The oeconomy of nature in acute and chronical diseases of the glands ... / Translated under the author's inspection.


NIL CONSCIRE SIBI
Sam! Wegg. Esq!

THE OECONOMY OF NATURE IN ACUTE and CHRONICAL DISEASES of the GLANDS.

BY

RICHARD RUSSELL, M.D. F.R.S.

Secundum ætates hæc autem eveniunt. HIPPOCR.

Tranſlated under the AUTHOR's Inſpection.

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MDCCLV.

TO HIS GRACE

The Duke of NEWCASTLE,

CHANCELLOR

OF THE

UNIVERSITY OF CAMBRIDGE.

And to the ROYAL

COLLEGE OF PHYSICIANS,

LONDON;

PARTICULARLY TO

SIR EDWARD HULSE, BART.
EDWARD WILMOT, and
MATTHEW LEE,
} M.DD.

PHYSICIANS to His MAJESTY;

This WORK

Is humbly Addreſs'd,

As a MARK of GRATITUDE,

by their moſt obedient Servant,

RICHARD RUSSELL.

THE

INTRODUCTION.

To Dr. WILMOT.

THE deſign of the following pages being to ſhew the method which nature takes, either in altering or ſetting on foot new glandular ſecretions, at different times or ſtages of our lives; and alſo to point out the means by which ſhe aids and relieves the organs of any particular part, when they are diſeaſed, or rendered either totally or in ſome degree incapable of doing their offices; it will be proper, before we deſcribe any particular diſeaſe, to take a general ſurvey of that SUBJECT, which is to engage our future enquiry. The knowledge of this cannot but be intereſting and truly great, having GOD for its *architect*.

And although theſe ſecretions are made by proper inſtruments, and according to mechanical, hydroſtatical, and hydraulic laws; yet nature ſeems to be very exact in the times or periods of bringing them about. And, whenever they are forced contrary to her laws, and out of thoſe appointed ſeaſons, they are ſo far from being beneficial, that they often become real diſeaſes.

I am very well appriſed of the great difficulties that attend us, when we endeavour to ſpeak plainly and intelligibly of things, which are beyond the power of our own ſight, and in ſome inſtances even beyond the diſcovery of the beſt glaſſes; yet when reaſoning is eſtabliſhed on well-grounded facts, it may, I think, with very little indulgence, be admitted as concluſive.

Let us ſee, therefore, how far a true knowledge of thoſe ſeaſons will clear up, and remove, the difficulties we lie under, in treating rationally certain diſeaſes, whoſe cure hath hitherto been attempted rather by empirical and ſpecific remedies, as they term them, than by any certain rules of art. For by acquiring an accurate knowledge of the glandular ſecretions, we ſhall be taught when, and where, to throw in our aid, at nature's own time,

when

when in truth ſhe is moſt aſſiſting and conſenting with our endeavours; and inſtead of going counter to her intentions, we ſhall ſwim eaſily and ſafely with the ſtream, if I may be allowed ſo to expreſs myſelf, under her guidance and conduct. For an oppoſition to nature's laws, will ever meet with great reſiſtance; and, tho' perhaps not always, will generally prove unſucceſsful, if not fatal, in the event.

By theſe means we ſhall be taught how to mitigate, if we cannot cure, many diſeaſes, which otherwiſe uſe to wear out our patients with miſerable chronical complaints; many of which poſſibly have their foundations laid by a wrong management of the glandular ſecretions, in the firſt part of life, or by an untimely and indiſcreet change of them afterwards.

Let us therefore, to form the beſt idea we can of ourſelves, ſuppoſe that, when GOD created man, breathed into him the breath of life, and, according to the JEWISH lawgiver's expreſſion, *Man became a living ſoul*, he ordained and allotted him a conſtant ſupply of an animated fluid, which was, by the order of generation, to carry on the production of mankind, as long as the Creator intended it ſhould laſt. And, in order to inveſtigate

this truth, let us have recourſe to comparative anatomy, from whence we ſhall be able to infer, that in all probability theſe primordial ſeeds do really exiſt, as well in animals as in vegetables, and wait only for a proper matrix to receive, and prepare them for life.

The ſeveral ſtates of infancy, maturity, and decay, are obſerved by nature in plants as well as in animals. The ſtripling oak indeed never bears acorns; but I can nevertheleſs eaſily conceive an infinite number of ſmall ſeeds, circulating in its tubes, for many years before the acorn is produced; which has incloſed in it another oak with all its ſeries of fibres, and is then fit to be truſted to the matrix of the mother earth. In like manner, I can conceive the poſſibility of an infinite number of ſeeds being coiled up, and contained in the male animal, till the time of puberty, when they are diſcovered in the form of *animalcula*, and are fit to be truſted to the conception of the mother.

Comparative anatomy will not only incline us to believe this, but will furniſh us with inſtances of plants, and perhaps of animals, which contain the ſeeds of their own tribes, and circulate thoſe of others alſo, mixed with their own fluids. Straw, for inſtance, or graſs urinated,

nated, and become muſty, will produce the edible muſhroom. The alder tree will produce that fungus we call *auricula Judæi*, or jews-ear: The aſh will afford its black ebony, the elm its buff-coloured, the oak its white fungus, like an oyſter-ſhell: And the birch the horſe-ſhoe fungus, like agaric. The ſeeds of all theſe fungi, while they are not ſuffered to reſt, but are hurried on with the common circulation of young plants, are ſo ſmall, that even with the aſſiſtance of glaſſes, they are not perceptible, but as they are in conſtant motion, neither ſpoil, nor decay. For, a ſlower degree of circulation than that which attends the firſt encreaſe of plants, is neceſſary to permit them even to produce their own kinds. And it is a mark of decay and weakneſs, when a tree bloſſoms and bears fruit early; the more healthy plants being luxuriant, and ſwelled with ſap, make vigorous youthful ſhoots; and no trees produce their fungi, whilſt their growth is luxuriant. But, when they grow old and decay, their fluids, being then in a ſtate of extravaſation, take upon themſelves new laws, and by their own *inteſtine motion*, ferment, diſunite the ſolid parts of the decayed tree, rot it, and produce heat, at leaſt ſuch a degree, as is neceſſary to

forward the vegetation of thoſe ſeeds of the fungi, which were left at reſt in the rotten trunk; and then indeed the fungus will ſhoot out, altho' the trunk of the tree is covered above a foot deep in the earth.

I mention theſe particular trees, as they are pretty conſtant in the production of theſe fungi, whoſe ſeeds, I think, muſt have ſubſiſted in the plants, unleſs any one will contend for ſpontaneous generation. I might mention the living creatures found in the bile-duct and liver of ſheep, the eggs of worms, *&c.* in animals, but think what I have already ſaid ſufficient.

If then it be probable, that theſe primordial ſeeds can paſs with the common circulation, without being ſpoiled, to the time of puberty, vegetation and animation will appear to be governed by ſomewhat ſimilar laws. The firſt ſhoots of plants are ſoft, ſucculent, and flexible, till their veſſels are opened and expanded, and all the apparatus of fluids and ſolids become fit to produce bloom and ſeed, and to anſwer the end of propagating their kinds. At which time indeed they acquire a greater degree of firmneſs, the circulation of their juices is ſlower, they produce their ſeveral tribes; and continue to encreaſe their

rigidity,

rigidity, till, in their ultimate ſtate, they become all heart, as the wood-men term it; are no longer capable of circulating their juices, but from that rigidity grow ſtinted and die. And this is the true ſketch of a vegetable growth and decay.

Plants, as well as animals, have different ſtrainers to ſeparate their different fluids, which are uſed only at nature's ſtated times, and then are either ſpoiled or laid aſide, until ſhe wants to call them to her aid again; thus the odour of the flower ceaſes, when it is ſucceeded by the fruit. The root, the bark, the kernel, the flower, and the fruit, have all different flavours, from the different operations of their ſecretory veſſels.

And this ſlow circulation in the tubes of plants, which happens when they have reached maturity, is obſerved alſo in the elaboration of the *ſemen maſculinum* in animals: indeed there is no other animal ſecretion, in which ſuch contrivances to retard and delay it in the firſt ſtages are evident. And, till this fluid is perfectly elaborated, there ſeems to be none proper for the *animalcula* to reſt and ſubſiſt in, in paſſing from their firſt ſtate. In this manner the primordial ſeeds of things ſeem to be preſerved.

I have choſen to take theſe remarks from nature herſelf, ſhe being the beſt and moſt faithful interpreter of her own ſecrets; they are her ways only which I endeavour to trace out, and therefore I ſhall follow her clue.

We may obſerve therefore, that altho' by her inſtitutions the *ſemen maſculinum*, in ſuch animals as have a great ſlaughter made of their kinds, is ſooneſt elaborated in the male, and the ovary of the female becomes ſooner capable of impregnation; yet in man, who was to laſt near a century, this is not the caſe; thoſe ſecretions in mankind being either not ſet on foot, or at leaſt not having their fluids perfectly elaborated, till the youth ceaſes to be *imberbis*, or *impuber*. During all which time, nature ſecretly operates on the conſtitution, and at different times is buſy in ſetting on foot new ſecretions, and in preparing and fitting the inſtruments for her purpoſes, till, like a ſkilful chemiſt, ſhe has at length obtained the great arcanum, which was to anſwer the end deſigned by the firſt all-wiſe Creator.

At puberty, therefore, this fluid becomes ſo highly animated, and the expenſive waſte of it is attended with ſuch a laſſitude and loſs of ſpirits, that I do not wonder ZENO called it

Partis

Partis animæ ſpolium. More might be ſaid upon this matter, did not the delicacy of the ſubject incline me to avoid enlarging upon it further than is neceſſary to give ſome light preparative to the following pages. But, as muſcular force is beyond doubt encreaſed by this fluid, and many diſeaſes of the glands are cured by the additional ſtrength which the muſcular coats of the conglomerate glands receive about puberty, it is above all things neceſſary to enquire, how nature brings theſe changes about, in order to adminiſter ſuch aids as ſhe may poſſibly want, and at the time which beſt may ſuit her purpoſes. If we can make this diſcovery, it will ſurely be one great ſupport and confirmation of the dignity of phyſic, as a *ſcience.*

Experience convinces us beyond every poſſibility of doubt, that theſe changes happen in the conſtitution; but different authors have indulged themſelves in a variety of appellations, to expreſs their opinion of the means by which they happen. For myſelf, I ſhall beg leave to ſuppoſe, that nature is employed by the will and order of the great Creator of all things, in thoſe offices, from our birth to the laſt moment of our lives; yet will I not diſpute with any one upon mere words. For whether

whether the old appellation *faculty* be the term, or the *ſoul*, or *nature*, or the *God of nature*, they muſt all, as I apprehend, ſubſtantially mean the ſame; I only beg indulgence for myſelf, when I uſe the word Nature.

We are now, therefore, to conſider by what means ſhe brings about theſe different changes at different periods of our lives, ſo far at leaſt, as they have any connection with the ſubject of glandular ſecretions.

And this work ſhe ſeems to effect, by impoſing ſuch taſks only upon the ſolids, as their preſent ſtate is able to perform, and by producing ſuch ſalutary plenitudes, as may be ſufficient to promote an ampliation of the veſſels, and ſerve her purpoſes at the various ſtages of our lives. For even nutrition cannot be carried on, unleſs larger ſupplies are every day offered, than can be added to the growth of parts, at that time; and, if there were not proper outlets to diſcharge thoſe redundancies, they would of neceſſity produce diſeaſes. And in this reſpect HIPPOCRATES ſeems to have been in the right, when he ſays, *The manner in which nature, or the faculty, acts, is by attracting to each part, that which is proper and fit, by retaining, preparing, or changing it;*

it; and after that which is uſeful has been ſeparated and applied, ſhe is buſied in rejecting what is hurtful or ſuperfluous.

And indeed, if we conſider how theſe matters are conducted, his two principles, fire and water, (one to give motion, and the other to diſtend the tubes, and make the animal grow) are no very ſtrange conceits. Upon this principle, HELMONT's willow tree grew from five pounds in five years, to ſixty nine pounds, by the addition of water only. And, altho' the heat of the blood is ſuppoſed to be kept up by its own motion, yet they both ſeem at firſt to have been impreſſed upon it by the Deity, who poſſibly has directed heat and moiſture to be the two great inſtruments nature is conſtantly to employ in this work of ampliation and increaſe. The great HARVEY's experiment will let us ſee, what effect heat has upon animal fibres, and the fluids contained in their tubes, when he ſays, upon expoſing the *punctum ſaliens* for ſome time to the cold air, and obſerving it to beat more ſlowly and vibrate languidly, he tried if he could not reſtore vigour and ſtrength to it, by applying his warm finger; when, in the ſpace of twenty pulſes, he found it revived and beat again, *Ecce corculum denuo reviviſcit, erigitur, et*

tanquam ex poſtliminio ab orco redux, priſtinam choream redintegravit [a]. And thus, ſays he, we could reſign this *miſellam animam* to death, or recal it to life at our pleaſure. The conſideration of this principle, ſeems to have carried the divine HIPPOCRATES into a kind of rapture [b]: *That which we call heat*, ſays he, *ſeems to me, to be ſomething immortal, that underſtands all things, that ſees and knows all things, as well what is preſent, as what is to come.*

How viſionary ſoever this may ſeem to be, (as in truth it muſt be allowed) yet the principle ſtill ſubſiſts; and, tho' poſſibly we may never know perfectly, how every thing is brought about in the animal œconomy, yet we find attrition encreaſes heat; and robbing the animal of thoſe organs, which nature employs to ſtrengthen the powers of their fibres, and carrying on the buſineſs of attrition vigorouſly, will, as it were, change and alter the whole animal. If we conſider, therefore, how this matter is done; and draw our knowledge of it from well grounded experiments, we

[a] Vid. HARVEY De Generat. p. 53.

[b] Δοκέει δέ μοι, ὃ καλέομεν θερμὸν, ἀθάνατον τὶ εἶναι, καὶ νοέειν πάντα, καὶ ὁρᾶν, καὶ ἀκούειν, καὶ εἰδέναι πάντα, καὶ τὰ ὄντα, καὶ τὰ ἐσόμενα. HIPPOCRAT. De princip. aut carn. ſect. ii.

may

may be convinced, that it is eaſily brought about by robbing the male and female of their ſpermatic veſſels.

For, by preventing the elaboration of the *ſemen maſculinum*, you take away the cauſe that produces brawnyneſs and gives muſcular force; and the elaſticity of the veſſels being by that means impaired, the attrition of the fluids is conſequently leſſened, native heat is diminiſhed, and a *molities* brought upon the whole habit. There is ſomething, therefore, in the organs of generation in both ſexes, as well neceſſary to promote particular glandular ſecretions, as to aſſiſt animal growth: for it is hardly poſſible to imagine how much the tone of the ſolids, and their very ſhape is altered, by robbing the animal of the ſecretions made by thoſe parts. All the marks of puberty are by that loſs ſuppreſſed, and even the glands, which were concerned in producing the ſecretions in thoſe parts, are not ſet to work, but remain uſeleſs and ſpoiled. *Ubi glandulæ, ibi etiam pili*, ſays HIPPOCRATES; and in his book, *De natura pueri*, he has not only confirmed the anatomical obſervation of glands affording nutrition to the hair, but has taken notice, that, if children are caſtrated early, they never have afterwards any marks of puberty;

berty; becauſe the glands, which ſhould produce that change in the conſtitution, are ſo far deſtroyed, that nature cannot employ them for thoſe purpoſes. *Quicunque vero eunuchi, dum pueri ſunt, fiunt, propterea neque in pube, neque in mente pilas producunt, lævesque toti exiſtunt.*

Having ventured to purſue nature in her ſecret progreſs thus far, let us take another ſtep, and ſee what effect the *ſemen maſculinum* has upon the ſolids, and their ſecretions, from examples of uncaſtrated and caſtrated animals. And as the yearly growth of bucks horns, is more conſiderable than any other animal increaſe, within the ſame ſpace of time, we will conſider that animal in its perfect ſtate, before caſtration, and in its imperfect ſtate, after caſtration.

The horns of a buck, having acquired their utmoſt growth, continue to be thruſt off during the ſpring by new ones, from about the middle of April to the latter end of May, ſooner or later in proportion to the animal's ſtate of health. The new horns are at firſt ſoft, ſpongy, reſembling velvet, and bleed much upon cutting, the blood and juices find little reſiſtance, the veſſels yield to ampliation, are elongated, and produce a very luxuriant

xuriant growth, equal indeed to the vegetation of many plants: till the force of the heart, and arteries, can carry the horns no further in their increaſe. From that time they gradually continue to harden, till they have reached the ultimate ſtate of ſolidity deſigned them. This growth happens in the ſpring, and ſummer months, when the animal is nouriſhed to the higheſt ſtandard of his health.

And, as the covering of velvet ſeems to defend the young horn from the injuries of the air, ſo it is contrived, that this ſoft ſtate of the horn may happen in the ſummer months, when the female deer are nurſing their young and avoid the company of the males; who at that time, therefore, have no rivalſhip, and live in harmony with one another. The velvet of the horn is rubbed off about the latter end of Auguſt, a little before rutting time comes on. But, if it be torn, or injured much before that time, flies ſettle, and lay their eggs upon it, and a cutaneous diſeaſe is produced; which, ſpreads like an eryſipelas, ſwells the head of the buck, and very often kills him.

But, as rutting time comes on, the horns are hardened, the buck is perpetually rubbing the velvet off againſt trees and ſhrubs. This

he

he is probably inclined to do from an itching in the part, produced by a ſecretion ſet on foot, when the incentive glands begin to operate; which makes the velvet ſlip off, and then the horn is left hard and poliſhed, and the buck fit to meet his rival in the plains.

Thus much concerning the horn in its natural ſtate; let us further conſider the ſtate of the glands at rutting time, when the horns have acquired their due firmneſs. The buck then begins to *treat* the *rutt*, as keepers term it; that is, makes a croaking hoarſe noiſe, ſo as to be heard at a great diſtance, and by that means calls to himſelf the female deer, that about the middle of September are alſo in their *rutt*.

At this time alſo, from the *hircine* ſecretions now ſet on foot, there is a very great change made in the whole animal. The teſtes firſt become conſiderably enlarged, next ſucceeds a looſe glandular ſwelling about the larynx; and the glands furniſh plenty of mucus, to defend the throat from growing dry, whilſt the buck is in that perpetual action of forming his throat to make the noiſe deſcribed. Afterwards the neck ſwells, and the muſcles grow more brawny; but, as the buck is kept perpetually watching by venereal ideas,

he falls away and his ſkin grows looſe and ſoft as the membrana adipoſa waſtes in thickneſs at the latter end of the rutting ſeaſon.

I ſay this is at the latter end of the ſeaſon, becauſe at the beginning of it all the glands of the throat are conſiderably enlarged, and continue ſo all the time of rutting. At this time alſo the ſecretions by the incentive glands are ſo rancid, that the keepers are forced to avoid cutting any of the lymphatics near the parts of generation; otherwiſe they ſhed out a yellow liquor, of a very diſagreeable taſte and ſmell; which affects all the parts it touches, and makes the fleſh not eatable. Theſe, and other alterations, happen at this time; as the producing of hairs upon the neck, throat, and extremity of the præpuce, which are blacker than at other times. But all theſe appearances ceaſe, when thoſe hairs at the extremity of the præpuce caſt off, and afford a diſagreeable ſmell. And happens at the end of rutting ſeaſon.

Enough therefore has been ſaid to prove, that the *ſemen maſculinum* is greatly concerned in theſe glandular ſecretions; that it exalts the ſtate of the blood; that divers ſecretions are ſet on foot, when the buck is to be incited to coition, which do not ſubſiſt at other times;

and that the taſte of the fleſh, and the whole animal, is greatly changed thereby.

Let us now turn our eye upon the animal in his imperfect ſtate after caſtration, and we ſhall find him wonderfully changed. If he be young when caſtrated, he will have no horns at all, or ſmall buds only, and thoſe ſoft to the touch like velvet, and void of firmneſs. The glands, which ſecreted the *ſemen maſculinum*, no longer ſubſiſting, the juices of the animal can no longer be ſaturated with them. The parts which ſhould produce horns are no longer, or very weakly ſet to work, like thoſe of the chin or pubis in boys after caſtration. The glands of the buck's neck no longer ſwell, nor are enlarged at *rutting*-time; the neck loſes all its brawny thickneſs and firmneſs, nor are there any other of thoſe marks before mentioned, which always appear in bucks uncaſtrated at *rutting*-time. For, tho' nature has all the conſtituent parts put into her hands before the birth, yet as they are her inſtruments, ſhe makes uſe of them, at her own times and ſeaſons only, and that upon proper occaſions, and always in the greateſt order. For, as *Seneca* ſays, *In ſemine omnis futuri ratio hominis comprehenſa eſt: & legem barbæ, & canorum, nondum natus*

tus infans habet. Totius enim corporis, & ſequentis ætatis, in parvo occultoque lineamenta ſunt [d].

I offer theſe remarks not only with a view of ſhewing what effect the *ſemen maſculinum* has upon theſe particular ſecretions, but what effect it has alſo upon animal fibres in general; and in order likewiſe to point out to phyſicians, what affinity one part of the glandular ſyſtem has with another. And this will, in ſome meaſure, direct us to judge from what quarter we ought to expect relief in certain diſeaſes, and will point out the ſeaſon, when it may be moſt proper to make uſe of this or that particular ſecretion. For hereafter we ſhall ſhew, that ſome parts of the glandular ſyſtem are more inclined to receive the tranſition of a diſeaſe from one particular part than from another.

But we ſhall now proceed to ſhew from experiments, that, when the animal is caſtrated, the whole habit loſes its firmneſs. The brawny neck, the loud bellowing of the bull, is changed into the lowing of the ox; the muſcles loſe their firmneſs and gluten, and are altered even in their ſhape; for the adipoſe glands, not being ſo cloſely compreſſed as be-

[d] Vid. SENECA Nat. quæſt. l. iii. c. 29.

fore, increaſe in bulk, and the fleſh cuts *marbly*, as the butchers term it; the muſcular fleſh being ſtriped and intermixed with fat. And this is the caſe with all animals after caſtration; the ſoft, glandular, fat habit, with the female voice, takes place in eunuchs, inſtead of that firm manly one, which was the gift of nature.

Having hitherto conſidered the male, let us juſt caſt our eye upon the female; whom we ſhall find, after the ovaries have been taken away, *&c.* to be nearly in the ſame circumſtances as the male: for now, being left undiſturbed with paſſions, ſhe grows fat, and her habit is more ſoft and pulpy.

This therefore is the order of nature, as far as glandular ſecretion is concerned: from whence it appears, how neceſſary it is to have the habit well ſaturated with theſe particular ſecretions, at certain times of our lives. This will direct us to ſee, what diſeaſes may probably happen from a deficiency of them, and what great miſchiefs may be done by imprudently forcing them againſt the general laws and order of nature. From hence alſo we ſhall learn, not only how improbable, but even impoſſible it is to cure ſome diſeaſes, till nature concurs, at the proper ſeaſon of our lives,

lives, with the endeavours of the phyſician. Theſe matters are of the utmoſt conſequence; and all perſons, truſted with the great charge of bringing up children, ought not only to know, but carefully attend to them. *Secundum ætates enim hæc eveniunt.* HIPPOC.

EXPERIMENTS.

If we would come at a true knowledge how to treat ſome diſeaſes of the glands, it muſt be highly neceſſary to learn on what cauſes depend their ſecretions. Since therefore the *ſemen maſculinum* ſeems to have a ſhare ſo conſiderable in making their great changes at certain times of our lives; in order to eſtabliſh ſome principles laid down in the following pages on glandular ſecretions, I ſhall beg leave to lay before my reader the following obſervations on caſtrated animals; by which he will ſee, that the hiſtory of this fluid and its uſes, have not been ſufficiently attended to.

EXPER. I.

I cauſed a very young deer to be caſtrated, and the event was this; he never had any horns.

EXPER. II.

I had a young deer, ſome months older, caſtrated; and he had one little velvet bud, inſtead of a horn, on one ſide; and an irregular velvet horn, about ſix inches long, on the other ſide: both were cartilaginous; and the longeſt had not ſtability enough to keep it ſtrait, as in the pricket-deer, but inclined horizontally.

EXPER. III.

I ordered a deer, ſomewhat older than the ſecond, to be caſtrated, but not cut clean, as they term it. The event was this; he had two moſt irregular horns, that never caſt their velvet; and the left teſticle and ſpermatics being leaſt ſpoiled, the left horn was (for that reaſon probably) one third longer than the right; and nature, not being able to carry on longitudinal growth but a little way, made her ſecond attempt in trying to throw out collateral branches. But, as ſhe was not able to effect that neither, her efforts terminated in producing ſome bony knots only, or bunches, from which hung ſoft penſile glands that were covered with velvet, and much reſembled the

manner

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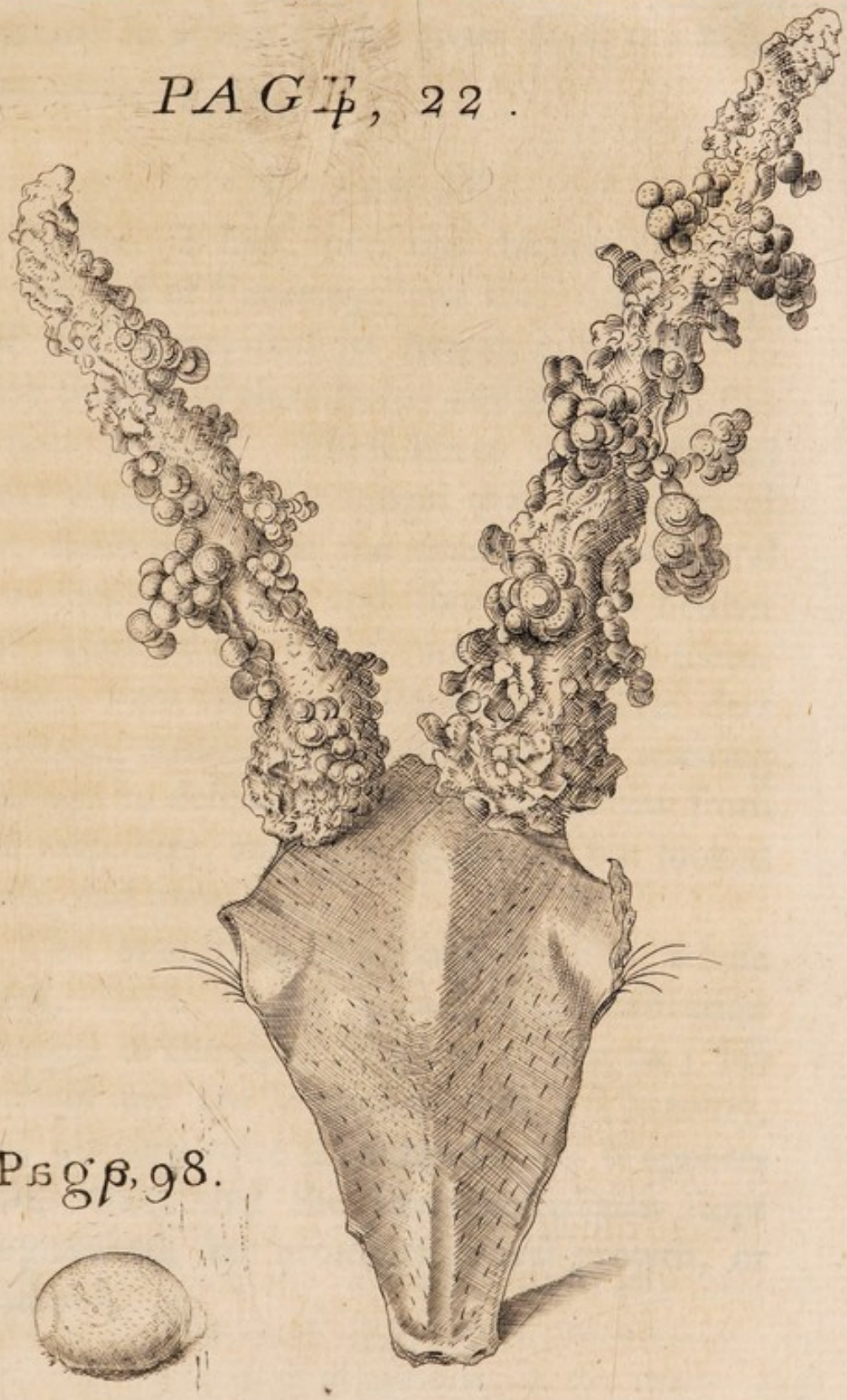

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manner in which grapes grow from the ſtalk. See plate, fig. 1.

