteen grains; essential oil of peppermint* (U) *three drops; calomel* (N) *one grain; and make it into a bolus or draught.*

Let

Let the patient take this every six hours, for the first two days. If the stools are bloody, slimy, and attended with great pain; recourse must immediately be had to clysters; such as No. XXXVII, XXXVIII, XXXIX. mentioned in the quincy; for the more nourishing they can be made the better; as thereby they will lubricate the bowels, and strengthen them. In the mean time the *white decoction* should be used as a constant drink, which make as follows:

No. XLVI.

Take chalk (18) *pounded small, three ounces; cinamon* (16) *bruised, two drachms; boil them in two quarts of water for one hour, and strain off the decoction.*

Of this let the patient drink for his constant drink; a few drops of oil of peppermint may be dropped upon a lump of sugar, and dissolved in it.

The same decoction may also be given as a clyster when the flux is very violent. After the two first days the rhubarb should be given but sparingly; for if the flux is bloody, we may justly suppose the intestines are in a state of inflammation, and even ulceration. In such extremity, a little calomel mixed with the clyster, as also liquid laudanum, will not only correct the acrimony, but give ease to the emaciated stamina of the intestines.

By

By this treatment the moſt inveterate bloody flux may be ſubdued, eſpecially with the help of patience, cautious diet, and cleanlineſs.

SECT. VI.

Of the Scurvy.

IF I was to write as much on that ſubject, as I have already written in this treatiſe, the whole would only amount to this, that the ſcurvy is a ſtate of putrifying corruption in the living human body.

The cauſes of this diſorder is a defective diet, contaminated air, and want of proper exerciſe.

In regard to the diet, ſalt proviſions and foul water are the acceſſary means, which not only impoveriſhes the blood, but gives it a tendency to a putreſcency, whereby it loſes its ſpirit, the lymph its gelatinouſneſs, and the craſamentous part its reſinous conſiſtency. Thence the ſerum becomes ſharp and acrimonious; the lymphatic part in the blood unable to nouriſh the ſtamina of the ſolids; and the

the red craſamentous part becomes crumous, and void of its vivacity: and as the ſolids muſt in conſequence ſuffer in proportion to the ſtate of the blood, from whence they have their exiſtence, and become maintained, it muſt follow alſo, that they degenerate into the ſame ſtate of corruption: thence we find not only a univerſal laſſitude and debility in the limbs, but gradually the ſmaller veſſels become unable to circulate the corrupt humours, break, bleed, and even mortify of their own accord, without any other cauſe than the putreſcent nature of their containing fluids.

Though the ſymptoms are in general too well known, not to be eaſely miſtaken; yet I ſhall here deſcribe this deſtructive diſeaſe in its various gradations.

When a patient firſt begins to be tainted with the ſcurvy, he feels a laſſitude all over his body, and a peculiar proneneſs to indulgence and idleneſs; work becomes irkſome; and neither has he ſtrength, nor inclination, to do his work with the ſame chearfulneſs as before. He ſleeps more in general, but his reſt is for ever diſturbed with heavy and melancholy dreams; and particularly of that nature, as for ever to be engaged in eſcaping from ſome ſad danger, but unfortunately that his limbs are ſo remarkably heavy, that he cannot move them. With theſe and the like labour in vain phantoms his

his ſleep is diſturbed, till at length he awakes, and finds himſelf more fatigued than when he firſt went to reſt. The mouth is always foul and ſlimy, and frequently attended with a diſagreeable taint. The appetite is depraved, and the victuals ſits very heavy on the ſtomach.

This is the firſt ſtage of the ſcurvy; and when a patient is ſure of thoſe ſymptoms, it is time ſome remedy ſhould be uſed, in order to prevent the approaching evils; which gradually come on thus.

The gums begin to ſwell, though not very ſore; and frequently bleed either on their own accord, or at the leaſt touch of any thing that comes near them. The breath becomes very diſagreeable, even to the patient himſelf. The teeth grow dark, brown or black, become looſe, and the very jaw-bone, together with the roots of the teeth are expoſed and ſeem uncovered from the decayed gum.