EXPER. IV.

Laſtly, I had two old bucks caſtrated at the end of February, and their horns dropt off the twenty-firſt of March following: ſo that the fall of their horns was anticipated five weeks at leaſt. Theſe horns were renewed next year, and were longer than the bucks of the ſame age; but the palms, or collateral branches were leſs and ſhorter; and neither the velvet of the horns, nor the horns themſelves, were caſt ever afterwards. The deer however, knowing their inability, or wanting courage to defend themſelves, withdrew from the male deer, and were timorous, but looked ſleek, and grew fat.

The ſame thing happens in the bull, whoſe thick, ſhort, ſtrong horn, upon caſtration changes to the thin, long one of the ox; his muſcles too are weakened and leſs brawny, and his very voice is changed.—— It appears from hence, that the *ſemen maſculinum* ſtops longitudinal, but promotes lateral growth, or thickneſs.

POSTSCRIPT:

March 5, 1755. I this day called to ſee the two old bucks, mentioned above in the fourth experiment. In that which was ſix years old, and whoſe horns, the year after caſtration, made longer ſhoots than any bucks of the ſame year; the event was this: The muſcular powers of the heart and arteries were ſo weakened, for want of the habits being ſaturated ſufficiently with the *ſemen maſculinum*, that nature was equally unable either to caſt off the old, or to produce new horns; neither could ſhe maintain the laſt year's horns in their original growth. For they are gradually decreaſed, till at this preſent time there remain only ſtumps of horns, three or four inches in length. In the other buck, one of the horns is about half waſted; the other is not ſo much diminiſhed: poſſibly, becauſe this buck might not be cut ſo clean as the former.

THE OECONOMY OF NATURE

In CHRONICAL and ACUTE DISEASES of the GLANDS.

CHAP. I.

Of the ſtate of the child, whilſt its life depends on the mother.

HAVING ſhewn, in the firſt part of this work, the doctrine of diſeaſed glands, and the different terminations of their tumours, we will proceed to conſider, what order nature obſerves in regulating the various ſecretions that are made by them, and at

at what periods of our lives ſhe either ſets on foot new ſeparations by the glands, or alters, or ſometimes entirely lays aſide the old; as ſhe finds it neceſſary to preſerve, or relieve, the ſubject. In courſe of which conſideration, we ſhall ſpeak of the tranſitions of diſeaſes in the glandular ſyſtem, and by that means learn that very many of thoſe complaints, which we call *chronical*, are no more than a tranſlation of the diſeaſe from one part of the glandular ſyſtem to another; and ſhew, not only that the various ſtrainers are formed to help and aſſiſt one another upon all great emergencies, but moreover that the phyſician has the direction of their ſecretions very often under his power.

And in order to do this I ſhall confine myſelf to the laws of nature moſt exactly, being perſuaded that an hiſtory of diſeaſes, honeſtly drawn after that plan, will tend more to the improvement of our art, and the healing of the ſick, than all other ſpeculations whatſoever. This will not only give the phyſician the beſt idea he can have of the ſubject that he is to treat; but will point out alſo the ſureſt and moſt certain ways of removing any faults in the machine. And farther, whilſt I confine myſelf to this one ſubject, the diſeaſes of

the

the glands, let us obſerve how far we may wipe away that common reproach of the uncertainty of our art, and the phyſician's having no proper clue to guide and direct him through the labyrinth of difficulties, with which he finds himſelf ſurrounded, when he firſt enters upon his profeſſion.

And this I hope to compaſs, by laying aſide all abſtruſe reaſonings, and contenting myſelf with ſuch obſervations as reſult from nature and experience only; by following that courſe, which the beſt guides of antiquity have pointed out; by obſerving their charts, and the ſoundings they have left, as marks for us, behind them. And when I can carry my enquiry no higher, from the aſſiſtance of their obſervations, I ſhall venture out to ſea upon my own bottom, and take nature for my guide; following her in all things, and obſerving at what times of life, and what method ſhe takes in bringing about all the great events that are to happen under her prudent conduct. [c] *Natura in animali omnino anima eſt. Ipſa fabricat calces, dentes, cornua, ad vitam tuendam; itaque iis et utitur, et ſcit quo ſit utendum modo, ſine objecto aut phantaſia ulla.*

[c] Vid. J. C. SCALIGER. Exer. 307. Sect. 29.

And

And, ſince our enquiries will tend chiefly to learn how things really are, that we may thereby learn the preſent neceſſities of life, and ſtudy how to provide for them; and, when we know the diſeaſes of each ſtage of life, to conſider how beſt to remedy thoſe inconveniences; it will be neceſſary to carry up our enquiries to the firſt commencement of life; and, tho' our art is bounded, yet ſee what is to be done within the limits of it, which indeed is all that can be reaſonably expected.

Diſeaſes of the Placenta.

If the doctrine of generation generally received is true, as it appears in all probability to be; let us next ſuppoſe the egg detached from the ovary, fallen thro' the Fallopian tube, and adhering to the matrix, in the ſame manner as a bud of a tree, ſeparated from its twig, unites, when applied by inoculation, to the ſap-veſſels of another tree. And this ſeems to be done by the mutual inſertion of the arteries of the uterus into the veins of the placenta, and the arteries of the placenta into the veins of the uterus; by which means a circulation is preſerved betwixt the mother and the child. From this union ſeem to ſpring the rudiments of the placenta, whoſe veſſels being daily more and more diſtended,

and

and thickened in their coats, appear to be inſerted, like little roots, into the uterus. And, as the placenta becomes more and more enlarged, the embryo proportionably increaſes in growth; till their veſſels take off the plenitude, which ariſes from a ſuppreſſion of the menſtrual purgation, and relieve the mother from thoſe ſymptoms, which oppreſſed her during the firſt months of geſtation, whilſt they were not ſufficient to ſupply that defect.

And here we muſt make our firſt ſtand, and obſerve, that the ſymptoms, which ariſe upon this ſuppreſſion of the menſes, are not peculiar to the mother, or to the want of that evacuation only; but are to be found, on all other ſuppreſſions of natural evacuations, more or leſs, during the whole courſe of their lives; and, at the ſame time, let us take notice how nature relieves theſe inconveniences.

The mother, upon the firſt ſuppreſſion of the menſes, has all the ſymptoms of an increaſe, or plenitude, ariſing in her habit; ſhe grows indolent, is inclined to ſleep, has frequent oſcitations, is troubled with a ſour ructus; her digeſtion is impaired; frequent pukings, of ſour ſlimes, trouble her daily; ſhe grows by degrees more and more pale; and, like a girl in the green-ſickneſs, is out of breath

upon moving much, longs for traſh, has riſings in her throat, and a train of hyſteric complaints, which ſometimes produce epileptic fits, or worſe diſorders on the head. Under theſe circumſtances, what are the indications of cure? Why nature herſelf plainly points them out, and directs the phyſician to do what in a few months ſhe will be able to effect herſelf: I mean, to ſubſtitute ſome evacuation, till the placenta and fœtus are large enough to take off the redundancy, which happens upon this ſuppreſſion of the menſes.

And this is the firſt inſtance we can give, in which nature relieves the habit of its fulneſs by her own ſtrength; which ſhe does in the preſent caſe by altering the uſual method of its paſſing off, and by ſetting on foot a new ſeparation by the placenta, inſtead of the veſſels employed in menſtruation. Thus, we ſee from the beginning ſhe alters ſome, ſets on foot others new, or for a time entirely lays aſide particular ſecretions, till ſhe has occaſion to call them again in to her aid. Prudent veneſection, a moderate diet, keeping the acidities of the ſtomach corrected by the teſtaceous powders, and a little rhubarb, are as uſeful in theſe caſes, as they are to children afterwards; and, if prudently managed, would

prevent

prevent many miſcarriages, which happen for want of ſuch care. The mother therefore, at this time, is greatly to be conſidered, for on the right management of her, during the firſt month of pregnancy, depends in great meaſure the ſafety of the child. [f] *Puer vivit de matre in utero, et quali mater ſanitate prædita eſt, talem etiam puer habet.*

Diſeaſes of the Ovaries.

And here I hope the reader will pardon a ſhort obſervation or two, concerning ſome diſeaſes of the ovaries, which often take their riſe, either from a want of timely menſtruation, or from the diſtention they ſuffer upon the firſt ſuppreſſion of the menſes. I think I have ſeen inſtances of both theſe caſes happen, which probably might have been relieved by prudent evacuations, and a right management of the ſeparations from the blood, according to nature's laws.

I once ſaw a young woman, about the time of puberty, in whoſe conſtitution nature had made divers attempts to bring about menſtruation, but could not. She had, for two years ſucceſſively, diſtenſions of her breaſts; the glands of her neck ſwelled; ſhe was ſhort-breathed, and ſpit a little blood; but her breaſts and neck ſubſided, as ſhe perſpired

[f] HIPPOCRAT. De natura pueri.

largely

largely in the ſummer, and all her other complaints went off, till the next ſpring. The third year, when ſhe was about ſeventeen years old, ſhe had no more complaints of her breaſts, or glands of the neck; but ſhe grew bigger, and her belly encreaſed, from internal tumours, year after year: however, it was ſo gradually, that ſhe carried theſe ſchirrhoſities above twenty years, at which period ſhe died. I was deſired to attend the opening her body, as the caſe had been all along entruſted to me, and I had conducted her through many difficulties, during that time.

Upon the ſurgeon's inſpecting the cauſe, we found it to be a diſeaſe of the ovaries; ſome parts of which were perfectly ſchirrous, and weighed, upon taking out, above fifteen pounds: others contained in their cyſts great quantities of roapy water, of different colour and conſiſtence: but I could find no collection of perfect pus. When her kidneys came to be compreſſed by theſe tumours, ſhe underwent great difficulties; but was relieved by the following draughts, more than by any thing elſe.

℞ *Succ. Limon.* ℥vj. *Salis Abſinth.* ℥ſs. *Aq. Petroſelin.* ℥iſs. *Cinam. fort.* ℥ſs. *Acet. ſcillit.* ℥j. *Syr. de Croco* ℥j. *M. f. Hauſt.* 8va *quaque hora ſumendus.*

This

This ſent off great quantities of urine, and relieved her, during the courſe of her illneſs. She was attacked likewiſe with an hereditary gout, of which ſhe had frequent regular fits; but they made no alteration in the other part of her caſe. Let this ſuffice concerning the diſtemper, when it comes in for want of the benefit of puberty. Another patient I remember who fell into this diſeaſe, from a ſuppreſſion of the menſes, during pregnancy by her ſecond child. She had one child afterwards; but the tumour remained, and increaſed annually; till her lungs alſo grew affected, and ſhe died of a purulent dropſy and conſumption. For, ſome maturated tumours of the ovary had broke, and ſhed their impurities into the abdomen. Frequently abceſſes of the lungs broke, and were ſpit off; conſequences of thoſe internal tumours, which had gone into apoſtemations, and infected the other glands with their matter.

In this caſe, is was ſurprizing to ſee what quantities of matter were ſent off from the blood by urine. I have ſeen in the urine, which was ſaved for me, in the morning, ſponfulls of heavy pus ſubſided to the bottom; tho' the patient had never in the leaſt

laboured under any diſeaſe of the kidnies. This circumſtance I have often obſerved in a vomica of the lungs.

From what has been ſaid, it will appear how great care ought to be taken that the blood veſſels of the pregnant woman be not overſtrained, or diſtended too much, by the fullneſs, which muſt neceſſarily ariſe, during the firſt months of geſtation. As conſtipations of the belly often happen in theſe caſes, care ſhould be taken, that it proceed not too far, before the patient is relieved; for want of which precaution, and proper blood letting, hæmorrhoids, and laſting diſeaſes of the rectum, are often produced, the legs become varicoſe, and foundations are laid for ulcers, which trouble the patient all the latter part of her life.

I ſhall not enter into any diſputes about the placenta, whether it is glandular or not. But if it be conſidered only as an adventitious body, adhering to the matrix, and ſupplying, *pro tempore*, the office of the blood veſſels uſed in menſtruation; then hitherto we have been right, in the notion of its being a part ſo conſtructed, as to derive ſomewhat from the mother, be it glandular or not: however, I

ſhall

ſhall follow Dr. WHARTON, and conſider it as ſuch.

But to proceed: As the placenta enlarges, the fœtus alſo grows, till, in the ninth month, the waters contained in the amnium burſt their membranes, lubricate the parts, and the child is born.

And, this ampliation of the veſſels is ſo conſiderable, whilſt the fœtus is in the matrix, from the firſt conception, that Dr. HARVEY, upon ſhewing the *punctum ſaliens* to king Charles the firſt, obſerves the tremulous motion was ſo obſcure, that they could not perceive it, but by the aſſiſtance of the ſun's rays falling obliquely upon it. He ſays farther, one would wonder that in ſo ſhort a ſpace, as from the firſt obſervation of the *punctum palpitans*, the fœtus could be formed, and perfected in the amnium. For the *punctum ſaliens* appeared on the 19th or 20th of November, in the deer kinds, and on the 21ſt or a day after, was ſeen the vermiculus, or rudiments of the animal; and in ſix or ſeven days after, the fœtus was ſeen ſo perfect, that you might diſtinguiſh the male from the female, the feet were formed, the hoofs cloven, ſlippery, and a little yellowiſh.

And, in ſpeaking in another place of the

punctum ſaliens he ſays; [a] *Punctum ſanguineum ſaliens emicat, exiguum adeo ut in ſua diaſtole ceu minima ignis ſcintilla effulgeat, et mox in ſyſtole viſum prorſus effugiat, et diſpareat: tantillum nempe eſt vitæ animalis exordium, quod tam inconſpicuis initiis molitur plaſtica vis naturæ.* Dr. GARTH in his *Diſpenſary*, ſeems to have formed two beautiful Lines upon this hint;

" How the dim ſpeck of entity began
" T' extend its recent form, and ſtretch to man."

And this agrees with the account given by HIPPOCRATES, in his book *De natura pueri*; of the Cantrix that miſcarried: and with that alſo of the common women in his time, many of whoſe embryos he examined, after about ſeven days conception. [b] *Primum enim poſtquam genitura in uteros pervenit, in ſeptem diebus habet quæcunque corpus habere debet*, etc. *Poſtquam autem jam perditus eſt, elabitur velut caruncula. Hanc carunculam in aquam conjectam ſi conſpectus conſideraveris, omnia membra habere reperies*, etc.

Thus having conſidered the *embryo ab ovo*, with the methods nature proceeds in till the

[a] HARVEY, De generatione, p. 49. in 4°.
[b] HIPPOCRAT. De ætat.

birth;

birth; let us enquire how things go on afterwards. This in brief is what we have hitherto ſeen, that the placenta does the office of the lacteal glands; is therefore liable to obſtructions from plenitudes; that fluids may ſtagnate in its tubes; that it may fall off from the matrix; that the fœtus may be robbed of its nouriſhment; that it will then die; and that the mother muſt miſcarry, unleſs all theſe cauſes are guarded againſt. But, if they are prevented, then the child at the period of nine months is uſually born ſound and healthy.

Let this ſuffice concerning the ſubject, before it depends totally upon the nouriſhment, which it receives by the lacteals.

CHAP. II.

Of the ſtate of the glands from the birth to dentition; when the lacteals are employed in nouriſhing the child, and its food may properly be ſaid to be of milk.

AS hiſtorians are dark, uncertain, and obſcure in the relations, which they give of the origin and birth of a people; ſo perhaps phyſicians are in the accounts, which are given of man before his birth. But the birth is like ſome great event in a ſtate, from which you may date the hiſtory of its changes, with more certainty and preciſion than in its obſcure ſtate.

The umbilical cord therefore being ſeparated from the mother, and a flux of blood prevented by the ligature; is now to depend upon a new manner of nouriſhment. The placenta, falling off from the uterus, leaves the *vaſa inhiantia uteri* to cloſe, till they are opened again by the return of the menſes.

And here a new ſcene of animal ſecretions is diſcloſed to our conſideration. For, if the alimentary tube is a gland of its particular kind, and the lacteals are its ſecretory veſſels, which

which ſome phyſicians have ſuppoſed, then the animal depends upon this glandular ſecretion, from the moment the umbilical arteries are ſeparated from the placenta. The ſtomach and inteſtines are deſigned for the digeſting, and fitting our meat after it is finely divided by the teeth, to paſs through the lacteals into the maſs of blood, and from thence to be diſtributed by the heart, and arteries, through the whole order of veſſels, which are gradually *unfolded* to receive the nouriſhment.

Let us ſee therefore how nature goes on with the ampliation and extenſion of the veſſels, which indeed is but ſlowly effected and often not carried to the utmoſt height in *longitudinal growth*, till after the age of twenty years. The ſalivary glands, and the glands of the ſtomach, having poured out their contents and depoſited them, by every deglutition, into the cavity of the ſtomach, as an help to digeſtion, the membranous and muſcular coats of the ſtomach compreſs the food ſtrongly, and, by the periſtaltic motion, throw off the mæconium, and what was contained in the inteſtines before the birth. And, as we have before obſerved, from Dr. HARVEY, that the growth of the fœtus in the

matrix was very ſudden, ſo the growth of the infant (like the firſt years ſhoot of a young plant) is generally much faſter than afterwards. The heart, meeting with but little reſiſtance from the weak tubes, which are filled from the lacteals with a thin diluted fluid, diſtends and ampliates the veſſels, like the ſurgeons injecting ſyringe, as far as they can bear to be diſtended, without burſting in their preſent weak and tender ſtate.

Thus we ſee nature employed from the birth, in applying what nutrition ſhe can to the parts, in unfolding or ampliating the tubes, and ſtretching the child into growth. At the ſame time, the redundancies of the conſtitution are ſent off, by the glands of the ſkin, by urine, ſtool, and all the glandular ſecretions. A deficiency in any of theſe muſt make the ſubject diſeaſed, and render it liable to fluxions upon ſome other part. HIPPOCRATES ſaw this, when he obſerved; [c] *ætatibus vero morboſiſſimi ſunt juniores; corpora enim cito augeſcunt; et tales diſtillationibus obnoxii ſunt.*

[c] Vid. HIPPOCRAT. De diæta, l. i. ſect. 24. Edit. in 8vo.

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The infant therefore, being in good health, nouriſhes and increaſes in growth very faſt, and ſoon acquires that ſtate of increment, beyond which it cannot proceed without falling into a diſeaſe. And, as it is not poſſible to reſt abſolutely in that ſtate, becauſe of the various changes to which human nature is liable, the aforeſaid helps muſt be called in, otherwiſe a diſeaſe will neceſſarily enſue, from the conſtitutions riſing above, or falling below, the equilibrium of health, if I may be permitted ſo to call it. But indeed, providenee has wiſely taken care to prevent obſtructions, in this weak ſtate of the ſolids. For, we may obſerve, that the blood of infants is uſually pale, watery, much diluted, and the lacteals kept waſhed by a thin roſcid chyle. Under which ſtate of fluidity, the circulation thro' the minuteſt veſſels is well carried on, and their tubes are widened and extended gradually, by the force of the heart, much better than if the fluids were in a leſs diluted ſtate.

As therefore changes muſt dayly happen in the conſtitution, and one part muſt be called in to the aid and aſſiſtance of another, upon various emergencies, let us conſider to what helps nature truſts in theſe caſes.

Here

Here again we ſhall find, as ſhe depended upon the placenta and fœtus, to take off the redundancies, which happened to the mother from a ſuppreſſion of the menſes; ſo in this caſe, the two chief aids ſhe ſeems to depend upon, for relieving the ſuperincrement, are the cutaneous glands, and thoſe of the inteſtines; which mutually aſſiſt each other in this great work.

Whoever therefore has attended the nurſeries of children with a curious and diligent eye, muſt have obſerved, that the firſt marks of diſeaſes with them generally appear in the ſkin, or are perceived to affect the ſtomach, and bowels; notwithſtanding the kidnies, and other glands, may lend their aſſiſtance.

The Red gum. When the infant therefore has attained this degree of increment, the ſkin is uſually loaded with an eruption, which our nurſes call the *Red gum*. This is a diſeaſe truly of childhood, which ſpreads itſelf all over the milliary glands, ſometimes with broad and ſometimes with infinitely ſmall red puſtules. At this time alſo the glands behind the ears, and thoſe in the groins, begin to diſcharge, and keep the child in health. And theſe eruptions

tions are ſo neceſſary, on the abovementioned account, that the *father* of phyſic ſays thoſe children are unhealthy, who have them not; [d] *Et quibuſcunque quidem, pueris exiſtentibus, erumpunt, ulcera in caput, et in aures, ac in reliquum corpus; et qui ſalivoſi fiunt, ac mucoſi, hi ipſi in progreſſu ætatis facillime degunt: qui vero mundi ſunt, et neque ulcus ullum, neque mucus, neque ulla ſaliva prodit, neque in uteris purgationem fecerunt, talibus periculum imminet, ut ab hoc morbo* (i. e. *Epilepſia*) *corripiantur.*

But, as theſe diſcharges are highly rancid, they require great neatneſs in the nurſe; otherwiſe they will produce troubleſome excoriations. During the time of theſe ſalutary diſcharges, the child is uſually in good health, but, as their continuance is very uncertain, if they ſuddenly diſappear, the governeſs of the child may expect ſome change in the ſtate of its health. For, if no new ſecretion is ſet on foot, to ſupply the want of that which ceaſes, the marks of an oppreſſed habit will ſoon appear; the child grows ſleepy, the ſtomach is out of order, and frequent pukings of ſlimy phlegm trouble him; becauſe the glands of the ſtomach

[d] HIPPOCR. De morbo ſacro.

and

and inteſtines are now ſet at work, in order to enlarge their ſecretions, and receive the humors, inſtead of the glands before employed; I mean thoſe behind the ears, thoſe of the groin and the miliary glands. And indeed, after theſe ſymptoms come on, I have ſeldom known the eruptions in the ſkin, or diſcharges from behind the ears or from the groin, ſubſiſt at all; moſt certainly however but a very ſhort time.

Thus we ſee, that the human blood is heterogene, and therefore ſeveral combinations of particles will eaſily be formed, which cannot paſs through the ſtrainers of the machine; and muſt conſequently produce variety of cutaneous diſeaſes. Theſe, as they are many and various, happen at very different times of life; for inſtance, the red gum, which is ſingly the diſeaſe of childhood. Secondly, eruptions on the ſkin, of all kinds. Thirdly, the ſmall pox, and meaſles; the ſcarlet, and all other eruptive fevers; the chicken pox; ſwine pox; etc. And, theſe diſeaſes poſſibly may make ſuch an alteration in the ſtrainers, that they cannot retain the ſame kinds of morbid matter a ſecond time, or they ſo weaken them, that their texture is ſpoiled, and remains ever after

after diſeaſed. Indeed, in many habits they are ſo formed by nature, that they are unfit to retain the morbid matter; and, altho' the experiment of innoculation be made upon them, and the ſymptomatic fever appears in moſt exact time, and in the uſual manner with which it ſhews itſelf in others; yet the diſeaſe is waſted by ſtrong putid ſweats, without any eruptions whatſoever. This I have frequently ſeen; nay, I have put ſome of theſe patients by way of trial, into rooms infected, with a new ſet of perſons inoculated, and let them go through the whole time of nurſing; but could never give them the ſmall pox. After this trial I concluded, they were ſecure from any diſeaſe of that ſort. But to return to our ſubject.

When the diſcharge from the ſkin ceaſes, let us ſee what ſhifts are made to get rid of the diſeaſe, which would ariſe from that accident. And here we may obſerve that, when the diſcharge behind the ears, from the groins, etc. ceaſes; and the red gum totally diſappears, the ſecretions by the glands of the alimentary tube are dayly augmented; the infant has almoſt the ſame ſymptoms, which the mother had upon a ſuppreſſion of the menſes, at her firſt being

pregnant. The child is afflicted with four belchings, pukes up its food, the inteſtines are diſtended with flatulencies, riſings, or choakings in the throat are perceived, as in hyſteric women; it ſtarts, and is frighted at any ſudden noiſe, and, upon undreſſing male children the nurſes frequently obſerve a ſwarthyneſs, or darkneſs, about the teſtes, as well as about the eyes and mouth; and, an erection of the penis whilſt the child ſleeps. He is often awaked with clinching of his fiſts, which are ſtrongly contracted; he ſtares and fixes his eyes, and, if there is a conſtipation of the belly, frequently falls into convulſive or epileptic fits.

A diarrhœa ſucceeds the ſtriking in of the red gum.

But, as I before obſerved, this is very often prevented, by nature's ſetting on foot a larger ſecretion of humors by the glands of the inteſtinal tube; from whence a diarrhœa is produced: which ſupplies the deficiency of the diſcharge by the ſkin.

A neceſſity of reſtraining the diarrhœa.

But, here alſo the ſkill of the phyſician is much wanted. For, if the acrimony of the juices, in the ſtomach and bowels, is not corrected by the teſtaceous powders, and the diarrhœa moderated by that means, or by the

the help of a little rhubarb; the following ſymptoms will ariſe. The child will be afflicted with moſt cruel and tormenting gripes, it will have green bilious ſtools; be kept awake by pain; and, tho' it ſometimes ſleep, will be frequently waked by ſtarts, and draw its legs up to the belly through exceſs of pain: and if the *irritation* is not by ſome means moderated or appeaſed, the child will fall into convulſive, or epileptic fits, from the greatneſs of the irritation only. Theſe ſpaſms are as much to be quieted by the teſtaceous powders, and gentle opiats as an hyſteric colic is. And unleſs ſomething of this kind is done, the ſeparation and diſcharge, which nature ſubſtitutes, either in order to cure or prevent the diſeaſe, will of itſelf become a real diſeaſe, becauſe it is not kept within due bounds.

This I call the firſt tranſition of nature, after the birth, where the diſeaſe is tranſlated, from the glands of the ſkin to thoſe of the inteſtines, and this is frequently done even in the firſt month. But, as theſe ſymptomatic epilepſies, are ſpurious, and very different from the true epilepſy, which is produced from other cauſes, it will not be improper to give ſome inſtances of this kind, both with a

conſtipation of the belly, and with a diarrhœa.

HISTORY I.

Of epileptic fits with a conſtipation of the belly.

I was called to a male child, about ten weeks old. There had been a plentiful eruption of the red gum; but no running behind the ears, or from the groin. The child was of a groſs habit, and upon the retiring of thoſe eruptions from the ſkin, it grew ſleepy, rejected its food, had frequent riſings in the throat, and the belly was bound. The apothecary was applied to; who gave it rhubarb, once or twice; but the conſtipation of the belly continued notwithſtanding that aſſiſtance; and upon the change of the moon the child fell into an epileptic fit. Upon this I was conſulted, and adviſed ſome blood to be taken away, by the lancet or leeches, a fontanel to be opened in the neck, and the belly to be kept open by rhubarb, or clyſters, with the following ſolution of the gums;

℞ *Aſſafœtid.* ℥j. *Gum. Ammoniac.* ℥j. *Solve in aq. lact. puleg.* ā ā ℥ij. *m. Sumat. cochleare*

cochleare parvum, i. e. a pap ſpoonful, *bis terve in die.*

℞ *Pulv. de guttet.* ʒiſs. *caſtor.* ℈ſs. *Aq. lact.* ʒiiij. *Pæon. c.* ʒj. *Cinnab. antim.* ʒſs. *Syr. pæon.* ʒj. *m. Sumat cochlear.* 1. *frequenter.*

The fontanel began to diſcharge, and the rhubarb had given two or three ſtools, but the conſtipation of the belly ſtill continued, on which account *ol. amygd. d. et ſyr. violar.* were added to the above method. But neither did they all ſufficiently anſwer the purpoſe; for upon the next change of the moon, the convulſive fits returned, and in one of them the child died.

HISTORY II.

Of an epilepſy with a conſtipation of the belly.

A male child was ſeized with an epileptic fit, upon the ſtopping of a plentiful diſcharge behind the ears, by the application of a topical remedy, which dryed it up.

Being conſulted after the firſt fit, and finding the belly conſtipated, I adviſed ſome blood to be taken away, an iſſue to be made in the neck, and a little bliſter betwixt the

ſhoulders, to be kept running till the fontanel diſcharged; and the following method to be purſued.

Mitt. Sang. pro ratione ætat. Fiat. fontanel. in nuchâ.

℞ *Mannæ Calab.* ℥viij. *Ol. Omygd. d.* ℥ijſs. *Syr. Viol.* ℥iſs. *m. Sumat Cochl. j. tertia vel quarta quaque hora, donec alvus dejecerit.*

℞ *Spts. Corn. Cerv. per ſe* ℥ *j. Sumat gr. x. in Cyath. aq. fontan. pauxil. Syr. Pæon. edulcorat.*

℞ *Aſafætid.* ℥*j. ſolve. in Aq. Lact.* ℥iij. *Puleg.* ℥*ij. m. fiat Lac. Sumat Cochl. parvum bis terve in die.*

The belly was by this means kept ſoluble; the fontanel diſcharged plentifully, and the child had no return of its epileptic diſorder. This I think will be ſufficient concerning epileptic fits, when they are attended with a conſtipation of the belly; which indeed are generally the moſt fatal caſes.

We ſhall now proceed to give ſome inſtances of epileptic fits with a diarrhœa, which proceed from irritation. The two following caſes are plain inſtances, of a

diarrhœa

diarrhœa ſucceeding the ſtoppage of the diſcharge by the cutaneous glands.

HISTORY III.

Of epileptic fits with a diarrhœa.

A female infant, about twelve weeks old, had the red gum very full, and at the ſame time, large diſcharges from behind the ears and from the groins: during which diſcharges, ſhe was plump and fat, ſlept well, and the increment was in every reſpect carried to the higheſt degree, which the conſtitution could bear without producing a diſeaſe. But now the child grew heavy, and ſleepy, and the nurſe obſerved her even in ſleep diſquiet and reſtleſs. Soon after, ſhe rejected her food; frequent pukings came on, in which ſhe threw up a great deal of roapy phlegm, like the white of eggs conquaſſated; the milk curdled; ſhe fell into gripes, and a violent purging ſoon after ſucceeded, with green bilious ſtools. At this time her ſleepyneſs went off; the cutaneous eruptions, with the diſcharges behind the ears and groins, totally ceaſed; the infant was now perpetually crying, and drawing her legs up to her belly through

exceſs of pain; riſings in her throat were frequently perceived, like the ſtrangulations obſerved in hyſteric women, and at the ſame time a darkiſh leaden coloured circle, which came and went by fits, about the eyes and mouth: ſhe held her breath and cried till her whole face looked of a ſwarthy colour. In a day or two the epileptic fit came on.

The diarrhœa was ſo ſharp, and ſo frequent, that there was a *prolapſus ani*; and, as ſoon as the child came out of one fit it went into another. To take off the irritation from the rectum, I ordered it to be well pounced with the teſtaceous powders, finely levigated; and reduced by the help of the nurſe's finger, and a warm cloth. I adviſed alſo the teſtaceous powders to be given, in ſufficient quantities, internally; and the following method to be purſued; giving the *anodyn* betwixt the fits, at proper diſtances, till ſleep enſued;

℞ *Pil. Matthæi* ℈j. *Aſafœtid.* ℈ſs. *Solv. in Aq. Puleg.* ℥iiij.

A pap ſpoonful of this was given occaſionally, till the ſpaſms were quieted, and ſleep enſued. But this was ordered to be continued (unleſs the child was bound) once

or

or twice in twenty four hours, to prevent a return of the ſymptoms, laying aſide the *anodyn*, after the ſpaſms had been quieted for a day or two.

By this method her epileptic fits were cured; ſhe had afterwards a fontanel made in her neck, and is now the mother of many children. But this is to be remarked, that when the diarrhœa had been ſtopt ſome few days, the eruptions appeared again in the ſkin; and as the child thrived, the diſcharges from behind the ears and in the groins returned, and when the diſcharge by the cutaneous glands ceaſed, the diarrhœa ſupplied its place. This tranſlation of the diſeaſe happened ſeveral times in this caſe. The diarrhœa however was ever after moderated, by powdered coral taken in its pap; till the child grew ſtronger, and the glandular ſecretions were performed according to nature's laws and more vigorouſly.

But, altho' *aſſafœtida* was joined to the opiate, on account of the riſings in the child's throat; yet I have obſerved, that fœtid gums do not ſucceed ſo well in children, who labour under epileptic diſorders, with a lax ſtate of the bowels, as in thoſe whoſe bellies are conſtipated; nor even there ſo well, as

in thoſe true epilepſies, which laſt to puberty. At which time, indeed, fœtid gums, and medicines of that tribe, beyond doubt promote the hircine or fetulent ſecretions, which are ſo neceſſary to the conſtitution at that period.

HISTORY IV.

Of epileptic fits with a diarrhœa.

A child of eight weeks old, upon the diſappearing of the red gum, was ſeized with a diarrhœa; had green bilious ſtools, and all the ſymptoms before mentioned. She was nurſed by hand, as nurſes call it, and the diarrhœa was neglected and not reſtrained till, from its great irritations, the child fell into epileptic fits, and lay oppreſſed by them for ſeveral days, till her life was deſpaired of. For, as ſoon as ſhe waked from a ſhort ſleep, ſhe fell into a new fit, and then dozed again; which ſymptom, as SYDENHAM obſerves, is often the forerunner of death.

The child's nerves were ſo irritated that ſhe had terrors upon the leaſt noiſe, and would fall into fits even upon the opening or ſhutting of the chamber door haſtily. But this caſe was cured in the following manner.

Fiat

Fiat fontanel. in nucha.

℞. *Pill. Matthæi* ℥ſs. *Aſſafœtid.* ℈j. *Aq. puleg. Fœnicul. aa* ℥ijſs. *M. Sumat. cochl. parvum, i. e.* a pap ſpoonful, *pro re nata, urgente dolore.*

A pap ſpoonful of this remedy was given once or twice a day, to take off the irritation, and the juices of the ſtomach and bowels were ſweetened by taking plentifully powder of red coral in the pap, and other teſtaceous remedies; till the ſtools became conſiſtent. By this method were theſe epileptic diſorders cured in a little time.

I then adviſed a nurſe, who had new wholeſome milk (which I had found from experience to the beſt method, both to keep the child quiet, and prevent its being bound) and by joining to the above method a little *lac ammoniac* and *aſſafœtida* occaſionally, to bring the bowels into a habit of doing their duty, and accuſtoming the glands to lead off the humours moderately that way, all return of the epileptic fits were prevented, and the child continued healthy, and well ever after.

Thus much will be ſufficient to ſay concerning ſymptomatic epilepſies; which happen from the abovementioned cauſes. Epi-

lepſies, which are produced at the time of dentition, or which laſt till after puberty, will be taken notice of at thoſe times of life. In the preſent caſes, we have ſhewn how theſe diſeaſes are cured, by a prudent management of ſuch glandular ſecretions as are provided by nature at the period of life in which they happen.

And, as the intentions in ſymptomatic epileptic fits, with a conſtipation of the belly, are to bleed, to promote diſcharges by the belly moderately, to ſet on foot ſeparations from the blood by fontanels, bliſters, *etc.* ſo, in caſe of an exceſſive diarrhœa, the intention is to ſweeten and correct the acrimony of the ſtomach, and bowels, by the teſtaceous powders, and to ſtrengthen, by gentle doſes of rhubarb: obſerving in caſes of great pain and irritation to quiet the ſpaſms, by ſmall doſes of proper opiats, till the great ſymptoms diſappear; for then we ought to lay that remedy, neceſſary in thoſe great emergencies, aſide.

For, I look upon it highly improper to adminiſter opiats to children, on every trifling occaſion; yet, when the irritation runs ſo high that it produces convulſions, and epileptic diſorders, the great ſymptoms muſt be appeaſed,

appeaſed, to gain time enough to ſubdue the acrimony of the *primæ viæ*, by edulcorants; otherwiſe there can be no expectation of any future help; for the child will neceſſarily die of the fits.

Hitherto it has appeared clearly, that, the power of the heart, and all muſcular force being weak, it was neceſſary to have a weak ſtate of the ſolids, and thin diluted juices, that nature might go on eaſily with the ampliation of the veſſels, and that animal growth might be thereby facilitated. But, to hinder this ſtate of laxity, or weakneſs in the tone of the parts, from being carried too far, (which notwithſtanding will very often produce diſeaſes) nature furniſhes the ſtomachs of young animals with an acid, which, like alum, tho' it will curdle milk, and by that means ſometimes may produce a diſeaſe, yet it braces and keeps up the tone of the fibres, and prevents their going into an alcaline rottenneſs. This we ſee in the runnet of calves ſtomachs, and other animals. But, even this uſeful acid may be too predominant, and require correcting by the teſtaceous powders, and anti-acids; as I have before obſerved.

Amongſt

Amongſt the number of diſeaſes, which ariſe from laxity of the tone of parts, aphthæ are to be numbered; which affect chiefly children, and old people; whoſe glands have loſt their tone, as is evident by the ſtillicidia which trouble them.

For, the aphthæ of children, of which we are treating in this place, ſeem to differ from the aphthæ of adults; which are often preceeded by putrid, continual, or intermittent fevers. But, the aphthæ of children appear to me to be a diſeaſe, of the ſame nature with the red gum in the ſkin, different in this, chiefly, that aphthæ affect the internal glands. In this diſeaſe, the inſide of the lips, the mouth, the fauces, and by degrees, the covering of the whole ductus alimentalis is ſpread over, with little white ſpecks, which rub off, and appear again, reſembling the little floating curds of milk, when turned. The child is ſleepy, and, when awake, querulous, being teized by a ſharp rheum; which is ſeparated by the glands, and in ſome caſes produces a cough, hoarſeneſs, fluxion upon the tracheal glands, and death. At other times, when the ſloughs of the inteſtines begin to caſt off, dyſenteric ſtools, and all the train of miſeries, which

proceed

proceed from excoriated bowels, afflict the patient.

But, this does not proceed, as Dr. HARRIS thinks, from hot ſteams, which are ſent up from the ſtomach to the mouth, as from a furnace; but from acrid humors; which fall upon the internal glands, and in high degrees of the diſtemper actually form ſlough, and ſcald the parts, like vitriol. This diſeaſe begins ſometimes with a ſingle puſtule, or two, upon the lips or tongue, and ſpreads itſelf by degrees to other parts: At other times, the mouth is perfectly clear, and the glands of the ſtomach are affected, producing from the acrimony of the ſecretions there, the firſt ſymptom of a future thruſh; I mean the hiccough; which afflicts the patient many days before the diſeaſe creeps up the gula, and ſhews itſelf on the back part of the mouth, or the lips. It is as long making its progreſs downwards, before it affects the inteſtines; which it does by means of the lymphatics of the diſeaſed glands infecting others, like an herpes, throughout the whole alimentary tube.

And tho' the humor, which is ſeparated by theſe apthoſe ulcers, is not uſually ſo malignant, as that produced by fevers in adults,

yet

yet there is an inſtance, when it is applied to other glands, of its affecting them. For the glands of the areolæ round the nipples of nurſes, who give ſuck to apthoſe children, become affected in the ſame manner as the lips of thoſe they nurſe. In mild diſeaſes of this kind, the nurſe's milk, and a diet of bread and water, to which the child ought to be conſtantly kept, generally diſpoſe the apthoſe ſpots to ſlough or caſt off, and heal. But ſometimes I have known it happen otherwiſe, and the diſeaſe has proved fatal. In ſome bad caſes I have known the following medicine of ſervice;

℞ *Aceti Vin. alb. aq. font.* $\overline{aa}$ ℥iiij. *ſolv. ſalv p. j. Flo. Roris. marin.* ℥j. *Alumen. Rupin.* ℥iſs. *coq. in Ollâ vitrat. ad* ℥x. *tum cola, et colat. adde Mel. Roſar.* ℥j.

Let the aphthæ be cleaned with this medicine, made warm, and the tongue and fauces rubbed over with a little freſh butter, and fine powdered loaf ſugar; the nurſes nipples alſo ſhould be defended by a cerate, after they have been waſhed clean, daily, with a ſoft mellow water; and by this means both nurſe and child are helped through this troubleſome diſtemper.

In

In ſome children, we find at this time of life a fluxion brought upon the glands of the ſkin round the navel. But this chiefly proceeds from the careleſſneſs of the nurſe, who does not keep the ſalts of the ſweat waſhed out, which therefore lodge on thoſe parts that are rendered tender, and often impure, by the diſcharge, which is produced in digeſting the umbilical cord.

And thus far I have endeavoured to proceed, ſtep by ſtep, with nature, and to ſhew how ſhe proceeds in carrying on glandular ſecretions, from the birth of the child to the time of dentition; and it is worth remarking how nearly theſe obſervations agree with the following aphoriſm of HIPPOCRATES: [a] *Secundum ætates autem hæc eveniunt. Parvis, et nuper natis puerulis, ſerpentia oris ulcera, vomitiones, tuſſes, vigiliæ, pavores, umbilici inflammationes, aurium humiditates.*

Aph. 24. Sect. iii. HIPPOCRAT.

CHAP.

CHAP. III.

Of the ſtate of the glands at dentition.

THE next period, which we have to conſider, is that of dentition; which is alſo brought about by nature at her ſtated time, generally from the ſeventh to the tenth month; tho' it differs ſomewhat in particular habits, as they are more or leſs vigorous in their growth. During this period the nurſes obſerve ſeveral puſhes, or attempts of nature by plenitudes, to ſwell, and diſtend the parts about the tooth, which often riſe and ſink again before that painful work is brought about; for, nature is ſlow in ampliating the veſſels, and diſtending the parts, that they may more eaſily yield to the tooth which is to puſh through them, after theſe fluxions abate.

And this I call the *firſt ſtate* of dentition; when the tooth begins to mark the gum with a white ſpot. But, as the tooth is not produced till its enamel has been perfectly formed, and rendered hard enough to reſiſt the injuries of the external air, etc. the parts, which in the mean time undergo thoſe

painful and frequent diſtentions, are neceſſarily ſubject to great fluxions; which affect the tonſils, glands of the throat, and fauces; and produce coughs, and hoarſeneſs, which laſt till the catarrh has diſcharged a vaſt quantity of pituita, and reduced the plenitude under which the child then labours. And in many caſes, when this diſcharge is not ſufficient, a diarrhœa breaks down and anſwers that end; eſpecially about the cutting of the *dentes canini*, which are very ſharp and pointed. If this does not happen, but the child continues bound, the brain very often is drawn into conſent of pain, and the patient becomes epileptic.

Theſe epileptic fits, from dentition, are cured by the ſurgeon's releaſing the tooth, which gives the pain, and thereby eaſing the tenſion of the parts, which were ſwelled; by bleeding, if the head be affected, and keeping the body ſoluble with manna, oil of almonds, and ſyrup of violets.

A fever is often occaſioned by this painful work; but HIPPOCRATES remarks, that theſe children are not apt to breed their teeth with convulſions, as many others are. A fever from dentition.

Quibus

Quibus in dentitione febres acuta accedit, parum convelluntur.

But I cannot paſs over the good effects every body muſt have obſerved from the uſe of *ſpiritus c. c. gutt. Goddardian.* and ſuch anti-acids as leſſen the ſpaſms, and do not bind; but promote a gentle diaphoreſis.

Thus, I have led the reader through the firſt ſtate of diſeaſed glands in children; in which period we have found all the ſecretions ſour and ſubacid, and from thoſe obſervations may be directed to uſe ſuch correcting remedies, as edulcorate the acidities, and are beſt ſuited to the fibres, in that weak tender ſtate. For the ſtomachs of children are always acid, and moſt ſo, when their nerves are moſt irritated. The teſtaceous powders, therefore, coral, crabs eyes, chalk, etc. conjoined with a little rhubarb, are the beſt preſervatives, againſt theſe diſorders. We will now cloſe the period of dentition alſo with an aphoriſm. [a] *Ad dentiendi vero tempus accedentibus gingivarum pruritus, febres, convulſiones, alvi profluvia, maximè quum caninos edunt dentes, iis præſertim pueris, qui craſſiſſimi ſunt, et qui alvo ſunt dura.*

[a] Vid. HIPPOCRAT. ſect. iii. aphor. 25.

CHAP.

CHAP. IV.

Of the ſtate of the glands betwixt dentition and puberty.

IN the next place, let us conſider the ſtate of the glands betwixt dentition and puberty, when nature is employing her weak inſtruments to carry on animal growth; and we ſhall there find, that the diſeaſes neceſſarily produced are thoſe which attend a ſtate of lax and weak fibres. For tho' that watery and fluid habit of the child is a little changed, ſince nature has produced teeth, and the child is entered upon an alteration of its diet, and nouriſhment, yet thoſe changes are made by ſlow degrees.

However, let us conſider the infant grown a little ſtronger, and able to uſe more exerciſe, and ſee what effects are produced by thoſe means. In that ſtate we ſhall find that the adipoſe glands, being preſſed and ſqueezed by the muſcles, are kept within narrower limits, the muſcular fleſh becomes a little more carnous, and macilent, growing daily ſomewhat more cloſe, and firmer in its texture. The external glands are ſtrengthened

by the impreſſion of the cold air, and rendered leſs liable to receive the fluxions of diſeaſes.

But ſtill, as it is the glandular ſyſtem which muſt take off, in great meaſure the redundancies of the conſtitution, the glands will neceſſarily ſuffer moſt at this time of life. For, tho' the external glands, (as thoſe of the ſkin) become now cleaner from their firſt impurities, which were thrown upon them; yet the internal glands become more loaded; and diſeaſes of the tonſils, and uvula, ſhew themſelves. Theſe laſt diſorders were counted by the antients alſo amongſt thoſe, which happen to children at or ſoon after dentition.

But, tho' the external glands appear more ſtrengthened, and the ſkin leſs ſubject to excoriations than before this time; yet if they have ſuffered much from their firſt fluxions, betwixt dentition and puberty we generally diſcover new diſeaſes, or poſſibly the old ſhew themſelves again in the ſkin; and ſcorbutic or leprous eruptions, as they are called, begin to appear; which often retire, and ſhew themſelves again at different times, occaſionally, till the next great period of life, puberty, comes on. And theſe diſeaſes of the

ſkin,

ſkin, if they are not cured at that time, are ſeldom afterwards perfectly ſubdued. I have indeed known ſome, but few inſtances, to the contrary.

In theſe obſtinate cutaneous diſorders, which very often will not yield to any method, at any time without relapſing, I have for many years endeavoured, from the colour of the ſcurff, or appearance of them, to claſs or range the eruptions in ſome order; to diſtinguiſh the moſt mild and curable from the more obſtinate and incurable; but I have not been able perfectly to ſatisfy myſelf on this head, having cured many caſes by ſea water, etc. which appeared to me at firſt ſight deſperate; whilſt others, of a ſeeming milder aſpect, have proved very troubleſome and ſometimes incurable.

But in general, I think, they may be claſſed from their appearances, like aphthæ: the white eruptions not fixing deep, lightly ſcaling off, and not returning, are the mildeſt; the yellow next, if they do not fix deep in the ſkin; and laſtly, the brown coloured, ſubfuſc eruptions like the morphew, and all the gradations down to the dark coloured *American ſcrophula*; which, eſpecially if they leave ſmall foveæ like honey comb in the

ſkin, are of the worſt kind, and give the greateſt trouble. But, as I ſaid before, this appears not to be a conſtant and invariable rule to judge by.

The child having now run off his groſſneſs by exerciſe, the ſtrainers of the ſkin are cloſer, and do not admit of fluxions to come upon them ſo eaſily as before; but the larger internal glands are now far more apt to be loaded, the tonſils begin to be remarkably enlarged; and often ſhew the marks of a weak ſyſtem of glands, and threaten the patient with a future ſcrophula; for they often ſwell, and ſink again, as the conſtitution is more or leſs crowded, and oppreſſed by fullneſs. They are not indeed ſo apt to inflame and apoſtemate as ſome other parts; but, if they once are ſuffered to maturate, are apt ever afterwards to go into ſuppurations, upon the ſligheſt occaſions. This is not only painful, but in its conſequences ſometimes dangerous; and therefore ſhould be prevented by thoſe methods, which I have adviſed in my treatiſe, *De tabe glandulari*; when the gland is in its inflammatory ſtate. But, if the tonſil has already proceeded to maturation, the pus muſt be diſcharged; and if the gland is much enlarged,

larged, and its tone ſpoiled by frequent and repeated fluxions upon it, the beſt method is to take adviſe with ſome ſkilful ſurgeon, and have it leſſened by the operation: which is generally ſucceſsful. As the following caſe was in the event cured by the operation, I will inſert it.

Hiſtory of maturated tonſils.

A girl, from the fourth year of her age to puberty, had been ſubject to frequent fluxions on the tonſils; and her mother had conſulted many phyſicians on thoſe occaſions. The tumours often roſe, and ſubſided again, till at length they maturated; from which time ſhe was troubled with apoſtemations upon the ſlighteſt cold taken; and ſometimes was in danger of ſuffocation before they broke. In one of theſe illneſſes I was conſulted, and finding the tonſil ſuppurated, I adviſed the ſurgeon to diſcharge it; and upon the tumour's ſubſiding, directed the uſe of the *Garg. de Pyrethro Fulleri*; till the gland had purged itſelf, and recovered in ſome degree its ſtrength: and then I adviſed them to conſult ſome ſkilful ſurgeon about the operation. I heard ſoon after that ſhe went to Mr.

GIRL in London, who did the operation very ſucceſsfully, the patient having had no more complaints of that kind.

And thus much of diſeaſed tonſils, and the ſlight ulcuſcula which ariſe in children from apthoſe ſpots, and which are not attended with bad fevers. Ulcers of the tonſils, which are attended with fevers, and ſome of the worſt kind, will be mentioned in their proper place. [a] *Ulcera tonſillarum infantibus periculoſa.*

But ſome conſtitutions are more apt than others to have this fluxion upon the uvula; which often produces diſeaſes of the tracheal glands, and brings on the *angina inflammatoria infantium*, than which I know nothing more fatal. It has been obſerved, that thoſe children who are apt to cough on ſucking, have their uvula larger than others; and very probably they are, from their natural formation, more liable to be diſeaſed. When this part is too long and large, it is very troubleſome and requires the hand of the ſurgeon, as much as the diſeaſed tonſil. But, that we may not dwell too long upon this

[a] HIPPOCRAT. De dentit. ſect. iii.

ſubject,

ſubject, I will content myſelf with relating a caſe of a gentleman cured by this operation.

Hiſtory of a pendulous uvula.

A gentleman of good family had been, during the greateſt part of his life, ſubject to fluxions upon the tonſils and uvula. Under one of theſe caſes I was conſulted, and found all the back part of the throat and palate much inflamed, and the patient in an acute fever.

I adviſed repeated bleeding, and purging with *manna* and *ſal Glauberi*; by which means the inflammation was cured, and the fever removed. But the uvula was left much relaxed, and was always, as he told me, pendulous; it gave him great trouble, brought on a cough and hoarſeneſs, ſo that the glands of the trachea, and fiſtula pulmonalis, began to grow diſeaſed, from a deſcent of the fluxion. To remedy this inconvenience, I adviſed the uvula to be clipt, and ſea water drank daily to lead off the fluxion by the inteſtinal glands. This method had the deſired effect; his cough, hoarſeneſs, and all his former complaints, went off, and

he has continued free from thoſe frequent relapſes to which he was before ſubject.

Angina inflammatoria infantium.

But, if theſe fluxions are not at firſt reſtrained, and they fall down upon the lungs of children, they often produce the *angina inflammatoria*, before mentioned; which, as I have obſerved, is moſt apt to ſeize children from two years old to eight or ten; but chiefly the younger ſort.

It is a general fluxion upon all the glands of the trachea, by which the whole fiſtula pulmonalis becomes inflamed. In this diſeaſe there is no external tumour to be perceived; but, if you look into the throat, you will find a redneſs upon the back part of the palate, and epiglottis; the glands are inflamed, dry, and incapable of ſeparating their mucus. In ſome of theſe caſes, the tonſils are affected, and there are little creeping ulcers, which ſpread about the larynx and alter the voice. A fever attends this diſeaſe, with great remiſſions; but upon every freſh acceſs, the reſpiration becomes very ſhort, and difficult, the child is forced to ſet up erect in its bed, or get up; when it cries is very hoarſe; but often makes, upon every inſpiration, a ſhrill, ſkreaking, or clangoſe ſound; and if it is not inſtantly relieved by

by nature, or art, muſt dye. For tho' I have obſerved a truce from the bad ſymptoms, after the firſt bleeding, for ſome hours; yet, if there is a new acceſs of the fever, inſtead of the parts continuing humid and being made eaſy by their own moiſture, the old ſymptoms return again, and almoſt always deſtroy the patient.

I have ſeen this diſtemper carry off, very ſuddenly, ſeveral children in a family; which makes me ſuppoſe it communicable, like a meaſly cough. And indeed in ſome caſes I have obſerved eruptions appear in the ſkin, but more commonly it happens without any. This fluxion is one of the moſt ſudden and fatal that attend children, and its ſtages are hurried on with the greateſt precipitancy; for, as the parts which it affects, are ſo conſtantly employed in breathing, and ſoon grow extremely dry, it ſeldom runs into an apoſtemation; but either ends ſoon in a *reſolution*, or in a ſphacelus of the lungs.

In theſe caſes bleeding, lenitive purges, bliſters, breathing through warm ſteams of pectoral decoctions, to relax the ſtricture of the veſſels, and encourage the glands to ſeparate their mucus, are the means of cure uſually found moſt advantageous. But, if

ſweats

ſweats come on, and the parts are found at all relieved thereby; then lay aſide all other evacuations, and truſt to the diaphoreſis only; which is uſually critical, about the fifth or ſixth day. Sometimes alſo the fever forms itſelf into an intermittent, which ſhould be cured by the cortex; otherwiſe putrid aphthæ will be produced, and give new trouble of another kind. And thus much concerning the fluxions, which fall upon the tonſils and uvula.

The antients uſed to conceive, that ulcers formed upon the tonſils in the ſummer months were worſt, and more apt to ſpread than thoſe produced at other ſeaſons. For my own part, I think I have obſerved, that both ulcers of that kind and pleuretic affections, have proved more obſtinate in the ſpring ſeaſon, and while the winds have been dry and eaſterly, or north-eaſterly, than when the air has been humid, and warmer. And I have thought a ruffling ſouth weſt, or weſt wind, with torrents of rain to waſh the country clean, has produced the moſt healthy ſeaſons in Great Britain. This puts me in mind of the monkiſh ſaying; *Anglia ventoſa; ſi non ventoſa, venenoſa.*

But,

But, to return to our ſubject. This debility of the veſſels, which is a neceſſary concomitant of infancy and childhood, is productive, as we have ſeen, of many diſeaſes; which chiefly affect the glandular ſyſtem. Beſides, the glands are in themſelves lax, and more apt to receive the fluxion than other parts.