Sometimes a ſcurfy itch enſues, and ſometimes little ſpots appear. The body becomes remarkably weak, and ſenſibly falls away, and the colour of the ſkin gets a diſagreeable tawny hew; which is moſt remarkable, together with other emaciated features in the patient's countenance.

This is the ſecond ſtate, and now diſſolution actually begins to take place.

The

The patient loſes his ſtrength ſenſibly, ſo as not to be able to be ſupported by his own limbs. Over his body variouſly appear red, ſcarlet, yellow, green, livid and black ſpots, of various magnitude; ſome of which will bleed on their own accord; others will break into malignant ulcers, and others again will mortify. The appetite fails; a flux frequently enſues; the urine will be thick and ſtinking; and the poor wretch gradually dies merely by putrefaction.

The ſcurvy has had many definitions, and has been divided into various claſſes. All the difference of the diſorder is, that ſometimes it is attended with a fever, only in ſome degrees, more in one habit, than in another; which may be owing either to the nature of the conſtitution itſelf, but principally depends on the climate the patient is in: to which I muſt not forget to add, that frequently the ſcurvy is complicated with other diſorders. I could make many obſervations on this head, but, this perhaps would ſerve more to indulge myſelf than to benefit my reader.

I ſhall therefore ſuppoſe that I have ſaid enough, to proceed to the cure; which I do with the more chearfulneſs, as I am happy in knowing it by experience to be not only eaſy, but efficatious.

The firſt time, I ever experienced, and had it in my power to examine into the nature of

the

the *true* ſcurvy, I was fortunate enough to diſcover ſo much of its corruptive quality, as to hit upon the true antidote; namely, the ſacharine quality and accidity of vegetables; and upon this foundation I eſtabliſhed my method of cure with ſucceſs.

I ſhall not here enumerate the many experiments that I made in the courſe of theſe inquiries, but proceed to the reſult thereof, and the method to be obſerved.

In the firſt place, ſugar is an article of more virtue, than what is in general known; and of ſo great a value to ſeamen, that he ought to eſteem it as one of the greateſt preſervatives of his health. Next to this is vinegar, which is not only a reſiſter of putrefaction, but has a coagulating, and condenſing quality to the animal juices; whereby it not only conſolidates the fluids without adding acrimony, but on the contrary, abſorbs animal acrimony, and braces up the ſolids.

On the ſame principle, I have found *dried malt*, to be of great advantage in ſcorbutic caſes; in which, both the ſaccharine and acidity of vegetables is contained even in in a heightened degree,——This being premiſed, I proceed in the following manner:

When a man is found to have evident ſigns of the ſcurvy, let his drink be acidulated with one fourth, or third, &c. of good vinegar, or what is yet better, lemon juice, and well ſweetened with ſugar. If

If there is malt on board, let a malt decoction, or temporary beer be made in the following manner:

No. XLVII.

Take malt bruiſed, a pound, or three handfuls; ſaſſafraſs-chips, a ſmall handful; boil it in a gallon of water for an hour, and ſtrain it off for uſe.

Let this be the conſtant drink, which in a ſhort time will revive the already tainted habit. Onions, horſe-raddiſh, and muſtard, &c. ſuch as will keep on board, ſhould plentifully be made uſe of, and the pills No. X. ſhould be taken every twenty four hours, at a time when going to reſt.

This method will ſoon bring the patient to health again, particularly if in the firſt ſtage; but when it is come to the ſecond degree, or in a ſtate of rapid decay, more effectual and immediate means muſt be taken.

Here then I ſhall preſent the method, which by experience I know to be efficatious.

No. XLIX.

Take a large tub, (a butt ſawed in two) in which place a ſtool, or ſomething to ſit on; Then let the patient be ſtript naked and ſeated in the tub; pour into the bottom of the veſſel about one gallon of good vinegar; put a blanket all over the patient, and the tub, ſo that the whole is covered like a hut. Then heat a large poker, which put into the vinegar in order to riſe a ſteam;

which

which continue for about a quarter, or half an hour, or longer, according to the circumſtances.