Amongſt the diſeaſes which proceed from laxity we may number the rickets; which, as authors have obſerved, ſeldom appears till the child is nine months old, and rarely laſts longer than the age of two years. Tho' I muſt own I have ſeen this diſeaſe laſt much longer; eſpecially when attended with an intermittent fever, which was brought on by the cachectic habit under which the child laboured. In ſome of theſe caſes the bellies ſwelled, and the œdematous puffy look of the whole ſkin was taken off by a rupture of the lymphatics within, and the diſeaſe ended in a true aſcites. This glandular affection, which appears to be a diſeaſe of childhood, is ſaid to have firſt been taken notice of in Europe about the middle of the ſixteenth century. Something I think like a luxation of the ſpine, from a large ricketty head, is hinted at by HIPPOCRATES, tho' he dont expreſly

expreſly mention the cauſe. *Vertebræ in occipitio introrſum luxationes, aſthmata.*

This diſeaſe alſo is ſaid to be moſt frequent in the northern parts of Europe; and indeed, I believe, it always is moſt predominant in thoſe ſituations, which, from their ſoaking the animal fibres in a damp air, and obſtructing perſpiration, are moſt apt to produce ſcurvies, and intermittent fevers. And, for this reaſon, Great Britain eſpecially, and all the northern parts of Europe, are charged with being moſt frequent in the production of it.

In this diſeaſe the glands of the joints, and the heads of bones, receive the firſt fluxion; the epiphyſes of the bones, the wriſts, the elbows, the knees, the heads of the tibias and fibulas, and the junctures of the ribs to the ſternum, grow larger much than uſual, and bunch out; there appears a ſodden œdematous look in the countenance; the whole ſkin is bloated; the muſcular fibres are weak and flaccid; the head grows vaſtly large, and the ſutures of the ſkull are often very open, or uncloſed. I remember to have ſeen a monſtrous ſkull of this kind, as I gueſſed, in the poſſeſſion of my learned friend Profeſſor ALBINUS, at Leyden.

But

But this diſeaſe is not ſo often found amongſt the children of poor, hard labouring people, as amongſt the more opulent; unleſs it is brought upon them by a confinement to their go-cart, as they call it, or by neglect in nurſing. More inſtances, however, of this misfortune are to be ſeen in Holland, than here. After ſome ſtomachic purges, the cure is to be obtained by a courſe of ſtrengthening remedies; and where the countenance was pale and œdematous I have found *ens veneris*, joined with other medicines, of great ſervice, and rhubarb from its acerbity ſeems to be the beſt cathartic.

There is one circumſtance which very often, tho' not always, attends children labouring under this diſeaſe; and that is a laxity and rottenneſs of the gums, ſuch as we ſee in ſcorbutic people. The nurſes call this the canker in the mouth, and it is very often, if neglected, fatal. I have known frequently the teeth fall out, and ulcers ſpread upon the cheeks, till a mortified ſlough has appeared quite through: eſpecially when the lymphatics of the glands of the upper lip became affected, I have ſeen looſe mortified ſloughs, on each ſide the frænum, creep up to the noſtrils, affect the head, and deſtroy the patient.

tient. When theſe caſes were taken in time I have known the Peruvian bark of very great ſervice, keeping the ulcers well deterged at the ſame time, with *Spiritus cochlear. hortenſ.* mixed with *Mel Ægyptiac.* more or leſs, as the caſe required more or leſs deterging.

I remember when I was a young man, and in the purſuit of phyſic at London, Dr. How ſent me to viſit two relations of his at Hackney. They were under the care of a very negligent nurſe, and both extremely ill. The hips etc. of one of the children were excoriated from impurities, occaſioned by her neglecting to keep the child clean. The other had moſt of the teeth of the upper and lower jaw looſe and falling out, from the putrid ſloughs which had deſtroyed the gums. Upon reporting this to Dr. How, the children were inſtantly removed; one of them was ſaved, but, I think, the other dyed, from the progreſs of this diſtemper, not many days after. This is a great inſtance how fatal it often proves to young children, when their friends cannot frequently inſpect the conduct of nurſes, to whoſe care they commit that great charge of bringing up their poſterity.

As I ſaid before that I much doubted whether HIPPOCRATES did not hint at a diſeaſe

of

of this kind, when he mentions the conſequences of a luxated vertebra, I will relate a ſimilar caſe, of which I had the inſpection.

A palſey of the lower limbs from a luxation of the vertebra.

I was called to a girl about eleven years old, whoſe head was increaſed to ſo monſtrous a degree by the rickets, and the cheſt ſo deformed, that ſhe was not only aſthmatic, but alſo had a palſey of the under lip produced by a luxation of the vertebra; which yielded daily to the weight of her head; inſomuch that by indulgence in ſitting in a bad poſture ſhe hung her head as it were between her knees. I was deſirous to try what the ſurgeon could do to correct this bad ſtructure of the trunk, by ſwinging and ſupporting the head by a collar. But, upon calling ſome time after to enquire how my patient went on, I was told I had miſtaken the caſe; that ſhe had a gentleman then with her, who was uſing ſpells; that he was boiling her water, and had aſſured them her real illneſs was that of being under an evil tongue; however, I enquired afterwards of the event, and heard that my patient was dead.

In theſe children you have ſtrong marks of beginning ſcrophulas; the concatenated glands of the neck are uſually diſeaſed, the meſenteric

meſenteric glands vitiated, if they are examined after the patient's deceaſe. But we may ſee how truly this diſeaſe proceeds from a lax tone of the ſolids, eſpecially of the glandular ſubſtance of the brain, etc. from the obſervations authors have made. For it is remarked, that children who are heavy and corpulent, abounding with pituita, and whoſe brains are large, and the ſutures of the ſkull very open on the vertex, or crown of the head, are more ſubject to the rickets, to the ſcrophula, to epileptic fits, and have the hooping cough, and apthæ, in a more obſtinate manner than other children. After purging with rhubarb ſometime (for when I wrote this I had not tried ſea water in this caſe) the cure is obtained by a courſe of ſtrengthening remedies and cold bathing. I have known the following powders of great ſervice.

℞. *Cort. Fraxin.* ʒj. *Cort. Winteran.* ʒij. *Rad. Oſmund. regal.* ʒij. *Rhabarb.* ʒij. *Ent. Veneris* ʒj. *m. f. Pulv. in Chart.* 24 *diſtrib. quarum ſumat j. primo mane quotidie per aliquot ſeptiman. ſuperbibendo Cochl. ij. Tinct. ſequent.*

℞. *Milleped. pp*t. ʒij. *Sal Tart.* ʒſs. *Croci* ϑj. *Vin. alb.* ℔j. *m. f. Tinct. tum per filtrum trajice.*

But, to proceed with our enquiry into this period of life; under this weak tone of the ſolids, the glands of the ſtomach and bowels of children are not only employed in eaſing the plenitudes, which frequently ariſe in their habits, by ſpontaneous diarrhœas, but divers diſeaſes alſo in the primæ viæ are produced, from the acid humours, which abound in their ſtomachs and inteſtines. And, beſides the acid ructus, colics, epilepſies, etc. before mentioned, the bowels are daubed over with ſour ſlimes, which not only inviſcate the wind, and fill the belly with diſtentions, but afford neſts alſo for round worms, aſcarides, etc. to lodge their eggs in; from whence are produced worm fevers, and diſeaſes of that kind.

Theſe diſorders are cured by deſtroying the neſts, and by purging off the ſlimes with rhubarb, a courſe of ſea water, aloes, or other bitter purges: and, if theſe do not anſwer, by giving mercurials, vitriolics, acids, fixed alcalines, or the like; whoſe cauſtic qualities will deſtroy the tender ſubſtance of the worms.

Betwixt dentition and puberty alſo, all the tumours of the ſtrumous kind ſhew themſelves moſt remarkably, which, unleſs they

are carefully preſerved from matter, ſeldom are cured even at the time of puberty. Tumours therefore of the concatenated glands of the neck, enlargements of the tonſils, lippitudes, ſtrumæ in other parts of the body, internal ſwellings, tubercula of the lungs, diſeaſes of the meſenteric glands, etc. are the complaints which appear in both ſexes about this time; but, as they have been treated of in a former work, I ſhall not dwell upon that ſubject here.

Nevertheleſs it will be proper to obſerve, that under this lax ſtate of the ſolids, as muſcular force muſt be very weak, and act but feebly upon the fluids, ſo their veſſels will not be endowed with a proper elaſtic force; and, as we have obſerved before, the blood will be in a pale watery ſtate. Under theſe circumſtances the cachectic habit will encreaſe, and obſtructions in the whole glandular ſyſtem will prevail, till the conſtitution undergoes ſome change; the face will appear puffed up, and bloated, and the whole body oftentimes œdematous, as we ſee in girls that have the green ſickneſs.

Febris alba.

And this *febris alba* or green ſickneſs, which attacks young girls, from eight years old to fourteen, ſeems to me to be the firſt eſſay of nature to warm

the habit, and bring about menſtruation; at leaſt, menſtruation is its uſual cure. Menſtruation, nevertheleſs, ought in general to be left to nature's time. For, as it cannot poſſibly continue under this weak ſtate of the ſolids, and in this vitiated cachectic habit; to force theſe ſecretions before their proper time, will be, in my opinion, doing great miſchief. Becauſe at this early time of life, the veſſels of the matrix are unfit to do their office, and every way unprepared to bring about this change, which by the order of things is appointed for a ſomewhat later date. And indeed, if by the uſe of medicines, menſtruation be forced at eleven or twelve years old, as ſometimes I have ſeen, yet, in our part of the world, it does not uſually ſubſiſt; but, upon diſappearing, frequently produces hyſteric fits, or epileptic diſorders; which uſually return, and afflict the patient at times, till nature herſelf brings about the menſtrual diſcharge in its proper ſeaſon.

And, as we are now approaching to puberty, at which period this change happens to the habit, it will not be amiſs previouſly to adviſe the young phyſician againſt forcing theſe ſecretions before their natural time and

ſeaſon. For, under that ſtate of unprepared veſſels, and a vitiated habit, the ſtrainers muſt ſuffer much by an untimely and imprudent uſe of ſteel, etc. and, if they are not burſt, many times ſuch obſtructions will be formed in the glands, as never are got the better of afterwards. And indeed, I have often ſuſpected many obſtinate hyſteric diſorders, and ſterility itſelf, to have had their foundations laid, by loading the conſtitution too early, and too much, with theſe remedies. Steel is a noble remedy; but as it is a great and very efficacious one, ſo it requires the direction of a ſkilful phyſician to adminiſter it. It is not poſſible to ſay, how many hæmoptoes are produced, how many tubercles of the lungs, and other parts, are maturated, by the imprudent and unſkilful uſe of this remedy. Till nature, therefore, favours the time of adminiſtring this great remedy, it would be more prudent and ſucceſsful to content ourſelves with keeping the bowels cleanſed of their ſlimes, by a daily uſe of *elixir proprietatis*, or *tinctur. melampodii*, and if that method does not do, by joining calomel to ſtronger purges, at the time when that change is more eaſily brought about. For, when nature points out the time,

chaly-

chalybeates are then more ſafely uſed, till menſtruation is brought about, and the blood rendered ſane and healthy. I would not, however, be underſtood utterly to condemn the uſe of chalybeates, which doubtleſs may ſometimes be abſolutely neceſſary; but I believe indeed they are very often miſuſed, even by our patients themſelves. In caſes where the habit is grown highly cachectic, it is difficult to cure without the help of chalybeates, but in diſeaſed lungs, in diſeaſed glands of all kinds, as well internal as external, if the patient is intemperately hot, and things ſeem to incline towards an inflammation, the uſe of ſteel ought carefully to be avoided.

I mention this with particular caution, becauſe ſteel in the green ſickneſs is become ſo common and celebrated a remedy, that mothers, nurſes, and perſons utter ſtrangers to the ſcience of phyſic, apply it in thoſe caſes upon their own bottom, and often do great miſchief to the conſtitution by an untimely and imprudent uſe of it. A great quantity of this remedy will not do, when given out of nature's time; but a little will, if well timed and given judiciouſly.

For, when the new ſecretions, which are to be ſeparated from the blood about puberty, begin to have their effect upon the heart, arteries, and whole habit, the power of the heart grows ſtronger, the arteries are endowed with greater elaſticity; inſomuch that in ſome pale diluted caſes, where the capillary arteries are greatly diſtended, the whole body almoſt vibrates with one univerſal pulſe, till the obſtructed veſſels of the uterus are broke through, and menſtruation is brought about. At which time all the difficulties of ſhortneſs of breath, laſſitude on moving, ſickneſs at the ſtomach, unuſual longings for traſh; the pale and ſometimes green œdematous look of the ſkin, with its pulſation, and which is eſpecially in the neck, gradually diſappear; and the patient becomes healthy and florid.

Hitherto we may pronounce the ſtate of the animal body to have been that of laxity, where the coheſion of parts was very weak, eaſily diſunited, ſubject to diſtentions and elongations, and of conſequence liable to frequent fluxions, upon particular parts of the glandular ſyſtem. And altho' this ſtate was the moſt proper for infancy; when growth, and an elongation of the veſſels, was neceſſary; yet, to carry animal fibres to that

firmneſs

firmneſs which is neceſſary to undergo a ſtate of labour and exerciſe, and to laſt for ſeventy or a hundred years, there was ſomething more requiſite; and that was, to give a greater degree of elaſticity, at the proper time of life. How that is brought about, with the advantages the conſtitution receives from it, will be the ſubject of the next chapter.

Having carried the reader on, from the time of dentition to that of puberty, and ſhewn him what parts of the glandular ſyſtem are moſt apt to be diſeaſed, at thoſe times; as alſo, what methods nature takes, and what the phyſician ought to copy from her in relieving them; I ſhall cloſe this period, (as I before have done, and deſign to do hereafter,) with one of the aphoriſms of HIPPOCRATES: [b] *Ipſis vero grandiuſculis, tonſillarum inflammationes, vertebræ in occipitio introrſum luxationes, aſthmata, calculi, lumbrici rotundi, aſcarides, verrucæ; præcipuè vero antedicta.*

[b] HIPPOCRAT. aphor. 26. Sect. iii.

CHAP. V.

Of the ſtate of the glands about the time of puberty.

HITHERTO we have obſerved, that altho' the projectile force of the heart was weak, yet the texture of the infant was proportionably leſs cohering than afterwards; that it was therefore eaſily diſſolvable; that the bones, cartilages, and moſt of the ſolid parts of the body, not having their growth, (as the ſutures of the ſkull, etc. evidently ſhew) it was neceſſary there ſhould be little or no oppoſition to the heart, and that upon this weak reſiſtance to the powers of it, depended longitudinal growth. The diſeaſes therefore which accompanied that ſtate of the veſſels were of neceſſity glandular; and ſuch as we have mentioned; being in truth conſequences of a too eaſy diſtention of the tubes employed in circulating the fluids; from whence a diminiſhing or loſs of their elaſticity, and for want of their acting with due power upon the fluids, obſtructions, tumours, extravaſations, and all the conſequences,

quences, which the doctrine of tumours teaches us, muſt neceſſarily enſue.

For, tho' according to the order of providence, this ſtate was neceſſary to facilitate longitudinal growth, yet it is poſſible, as we find by experience, to be carried into an exceſs. And we not only ſee tumours, and other diſeaſes, produce from this cauſe, but very often many glandular ſecretions augmented too much; while other glands are often loaded or obſtructed; as in illneſſes of children, where the power of the heart has been ſo augmented for a time, by the violence of the diſeaſe, that a ſudden and too haſty growth ſucceeds. In this caſe nature is put to great difficulties to nouriſh and ſupply the body with proper recruits. Under which circumſtances the phyſician will find great advantage from the aid of ſea bathing, the Peruvian cortex, preparations of vitriol, and other ſtrengthening remedies; as they will reſtrain the large and undue ſecretions, by confirming the lax and weak tone of the ſolids, and by that means prevent an hectic habit, which would otherwiſe probably enſue.

We will ſuppoſe then, that at, or about, the age of fourteen, it was neceſſary that the ſtate of debility ſhould be changed, and grow firmer; and that a greater elaſticity ſhould be given to the veſſels, as well as a greater degree of ſtrength to the muſcles, in order to enable man to execute vigorouſly thoſe offices of life to which he was deſtined. For the effects of an encreaſe of muſcular and vaſcular ſtrength is of great conſequence at this time. For, under this tender ſtate of the bones, if the muſcles act with their proper power on them, ſuch furrows, or chanels, are worn, or impreſſed upon them, by the muſcle, as give it not only the moſt advantageous inſertion for its tendon that can be contrived, but greatly facilitate its action. The ligaments of the joints, growing firmer, keep the glands which are ſituated in the joints from growing too large, and by compreſſing them, aſſiſt in the ſeparation of that liquor, which is neceſſary to lubricate and moiſten the parts, and by that means prevent the heads of the bones from growing dry, and heating by friction. The luxuriant growth of the ſpongy heads of the bones are alſo by this means reſtrained. But let us ſee what

what diſeaſes would enſue, if this change did not happen to the conſtitution.

Firſt of all, the muſcles having wrong directions, there muſt happen an incurvation of the bones, and an unequal growth of them, as in the rickets. Secondly, *ſpina ventoſa* of the heads of bones. Thirdly, fluxions upon the glands of the joints, extravaſations, ichors, which corrode and rot the bones, make their way out through the capſula of the joints, and end in an incurable fiſtula. Theſe, and many other misfortunes, would happen, if there was not an increaſe of the animal powers at this time by ſome new ſecretions ſet on foot, to carry on the deſign of providence ſtill farther.

The young perſon, therefore, being arrived at the age of fourteen, would often find himſelf labouring under inſuperable difficulties, unleſs nature further lent her aid: many ſtruma's, which had been hitherto unconquerable, many diſeaſes of the ſkin, which had been ungovernable, would ſtill ſubſiſt; and above all, that epilepſy which is cauſed by the glandular ſubſtance of the brain being diſeaſed or ſtrumous, would continue, and threaten the patient with paralytic, or apoplectic affections, or idiocy itſelf. All which

which diſeaſes, if they are not removed at this time, ſeldom afterwards receive a cure; altho' they very often are ſubdued, before and at this period, by a right management of the glandular ſecretions.

Let us ſee therefore what new aid nature brings to the conſtitution; and obſerve by what ways ſhe often cures theſe diſeaſes herſelf, and learn from this great miſtreſs of our art, how to conduct ourſelves, when we are called upon to exerciſe it. Here the reader will eaſily ſee what difficulty an author labours under, who is to write upon a point of this delicacy, and to conduct himſelf in ſuch a manner as not to offend a chaſte ear, without giving up the philoſopher or the phyſician. I ſhall endeavour to obſerve the proper mean, as much as I am able.

At puberty therefore, ſeveral orders of glands, which I ſhall call by the general name of *incentive glands*, are ſet on work. I call them incentive, becauſe they are deſtined to ſtimulate by their fluids thoſe parts which are to be now enlarged, and excite both male and female to venery,

ut cupidè generatim ſec'la propagent.

The breaſts of females are by degrees enlarged,

larged, and productive of venereal ideas, the catamenia appear, and all the parts of generation are carried to their greateſt ſtate of perfection. How great a ſhare the ovaries have in the preparation of the animal for prolification, is ſeen by ſpaying of brutes; where all incitements of this kind ceaſe, upon taking them away.

This of the female: In the male you find innumerable *animalcula*, lodged in the *ſemen maſculinum*, almoſt as ſoon as it is formed or ſecreted: but, inaſmuch as frequent repetitions of coition will render the recent ſemen of adults too thin, and conſequently infecund, one would be inclined to think, that the original ſeeds alſo, not finding a fluid fit to reſt in and unfold themſelves, till about the fourteenth year, are, till that period of life, carried round with the common circulation of the juices.

The ſecretions of the incentive glands are rancid, and what the antients called hircine. [a] HIPPOCRATES called this ſtate of the juices by that name, and ſays the youth begins τραγίζειν, and FESTUS calls young men, when they firſt come to their virility, *hirquitalli*, the ſecretions from theſe glands being

[a] Epidem. 6. ſect. iii.

rancid

rancid and ſtrong, and, as HORACE expreſſes it,

gravis hirſutis cubat HIRCUS *in alis.*

And now the ſtop is put to longitudinal growth; gradually, betwixt the fourteenth and twenty firſt year of the perſon's life: for there is a neceſſity that theſe changes ſhould be made almoſt inſenſibly, and not at one puſh or effort, if I may ſo expreſs myſelf. The antients eſteemed longitudinal growth alſo to be finiſhed at the age of twenty one years; [b] *Homo creſcit in longitudinem ad annos uſque ter ſeptenos; tum deinde ad plenitudinem.* This great change in the habit of males ſeems to be made by the *ſemen maſculinum*, which appears from experiments made on their caſtration. For, it is evident from thence, that the ſemen is not only neceſſary for prolification, but is productive of all that brawnyneſs, and muſcular ſtrength, which ſucceeds the elaboration of it. For that part of the elaborated ſemen, which is more than neceſſary for the uſe of generation, being returned by the veſſels, ſaturates the whole habit, and, as Dr. WHARTON ſays, *nobilitates*

[b] Vid. PLINY, lib. ii. c. 38.

the

the blood, and ſtrengthens the nerves; [c] *Portio aliqua ejus* [ſeminis *ſcilicet*] *una cum humore aqueo in corpus reducitur, adeoque ſanguinem ipſum nobilitat: qui partes omnes nervoſas perluens, eaſdem magis quam antea foveat, oblectat, et corroborat.*

And, that the blood is ſaturated by this means, is very clear from the obſervations which the keepers of parks make on their bucks; when they are in prime health, and there is a redundacy of humors ſecreted by all the incentive glands, at the time of rutting. For the fine flavour of the veniſon then ceaſes, and the fleſh is rancid and of a very diſagreeable taſte; inſomuch, that if bucks are killed late in the ſeaſon, the keepers tell me they are obliged to avoid cutting any of the lymphatics near the parts of generation, otherwiſe they ſhed out a yellow liquor, which is ſo diſagreeable in taſte and ſmell, that it affects all the parts it touches, and makes the fleſh not eatable.

At rutting time, nature obſerves the following order in ſetting to work theſe incentive glands: firſt the teſtes begin to be conſiderably enlarged; then the glands of the buck's throat and neck ſwell, and continue in

[c] WHARTON, De glandulis, p. 187.

that

that ſtate all the time nature employs largely thoſe ſecretions. The next ſtage is, when the animal grows lean; the tumours then decline, and the parts return to their natural ſize and ſhape till the next year. It is clear therefore, that the blood is ſaturated by this means, and what effect it has upon the ſolids, as well as the fluids, will be ſeen from the following obſervations.

Firſt, the blood having received that impreſſion from the *ſemen maſculinum*, gives a kind of gluten and ſtrength to all the muſcles; and the blood veſſels are rendered tougher, and more elaſtic: next, as the heart and blood veſſels grow ſtronger, they are able to perform a ſtronger triturition of the fluids, which are circulated through them: from that vigorous triturition there is an encreaſe of animal heat, and a change conſequently made in the whole ſubject: for the pale, tender, ſoft habit of an infant, gives place to a more florid countenance, a finer ſkin, and greater bodily ſtrength. And the loſs of thoſe beneficial aids eminently ſhews itſelf in the complexion of ſome caſtrated animals; as where the pale capon loſes the florid look of the ſprightly uncaſtrated bird.

The

The muſcles therefore having acquired, from this new help, a great degree of brawnyneſs, the adipoſe glands are more ſtrongly compreſſed, the habit grows firmer, leaner, and more fitted for all the active and laborious offices of life. And, becauſe longitudinal growth is to be reſtrained, and the collateral branches of the veſſels opened, and extended by ſlow degrees into thickneſs or bulk, ſo, that the conſtitution may not ſuffer from the fulneſs which might ariſe from the ſuppreſſion of longitudinal growth, there are new ſecretions ſet on foot by nature in either ſex, to take off theſe redundancies; the *ſemen maſculinum* and menſtruation.

In thoſe conſtitutions, therefore, which have been ſo unhappy as to labour under diſeaſes of the glands, and have not got cured from infancy to this time, the preſent ſeems to be the laſt effort that can be ſucceſsfully made by nature to bring about their cure. For, as ſhe is dayly bringing about a period to longitudinal growth, during which they have received no benefit, their only chance left is in the future ampliation of the veſſels. And, if they do not get rid of theſe complaints betwixt puberty, and the twenty fifth year of their lives, they ſeldom are freed from them afterwards.

I have known moſt obſtinate hemicranies and headachs which have returned at times with great violence till puberty; but received a perfect cure by nature at that time. The following caſe was a glandular petrefaction, betwixt the *dura* and *pia mater*, which occaſioned the death of the patient: it was communicated to me by the reverend Mr. TREVEGAR, the ſon of Dr. TREVEGAR, who was the lady's phyſician, and preſent at the taking it out. The under ſide of the ſtone is flat, about the twentieth part of an inch thick, the upper convex; the ſurface is rough, and porous, with a tomentoſe or wooly body, betwixt the granulated parts of the tumour, which looks like the lacerated involucra of ſo many ſmall diſeaſed glands. The figure of it is expreſſed in a copper plate[e].

This was taken out of the head of Mad. de L' HERMITAGE, wife to the agent for the ſtates of Holland at London, in the preſence of her phyſician, who has wrote upon it as follows: *Pierre, que s'eſt trouvée dans la tête de Mad. de l' Hermitage, entre la dure mere et la pie mere.* The lady had been for many years exceedingly afflicted with a conſtant headach, which had brought on epileptic

[e] Plate I.

diſorders,

diſorders, and was finally the cauſe of her death.

This will let us ſee, when hemicranies, epilepſies, and other diſeaſes of the head, which proceed from the preſſure of the ſpines of bones; or when internal caries of the ſkull, extravaſations which acquire acrimony, or ſuch caſes as this I have mentioned, happen, how impoſſible it is to cure them, unleſs the cauſe itſelf is taken away. Beſides the diſeaſes mentioned, ſcirrhous tumours are alſo found in the brain; two inſtances of which, as big as pullets eggs, are mentioned by Mr. CHESELDEN, in his Anatomy: and theſe tumours ſometimes go into abſceſſes. But, where none of the foregoing cauſes can be aſſigned, I generally eſteem the epilepſy, which attends perſons till after puberty, to proceed from a ſtrumous ſtate of the brain; and I believe more of thoſe caſes would be cured, if they were treated as proper ſtrumæ, than if any other method were purſued.

We ſee that this diſeaſe is often cured by nature at puberty, as well as other ſtrumæ; we ſee alſo that the uſual method is ineffectual; and therefore ſhould look out for convenient helps from the tryal of which no

danger can ariſe. And it ſeems to me, that we may reaſonably conſider an epilepſy in this light, if we allow the brain to be ſubject to the ſame accidents as other diſeaſed glands; as we really find it is. Epileptic diſeaſes are apt to form their great fits about the changes of the moon. And, when plenitudes ariſe in our habits, or in thoſe of other animals, are they not remarked even by common obſervers, to ſhew themſelves moſt about thoſe times?

Lubrica naſcentes implent conchylia lunæ[f].

An epilepſy is one of thoſe diſeaſes, which, from its obſtinacy, has often been looked upon as incurable. But I doubt not that many more would be relieved from this diſeaſe, than at preſent are, if a due regard was had to the management of glandular ſecretions, and nature's times were more conſidered; not putting her upon a cure of that diſtemper at eight or nine years old, which is impoſſible for her to bring about till the time of puberty. The ſame turgeſcence ariſes in the habit to bring on epileptic fits, as in ſtrumous habits to encreaſe at times their ſwellings, and both are generally moſt felt about the great changes

[f] HORAT. Epiſt.

of

of the moon. An epilepſy is oftener cured by nature than by the phyſician; and that is done by her at the time of puberty in both ſexes; after the ſame manner as ſhe cures ſtrumæ, by an ampliation of the veſſels, and by ſetting on foot new ſecretions, to take off the redundancy that offends, and loads the delicate organ of the brain. The ampliation of the veſſels, from hymeneal exerciſes, was obſerved by the antients; [g] *Nam ſi vir multum coëat, venæ ſunt ampliores redditæ.*

And the cuſtom amongſt the ancients of meaſuring the bride's neck ſeems to have been founded on the ſame notion; to which CATULLUS alludes in the following lines:

[h] *Non illam nutrix orienti luce reviſens*
Heſterno collum poterit circumdare filo.