If the patient is very ſcorbutic, it ſhould be repeated three times a day, or even oftener, for the effect of this ſteam-bath is ſo powerful, that I have with pleaſure ſeen the patient not able to crawl to the tub; he has been ſo revived by the operation, as to come out of his own accord quite refreſhed.

In the mean time the elixir of iron as is deſcribed No. XXVIII. ſhould be taken; the mouth often waſhed with vinegar, lemon juice, or rather with the elixir of the iron, and ſugar, ſhould be both plentifully uſed in the drink, and with the victuals.

Salt proviſions ſhould be avoided as much as poſſible, or elſe previouſly well deprived of its ſalt.

By this method the ſcurvy may not only be prevented at ſea, but even cured in the moſt inveterate degree.

If however there is an opportunity for the patient to come on ſhore, it will greatly facilitate his cure; though he ſhould reap no other benefit than the exhalations of the earth in the warmth of the day: and I have with aſtoniſhment ſeen patients devour vegetables in large quantities, and mended ſurprizingly, even in a few hours; ſo powerful an antidote is the vegetable effluvia to an animal putreſcency.

To

To conclude, I have only this to obſerve, that the ſcurvy is principally owing to defaults with reſpect to proviſions, and the cuſtomary way of living in ſhips in general; and ſuch as might be much amended, both with reſpect to conveniency, wholeſomeneſs, and expence.

I ſpeak this from long experience, from the many obſervations I have made, and the good ſucceſs that have attended my improvements, when it has been in my power to put them in execution. I have many things to offer with reſpect to proviſions at ſea; but as that is too extenſive to be inſerted in this volume, I ſhall treat of it diſtinctly. In the mean time give me leave to cloſe theſe lectures: and being conſcious that truth and utility has guided my endeavours through the whole, I lay down my pen for this time, with the pleaſing reflection, that I have advanced one ſtep farther in the performance of my duty, and in anſwering the end of my exiſtence.

FINIS.

EXPLANATION OF THE PLATE.

FIG. 1. A common bleeding lancet. A. The blade; which, when it is wiped after bleeding, ſhould always be laid upon the handle B. and wiped but one way, to ſave the point.

Fig. 2. An inciſion lancet. A. The point of the blade, which ought to incline one way moſt, in order to make it the better fit for opening of apoſthumes.

Fig. 3. A biſtoury for opening of ſores, &c. in general uſe. A. The blade. B. The handle in which the blade folds.

Fig. 4. A pair of ſtrong ſciſſars.

Fig. 5. A ſpatula. A. The part for ſpreading of plaiſters. B. The part for preſſing down the tongue; for which reaſon it is made full of holes that it may the better preſs down the tongue.

Fig. 6. A probe, A. the probe. B. A triangular point on which lint may be wrapped to wipe the ſore with, as it is eaſy taken off again.

Fig. 7. A arm tied up for bleeding, with the three veins as they generally appear when ſwelled up.

Fig. 8. A vein of a kind of three orifices. A. Is a longitudinal orifice, which will not let the blood run freely. B. Tranverſe; in making ſuch orifice the vein is apt to be divided; beſides it is not very eaſily ſtopped, and will not admit of an orifice large enough to let the blood run out with freedom. C. An oblique opening, the medium between the two former; and always the beſt orifice.

Fig. 9. A key-tooth inſtrument. A. The handle, made of ivory. B. The comb of the inſtrument, which ſhould be wrapped round with a little rag, and is that part which reſts againſt the jaw bone. C. The hook which is brought over the tooth. D. The ſcrew at the end of the key, by which the hook is ſhifted as occaſion requires. E. The ſcrew by which the handle is fixed to the inſtrument.

Fig. 10. Common ſplints uſed for fractures; theſe ſplints are made of thin boards of pine or cedar, glewed on to leather, and then ridged ſo, that they may eaſily bend and ſuit to the limb which they are applied to.