From what has been ſaid I think it plainly appears, that muſcular force is increaſed by the blood's ſaturation with the *ſemen maſculinum*, and that therefore the muſcular coats of the conglomerate glands muſt neceſſarily receive a great additional ſtrength, about the time of puberty: So that, from the ſuppreſſion of longitudinal growth, the chief hope

[g] HIPPOCRAT. De nat. pueri, ſect. xxii.
[h] CATULL. de Nupt. Pelei et Thetidos, lin. 376.

of curing theſe diſeaſes is founded upon the ampliation of the collateral veſſels, and this great increaſe of the power of the muſcles in the conglomerate glands.

Let us go on therefore hand in hand with nature, make uſe of thoſe great helps, which are put into our power, at the proper time of life, and I doubt not, but thoſe obſtinate diſeaſes, by time and experience, will be brought to as much certainty of cure as many others. I ſhall add to this part ſome caſes of true epilepſies, cured about the time of puberty.

HISTORY I.

Of an epilepſy cured at puberty.

A youth was committed to my care, who laboured with epileptic fits, from the firſt months to the time of puberty. This was a true epilepſy, and terminated with foaming at the mouth, and other uſual ſymptoms. I had not only done what I was able to do for him, but had alſo conſulted the beſt phyſicians on his caſe, without the leaſt benefit. The only ſuppoſed good, which could have happened from the methods taken, was, that by keeping the blood veſſels, and lymphatics of the brain,

brain, ſafe from ruptures, till puberty, the patient might not be cut off from the benefit which might be hoped from that great change. When this patient arrived at the age of fifteen years, he was ſeized with two moſt dangerous epileptic fits, in which we deſpaired of his life. The blood was thrown out into the extremities of the veſſels with ſuch violence during the fits, that the whole ſkin became red, and filled with ſpecks like petechiæ, the conjunctiva in both eyes were ſtriped with blood as after a concuſſion, and in this manner he lay like one thunder-ſtruck, for two or three days: his urine and ſtools were involuntary, as was alſo the emiſſion of ſemen in both fits. He was let blood, and ſuch methods were uſed, as he had before found beneficial; but theſe were not attended with ſucceſs. However, after his recovery out of theſe fits, he never had any return; but was cured of his epilepſy by nature upon this change of his conſtitution, the veſſels having undergone their proper diſtenſions.

HISTORY II.

Another epileptic perſon cured at the time of puberty was a poor man's ſon, who had the falling ſickneſs, or epilepſy, from the time

of dentition to puberty, and had been under my eye. I preſcribed from time to time, and thought, when I gave him the fetid gums, caſtor, valerian root, and ſuch remedies as tended to promote the hircine ſecretions, that he was worſe for them, and had his fits more violent. However I omitted nothing of the common method; he tried the miſleto, and other remedies, in vain, till after or about puberty; when he was cured by nature, and her efforts.

HISTORY III.

A third inſtance of an epilepſy cured at the time of puberty was in a youth, who had this diſeaſe from his infancy. It had eluded all the means which were uſed; his nerves had been ſo ſhocked by the fits, that he has to this time a vaccillatio, or half rotation of the head, which moves upon its axis, all the time he is awake, like the pendulum of a clock, and his ſpittle is apt to flow out at the ſide of his mouth. But all this miſchief was done before he arrived at puberty. For upon the coming on of that great change in his habit, he was cured of his epilepſy, tho' the aforeſaid weak-

weakneſſes remain, as marks of the violence of the diſeaſe.

HISTORY IV.

Of an epilepſy cured at the time of menſtruation.

The daughter of a gentleman, had been epileptic from the time of dentition to puberty: all the uſual methods had been tried, and ſhe had notwithſtanding very near expired in a fit at eleven years old, when there appeared a ſmall ſhew of the menſes; but they appeared no more till ſhe was in the fourteenth year of her age. At which time ſhe was ſeized with a violent epileptic fit, in which they thought ſhe had been actually dead. I was inſtantly called, and found a pair of bead necklace about her neck, which, when the neck ſwelled during the time of the epileptic fit, had produced ſuch a ſtrangulation, that the blood was driven all over the neck and face, and was almoſt ready to force itſelf out of the capillary veſſels; the ſkin was all over ſpread with purple ſpecks, and her eyes were blood ſhot, as from a concuſſion. I removed the necklace inſtantly, and found her coming out of the fit. She was let blood, and the day after purged with

tinct.

tinct. ſacr. et *ſyrup. de ſpinâ cervin.* There was no return of her epilepſy till a month after; during which time ſhe had taken *elixir. proprietat. tart.* et *tinct. aſſafætid.* cum *fuligine*, daily. At the month's end, ſhe had a ſlight epileptic fit, when the menſes broke down: the *elixir*, etc. was continued after the menſes had ceaſed at proper times till the coming on of their next period, when they came plentifully, were afterwards regular, and the patient never has had any epileptic fits ſince.

In this caſe we ſee not only the ampliation of the veſſels, but alſo a proper evacuation to relieve the habit of its fullneſs, was neceſſary to remove the diſeaſe. And indeed phyſicians may obſerve, that epileptic fits terminate ſooner, and more eaſily to the patient, whenever the fluxion is turned off from the brain, by nature's having ſet on foot ſome glandular ſecretion in an encreaſed degree. For, when there happens to be a diſcharge by ſome few looſe ſtools, by an emiſſion of ſemen, or a great quantity of urine; and particularly, if the patient ſweats plentifully, the paroxyſm is leſs violent, and of ſhorter duration.

The habit being now ſtrengthened, by the advantages of puberty, and the glands not ſuffering their ſecretions to ſlip through with ſo great facility as in their ſtate of laxity, that ſalivoſe ſtate of children and the liberal diſcharge by ſecretions from the glands of the noſtrils, eyelids, etc. ceaſes. For the muſcular coats of the glands and their ſphincters, being ſtronger, are therefore not ſo liable to the weakneſſes before mentioned; but that very alteration in their tone ſubjects them to diſeaſes of another kind. Inflammatory diſorders are now more apt to afflict the patient, as the redundancies are not ſo eaſily carried off; fevers are the frequent attendants of this part of life, and would oftner be ſo, did not nature ſubſtitute the two great changes in males and females at this time; and very often produce alſo ſpontaneous bleedings at the noſe, to prevent theſe febrile attacks. But, if the inflammation riſes to any degree, the glands almoſt always are concerned in receiving the criſis.

The plague, and all other peſtilential fevers, are apt to make their depoſits upon the glands of the larger emunctories. And tho' the inguinal glands are more apt to be infected in the *lues venerea*, that may be owing to

to the vicinity of parts, the poiſon having been conveyed by the neighbouring lymphatics. But in fevers the glands of the neck, throat, thorax, lungs; or thoſe of the mouth, and whole *ductus alimentalis*, are more uſually affected; as are ſometimes alſo thoſe of the *axilla*, and groins.

Glands of the neck and throat ſubject to popular diſeaſes.

It may not be improper to obſerve here, that the glands of the neck and throat, in both ſexes, are ſubject to popular diſeaſes; with which they are uſually afflicted once at leaſt in their life time: and this accident happens to other animals as well as to mankind.

But theſe diſeaſes ariſe generally from tranſitions of eruptive fevers, which ſhift from the ſkin to thoſe parts. The epidemic ſore throats, which are often ſo fatal, appear to me to be of this kind. And, as I have two or three times ſeen this diſtemper appear and then ceaſe for a time, I will give the moſt diſtinct and accurate account of it I can; that it may not be confounded with ſore throats of another kind. The patient is ſeized with rigors; a pain of the back, head, and limbs; ſometimes with ſymptomatic vomitings; but children oftener with a diarrhœa, which commonly goes on two or three days before there

is

is any eruption in the ſkin; and, if it laſts longer, very often no eruption at all appears; but putrid ſloughs fix upon the tonſils, and I doubt not, a kind of black thruſh in many caſes makes its progreſs through the whole alimental tube. This appears from ſloughs brought up very deep, with hæmorrhages following them; in which caſes the criſis is internal, and generally fatal. But in many there is no diarrhœa, or it ceaſes ſoon; and then the eruption appears in the ſkin, poſſeſſing ſometimes only one particular part; at other times covering with redneſs the whole face, neck, breaſt, and arms; and in ſome perſons ſpreading all over the body. At this time there is a remiſſion of all the ſymptoms, the diarrhœa ceaſes, and the patient appears tolerably well. Under this light ſtate of the diſtemper, if the eruptions continue four or five days in the ſkin, going off gradually, and leaving a branny deſquamation after them, as in the ſcarlet fever; the criſis is perfect, and nature ſhould not be diſturbed by any evacuation; for the patient will do well. But, if the eruptions ſuddenly diſappear upon the ſecond or third day, the diſeaſe is reſorp'd again into the blood, and moſt diſtreſsful ſymptoms follow. The patient

tient is awaked out of his ſleep with ſick fits, palpitation of the heart, ſwoonings, hurries in the head, and he ſtarts at every noiſe. At this time alſo he finds his throat ſore; which upon inſpection is red, and inflamed; the tonſils, and parts about the larynx, appear ſcalded with the humour, oftentimes grow black, and mortify; a hoarſeneſs comes on, with the complaint of a hardneſs riſing in the throat, and crowding up of the gula; which is convulſive. The patient now begins to make large quantities of thin pale water, the brain is much affected, and the event generally death. This is the moſt unfavourable ſtate of the diſeaſe.

But, many times there is a tranſition of the diſtemper from the glands of the ſkin to thoſe of the neck, which ſwells externally: the face too is puffed up, and ſometimes I have ſeen the eye-lids cloſed, as in an eryſipelas. In theſe caſes, tho' the parotids ſwell much, and the parts behind the ear are very painful; yet the diſeaſe uſually terminates more favourably than where it is internal, and attended with thoſe enraged ſymptoms above deſcribed; the fever leſſens about the fifth day, and, as the diſeaſe appears externally, the nervous ſymptoms vaniſh, the throat grows eaſy, the patient

ſwallows

ſwallows tolerably well, tho' with greater pain than in ſome of the more fatal caſes; the ſloughs generally (if there are any) lay not very deep, and caſt off eaſily; the ſkin does its office; and the patient, by keeping his bed or chamber, ſoon recovers from danger, altho' the parotids continue ſwelled and tender for a great while.

Thus this illneſs, in its moſt dangerous circumſtances, is attended with the ſame accidents as an eryſipelas, of whoſe nature it ſeems to partake. If it be external, the event is commonly favourable; if internal, death generally enſues. The antients ſeem to have obſerved the ſame thing: [a] *Si in angina tumor prius ad cutim, ſeu externas partes non apparuerit, mox vero appareat, fiet id per tumoris augmentum extrorſum; unde minus introrſum premet, et boni erit ominis.* Again HIPPOCRATES takes notice, that if the tumor appears externally in the neck, it is of good omen: [b] *Angina correpto, ſi tumor oriatur in collo, bonum; foras enim morbus vertitur.*

I muſt truly own, when the eruption appears kindly, I have hardly been able to diſtinguiſh this diſeaſe from the ſcarlet fever;

[a] HIPPOCRAT. ſect. vi. aphor. 37.
[b] Sect. vii. aphor. 49.

except

except, I think, that it is generally more purpurine, and tends towards the look of petechiæ. When the humor firſt ſhifts from the ſkin, bliſters on the legs, and moderate cordials, are proper. I have found alſo a moderate degree of warmth neceſſary for theſe patients, according to the degree of the diſtemper; a confinement to their beds, or chambers, till the criſis is over; and ſuch treatment as in other eruptive fevers. I think thoſe have done beſt, where the evacuations were uſed before the eruption appeared in the ſkin. If I have therefore been called in early, I have adviſed bleeding and giving a little manna; committing the buſineſs afterwards to nature, who then proceeds with leſs difficulty in diſpoſing of the diſeaſe after her own way, being not ſo much oppreſſed with that fullneſs, which is apt to do great miſchief on the firſt days of febricitants.

But in many caſes, where the ſymptoms are very mild, I do not bleed at all; for I have obſerved the blood of theſe patients is not ſizy, like thoſe of pleuretics; but the texture appears rather looſe and tender, and therefore do not require bleeding ſo much as inflammatory quinzies. I have remarked alſo, that many of the patients, whom I have

have ſeen in danger, have been more hurt from an haſty and injudicious tampering with the criſis, before nature had ſufficiently done her buſineſs, than from the ſloughs. For the untimely purging to get rid of the tumour of the glands, has brought on a new fever, and the ſame work was to be done over again, at the utmoſt peril of the patient. For, theſe caſes will not bear early purging, after the fever is dropt. And indeed I have obſerved that ſervants, for this reaſon, and poor people, who go about with the parotids hard and ſwelled, and commit the diſſipation to nature, have done better, than thoſe who have been too early in their uſe of purging phyſick. For the criſis of fevers are always dangerous things to puzzle or interrupt.

There is a great difference, therefore, between theſe caſes, and *ſtrumous parotids*; which laſt are ſtuffed with pituitous humors, and ſhould by all means be prevented from maturating, and treated with evacuations, in the manner laid down in my treatiſe *on glandular conſumptions*. But theſe malignant or *critical tumors* of the parotids ſhould be left wholly to nature, or, if ſhe points out a maturation, it ſhould even be encouraged; and we ſhould neither bleed, purge, nor uſe any

revulſion. It will be found alſo, that tho' theſe tumours, when they come at the latter end of the diſeaſe, almoſt always ſave the patient's life; yet, if they appear early, on the firſt days, when the matter is crude, they are bad omens; ſo are they likewiſe, if they appear very late, when the patient's ſtrength is worn out, and nature is too weak to throw off the diſeaſe. But I will give inſtances in two different caſes, one from ſloughs, the other from diſturbing the criſis.

I was called to viſit a young lady about thirteen years old; ſhe had been confined three or four days to her bed with a peſtilent or epidemic angina; her fever was moderate, but both the tonſils were covered with yellow ſloughs, and much ſwelled; the throat, behind the uvula, tending to a ſwarthy red, ſeemed to be ſtudded with little ſpecks, like petechiæ.

As there had been no evacuations in the beginning, but a ſymptomatic vomiting, which ſhe had on the firſt days, and which was then ſtopped, I purſued the intentions of nature, by digeſting off the ſloughs with *mel. roſar. et tinct. myrrh.* and gave her *lapis contrayerv. et pulv. bezoardic.* twice a day in a julap,

julap, and ordered her to drink of a *pectoral decoction* cum *ſp. ſal. armon.*

The tonſils cleanſed eaſily, and looked well; but the velamen of the throat proved ſphacelated, and when the ſlough caſt off, which happened about the tenth or eleventh day of her illneſs, an artery was opened, low in the throat; a large flux of blood came on, ſhe grew cold in the extremes; had a ſmall quick pulſe, but no delirium, and died that night. It may be proper to obſerve, that on the fourth day from the invaſion of the diſeaſe ſhe bled at the noſe, as alſo the day before ſhe died.

Upon the whole, I think, we ought to be directed in this, as in other peſtilential diſeaſes; if the phyſician is called in upon the firſt attack of the diſeaſe, before any bubo or tumor of the parotids appear, bleeding, a vomit and ſome lenient phyſick will be moſt proper to prepare the patient for his decumbiture. But, if he is called in after the tumours appear, they ſhould be *in general* eſteemed *critical*, and the buſineſs committed pretty much to nature. For, if it be glandular, it will not be always ſafe to return it; if there be a ſlough, it muſt be digeſted out, which all evacuations will protract.

The next caſe was, where the patient was untimely purged, and the diſeaſe returned back into the blood. Whilſt I attended a family, which had ſuffered much by this illneſs, they ſhewed me an apprentice who had newly got up from the ſame complaint: his fever was perfectly dropped, and his only complaint aroſe from the remains of large tumified tonſils. Upon ſeeing them, I adviſed him either to do nothing more then ſip often of a warm pectoral drink, or encourage them to maturate if they grew very painful. But his mother coming to ſee him out of the country that day, gave him an ounce of Glauber's ſalts upon her own judgment. After this purging, the tonſils immediately ſubſided, and the patient remained for ſome hours eaſy; but that night he was ſeized with new rigors; a moſt dangerous fever ſucceeded, with inflammation of his lungs, pain of his ſide, a ſcarlet eruption all over his breaſt, neck, and face, from which, after ſeventeen days, he eſcaped with the greateſt hazard of his life.

And thus much, concerning that ſort of epidemic quinſy, which is called *angina gangræno ſa*, and is thought by ſome to be what the Spaniards call *garatillo* —— It may be remem-

remembered alſo, that there is beſides this another ſpecies of quinſy, *angina inflammatoria infantium*, which is apt to ſeize children from two years old to eight or ten; but this has been taken notice of already.

There remains yet another diſeaſe of the glands of the throat and neck unſpoken of, to which young perſons are generally ſubject once in their lives; and that is a kind of *external angina*, which we call in Engliſh *the mumps*. And this diſtemper is a manifeſt indication of the tranſition of diſeaſes from one part to another; of which the ancients alſo were very accurate obſervers. For they were very ſenſible of the affinity and great connection which ſubſiſts betwixt the glands of the neck, of the organs of ſpeech, and of the thorax, with the teſtes: which occaſions the ſignal alteration in the human voice, that happens at puberty. *Cum teſtis intumeſcit a tuſſi, memoriam renovat ſocietatis pectoris, mammarum, genituræ, et vocis.* And again, *Tuſſes diuturnæ, ſuperveniente teſtium tumore, ceſſant* [i].

But whenever theſe glands come to be diſeaſed with this external quinſy, the moſt troubleſome part of the illneſs is when the tumour

[i] HIPPOCRAT. Epidem. lib. 2. ſect. i.

is tranſlated from thence to the teſtes, as in great numbers of boys it happens. This is a kind of epidemic quinſy, and is infectious, generally running through the whole family, and ſeizing thoſe who have not had it in their infancy. For it ſpares thoſe who have had it before. But, as it uſually affects the external parts, it is ſeldom attended with fatal conſequences; unleſs an accident happens upon returning the criſis two ſoon.

In this diſeaſe, the glands of the throat are affected; but principally the face, neck, and throat, externally down to the clavicle and ſcapulæ, which are puffed up, as if they had been ſuddenly inflatated. Keeping warm a few days generally permits the diſeaſe to ſpend itſelf very ſafely; eſpecially if ſome blood has been taken away, and the bowels were emptied by a clyſter on the firſt coming of the fever.

But very often there is a tranſlation of this morbid matter from the glands of the throat to the teſticles, which is attended with great pain, tumour, and inflammation, and upon the return of the matter, before it is lodged upon the teſticle, there ariſe often the ſame nervous ſymptoms as are mentioned in the preceding diſeaſe, on the return of the eruption

tion from the ſkin; tho' generally they are not in ſo great a degree. At this time the patient is uſually delirious, and the fever is lighted up a-new: but all theſe ſymptoms ceaſe again, as ſoon as the depoſit is made upon the teſticle; and there remains a hard, heavy tumour, without much pain. Where the inflammation is great, there is a neceſſity for bleeding: otherwiſe, I treat it as I did the ſwelled parotids; the patient muſt keep upon the bed, ſuſpend the tumour, and wait ſome days before any attempt to purge it off.

For, tho' in many of theſe caſes I have been obliged to bleed, and uſe other evacuations, upon which the tumour of the teſticles has ſubſided; yet this is not always done without danger. Becauſe as the tumour is critical, it will not bear to be returned too ſoon; for, upon its ſudden diſappearing, the patient again grows delirious; and I have ſeen one patient dye of a phrenitis from this cauſe, after it was thought that the danger of the diſeaſe was over. I ſubjoin, without apology, an hiſtory of this caſe.

I was called to a man, who had been ſeized with this fluxion which they call *the mumps*. The face, neck, down to the clavicle, and back to the ſcapula, were ſwelled,

as if they had been inflated. The tonſils were ſwelled, and inflamed within; he had a fever, which abated upon the appearance of the tumour, ſo that nothing was done to the fourth day after the appearance of the ſwelling. At that time it began to decline, or rather to go off ſuddenly; that very night he was ſeized with new rigors, his fever encreaſed, and a moſt painful tumour came upon the teſticles. The ſurgeon had let him blood, an emollient cataplaſm was applied to the tumour, and a lenitive clyſter was given, which anſwered its end very well. He took alſo an emulſion with ſperma ceti and nitre, for two or three days; the patient was eaſy, his fever little or nothing; the ſwelling upon the teſticle much abated; upon taking a lenitive purge or two, it went perfectly down, and we imagined the patient out of danger. But, upon the retiring of the ſwelling, new ſymptoms aroſe; his fever returned, he grew delirious. Bleeding again was adviſed, he had bliſters applied, and took ſuch medicines as were proper to reſtrain the inflammation of the brain; but the phrenitis encreaſed, and the man dyed in a few days.

As theſe tranſlations are frequent in this parti-

particular diſtemper, from the glands of the throat to thoſe of the teſtes, ſo you may ſee it ſometimes transferred from thence to the brain, whoſe glandular ſubſtance (I make no doubt) ſuffers in the ſame way. I would not be thought to condemn bleeding, bliſters, and lenitive purges, in general; for they are often very neceſſary, and I think I have ſeen once or twice teſticles maturate, for want of their being properly uſed; I only mean to inculcate, that, where the ſymptoms of inflammation do not run high, keeping in a horizontal poſture, and quiet for a few days, is the beſt method.

Having thus conſidered the ſtate of the glands from the birth to puberty, and found that many diſeaſes appear to have had their foundations laid during the weak, and lax ſtate of infancy; let us proceed to the next period of life, and ſee how things go on, from the time of puberty to the thirty fifth year in males, and to the forty fifth or forty ſixth in females.

And, as this is like voyaging in an unfrequented ſea, I hope the reader will be contented with as exact a deſcription as I can give him of the coaſts; and ſuffer me to leave thoſe, who come after, to ſatisfy him with accounts of the more interior parts of the country.

CHAP.

CHAP. VI.

Of the ſtate of the glands from puberty to the thirty fifth year in males, and the forty fifth or forty ſixth year in females.

THE next period therefore we are to conſider, being from the time of puberty to the thirty fifth year in males, and to the forty ſixth in females; it will comprehend the time of life, when the machine is compleat, when all its juices are perfected, all its organs ſet at work, and fitted to anſwer the end deſigned by the great Author of our Being. And now, indeed (as I have already ſhewn in the firſt part of this work) if care has been taken to prevent matters being formed in any part of the glandular ſyſtem, till nature has brought about, ſtrongly and regularly, theſe great changes; the conſtitution generally takes a healthy turn; and under theſe circumſtances this is the moſt healthy, as well as the moſt vigorous part of our lives. Altho' the mutability of our ſtate often puts nature, at every ſeaſon, and in the beſt conſtitutions, to the neceſſity of turning out of her uſual way, to provide for ſudden accidents. However people in general, under the

the above mentioned condition, and females particularly, are in good health; eſpecially if they anſwer the great end of child-bearing, and give ſuck to their children.

In this there is alſo another wiſe proviſion of nature; which ſerves not only to nouriſh the child, and by the ſaccharine part of the milk ſtimulate the inteſtines, and ſo prevent a conſtipation of the belly; but it alſo ſupplies the defect of menſtruation, which ſeldom happens during the time the nurſe gives ſuck. The appetite of the mother, all this time, is uſually good; ſhe reliſhes all the enjoyments of life, as a reward of her motherly care; ſeldom complains of indigeſtion or fullneſs of ſtomach, as at other times, when near her menſtrual periods; the glands of the breaſts are largely employed in ſeparating milk, and the habit of the nurſe is kept in a healthy equilibrium; unleſs ſhe gives ſuck too long, and brings her conſtitution beneath the ſtandard of health. Then, indeed, thoſe nervous ſymptoms, which attend inanition, uſually appear; and the firſt ſigns of this condition are perceived by the ſkin's being not ſo plump, and by a falling off of the hair, upon combing the head; by a loſs of appetite,

and

and a leaden colour about the eyes. [a] *Quibus per tabem capilli defluunt a capite, ii fluxione alvi ſuperveniente, moriuntur.* For, the conſtitution is, by that means, robbed of its nouriſhment, as much as when it is injured by too much venery, or too great an encreaſe of any other ſecretion, and will feel the ſame effects. For, the hairs are nouriſhed by glands, and when they are robbed of that quantity of nouriſhment, which they ſhould adminiſter, the hair of courſe falls off. *Nemo ante veneris uſum calveſcit.* And a reflection of this nature was thrown out by the people upon CÆSAR, when he returned triumphant from one of his Gallic expeditions, *Urbani, ſervate uxores, mœchum calvum adducimus.* And theſe obſervations probably inclined the antients to believe, that the *ſemen maſculinum* flowed from the brain to the teſtes. But to let us ſee how neceſſary it is to have this ſecretion by the glands of the breaſts changed again to thoſe of the matrix, at a proper time, we may obſerve, that the nurſe it not accuſtomed to breed, till after the menſes appear again.

As the diſeaſes of the glands of the breaſt require no particular management, different

[a] HIPPOCRAT. ſect. v. aphor. 12.

from thoſe rules laid down in my treatiſe *on glandular conſumptions*; I ſhall omit ſaying any thing upon that head, unleſs it be this; as all glandular ſecretions ſhould be promoted by degrees, ſo care ſhould be taken not to have them ſuppreſſed too ſuddenly.

Thus much may ſuffice concerning the females; where we may have obſerved, that the redundancies of their conſtitutions are taken off by menſtruation, and nurſing their children, conjoined with the other uſual evacuations. But in males the caſe is far otherwiſe; the firmneſs which is given to their habits, by the ſecretions ſet on foot at puberty, to enable them to undergo fatigue, and all the laborious taſks to which they are deſtined from that time of life, lays them under a neceſſity of performing their ſhare of labour, or of paying the fine, in ſuffering a dimunition of their health: ſo dangerous a thing it is to run counter to the inſtitutions of nature.

As geſtation, nurſing, and thoſe exerciſes, which are conſiſtent with the ſoftneſs and delicacy of the ſex, are deſigned to be the lot of females; ſo labour, toil, ruſtication, and all the rougher ſcenes of life, are deſigned to be the portion of the male. And the obſervance of the order of nature, joined with a

plain

plain and ſimple diet, and a ſparing uſe of vinous liquors, generally preſerves the peſant who liveſt neareſt to nature's inſtitutes, in the ſame eaſe, and ſtate of health, in which the females are, when they receive the benefit of nurſing, and parturition; or when they are regularly helped by the advantage of menſtruation.

But, if the glandular ſecretions, in the habits of the male, cannot be ſtrongly and ſufficiently performed (which is true) without exerciſe, and ſome degree of labour; I had almoſt ſaid fatigue; what muſt become of the ſtudious, and ſedentary, and of all thoſe men, whoſe occupations confine them to an inactive life? In thoſe people, the conſtitution muſt be always hurt, and nature put upon continual difficulties. For, without the proper ſhocks given to the machine by exerciſe, there will be formed nephritic diſorders; and, for want of a protruſion of the fæces, and a defect of the ſecretion in the bile, conſtipations of the belly will enſue; and from thence often diſeaſes are brought upon the rectum; hæmorrhoids alſo; a teneſmus, and by conſent of parts, very often ſtranguries, and diſeaſes of the bladder will ariſe, with all that train of complaints which

uſually attend perſons of ſedentary lives. The whole glandular ſyſtem will become loaded, and ſtrained, by daily plenitudes; which are unloaded ſometimes upon the external glands, in blotches; at other times upon thoſe of the ſtomach and bowels; in which laſt caſe they produce heart-burns, colics, diarrhœas, or, if the diſeaſe be not thrown off that way, various hypocondriac diſorders ſhew themſelves; unleſs the gout comes to the relief of theſe complaints. But under theſe circumſtances, and in theſe affections of the inteſtines, I ſeldom find the diſorders of the bowels diſappear till the old heart-burn, with its uſual companion the ſour ructus, comes on again; and helps to break up the wind. Unleſs, as I before obſerved, there was a tranſlation of the diſeaſe to other glands, and the patient, to give one inſtance out of many, was relieved by the gout, and I have often thought the following aphoriſm to be founded on this obſervation: [b] *In diuturnis lævitatibus inteſtinorum, ſi ructus acidus ſuperveniat, qui prius non extiterit, bonum eſt ſignum.*

Thus we ſee, where the common ſecretions are not promoted by proper exerciſe in

[b] HIPPOCRAT. aph. 1. ſect. vi.

males,

males, there will be a redandance kept upon their habit; which, if it be not by ſome means or other taken off, by ſubſtituting proper aids, muſt of neceſſity be unloaded upon a particular part, and very often upon the glands of the joints.

To prevent this inconvenience which afflicts people of a ſedentary life, (in which number many artificers and almoſt all ſtudious perſons are contained) ſome evacuations ſhould be ſubſtituted; ſuch, if it be poſſible, as the patient may comply with, and yet not be obliged to deſiſt from his daily occupations. Upon this occaſion the inteſtinal glands, and thoſe of the kidnies, are the ſafeſt and eaſieſt to make uſe of. Lord BACON much commends rhubarb to aſſiſt a protruſion of the fæces in ſtudious perſons. And in truth the chewing of that medicine in thin habits is an excellent remedy; but in thoſe, who are more corpulent, gum pills, æthiops, cinnabar, and in either caſe ſea water, will be found beneficial: and theſe will generally palliate, and keep off chronical diſtempers for ſome time. For the gout it not properly the diſeaſe of childhood, or youth; altho' it ſometimes may then ſhew itſelf. That happens rarely

rarely however; for it much oftener makes its attack in the more advanced parts of life.

From the time of puberty, therefore, to the thirty fifth year in males, the greateſt care ſhould be taken to conduct properly the glandular ſecretions, if we would lay a foundation for a happy and comfortable old age.

For, if in the earlieſt part of life any obſtructions in the glands have been formed, and their tubercula left undiſperſed; now, about the above-mentioned period, is that time of life at which they are expoſed to the greateſt danger: partly from the increaſe of *animal heat*, and partly from the violence and impetuoſity of youth. For at this age, youth is impatient and eager in the purſuit of pleaſures; all exerciſes are performed with violence; and, what was intended by nature for our greateſt good and benefit, becomes the very reverſe, by their own exceſs and want of moderation.

The paſſions are now violent, and will not always bear to be reſtrained; great diſregard is uſually ſhewn to every kind of prudence and of caution: hence exceſs in wine, venery, and banquetings; the body is robbed of its accuſtomed perſpiration by nocturnal riots, and keeping out of bed. Theſe fre-

quent changes of the *non-naturals*, which are the uſual misfortunes of this time of life, muſt get the better of the beſt conſtitution: it muſt be perpetually put to difficulties, and if there is any part left weak, obſtructed, or diſeaſed, that will firſt ſuffer; and, as we ſay, *the weakeſt will go to the wall.*

By theſe accidents and from theſe cauſes, diſeaſes of particular parts are at this time formed. If the glands of the ear have been left obſtructed by any internal ſtrumæ, pain, apoſtemation, and often deafneſs enſues. If the ciliary glands have been left weak, and obſtructed, lippitudes, and often diſeaſes of the coats of the eye, happen. If the glands of the throat have been left weak, the tonſils are again enlarged, the concatenated glands of the neck ſwell, frequent ſtrumæ appear, from the veſſels being weakened, and ſtrained. And, if thoſe of the meſentery, and lungs, have ſuffered, or were formerly permitted to apoſtemate, hemoptoës and conſumptions now are generally produced; as the conſequences of not taking due care to regulate thoſe ſecretions properly in the early part of life.

For theſe tender habits, in the hands of a ſkilful phyſician, are like tender plants under the

the hands of a ſkilful gardener; who, by knowing how to make a right uſe of heat and moiſture, can promote or reſtrain their ſecretions, juſt as he pleaſes. And it ſeems to me, that this neglect is the reaſon why moſt of the patients, who are taken off by conſumptions from internal maturations, dye betwixt this time of life and the thirty fifth year of their age. [c] *Tabes eis maximè ætatitibus ſit, quæ a decimo octavo ſunt anno ad triceſimum quintum.*

From the cauſes before recited it will eaſily appear, that bleeding, temperance, and proper evacuations, as neceſſity requires, are the beſt ſecurities againſt the accidents which happen at this time of life. But, that we may be directed by nature in the methods we are to take, let us obſerve how ſhe operates, when left to herſelf. Under theſe circumſtances ſhe will attempt to relieve the habit, either by ſetting on foot a ſpontaneous looſeneſs, which laſts till it has ſufficiently anſwered its end; or by a diſcharge of blood from the hæmorrhoids; and indeed very often by both helps at once. And here I cannot but obſerve once more, what I have already often

[c] HIPPOCRAT. ſect. v. aphor. 13.

inculcated; I mean, how neceſſary it is, by any means, to run a diſeaſe of the lungs into a temporary diſeaſe of ſome other part, where leſs danger will enſue. For, if inſtead of the glandular ſecretions by the inteſtines, or the flux of blood by the hæmorrhoids, an hemoptoe ſhould enſue, the diſeaſe generally would prove fatal. But, as this has been already taken notice of, in my treatiſe *on glandular conſumptions*, we will proceed to other glandular diſeaſes, which are produced by congeſtion, and require great length of time to compleat their cure: particularly thoſe of the cutaneous glands; many of which will either be apt to relapſe, or, from the make of the ſtrainers, are not curable at all. Such of them therefore, as are not cured at this important period of life, ſeldom are afterwards. [d] *Pueris autem plurimi morbi judicantur; alii, inter dies quadraginta; nonnulli, inter ſeptem menſes; quidam, inter annos ſeptem; alii, ipſis ad pubertatem accedentibus. Qui vero pueris permanſerint, neque circa pubertatem ſoluti fuerint, aut feminis, quum menſtrua erumpunt, inveteraſcere conſueverunt.*

From the time of puberty to the forty ſixth year in females, the like accidents may

[d] HIPPOCRAT. ſect. iii. aphor. 28.

happen,

happen, altho' they are not ſo apt to fall into inflammatory diſeaſes as the males; being ſecured, as I obſerved before, by the laxity of their tone, and the regularity of their menſes, by breeding, and nurſing their children. Theſe things agree with another aphoriſm of HIPPOCRATES: [e] *Adoleſcentes ſanguinis expuitiones, tabes, febres acutæ, epilepſiæ, aliique morbi; ſed præcipuè nunc dicti, infeſtant.*

Having therefore conſidered the ſtate of the glands from puberty to the thirty fifth year in males, and the forty ſixth in females, we will ſuppoſe this the ſtandard of their health; becauſe now the conſtitution, or habit, is ſettled; and a perſon, by obſerving what does good or harm, may aſſiſt the phyſician a little in the government of himſelf; and without fixing any particular name to his habit, may find out that his health depends upon a due regularity in all the animal ſecretions. In this place we might not improperly obſerve, what are the conſequences of errors in any of the particular ſecretions; and if we would carry things up to their beginning, we ought to conſider the following heads.

[e] Sect. xiv. aph. 29.

1. Of the healthy ſtate of the lacteals, and meſenteric glands.

2. Of their obſtructions, and the conſequence.

3. Of perſpiration.

4. Of too much, or too little perſpiration.

5. Of too large, or too little ſecretion by the kidnies.

6. Of the ſecretion of the bile, in too great or too little quantity, by the liver.

7. Of ſecretions by the inteſtinal glands, with the conſequences of a paucity, or an exceſs of them.

8. Of ſecretions by the glands of the joints, and of the conſequences of their being vitiated.

9. The ſtate of the glands in females, under too much, or two little menſtruation.

10. Of the ſtate of the uterine glands, after menſtruation is ceaſed.

But as theſe things, conſidered ſeparately here, would break in upon the chain of this work; we muſt give them ſome other place, and go on with our obſervations on the ſtate of the glands, at the different ſtages of life, as we at firſt propoſed.

CHAP.

CHAP. VII.

Of the ſtate of the glands, from the before mentioned periods to the ſixty third year, commonly called the GRAND CLIMACTERIC.

THAT we may reflect, therefore, how things have paſſed to the ſeveral periods before mentioned, let us remember, that *heat* and *moiſture* had a great ſhare in animation as well as vegetation, and that *native heat*, operating upon the fluids, and producing different degrees of rarifaction, was aiding and aſſiſting to the powers of the heart, in unfolding and elongating the veſſels. We have ſeen alſo, that it promoted dentition, and concurred in preparing the parts for menſtruation in one ſex; the *ſemen maſculinum* in the other; and the organs of generation in both. And this great change was brought about at the time of puberty; when the gluten, which was added to the ſolids at that time of life, by ſecretions then ſet on foot, did ſlowly and by degrees put a ſtop to longitudinal growth, about the twenty firſt year of our lives. Afterwards we have ſeen, that, by the ſtronger action of the ſolids upon the fluids, there was a greater triture of their

parts; native heat was encreaſed thereby; a briſk juvenile circulation was preſerved; and of conſequence a great flow and ſeparation of animal ſpirits, and a ſtrong perſpiration, attended it. And this ſtate was preſerved without much decay till the thirty ſixth year in males, and the great change was not made in females, till about the forty ſixth year: after which periods the vigor of the conſtitution, or *animal functions*, will be found to decreaſe in both ſexes.

In this chapter, therefore, we are to conſider the ſubject, when the ardor and vigor of youth is abated, and the elaſticity of the ſolids is in ſome degree leſſened. For tho' they now grow more rigid, they are not ſo elaſtic, their fibres being hardened by time. And, when I ſay the fibres abate their elaſticity, it may be proper to remark, that they ſometimes go into *petrifactions*, and very often grow bony; as in the beginning of the aorta in ſtags, and ſometimes in the aorta of very old men.

The fluids, therefore, begin now to be leſs ſtrongly compreſſed, the circulation is more languid, fewer animal ſpirits are ſeparated, and native heat, as well as muſcular force, begins now to decline: ſo that as the lamp

of

of life was from the birth to puberty in lighting up, which was fourteen years, we may have obſerved it ſhone in its greateſt luſtre from the fourteenth year to the thirty fifth in males, and the forty-ſixth in females, and then we ſhall perceive a gradual declenſion to the ſixtieth. For tho' I ſhall follow others in placing the beginning of old age at ſixty, it is nevertheleſs felt by moſt people before that time.

The heart, therefore, meeting with a greater reſiſtance after the thirty fifth and forty ſixth year, is no longer able to ſend the blood through the ſmalleſt capillaries, as it uſed to do in youth; but the *reticulum mucoſum* is filled with a paler, pituitous lymph, and the ſcarf ſkin daily abates of that bloom, and efflorescence, which was before diſcovered under it, and charmed us ſo much in the prime of life. And this change is not only perceived in the *reticulum mucoſum*, or net-work under the ſcarf ſkin; for the whole glandular ſyſtem in ſome degree undergoes the ſame change. This is perceived in ſome conſtitutions ſooner than others, according to the degree of muſcular force. And tho' menſtruation in females has not perfectly ceaſed, yet it is not ſo periodical,

nor

nor performed in ſuch healthy manner, as it was wont: and upon that account, as I obſerved before, the whole glandular ſyſtem ſuffers in a manifeſt degree. The breaſts, which uſed to be augmented before the breaking down of the menſtrual purgation, continue now to be diſtended longer than uſual; and very often do not perfectly go down again, but continue larger, and are ſometimes tender till the next return of the menſes. The countenance is uſually paler, and the whole habit tends again towards a cacochymia; as it did in girls labouring with the green ſickneſs, before menſtruation was brought about. The lymphatics being now loaded with ſeroſities, the legs and face very often are puffed up and ſwoln; and the whole body ſometimes becomes œdematous.

Under this ſtate of the glands we are to fly to the ſame helps, as were uſed under the chloroſis. Purging with ecphractics, and ſteel, having generally the ſame effect in both caſes. — But, as the *incentive glands* about this time of life abate their ſecretions (the retention of which produces choakings in the throat, and other hyſteric affections) ſo ſtrong ſmelling gums, allium, aſſafœtida, and ſuch remedies as irritate and provoke theſe ſecretions,

tions, are of great ſervice; even more ſo than when they are uſed for girls, before menſtruation has been brought about. And this appears to be the manner of governing the machine, directing the animal ſecretions in nature's own way, till ſhe has provided other helps for the conſtitution, at this time of life.

In the ſex, therefore, when parturition ceaſed, and there is a failure of the menſtrual purgation, the glands are ſubject to new fluxions, and females are now more apt to be injured by them than males. Becauſe the texture of the male, after the thirty fifth year, is firmer and ſtronger than that of the females; is more ſubject indeed to inflammatory diſeaſes, but not ſo apt to be injured by ſlow chronical congeſtions, as the females; to which, on the other hand, they are ſubject from the ſoftneſs and delicacy of their frame. Hence it comes to paſs, that there are more glandular conſumptions of males, before the thirty ſixth year of their age, than at other times; and of females after the forty ſixth year. At which time alſo they are in more danger of ſuffering with ſcirrhous and cancerous tumours; and of having ſtrumæ ſhew themſelves again in their necks, breaſts, and

other

other glandular parts. For, when menſtruation ceaſes, very often the uterine glands, which ſhewed themſelves before to be weak only betwixt each period of the menſes, now become more loaded by the plenitude, which ariſes upon theſe firſt deficiencies; their ſphincters by degrees loſe the power of reſtraining, and the *fluor albus*, which was before very moderate, becomes now greatly encreaſed, and, if it continues long, brings the glands into a morbid ſtate, and often ends in cancerous exulcerations.

From caſting our eye upon the foregoing cauſes, we ſee the reaſon why timely bleeding, and purging, with the prudent uſe of ſea-bathing, and other ſtrengthening remedies, are of ſo great ſervice at this time of life. I have ſeen ſome preparations of braſs do good in theſe uterine complaints, and think the addition of *mel ægyptiacum* to proper injections, from the ærugo that is in it, is recommended by Dr. MEAD upon very juſt principles; as it not only cleanſes, but corrugates and ſtrengthens the parts.

At this time of life, therefore, we find the glandular ſyſtem ſubject to new fluxions, many of which require great prudence in reſtraining,

ſtraining, for I have frequently ſeen upon ſtopping the *fluor albus* too ſuddenly, without ſubſtituting an evacuation by the inteſtinal glands, that there has been a tranſition of the diſeaſe to other parts, and ſometimes coughs and conſumptions have been produced, from latent tubercula in the lungs; at other times, ſwellings have come upon the knees; in ſome of which there was only a looſe ſwelling upon the adipoſe glands thruſt out on each ſide of the knee, which often will interrupt the uſe of the muſcles.

Theſe tumors are beſt reſtrained, by giving ſome grains of calomel, camphire, and *ſal corn. cerv.* over night, and by purging with ſea water the morning following; uſing an application of three parts ſea water and one vinegar, with a proper bandage, to the part. Sometimes we ſee the heads of bones are enlarged from the fluxion; in which diſeaſes I generally adviſe the uſe of emetics to be joined to the foregoing method. At other times, from the weakneſs of the ligaments, emphyſematous tumours ariſe; for, as they through weakneſs give way too much to the rarefaction of the air contained in the fluids, they loſe their elaſticity, and by that means receive too much of thoſe ſecretions of the joints, which

which were deſigned by nature to be no more in quantity, than ſhould be ſufficient to prevent the heads of the bones from heating by friction: and in theſe caſes, I never found any thing do more good, than a *topical bathing* with ſea water and vinegar, while the patient was under a conſtant courſe of purging with the ſame water.

And here it may not be improper to obſerve, that the before mentioned accidents come upon the female conſtitution, when the incentive glands begin to leſſen their ſecretions; which may incline us to believe that the menſtrual purgation ought not to be conſidered as a diſcharge of blood merely: but that other juices are ſent off with it, which, if retained, would make very conſiderable changes in the habit. For, as the regular continuation of the menſes contributes towards preſerving that mollities and delicacy peculiar to the ſex; ſo, where no diſeaſe ſucceeds the ſuppreſſion of them, and the perſon continues in good health, their ſex is as it were changed. They become viragos, and partake more of the ſturdy habit of the male, than of the delicacy of the female; inſomuch that HIPPOCRATES, when he ſays women are generally not ſubject to the

the gout, excepts thoſe, whoſe menſtruation is deficient. [f] *Mulier podagra non laborat, niſi ipſa menſtrua defecerint.* He alſo mentions the caſes of *Phaethuſa*, and *Namyſia*, as inſtances, where the ſex was almoſt changed by a deficiency of menſtruation.

Thus we ſee, as ſoon as muſcular force abates, and the powers of the heart are weakened, the determination of the juices from the center, as phyſicians ſometimes expreſs it, to the circumference, is leſſened; and many diſeaſes will be formed; as conſequences of an inverſion of that which was accuſtomed to be ſeparated by the ſkin. An extraordinary inſtance of this muſcular debility is ſeen in caſtrated bucks; for, the ſecretions by the incentive glands being very little, they grow fat, and pulpy; loſe their firmneſs, and with it their vigor alſo: they become cowards; and the extraordinary growth of the horns, which happened in the firſt year after caſtration, cannot be maintained; but as they are velvety and ſofter than other horns (tho' they never are dropt) they ſhrink at the top and are ſhorter; in two years leſſen and ſeem inclinable to be without any palms. And, it was remarked in one of the caſtrated bucks,

[f] HIPPOCRAT. ſect. vi. aphor. 29.

which

which the keeper told me he did not cut clean, that, altho' one horn was ſhrunk a third part, yet the other preſerved almoſt its entire and natural length.—It ſeems probable, therefore, that their decay was for want of a ſupply of thoſe ſecretions, which forwarded their growth; and that the heart could not have force enough to throw or caſt off either of the horns. I ſay probable; becauſe I dare not venture to draw a general concluſion from one inſtance only.

At this time, therefore, begin the diſeaſes, which neceſſarily accompany a diminiſhed perſpiration, and a weak performance of the circulation of the blood through the extreme capillary veſſels; and theſe can be palliated no other way, than by ſuch a prudent management of the other glandular ſecretions, as may ſecure the perſon from falling into a diſeaſe, before the tubes of the whole habit have been gradually widened, and rendered capable of bearing the burthen that is laid upon them, from thoſe deficiencies. Evacuations, therefore, at this time of life are neceſſary to both ſexes.

At this time alſo, the uſual perſpiration being leſſened, and other ſecretions not being yet ſufficiently enlarged, inverted ſcurvies

ſhew themſelves, in various ſhapes: as ſcorbutic rheumatiſms, heart-burns; and at length in males the gout forms obſtructions in the glands of the membranes of the joints. This is a new diſeaſe, peculiar almoſt to males, and to this time of life. For it attacks very few women or children, and eunuchs are thought to be entirely free from it. Theſe circumſtances point out, that the exemption from it ariſes from the weakneſs, ſoftneſs, or laxity of the ſolids. And indeed, as this diſeaſe generally comes upon the patient at that time of life, when the ſolids begin to acquire ſome degree of rigidity; it ſhould caution us againſt the uſe of every thing that may tend to dry or harden them, either in our manner of living, or the remedies we uſe. Exceſs in wine, exceſs in venery, exceſs in all the high taſted foods, will be apt to produce frequent fits. And therefore the antients uſed to reckon wine, venery, and inactivity, amongſt the principal cauſes of the gout. For they thought indulgencies of that kind uſed to drain and dry up the *radical moiſture*, according to their way of ſpeaking.

And here it may be proper to remark, that the foundations of many hypochondriac diſorders, and very often of the gout itſelf, are

laid in that part of life, which paſſes betwixt puberty and the abovementioned period, by the ſeveral exceſſes and intemperancies, which we have already recapitulated. For, by their means all the animal functions have been weakened, if not ſpoiled; their ſtomachs have been rendered cold and ſlimy; perſpiration has been interrupted and leſſened; the acrimony of which having been thrown upon the internal glands, produced heartburns, colics, and, from a conſtant vellication, all thoſe uneaſy ſenſations, which attend the miſerable hypocondriac.

Moſt patients, I believe, if they reflect upon their own caſe, will find theſe obſervations true. In theſe caſes the unlucky throws have already happened, and it requires a very ſkilful management of the glandular ſecretions, to regulate and conduct the future part of life, with eaſe and ſafety to the patient.

But, notwithſtanding what has been ſaid, I think all theſe cautions, which we have given, ſhould be taken in a limited ſenſe.

For, though moderate exerciſe will promote all animal ſecretions, and poſſibly contribute towards preventing the gout; yet I have known long walking, and hard exerciſe,

by

by wearying and weakening the parts, incline them to receive the firſt fluxion. And in ſome gentlemen, who were fond of hunting, ſhooting, and ſuch exerciſes as wearied the lower limbs, and had the gout brought early upon them; I have, by reſtraining them from painful exerciſes, by temperance, and gentle evacuations, brought their fits from being very painful, and very frequent, to be much more tolerable, and their returns very ſeldom. Violent exerciſes, therefore, in gouty people are as injurious, as none at all.

To return to the conſideration of the female. We ſee nature is put to a neceſſity of changing and altering things at this time; and that change is effected by a gradual diſtenſion of the collateral veſſels. For, when the propellent force of the heart and arteries can no longer drive the blood through the blood-veſſels of the uterus, at the accuſtomed times, the incumbent load is heaping upon the perpendicular tubes, till they are no longer able to ſuſtain the weight; and then it breaks down in violent floodings. And, if that paſſage is denied, nature attempts an evacuation by the noſe, or by the hæmorrhoids; and, if theſe benefits are alſo denied, an habitual diarrhœa is often ſet on foot; which continues, without

loſs of ſpirits or ſtrength, till the habit is equally diſtended, and the whole body brought to bear, without a diſeaſe, the loſs of ſo great an help. Hence it ſhould ſeem, that the great contrivance of the menſtrual diſcharge was to irrigate the parts of generation; but not abſolutely neceſſary for the preſervation or exiſtence of the animal: becauſe we ſee ſome viragos as healthy and more robuſt without it.

From the thirty fifth year therefore in males, and the forty fifth or forty ſixth in females, to the ſixtieth, or at the beginning of old age, if there are any glands of the lungs, liver, meſentery, or other parts, loaded with obſtructions, they are not ſo liable to apoſtemations as in the earlier part of life. The native heat and vigour of the conſtitution beginning to abate, and tend to the infancy of old age; excitements to venery are leſs; fewer animal ſpirits are ſeparated; becauſe the power of the heart and muſcles abate. And as the muſcles now grow more flaccid, and do not compreſs the parts ſo ſtrongly, the adipoſe glands are leſs reſtrained, and the ſubject, as in infancy, is again inclined to grow fat; his habit is pulpy, ſoft, and void of that brawnyneſs, which attends the earlier part of life. For, tho' the animal fibres grow

rigid

rigid by age, yet they loſe their elaſticity; and when their dryneſs or rigidity is arrived at any great degree, as happens often in the toes and extreme parts, they are no more uſeful, nor can be kept alive. Hence it happens, that the bark, ſteel, and vitriolic ſtyptics, which are ſo ſucceſsful in ſtopping mortifications, where the fault is from a different cauſe, prove ineffectual in ſuch caſes as proceed from rigidity.

But nature ſtill will make a ſtand, and therefore endeavours to throw off the dead parts (as we ſee trees do their dead limbs,) when circulation can be no longer preſerved in their tubes; and if theſe parts are removed by amputation, the remaining part of the tubes being unfit for circulation, and having loſt their elaſticity, will fall into the ſame diſeaſe. This is ſo well deſcribed by LUCRETIUS, that I ſhall make no apology for adding the lines:

Denique ſæpe hominem paulatim cernimus ire:
Et membratim vitalem deperdere ſenſum.
In pedibus primum digitos liveſcere et ungues;
Inde pedes et crura mori: poſt inde per artus
Ire alios tractim gelidi veſtigia lethi.

And this phyſicians and ſurgeons, too often, find to be the caſe; tho' they do every thing

poſſible within the limits of their profeſſion. And this is no ground for finding fault either with the phyſician or his art; for he pretends not to create, but to aid and aſſiſt the body, labouring with infirmities. In the caſe above, the uſe of the parts are deſtroyed and loſt, and the circulation through the ſmalleſt veſſels is impoſſible to be preſerved, unleſs a power ſuperior to that of man, ſhould interpoſe.

The habit having at this time loſt that elaſticity which it had in the middle part of life, the ſoft glandular parts are under a neceſſity of receiving frequent chronical congeſtions, and of conſequence muſt produce diſeaſes of thoſe parts in which they are ſeated; as their muſcular coats cannot any longer ſufficiently preſs, and ſqueeze off their neceſſary ſecretions.

For, if the pulmonary glands are affected, they will produce a chronical aſthma; if thoſe of the liver, a jaundice by compreſſing the biliary duct; and often a dropſy by their lymphatics breaking, and ſhedding the lymph into the abdomen. And, if thoſe of the cheſt ſhould proceed to inflammation, they will produce fevers, pleuriſies, peripneumonies, with all their attendants; the cure

of

of which diſeaſes are already treated of, under *the ſtate of inflamed glands*, in my treatiſe *on glandular conſumptions*.—But nature often relieves the patients, of both ſexes, at this time, by fits of the gout, ſpontaneous fluxes of the belly, a flux of ſaliva, by urine, ſweat, or the like; but often theſe very helps go into diſeaſes, by being continued too long, or by being attended with acrimony. Hence choleræ, dyſenteries, lienteries, hæmorrhoids, and often an incurable teneſmus; and theſe diſeaſes are removed rather than cured, by changing, and transferring the diſeaſe, from one ſet of glands to another. The phyſician that would attempt a radical cure at this time of life, is aiming at what, I think, lies beyond the limits of his art.

But often diſeaſes of the glands proceed ſo far, at this time of life, that the gout, which in males had hitherto brought relief, by diſpoſing of plenitudes on the joints, can no longer ſerve him, the joints begin now to be formed into nodes, and their glands loaded with chalky concretions. The neceſſary ſecretions, being denied a paſſage by thoſe ways through which they were accuſtomed to paſs, their lymphatics become infected, and, inſtead of being a diſeaſe of a particular

part, it becomes now a diſeaſe of the whole glandular ſyſtem; a gouty cachexia ſucceeds, and a moſt terrible *pruritus* comes on upon all the cutaneous glands, which throw out part of the diſeaſe in pimples, or little boils. But that being not ſufficient to cure the patient, the cachectic ſtate encreaſes, the patient looks pale, or of an olive colour, the lymphatics are all diſtended with a morbid lymph, the legs and face ſwell, an aſthma is produced, and that dropſy, which is called *leucophlegmatia*, ſucceeds; till ſome of the lymphatics break, and ſhed their liquor into the cheſt, by which means a dropſy of the cheſt is formed; or thoſe of the abdomen are burſt, and produce the dropſy, called *aſcites*. Theſe things happen, unleſs ſtrong painful fits of the gout can be produced, and the diſeaſe unloaded, and thrown off upon the extreme parts.

And, as I have before taken notice in another work [g], of the great uſe it was to hydropic patients, when the phyſician could drain the lymphatics, by ſetting on foot a large ſecretion by the kidnies; ſo in cachectic habits, after a few draſtic purges, the cure is beſt finiſhed by diuretics; amongſt which the

[g] *Diſſertation on glandular conſumptions.*

ſquill,

ſquill, or ſea onion, may be eſteemed a moſt excellent remedy. But after the lymphatics are drained, the tone of them ſhould be ſtrengthened by proper forms of ſteel, and ſtomachics, which will generally anſwer the end, when the veſſels are not broken, and the machine is not quite ſpoiled. But, when the gouty habit is become ſo morbid, that the inteſtinal glands have been extremely weakened by frequent gouty fluxions upon them, they have as it were obtained an habitual cuſtom of running off the diſeaſe that way: and then the regular fits of the gout become ſhorter, leſs painful, and at length it is with great difficulty they are formed at all; but the gouty diarrhœa daily afflicts the patient; to which a teneſmus, with dyſenteric ſtools, frequently ſucceeds, and, unleſs a new fit of the gout can be produced, the painful ſtools can be appeaſed by opiates only, and the diſtemper proves at laſt mortal.