Fig. 11. A ſingle headed rowler, or bandage, this bandage is generally uſed for a fractured arm or leg.

Fig. 12. A double headed rowler, generally for diſlocations.

Fig.

Fig. 13. A many tailed bandage. A. The back part ſlip, that keeps the bandage together. B. The ſtitches coming thro' the bandage. C. The ſlips of the bandage. D. The part next the ancle, from whence the parts upwards have a gradual increaſe.

Fig. 14. Mr Sharp's invented ſplints, made of paſte-board. A. The external ſplint. B. The leather ſtraps. C. The ſtrap, that comes under the foot. E. The internal ſplint. F. The loop through which the ſtrap that comes under the foot is put. G. Small iron buttons, on which the ſtraps are faſtened.

Fig. 15. A leg with the many tailed bandages. A. The ſlips laid over each other. B. The under ſlip that ſecures the whole. C. A ſlip that ſecures the bandage to the foot.

Fig. 16. A leg dreſſed with the ſplints. A. The bandage. B. The ſplint. C. The tie knots of the tape that ſecure the ſplint to the leg.

Fig. 17. The inner view of a leg with Mr Sharp's ſplints.

Fig. 18. The external view of the ſame. Theſe two are copied from Mr Sharp's pamphlet.

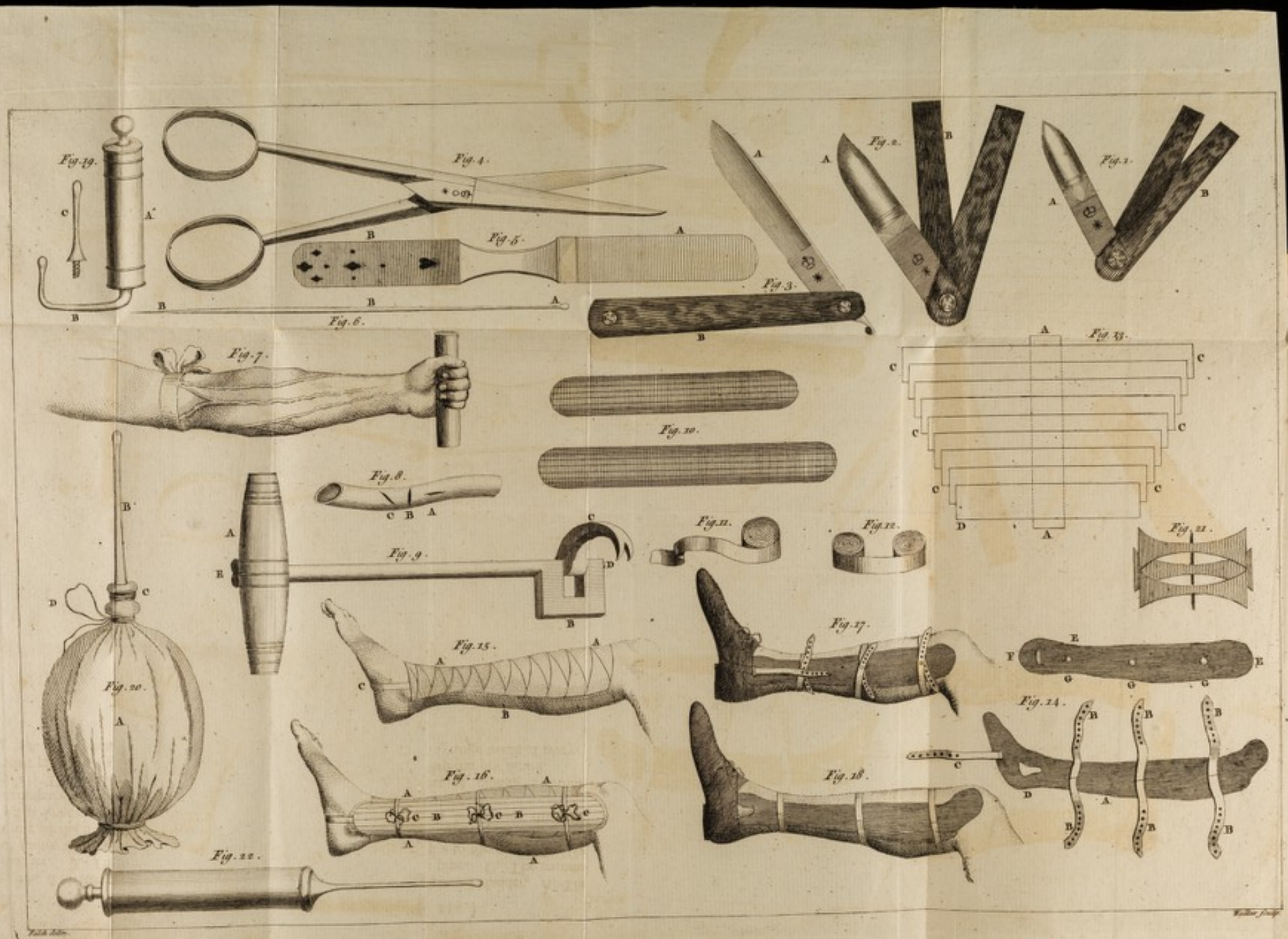
Fig. 19, A clyſter ſyringe, A. the ſyringe made of pewter. B. A pipe made in ſuch manner, as to enable a man to adminiſter a clyſter to himſelf. C. A common clyſter pipe, that occaſionally may be ſcrewed on to the ſyringe.