Having given this ſmall ſketch of the gout, as a picture of the tranſitions, which are made from place to place in chronical diſeaſes, it will let us ſee that moſt of theſe caſes admit only of a palliative cure; and the phyſician, who would attempt a radical one,

is,

is, in my mind, aiming at a thing beyond his power.

But nevertheleſs he has here great opportunities of ſhewing the uſefulneſs of his art. For, he can divert a fit of the gout very often from falling upon a principal part, and thereby prevent its proving fatal. He can reſtrain ſpontaneous fluxes of the belly within due bounds, as he reſtrained them in infancy; he can temper and correct the acrimony of the juices in the *primæ viæ*, and by that means palliate many complaints, and moderate even the pain of an incurable teneſmus. He can, by promoting particular ſecretions, defend ſome parts from being injured by irritating fluxions, and preſerve others from becoming diſeaſed through an exceſs of their ſecretions. He can defend the coats of the eye from ſharp fluxions, the ear from ſome kinds of deafneſs, the bladder from tormenting ſtranguries, and can lend various other aſſiſtances to his fellow creatures, under their greateſt ſufferings. Theſe are the real powers, and advantages, of this excellent, I had almoſt ſaid divine, art; and yet how much, and how often is it abuſed by the ignorant pretenders to it, for want of underſtanding the machine they have

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to manage, and the proper uſe of thoſe weapons which they are to employ?

Thus have I given the reader a general idea of the proceedings of nature, in diſeaſes of the glands, from the birth of the child to the ſixty third year, commonly called the *grand climacteric*; which notion of climacteric years is ſuppoſed to have been derived from PYTHAGORAS.

Let us preſerve the clue, therefore, and ſee, in our ſubſequent enquiry, how things go on from the ſixty third year, or the *grand climacteric*, to the end of old age; cloſing this period alſo with an aphoriſm; [h] *ultra hanc ætatem provectis, aſthmata, pleuritides, peripneumoniæ, lethargi, phrenitides, ardentes febres, diuturna alvi profluvia, choleræ, dyſenteriæ, lienteriæ, hæmorrhoïdes.*

[h] HIPPOCRAT. aph. 30. ſect. iii.

CHAP.

CHAP. VIII.

Of the ſtate of the glands from the grand climacteric to the end of old age.

FROM what has been advanced it appears, that many chronical diſeaſes are the neceſſary conſequences of our make, and muſt appear at different times of our lives; and that the cure of them conſiſts rather in a ſkilful management of them, by the phyſician's directing and governing the ſecretions, as he ſees occaſion to alter them, than in any other thing. From this doctrine alſo it will appear, that the different temperaments of the antients, were no more than conſequences of the abundance or paucity of particular ſecretions. If the *reticulum mucoſum* was tinged with red, and diſcovered that efflorescence or bloom, which is ſeen in ſome complexions, it was called a *ſanguine temperament*. If the lymphatics were loaded with pale ſeroſities, and the countenance looked ſodden, it was called a *phlegmatic temperament*. If the lymph was tinged with yellow, it was bilious; and if the colour was ſtill darker, and almoſt leaden, they called it *melancholy*. All which evidently appear to be

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conſequences of the too great or too little ſupply of the different ſecretions. To avoid dwelling therefore on theſe things, which are rather accidents, and happen to particular conſtitutions, not univerſally to the whole ſpecies; let us go on to ſhew thoſe things which happen in general to every conſtitution, and to all old people, as the conſequences of the conſtruction and frame of their body.

We have obſerved already, that the veſſels by degrees loſe their elaſticity, and become not ſo capable of acting ſtrongly upon the fluids, or of breaking their improper cohesions; the fluids, therefore, cannot be ſo apt and fitted now for circulation as before. And, as this misfortune will daily encreaſe with old age, at this period men are ſubject to fall again into the diſeaſes of infancy; and, altho' they may have been ſo fortunate as to have none of the viſcera loaded with obſtructions, or injured from inflammations or apoſtemations in their paſt life, yet they now find difficulties of various kinds daily come upon them. The ſphincters will loſe their *retentive faculty*, and the weak glands will be attacked by the fluxions which attend old age: the eyes will be ſubject to rheums, the

glands

glands of the trachea, to diſtillations; which will perpetually teize the patient with their ſecretions, producing coughs, ſhortneſs of breath, and wheeſings. For, muſcular force being weak in old people, their inſpiration and exſpiration is performed with greater difficulty, and on that account expectoration, if wanted, is found very troubleſome to the patient. Few animal ſpirits are ſeparated, for which reaſon many ſecretions are not duly, or ſufficiently, performed; and thoſe defects draw a train of unavoidable accidents after them. If there is a deficiency of the mucus to defend the bladder, and urinary paſſages, from the rancid ſalts of the urine, great pain and difficulty will be felt in making water. If there is a deficiency of thoſe ſecretions which ought to lubricate the joints, and defend the heads of the bones from friction, great difficulty and pain will be found on moving. Hence, ſtranguries, dyſuries, and that crepitation of the bones on moving, are the unhappy companions of old age. In theſe caſes marſhmallow root, gum arabic, chio turpentine, and diacodiates, are the beſt palliative remedies.

And, tho' I have ſaid the muſcles grow flaccid, the glands weakened in their tone, and the ſphincters of the veſſels loſe their

power of reſtraining involuntary ſecretions, as is evident by the diſtillations from the eyes, and noſes of old men, and a frequent call for micturition, and often an inability of retaining their urine; yet we muſt remember, what I have before obſerved, that ſome of the moſt elaſtic parts of the body grow now far too rigid, and will no longer yield to the laws of circulation; but are ſometimes oſſified. This happens, as I have ſaid above, in the aorta of ſtags, and ſome very old men. And, theſe tubes being rendered unfit to carry on circulation, the juices of the body will be extremely altered thereby; and for that reaſon the ulcers of diabetical and ſcorbutic patients, are ſo apt to mortify, as are alſo their toes and extreme parts; which, like old trees arrived at their utmoſt vegetation, no longer admit the laws of circulation. For in ſhort, all the canals deſtined to carry on circulation begin to be more obſtructed and ſtopped up every day; ſtones are apt to be formed in the kidnies, bladder, and often in the *veſicula fellis*; from whence nephritic diſorders, jaundice, and, for want of a proper ſeparation of the bile, the fæces become bound, and as the powers to produce them

are

are now become weak, the patient grows vertiginous, and often apoplectic.

From the cauſes before mentioned, a general bad habit or cachexy is produced; perſpiration is badly performed, and from the retained perſpirable matter the *pruritus of old age* comes on, and proves very often as troubleſome, as that in the gouty cachexy before mentioned.

For, as trees very often, either from weakneſs or old age, are ſubject to a diminiſhed perſpiration, and from that cauſe have their tubes obſtructed, and, as it were, choaked up with their own juices: ſo likewiſe in old men, complaints of this nature are by no means uncommon, in this laſt period of their lives. If the perſpirable matter is retained or condenſed on the bark of weak or old plants, they grow ſcurfy, and are covered with moſs, which ſtill more impedes their perſpiration, and haſtens their decay. In this caſe, ſkilful gardeners always permit the plant to be well humected by rain, before they attempt to remove or rub off the ſcurf and moſs, which were ſo injurious to the tree; but as ſoon as ever they have done that, they find the plant greatly relieved, its vegetation aſſiſted, and its life often preſerved.

In like manner, I am of opinion, we ought often to treat the cutaneous diſeaſes of old men; and before we uſe the fleſh bruſh, to ſcour the ſkin of its impurities, it would be proper to have the pores, which are cloſed up by a glutinous matter, unſealed (if I may ſo expreſs myſelf) by the uſe of tepid bathing; which diſſolves the viſcidities, and renders them eaſier to be rubbed off by a rough cloth or fleſh-bruſh, when the parts are dry.

In moſt of theſe caſes, warm ſea water is preferable to freſh water, becauſe it deterges more. For when this complaint is encreaſed, and the ſkin is grown much diſeaſed, it will not be cured by purging or bleeding, till the fault of the ſkin itſelf is corrected, and perſpiration reſtored. This was the reaſon why Dr. SYDENHAM found a courſe of *electuarium de ovo*, and other perſpiratives, given for forty days together, would cure a ferine *pruritus*, when bleeding and purging would not. And, as theſe complaints are teizing, and wear out the patient, it is natural for them to fly to opiates for their relief; which in old men generally injure, I might ſay, extinguiſh, *native heat*. In ſuch caſes, wine is the beſt opiate; an inſtance of which I ſhall ſubjoin in the following caſe.

A worthy clergyman, above eighty years of age, was ſo teized with the pruritus of old age, that he could not reſt in bed; but ſat up in his chair for many weeks. His habit was cachectic, and his legs ſwelled ſo much in hanging them down, that they mortified. The ſurgeon being unable to procure any digeſtion, adviſed my being called in to his aſſiſtance. The mortification had ſpread, and the ſurgeon was obliged to make new ſcarifications. After the legs had been fomented, and dreſſed with warm dreſſings, I adviſed the patient to be put to bed; but was anſwered, he could not lie there a quarter of an hour, becauſe of an intolerable itching, when he grew warm, and pains in his feet and legs, which prevented his getting any ſleep, except in his chair. The giving opiates in this caſe I feared would extinguiſh native heat, and not be likely to aſſiſt the ſurgeon in digeſtion. I therefore enquired of the ſervant what wine he drank, who told me he had good *ſherry* in the houſe; but his ſwelled legs made him afraid to drink it. I directed a bottle to be brought, and believe at times the patient drank three parts of it. When I perceived him a little fluſhed, and inclined to ſleep, I had him put into bed; and, if he

grew reſtleſs, adviſed them to give him more wine. When he was warmed with wine, the pruritus ceaſed, he got ſleep, kept his bed all night, the legs were leſs ſwelled, and the ſurgeon's dreſſings began to adhere; and, inſtead of being waſhed off by an acrid ſerum, they kept on till evening, after the legs had been fomented over the dreſſings. The patient was adviſed to drink of the *ſherry*, whenever he was reſtleſs, and to keep his bed. This had the deſired effect; the wine was his opiate, it promoted perſpiration, the ſwellings of the legs ſunk, the ſurgeon digeſted out the ſloughs, and healed the ſores: and by the continuance of this method, and ſome warm anti-ſcorbutic medicines, joined with it, the patient recovered, and lived ſome years after in good health.

At this time alſo, as the muſcles of the eyes grow weak and flaccid, the ſphericity of the eye is no longer preſerved; for want of which there is a gradual decay of ſight, cataracts, glaucomas, and other diſeaſes of the eye now frequently appear; and the drum of the ear, from the ſame cauſes, being no longer properly ſtrung, hearing becomes very dull and imperfect: till by degrees the man is withdrawn from this gay ſcene of tranſient

things; which as it ſtole upon him, and was opened to him by ſmall degrees at firſt, ſo, that the mind might not ſicken too much at the loſs of it, is like a moving picture gradually withdrawn from him; till he almoſt imperceptibly changes this temporary life for an eternal one: and this fatal neceſſity we muſt all undergo from our very formation, which is conformable to thoſe unvariable laws of Providence, by which the ſucceſſion of mankind is kept on foot.

Having therefore given you a ſhort epitome of man, as far as the glandular ſecretions are concerned, we may obſerve, how nicely HIPPOCRATES had enquired into theſe events, when he declares; [i] *Senibus ſpirandi difficultates; deſtillationes cum tuſſi; ſtranguriæ, dyſuriæ; articulorum dolores; nephritides; vertigines; apoplexiæ; mali corporis habitus; pruritus totius corporis; vigiliæ; alvi, oculorum, et nariium humiditates; viſus hebetudines; glaucomata; auditus gravis.*

Whoever therefore meditates on this order of things will ſoon be convinced, that he has a ſubject put into his hands which ought to be governed according to nature's laws and times; and when he underſtands well what ſecretions

[i] HIPPOCRAT. aph. 31. ſect. iii.

are

are to be promoted, what reſtrained, or what totally ſtopped; the *materia medica* will furniſh him with proper remedies to anſwer all his purpoſes, and ſuitable helps will be found for the diſeaſes of each time of life. He will not go on blundering in the dark, doubting what meaſures he is to take; but, provided the veſſels are not broken, or too greatly obſtructed, he will act with ſuch a certainty and ſecurity in what he undertakes, that altho' he cannot give immortality, he will convince mankind of the uſefulneſs, and greatneſs of his heart.

For there are numberleſs inſtances, where the phyſician has it in his power to govern and direct the ſecretions almoſt at his will. But, as there is no diſeaſe, wherein this truth is more evident than in the *lues venerea*, we will take a ſhort view of that, and let it ſtand as a general hint for all the reſt.

Let a ſecretion therefore be excited from the ſtimulus of the venereal poiſon (as in a gleet) which is the endeavour of nature to get rid of the diſeaſe; in that caſe, if the phyſician reſolves to oppoſe the attempt of nature, and gives turpentine or glutinous medicines, to ſeal up the outlets of the veſſels, the conſequences will be theſe: the poiſon, not be-

ing waſhed off, becauſe the proper outlets of the veſſels are ſealed up, will be diſtributed by the lymphatics to the glands of the neighbouring parts, and either an *hernia humoralis* will be formed in the teſticle, a bubo in the groin, or ſomething of that kind. If the phyſician then takes a reſolution that it ſhall not ripen into matter, and by evacuations recalls the diſeaſe from theſe parts, then either the old running breaks down again, or very often the infection is carried deeper into the habit, and diſtributed upon the cutaneous glands; ſhewing itſelf upon the forehead in the form of a *corona veneris*, or elſe the whole ſkin is ſpotted over with a kind of venereal *lepra*. If under theſe circumſtances the phyſician has again a mind to palliate the diſeaſe, and not let thoſe uncomely appearances ſhew themſelves in the ſkin, it is well known that repeated doſes of mercury, taken till it excites large ſecretions by the ſalivary glands, till the gums grow turgid, and the glands of the chaps become loaded with the humour invited to thoſe parts, will cauſe the eruptions in the ſkin to diſappear, and the ſkin will become clean. But, if this diſcharge by the ſalivary glands is too ſmall, or ſubſiſts only a little time, upon the ceaſing

of it, the eruptions appear again in the ſkin But, if the phyſician carries this remedy farther, and by mercurial unction excites a long and painful ſalivation, the diſeaſe is carried off by thoſe ſecretions, and the patient cured; as in other diſeaſes he is reſtored by ſweats, urine, or ſtools.

Thus much I have ventured to ſay for the phyſician, and for the art of phyſic; but he muſt ſtill remember, that as nature herſelf is bounded and reſtrained, ſo is he likewiſe circumſcribed. For there are certain [k] *limits, beyond which he cannot extend his art.* And this ſhould ſatisfy the mind of every good man, and prevent his growing out of humour with the beſt profeſſion, or reſolving, becauſe he cannot cure all diſeaſes, to be concerned in aiding none.

For, as there are many milder caſes which he can cure, ſo there are many alſo, which are beyond his art, tho' [l] ÆSCULAPIUS himſelf was to adminiſter the medicine.

[k] *Quos ultra tranſire nefas.*
[l] *Afferat ipſe licet ſacras Epidaurius herbas.*

APHORISMS.

1. GOD created man and breathed into him the breath of life, &c.

2. From the firſt conception we may have of the animal to the ultimate date of his life, he ſeems to be actuated by an internal principle, which I ſhall call NATURE.

3. Nature therefore brings about all the events, which happen in an animal body, by ſlow, but ſtated laws, at ſtated times.

4. Theſe laws are certain from the animalcule to the child, when it is born with nails, hair, &c. and is become perfect.

5. At the birth the whole habit is lax, weak, little coherent, and more eaſily diſſolvable in water than afterwards.

6. From the birth, nature is conſtantly employed in an extenſion and amplification of its veſſels, or tubes.

7. Fire or heat, and water or moiſture, are the two moſt probable inſtruments ſhe employs in this work.

8. Plenitudes

8. Plenitudes muſt ariſe from the firſt application of theſe, towards extenſion, nutrition, and growth of parts.

9. The glands are ſuppoſed not only to ſeparate fluids neceſſary to the life of the animal, but to diſcharge redundancies alſo.

10. As the carnous fibres grow ſtronger, the adipoſe glands are more compreſſed, and therefore the fat, glandular, ſoft habit of children, yields to a more firm one, as age comes on.

11. Nature is reſtrained, and obliged to act by ſuch laws, as the great AUTHOR of our BEING firſt impoſed upon her.

12. Nature therefore acts according to the powers, or inſtruments, which are put into her hands, and conſequently great care ſhould be taken by the phyſician, that ſhe is not put upon impoſſibilities.

13. Her inſtruments therefore being weak, till about the fourteenth year, ſome ſecretions ought to be governed accordingly, and not forced before their proper time.

14. About puberty the carnous fibres are ſtrengthened; they become more coheſive, and

and the connection of them is ſtronger, and the muſcles are more brawny; from the gluten with which the blood is daily enriched by ſecretions ſet on foot at that time.

15. By the ſtronger action of the ſolids upon the fluids, the fluids undergo a ſtronger attrition, and animal-heat is encreaſed thereby.

16. From the cauſes before mentioned, there is a greater ſeparation of animal ſpirits, and all animal functions are performed more ſtrongly and vigorouſly.

17. The ſtate of manlineſs encreaſes, and continues till the decline of life; when there becomes again a paucity of thoſe ſecretions, which produced brawnyneſs and muſcular ſtrength.

18. For want of which ſupply, muſcular force again abates; the attrition of the fluids is leſs; native or animal heat decreaſes, till in very old age the fluids which are ſecreted become effœte.

——— *Gelidus, tardante ſenecta,*
Sanguis hebet, frigentque effœto in corpore vires.

The muſcles daily decreaſe in their ſtrength; grow ſlackened, have few ſpirits ſent into them,

them, and perform their offices but weakly; even the generous horſe grows creſt-fallen [a]. And all theſe changes happen according to the different ſtages of life.

[a] *Sicut fortis equus, ſpatio qui ſæpe ſupremo*
Vicit olympia, nunc ſenio confectus quieſcet.

OF

SOME ANTISTRUMOUS REMEDIES

USED BY THE ANTIENTS;

ALSO OF

TEPID BATHING, AND SEA BATHING:

AN EPISTOLARY DISSERTATION

TO

RICHARD FREWIN, M. D.

Multa renaſcentur, quæ jam cecidere —

DOCTOR RUSSELL

TO

DOCTOR FREWIN.

SIR,

THE continued marks of your friendſhip would be reaſon ſufficient for my addreſſing theſe papers to you; but the reputation you poſſeſs in your profeſſion, is a farther motive for my not truſting them abroad, till they have paſſed through the hands and inſpection of yourſelf and ſome other friends.

As the doctrine of diſeaſed glands, with the cures laid down in my treatiſe upon glandular conſumptions, has met with the approbation of the public; I have examined the remedies which the antients employed in thoſe diſeaſes, and made ſome improvements upon their method; which I now take the liberty to lay before you, as an addition and ornament to the foregoing work. The inac-

curacy

curacy of the tranſlators of my book has made me a debtor for this to the public. I am ſorry it is forced from me *raptim*; but if you approve of it, I know the world will; and I ſhall have no diffidence of the performance.

It is a clear thing with me, that the improvements we are to expect in our profeſſion, muſt ariſe from giving due attention to the remedies recommended to us by our forefathers. The firſt diſcoveries in phyſic took their riſe from obſervations of what did good or harm, in particular diſeaſes; and I make no doubt but all the remedies, which have been handed down to us from the antients, had more or leſs this ſame foundation. It is our fault, we have not carried their experience farther.

An enquiry, therefore, into the true virtues of theſe remedies, is ſetting out upon the obſervations of the antients; and is the moſt probable way for us to improve what they have taught. They knew a great deal, but not all. *Vita brevis, ars longa,* is an aphoriſm to put us in mind, that one age is not ſufficient to carry theſe enquiries into perfection. There may be a diſcovery made of a peruvian bark, or a new medicine for any other par-

ticular diſeaſe; but this is to be looked upon as an accident, that we are not to expect every day. In reviewing the antient medicine, we have from their works ſome guide to our enquiries; and if the ſubject has not been exhauſted, we ſhall generally improve it. Let us not therefore wholly give up this point, but conſider the great pains which were taken to tranſmit them to us.

The antients not only preſerved them on tables, and placed them in their temples, but even their oracles, whoſe authority was great, did not diſdain to recommend them.

[a] *Nunc, Dea, nunc ſuccurre mihi; nam poſſe mederi,*
Picta docet templis multa tabella tuis.

And this method, of recording medicines and cures in their temples, was not only frequent amongſt the Grecians, but took place alſo in Italy, as PLINY teſtifies: [b] *Mos fuit liberatos morbis in templo ejus Dei, quid auxiliatum eſſet, ſcribere.*

Which cuſtom remained amongſt the Romans even to the time of the emperor ANTONINUS. For HIERONYMUS MERCURIALIS has

[a] Tibull. l. i. El. 3. [b] Plin. *Nat. Hiſt.* lib. xxix. c. 1.

preſerved to us ſome of theſe inſcriptions, wrote in ANTONINUS's reign, and found in the temple of ÆSCULAPIUS at Rome. In which inſcriptions you find recorded, not only the cures effected, but alſo the remedies, which the oracle directed to be uſed. After he has given an account of one CAIUS, a blind man, that was cured miraculouſly at the Altar, in the time of ANTONINUS, he ſubjoins the two following caſes. *Lucio affecto lateris dolore, et deſperatio à cunctis hominibus, ex oraculo reddidit Deus, veniret, et ex ara tolleret cinerem, et una cum vino commiſceret, et poneret ſupra latus; et convaluit, et publice gratias egit Deo, et populus gratulatus eſt illi.* Where the oracle, or whoever gave thoſe anſwers, directed aſhes from the altar to be mixed with wine, for a pain in the ſide: which is a good lixivial *fotus*; and if it was preſcribed by a modern, would be only mended by adding to it ſome few ſpicy or carminative drugs. Again, you find the oracle directing pine-nuts to be taken from the altar and uſed by JULIAN, for the throwing off blood. *Sanguinem revomenti Juliano, deſperato ab omnibus hominibus, ex oraculo reſpondit Deus, veniret, et ex ara caperet nucleos pini, et comederet una cum melle per tres dies; et convaluit, et*

veniens

veniens publicè egit gratias, præſente populo. And is not honey, and the *balſam. locatelli*, and are not other preparations of turpentine, given at this day to cloſe the veſſels, after bruiſes, and in ſpitting of blood. I could name numbers of other inſtances where the very remedies, which were uſed in the early days of phyſic are continued in practice, and preſerve their reputation to this time.

Theſe are ſufficient reaſons for us to ſuppoſe, that the antient medicines ſtand upon the foundation of obſervation and experience. Therefore, as I have obſerved before, that moſt of the medicines the antients uſed in diſeaſed glands, were taken from the ſea, let us patiently examine them, and ſee if they have exhauſted that ſubject: and when we have well conſidered this point, and made ourſelves maſters of theſe weapons, go on in our purſuit of that ſcience; which can only be attained by learning the true uſe of the *materia medica.*

I have obſerved in my former work, that moſt of thoſe remedies, which the antients uſed in diſeaſes of the glands, were ſuch as tended to correct acidities in the *primæ viæ*, and to prepare a ſweet edulcorate chyle. And indeed we have learnt from experience, of

what of great conſequence abſorbents are, in correcting the ſtate of the juices in theſe parts: in children eſpecially we cannot go on without them. But one inconvenience generally ariſes from the uſe of them, which is, they conſtipate the belly; and this we are forced to help by giving rhubarb, or ſome purging remedy, and then proceed with theſe teſtaceous or cretaceous powders again, till a new conſtipation of the belly ariſes. But in ſome caſes, where the nerves have been much irritated, I have found that even rhubarb ſtimulated too much, and left the patient bound, after the effect was over. I had therefore conſidered in my mind, what method I ſhould contrive to prevent this misfortune, and by thoſe means go on with theſe moſt uſeful remedies, without undoing to day, what I had been labouring to effect yeſterday.

At length finding ſome ſea-chalk, whoſe pores had been open, and by rolling up and down in the ſea, had been left to dry on the hot beach in the ſun, and again wetted and ſoaked in the ſea water, till its pores were highly ſaturated with ſea-ſalt; I tried it, taken in water, for the heart-burn; and found it

cured

cured my heart-burn, and did not lock me up, like other chalk.

I then cauſed ſome ſea chalk to be well levigated on a porphyry with ſea water, and dried in the ſun; then rubbed again with ſea water, and inſolated; repeating the operation, till it was ſufficiently ſaturated with ſea ſalts: and this I found anſwered the ſame end as common chalk, and did not bind me. I then tried it in ſome worm caſes: and I think, it is an excellent remedy to ſweeten and correct the acidities of the *primæ viæ*; and is alſo good againſt worms. The pieces you find on the ſea ſhore, if the pores are well ſaturated, are heavier, when dried, than common chalk. Sailors and dancers on the rope uſe it to chalk their pumps; that they may not ſlip: becauſe the ſalts contained in it are apt to keep it damp.---But enough has been ſaid upon the ſubject of ſea chalk.

Of BITUMEN.

As I have obſerved, that ſea-water abounds with bituminous particles, and that I had the concurrence of ſeveral writers, that ſuch particles contribute towards the diſcuſſion and diſſipating humours, that were lodged and

had formed obſtructions in the glands; ſo I have from time to time made experiments, to try what external help I could find from *bitumen* in thoſe obſtinate diſeaſes, as well as the great benefit I had found from it, given with ſea-water internally. Remedies are the phyſician's weapons, to combat diſeaſes; and a man of ſcience will always try how far he can carry the utility of them.

The eaſtern people formerly made great uſe of this drug. Therefore, that we may come to the beſt knowledge we can of the materials we uſe, let us ſee what experience the antient phyſicians had of it, and what they have handed down to us on this head. And of this medicine they had divers ſorts. Firſt, the black and white amber: which the Syrians uſed to call *harpax*. [c] *In Syria quoque fœminas verticillos inde facere; et vocare harpaga, quia folia et paleas, veſtiumque fimbrias rapiat.* This was not only worn in dreſs, but was alſo uſed in medicine: it was worn as an amulet by their children; it was taken againſt incontinency of urine; and by *lymphatici*, to prevent madneſs. The fumes of it were eſteemed, as we uſe oil of amber now, in hyſteric paroxyſms. It was

[c] Plin. *Nat. Hiſt.* lib. xxxvii. c. 2.

ſup-

ſuppoſed to flow liquid from its firſt production, and to obtain its hardneſs by rolling about in the water; receiving the various bodies, which are found in it, when it was in its liquid form. [d] *Cum ergo fonte ſuo ſcaturit bitumen id, molle adhuc, et liquidum obvia quæque amplectitur, retinet, includit. Fluctu vero lambente in altum pervolutum, maris vertigine ac ſalſugine, temporiſque diuturnitate dureſcit, ut apud nos piſaſphaltum; et jam tum ſuccinum eſt.*

The ſecond ſort of *bitumen* was what they called the *naptha* or liquid *bitumen*; which they ſay flowed from fountains about Babylon, and was called ſometimes live-oil, as the following lines expreſs:

Vulcano condicta domus, cui ſubter eunti
Stagna ſedent, venis OLEOQUE *madentia* VIVO.

And this *oleum terræ* ſeems to have been of the ſame nature with what the Indians call *miniac tennah*; which [e] BONTIUS ſays the Indians eſteemed as an excellent remedy in all cold affections of the nerves and muſcles, and uſed it againſt ſtrangulations; as we do the chemical oil of *ſuccinum* at this time.