Fig.

Fig. 20. A clyſter pipe and bladder. A. The bladder. B. The pipe. C. The manner of fixing the bladder to the pipe. D. The tying of the bladder when it is filled, with a ſlip knot; which is handier than the cuſtomary way of the cork.

Fig. 21. The manner of cloſing a wound with plaiſters, called the dry *ſuture*.

Fig. 22. A common ſyringe made of ivory.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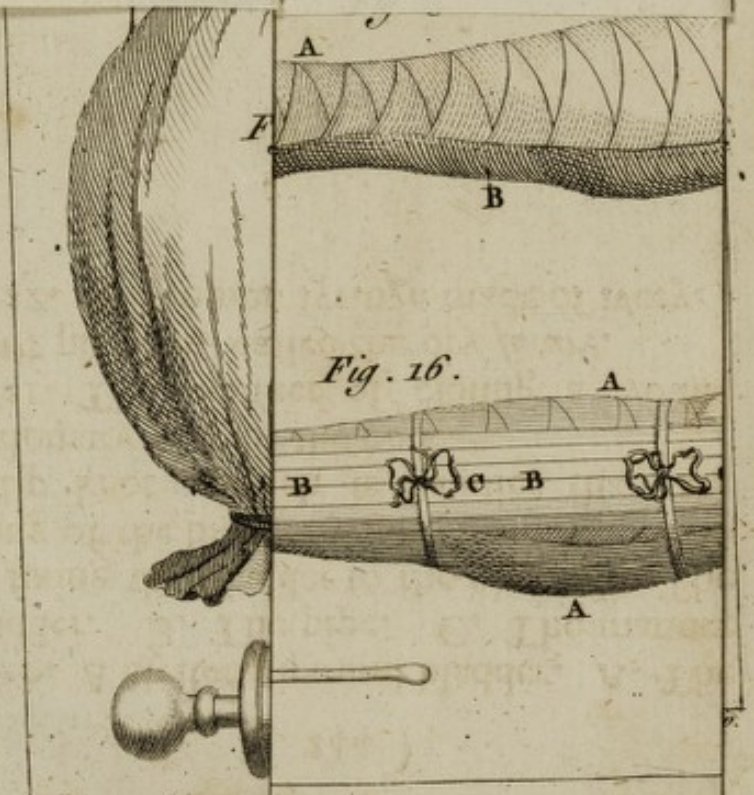

Fig. 16.

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