[d] Plin. *Nat. Hiſt.* lib. xxxvii. cap. 2.
[e] Jacob. Bont. *Method. Medend. Indic.* cap. 1.

The third was their *bitumen Judaicum*; which ſome ſuppoſe to be the *karabe* of Sodom, or the funeral gum. The eaſtern people were ſo fond of this *bitumen*, ſuppoſing it to reſiſt the putrefaction of bodies, that the poorer ſort of people, from the plenty of it, uſed to embalm their dead with it; and the *mumia* of AVICEN is ſuppoſed to be a kind of *piſſaſphaltum*.

But this does not ſeem to have been the kind of embalming moſt eſteemed, or what was in faſhion amongſt the rich and great; who had the moſt coſtly gums, and aromatics, made uſe of in their embalments: as the uſe of the *amomum* makes appear. STATIUS therefore calls this, *triſte amomum*. And PERSIUS ſays [f];

Beatulus alto
Compoſitus lecto, craſſiſque lutatus amomis,
In portam rigidos calces extendit. —

And JUVENAL,

[g] *Et matutino ſudans Criſpinus amomo,*
Quantum vix redolent duo funera.—

It has ſometimes been a doubt with me, whether the word *amomum* was not uſed to

[f] Pref. Sat. iii. 104. [g] Juven. Sat. vi. 108.

expreſs

expreſs aromatic or odorous bodies in general: as when OVID ſays;

[h] *Atque ea* [oſſa] *cum foliis et amomi pulvere miſce:*

Which ſeems to have been ſome compound powder diſtinguiſhed by that name: the ſame author has the following lines;

[i] *Ille tibi exequias et magni funus honoris*
Fecit, et in gelidos vertit amoma ſinus;
Diluit et lacrymis mœrens unguente profuſis,
Oſſaque vicinâ condita texit humo. —

The derivation of our word *mummy* from this original is pretty obvious.

The ancients not only uſed *bitumen* in embalming, but for various kinds of diſeaſes. It was uſed, PLINY ſays, *contra lepras, lichenas, prurituſque corporum.* In another place he ſays it was given in dyſenteries, to ſtop fluxes of the belly, and mixed with myrrh againſt quartan agues. And as we give mummy now to perſons ſhocked by falls, ſo they gave *bitumen* and vinegar to diſſolve concreted blood.

The cuſtom of burning this for a fumigation was alſo very frequent, when their

[h] Ovid. Triſt. iii. Eleg. 3. [i] Ovid. c. i. Epiſt. ix. *Maxim.*

nerves

nerves had been injured by the eaſtern luxury of uſing high prefumes, to which they were much addicted. And theſe diſorders they uſed to remedy by burning the hair of the goat's beard mixt with *bitumen*, with the ſame ſucceſs as we burn feathers, or the hoofs of animals, under the noſes of hyſteric patients: which was curing by *contrarieties*, as they termed it.

Having thus ſlightly touched upon the kinds of *bitumen*, with the uſe antiquity has made of them, let us bring things nearer home, and ſpeak of a kind of *ampelites* or black *bitumen*, highly loaded with ſulphur and ſalt, which we have at hand; as it is to be found in plenty on ſome parts of the coaſt of *Suſſex*. Upon conſidering the uſe of the *lanæ ſulphuratæ*, which Dr. WILMOT communicated to me in an extract from SCRIBONIUS LARGUS [k], I was of opinion that *bitumen* and ſulphur would be a more efficacious remedy than ſulphur alone. Therefore I ordered ſome of this *ampelites* to be rubbed very fine, and then ſtrewed upon coals, and the hot ſteams received into a funnel, and applied hot to the tumours of the glands, after they had been fomented with ſea water.

[k] Vid. Epiſt. ad D. LEWIS de tab. gland.

But in ſome of theſe caſes I thought flannel heated and teized the ſkin too much: in order therefore to remedy this inconvenience, I directed ſome ſoft picked cotton to be lightly quilted on linen, and tucked round the ſwelling, and to receive the ſteams by a funnel on the part; and this I found to anſwer much better, and contribute towards the diſſipation of large tumours of the glands, and to confirm the tone of the weak parts. But this ſhould be continued no longer than may be neceſſary to diſperſe the hardneſs: after which cold bathing is the beſt way to finiſh the cure.

This *ampelites* or *pharmacitis*, when it lies expoſed to the air, is apt to ſcale, and from the ſalts it has in it will moulder away by the winter froſts and rains into a black gritty powder; which in ſome places covers the ſand: but this is not ſo good as the hard ſtone, when firſt broken and powdered; nor has it a ſmell ſo bituminous and ſulphurous, when burnt upon the coals.

I have inſerted this chapter, as I think the *lanæ ſulphuratæ* of the antients are too much neglected, and that they are capable of great improvements. In ſtrumous fingers, where the nodes do not diſſipate ſo well as I could wiſh,

wiſh, I direct the parts to be held over the fumes; and the *ampelites* thus mixed will burn a great while, and emit a ſtrong ſulphureous and bituminous ſmell. I commonly mix the following powder for the fumigation,

℞ *Lap. pharmacit.* ℥ij*ſs. Nitri puriſſimi* ℥ij*ſs m.*

I ſometimes add a little ſulphur to this: but if much be added to it, it will make it burn off too faſt.

With this the parts, and cotton bandage ſhould be well fumigated, and then tucked warm round the ſwelling, after the part has been fomented with ſea water. [1] *Jam vero pura vellera, aut per ſe impoſita, cæcis doloribus, aut recepto ſulphure.*

As ſtrumous diſeaſes have hitherto been untractable by phyſicians and ſurgeons, all theſe helps are little enough to encounter with ſome of the moſt obſtinate caſes. But we will now proceed in our enquiries to the *pumex*, or pumice ſtone: in the mean time give me leave to ſay, I ſhould be inexcuſable in giving you this trouble, if I did not flatter myſelf that you will find ſomewhat uſeful to mankind ſtruck out in theſe ſhort eſſays.

[1] Plin. *Nat. Hiſt.* lib. xxix. cap. 2.

Of

Of the PUMEX.

ANOTHER remedy I have taken notice of in my eſſay on the uſe of ſea-water, is the PUMEX or PUMICE ſtone, as one of thoſe medicines which the antients uſed in diſeaſes of the glands. This is ſuppoſed by authors to be a kind of earth calcined by ſubterraneous fires, and then by volcano's hurled out into the ſea. There are many ſorts; all of which are porous, ſpongy, and have a ſalt taſte.

The uſes the antients made of this were various. It is ſo great an abſorbent, and corrects the acid fumes of wine ſo much, that they imagined it would extinguiſh drunkenneſs, and that it was of ſo refrigerating a nature, (according to their way of ſpeaking) that even muſt would not ferment, if the *pumice ſtone* was added to it. However this obſervation of theirs ſhews it to be a great corrector of acidities in the *primæ viæ*. PLINY calls them *eroſa ſaxa*. The moſt porous and the dryeſt were eſteemed the beſt, from whence PLAUTUS ſays; *pumex non æque eſt aridus*. And thoſe alſo that were eaſily levigated, and had not ſand or gravel mixed with them, were moſt eſteemed. For they

they were very exact in preparing them, and rubbing them fine; becauſe they were uſed as remedies for the eyes: the roughneſs of whoſe parts, by the friction of the lid upon them, will poliſh off foulneſſes from the *cornea*; as the rubbing it by artificers on other bodies will poliſh them. But it is neceſſary, theſe parts of the *pumex* ſhould undergo proper levigation before they are uſed.

The manner in which the antients uſed to prepare them was, by burning or heating them red hot in a clear fire, for three times, and extinguiſhing them as often in white wine, then waſhing, drying, and levigating them for uſe.

I have cleanſed ſome foul ulcers of the *cornea* with this remedy, when I could not manage them any other way. It wonderfully ſweetens and corrects the acrimony of humours, and, as I ſaid before, cleanſes off *ſordes* from the coats of the eye. PLINY ſays alſo, that they were uſed as *malagmata*, in ulcers of the head, *verendorumque ulceribus*; and that they were excellent dentifrices; lightly cleanſed ulcers; and aſſiſted the ſurgeon in cicatrization.

From theſe hints I therefore gave it internally; and am of opinion, it not only edulcorates

corates and corrects the juices in the *primæ viæ*; but gently ſhaves off the ſlime and impurities, which daub over the mouths of the internal glands and the lacteals, ſafer, if not better, than remedies which have a more cauſtic quality. For I have found this medicine of great benefit, when ponderous ones would not ſucceed; I mean ſuch as *mercury*, *antimony*, *cinnabar*, &c. And in long fluxes of the belly, this is doubtleſs a good remedy. HERMAN, ſpeaking of the *pumex*, ſays; [m] *Nonnulli etiam hunc lapidem præparatum, ad nimios alvi fluxus ſiſtendos, propinant.* THEOPHRASTUS ſays, this drug will appeaſe diſorders of the ſtomach, even when hellebore has been taken. [n] *Eudemus Chius poſt ſeptimam veratri potionem vomitum cohibuit, primum ſumto pumice, acri aceto conſperſo; deinde eodem pumice mero diluto et macerato.*

Amongſt the forms I have tried for the eyes, the following makes a good *collyrium:*

℞ *Lap. pumic. trinâ uſtione toſt. ac toties vino albo reſtinct. Lap. calaminar. lot. ana p. æ. opt. lævigat. Sacch. cand. alba p.* i.

[m] Vid. *P. Herman.* Lapis Materiæ Medicæ, Lydius, p. 61.

[n] *Theophraſt.* lib. ix. cap. 18.

Terantur

Terantur ſimul in mortario plumbeo, donec liveſcant; tum in vitro clauſo ſerva.

Where there are any foulneſſes left upon the *cornea*, after the eye has undergone long fluxions, this powder in ſpring-water, and ſometimes by itſelf, will anſwer the end of deterging and healing: but, as I obſerved before, the powders ſhould be levigated very fine. Thus we find every enquiry into the remedies of the antients affords us ſome new light; and the phyſician has at leaſt a chance to improve what their obſervations brought into practice.

Of the CADMIA.

ANOTHER remedy of the antients I have mentioned is the *Cadmia*, or the *lapis ærarius*, as the moderns ſometimes call it, which we uſe under the name of *lapis calaminaris*, and is the grey *calamine*, which is found in England, as well as abroad, near mines of copper. LEMERY ſays, there is a diſtrict near the duchy of Limbourg, which abounds ſo much with the *lapis ærarius* or *calaminaris*, that it is called by the name of *calmine* or *calamine*. This contains a good deal of copper; and after waſhing and calcining, is uſed by

by the founderies of copper, in making the yellow braſs or the *aurichalcum*. The ſame author ſays, that we owe the diſcovery of the *aurichalcum* to the alchemiſts, who hit upon it in ſearching for the philoſopher's ſtone; but this was ſo well known to the antients, that [n] CALLIMACHUS, in his *lavacrum Palladis*, takes notice of the *orichalcum* in the following lines,

Nam nec in Ida olim, judice ſub Phrygio,
Se vel Orichalco magna hæc Dea, vel Simoëntis
Spectavit quanquam vortice perſpicuo.

And VIRGIL,

Ipſe dehinc auro ſquallentem, alboque Orichalco
Circumdat loricam humeris.

FESTUS calls this the *Cadmean* earth; *Cadmea terra, quæ in æs conjicitur, ut fiat orichalcum.* [o] CONSTANTINUS AFRICANUS enumerates three kinds of *Cadmia*; but ſeems to me to have confounded the *pumex* with them: *the ſecond*, he ſays, *is found in caverns along the Indian ſea, and is green, rough, and perforated.*

I make no doubt but the *metallurgic art* was in great perfection amongſt the antients;

[n] Callimach. Hymn. v. l. 18. *Interpret. Politiano.*
[o] *De gradibus ſimpl.*

and ſuffered, as painting, ſculpture, and other arts did, in thoſe times when the barbarous nations over-run the learned and civilized part of the world. PLINY ſays the invention of braſs was owing to the Cyprians: *in Cypro, ubi prima fuit æris inventio.* Some authors report, this art was carried to great perfection amongſt the Perſians: ZOSIMUS ſays they had invented an admirable kind of yellow braſs by a mixture of *tutia*, which tutty was made of *cadmia* or *lapis calaminaris:* And it is ſaid, the brazen gates of the temple of *Sancta Sophia* at Conſtantinople were made of this kind of braſs. This compoſition poſſibly came near the colour of our modern *Pinchbeck:* for ARISTOTLE ſays, there were veſſels found amongſt the *ſupellectilia* of DARIUS (*inter Darii ſupellectilem,*) which he calls *batiacas*, that unleſs the ſmell had diſcovered them to have been braſs, could not have been known by their colour from true gold: And this compoſition, which they called *orichalcum*, was brought to ſuch perfection in AUGUSTUS CÆSAR's time, that they adorned their inſtruments of muſic with it.

[p] *Tibia non, ut nunc, orichalco vincta.*

[p] HORAT. *De Art. Poetic.* 202.

I mention

I mention this to ſhew to what height the antients had carried their metallurgic art, (who doubtleſs knew how to make the yellow *orichalcum*) and excite us to improve upon their obſervation. This ſpirit of improvement and induſtry has been wanted both in medicine and chemiſtry; inſomuch that even in my time perſons have rented the bloomeries or droſs of furnaces, which had been thrown away as of no account by the iron-maſters of the laſt age, and got eſtates by working them over again thro' their furnaces.

It has been the ſame thing with the *lapis calaminaris:* which has been neglected to be inquired into, and uſed only in external forms; whereas it is a moſt admirable remedy given internally. Indeed Mr. BOYLE has given a preſcription of it: but how it has been neglected, I know not. He ſays, *he wonders, that the virtues of the* lapis calaminaris *are ſo little known to chemiſts and phyſicians:* and in another place mentions a perſon, who gained a great reputation in town by curing fluxes (ſome of which were dyſenterical) with the *lapis calaminaris* only. For my own part I generally give it alone:

but Mr. BOYLE has added chalk in his preſcription; after the following manner:

℞. *Lap. calaminar. opt. lævigat.* ℈ij. *Cretæ albæ pp.* ℈j. *Miſceantur diligentiſſimè, et ſumantur in cochleari uno vel altero lactis recentis, bis, vel, ſi res poſtulet, ter in die.—Contra diarrhœam, et præcipuè ſi tormina adſint.*

Phyſicians will find this, well waſhed and levigated, to be an admirable remedy in ſome kinds of fluxes of the belly. And I find a letter of thanks from a gentleman in Ireland to my grandfather, who had communicated this ſecret to him, in which he ſays, it did ſuch ſervices to perſons labouring at that time with the flux of the country, that they called it, for its virtues, the *golden powder*. Pere PAPIN ſays, the Indians ſet a great value upon *talk* and *braſs:* which, they ſay, conſume all viſcous humours, and remove the moſt ſtubborn obſtructions.

I have found great ſucceſs from the *lapis calaminaris*, in perſons who had weak bowels. It is a great corrector of acidities, heals excoriations, and by taking off the irritation, quiets like an opiate; and the æruginous part of it corrugates the fibres, and binds. But the

the great difficulty is to aſcertain the doſe; for the ſame quantity, if it be loaded more with æruginous particles than the former, will be apt to vomit. Therefore I uſually begin with ſmall doſes, and increaſe them, as I find the *lapis calaminaris* is more or leſs loaded with æruginous particles. In adults, I never begin with more than five or ten grains, increaſing the doſe daily, as I find the ſtomach bears it, in milk warm from the cow, night and morning. And this I have known cure long and deſperate fluxes of the belly, when the parts have been left weak; after the firſt days of inflammation were paſt, and the fluxion had been taken off by bleeding and the common methods. You will obſerve, there is an advantage in beginning with ſo ſmall a doſe, as the remedy is given as a ſtyptic; all which will vomit or purge, if given in too large a quantity.

Nor did my inquiry into this drug ſtop here; but trying how I could improve its external uſes, I have hit upon a way of managing it, which, if it will not cure an ulcerated cancer, and cancerous ulcerations of the mouth, will at leaſt palliate them, beyond all things yet known: this I have often experienced.

The *ceratum de lapide calaminari* is the beſt deſiccative the ſurgeons now have; and the *collyrium de lapide calamin. et pumice toſt.* is the beſt *collyrium* I have met with.

Of the SPODIUM.

THE next remedy to be conſidered is the *ſpodium* of the antients: which was a ſort of *cadmia*, endowed with æruginous particles. The *ſpodium Græcorum* was the *tutia* of the Arabians: of which they ſeem to have had two ſorts, the one metalline, the other prepared from animals, &c.

AVICENNA, who ſeems to have taken all he has written upon this ſubject out of the books of the Grecians, or from the traditions of his own times, ſays, that the *carmanian tutia* was made out of animals found upon the ſhore, thrown up by the ſea, or the burnt root of *alcanna*. Hence poſſibly came the opinion of the *tutia's* being found on the ſea ſhores. This hint however, and GALEN's ſaying, they made a *ſpodium* out of the burnt horns of animals and ivory, poſſibly gave riſe to all the factitious *ſpodium*; for the *ſpodium* of the moderns is made of burnt ivory.

But

But the metalline *ſpodium*, or the *ſpodium Græcorum*, was formed of a metalline ſweat, or fume, which aroſe from braſs and the *lapis ærarius*, and gathered like light ſoot about the top of the furnaces, in founderies of braſs. SERAPIO, mentioning *tutia*, ſays, it is produced from the braſs furnaces. *Et ex ea eſt, quæ fit in fornacibus, in quibus citrinatur æs, et colligitur, et reponitur, ſicut climia.* And in another place he ſays — *Elevatur ergo ex climiâ fumus, et adhæret parietibus.* And this deſcription has the concurrence of other authors. Therefore we may eſteem the *tutia* of the ſhops, which is brought to us from Germany, Sweden, and other places, where they have braſs founderies, to be a kind of flower of a particular kind, which ariſes from the furnaces, impregnated with æruginous or metallic particles, and hardens afterwards, like ſoot, or flies off in *ſcoriæ* from the braſs in melting.

The antients uſed this in diſeaſes of the eyes; where the mixture of the ſalt *calx* and the *ærugo* formed a medicine not unlike in quality to the *aqua ſapphirina* of Dr. BATE's, where the *aqua calcis*, and *ſal ammoniac.* are permitted to ſtand in a copper, till the colour, becomes a fine blue. So that this modern

remedy ſeems to have been an improvement of that great man's, upon his analyſing the *tutia*. The antients uſed it alſo as a deſiccative, or drying remedy for ſores: but here their inquiry ſeems to end; for I do not find, they uſed either the *lapis ærarius*, or the *tutia*, internally.

But if we conſider the experiments of HOMBERG, in the *acta regia Pariſ.* and other chemical writers, we ſhall find reaſon enough to expect greater things from all the compoſitions of braſs. For if you give it in ſuch a doſe that it will not vomit, it acts by its ſulphur, and is one of the beſt aperients; for it braces up and ſtrengthens the veſſels like ſteel.

A ſmall quantity of braſs will vomit; and therefore care is to be taken in beginning with ſmall doſes. But theſe *ſcoriæ* or ſooty particles, which fly off from the braſs in melting, are not ſo highly loaded with the metal and ſalts, as to excoriate even the eye or give pain; therefore they may be given in any quantity, ſhort of proving emetics. BOERHAAVE ſays, a ſolution of copper, in *ſal vol. ol.* prepared with *ſal ammoniac. et alcohol*, excels all other diuretic and hydropic remedies; and this I have ſeen ſome tryal of with ſucceſs.

ceſs. Of this kind is the *ſpiritus veneris antiepilepticus* HELVETII, ſo much praiſed in epilepſies from *pituita*, in atrophies of children, and in obſtructions of the *menſes*.

The reaſon which the chemiſts give for copper's being called Venus, is the great virtue attributed to it, in curing diſeaſes of the parts of generation, and promoting venery. What foundation there is for that opinion, I will not pretend to ſay; but I know that the *ſpodium* is an excellent remedy in gleets, and the *fluor albus*, as I have given it preſcribed in the caſe *de fluore albo*. But care muſt be taken to give it in proportion to the æruginous particles that it contains, for they ſhould be kept ſo low, as to prevent the remedy from proving a ſtrong emetic; although if it ſometimes has that effect in a moderate degree, it will nevertheleſs do good in thoſe caſes. It partakes of the nature of *lapis calaminaris*, but is leſs ſtyptic. I ſometimes direct it to be prepared, by making it red hot in a crucible, and then extinguiſhing it in water; repeating this operation three times at leaſt; afterwards powdering it in a marble mortar, and levigating it on marble, or a porphyry.

Of TEPID BATHING.

BEFORE I mention any caſes on TEPID BATHING, I ſhall beg leave to take notice of the *hermodactyl*; as it is a plant I frequently uſe in fluxions on the glands, and generally join with a courſe of tepid bathing. But as there have been diſputes amongſt critics, and botaniſts concerning the wholſome kind, it may not be improper to inquire what has been ſaid on that ſubject.

The *colchicum* of DIOSCORIDES has been eſteemed a kind of *hermodactyl*; but as this is a noxious plant, and produces ſtrangulations, it will be highly neceſſary to diſtinguiſh it from the *hermodactyl* of the ſhops. GERARD thinks the white meadow ſaffron, which he found about Sheepton Mallet, to be the *hermodactyl* of the ſhops, and ſays, it purges, and is uſed in the gout.

[q] RENODEUS reckons up three ſorts of the *ephemerum* or *hermodactyl*. *Eſt ergo ephemerum quoddam lethale, ut Colchicum; aliud non ſtrangulatorium, ut noſtras: (ſcilicet bulbus agreſtis, ſive crocus agreſtis) et tertium purgatorium, idque tutum ut Syriacum, quod in pharmacopo-*

[q] Vid. RENOD. *De Mat. Medic.* cap. 19.

liis

liis hermodactyli nomen habet. But VALERIUS CORDUS ſeems to have given us the beſt deſcription of this plant. [r] VALERIUS CORDUS *Colchicum quoddam reperiri ſcribit ſuperioribus ſimile, ſed flore candido, et radicis bulbo (cum reſiccatus eſt) inalbicante; interiuſque candidiſſimo, cujus contuſi pulviſculus ſpeciem exhibet farinæ triticeæ, ſapore ſuavi ac dulci. Hoc in* GERMANIA, *inquit, non naſcitur, ſed aliunde infertur: et veriſimile eſt, albi iſtius et peregrini Colchici radices eſſe, quæ in officinis hermodactyli nomine veneunt; nihilque aliud hermodactylum iſtum eſſe, quam albæ candidæque radicis Colchicum.* This correſponds with the accounts we have of the chief part of this drug's being brought us from Syria and Egypt; — as from Grand Cairo: where PROSPER ALPINUS obſerves, the roots are in great eſteem amongſt thoſe perſonswho frequent the baths, and are ſkilled in what he calls the *ars pinguefaciendi.* And it is not unlikely, that ſome authors upon this account have eſteemed this root a kind of *ſatyrion*; moſt of which are reckoned to be reſtoratives.

SALMASIUS ſays, the Arabians attributed to the *hermodactyl*, the faculty of plumping

[r] Vid. DODONÆI *Hiſt. Stirp.* p. 461.

up the body; and adds, —[f] *mulieres eâ uti ad corpus augendum, quod vulgò dicimus* EMBONPOINT. Where he ſays alſo, that AVICEN attributed the ſame virtue to the *behem Arabum*; and that the *hermodactyl* was given in diſeaſes of the joints. — *Articulorum et coxendicum doloribus medendis hæc etiam idonea.* And indeed it maintains this character to our time; being a conſiderable part of the *pulvis arthriticus* TURNERI, and entering into the compoſition of many other medicinal receipts.

From what has been ſaid it will appear, that the drug, we have been ſpeaking of, is the Syrian or Egyptian *hermodactyl*; which is not noxious, but gently opens the belly: and is uſed by the Egyptian women under their courſe of tepid bathing; when by keeping the bowels cleanſed of crudities, by taking medicated broths, and reſtoratives in the tepid bath, they render the body plump and ſmooth.

In ſome dry habits, that did not bear cold ſea bathing, eſpecially where the ſkin was covered with foul ſcorbutic, or leprous eruptions, and could not bear the touch of ſea water, without being irritated too much, I

[f] SALMAS. *de Hom.* c. 116.

have

have imitated the Egyptian manner of bathing, and kept the body open by *hermodactyls* and ſea water, with very good ſucceſs.

I could name ſeveral inſtances in both ſexes, where they had been teized and worn out by their complaints, that altho' they were lean, ſhriveled, and of a bad complexion, yet went away cured of their cutaneous diſorders by theſe means; and their habits were rendered plump and ſmooth, almoſt like a renewing of youth.

Having therefore deſcribed the Syrian *hermodactyl*, and the uſes made of it by the *balneatores*, or thoſe to whoſe care the Egyptian ladies of beſt faſhion were committed, I ſhall relate to you ſome inſtances, where tepid bathing has been of great ſervice.

I have in another place obſerved, that it is neceſſary for the phyſician to conſider well the ſtate of the glands, before he enters upon their cure; and I again muſt recommend the careful obſervance of it; becauſe I am ſenſible, many of his patients, from the inconvenience of being long abſent from their buſineſs, or kept from the ordinary purſuit of their pleaſures, will be apt to hurry him into a conceſſion of a courſe of bathing, before the body is altered, and ſufficiently prepared

by

by drinking the ſea water, or by a previous courſe of taking other remedies; and this is a compliance, that ends always to the patient's detriment: an inſtance of which I ſaw in the following caſe.

A gentleman, aged thirty ſix, was ſent me as a patient from an eminent phyſician in London. He had a large humid ſpreading *herpes* upon the arm, as alſo ſcorbutic eruptions in ſpots all over the body. When he got down to the ſea, he entered upon ſea bathing immediately, and drank the ſea water; but upon going into the ſea, the eruptions were not only much teized, but became more general, and the itching intolerable; his clothes ſticking to the parts almoſt every where.

Under theſe circumſtances I was ſent for to him, when he produced his phyſician's letter to me; in which he had wiſely directed previous evacuations: but that advice was either not known, or not followed by the patient. Upon obſerving the edges of the eruptions to lye high on the ſkin, and that they were very red, and the fluxion great, with large incruſtations on many parts; I adviſed the laying aſide ſea bathing, and even the water for ſome time; inſtead of which he took as follows:

Mitt.

Mitt. Sang. ℥xvj.

℞ *Hermodactyl. pulv.* ℈j. *Æthiop. vegetab.* ℈j. *Lac. ſulph. gr.* x. *Syr. roſar. ſolut. q. ſ. m. f. bol. mane et nocte ſumend. ſuperbibend. hauſt. ſeri medicati.*

In the mean time, I thought it proper to avoid *mercury*, and all ponderous remedies; which in theſe caſes, if they have not a venereal cauſe, do no good. By theſe means he was kept open, and the inflammatory ſtate of the eruptions much abated; having joined to this method the uſe of tepid bathing.

Divers forms of the *balnea dulcia* might be contrived by phyſicians with great advantage, as particular caſes require; which I have been obliged to alter, from the ſlimy *fucus*, down to bran and mallows. In this caſe I directed a large bag, filled with pollard or bran, to be put into the bathing tub, and plenty of mallow leaves picked and thrown on that; next boiling water to be poured upon them, and to ſtand till it was as warm as milk from the cow; and then the patient to enter into it, and waſh all the ſalts of the ſkin, and the impurities of the eruptions clean, with the ſcalded mallow leaves. By theſe means the

cruſts

cruſts of the eruptions were kept ſo clean, that no impurities lodged, to fret and excoriate the parts farther; and where the cutaneous glands gleeted too much, I uſed the *ung. de pice liquidâ*, or the following waſh:

℞. *Pic. liquid.* ʒviij. *Aq. marin.* ℔ij. *m. ſtent ſimul per horas* 24; *tum cola.*

But finding the eruptions look cool, and the pulſe quiet, I then let him return to the uſe of ſea water; by which the fluxion was ſoon abated: and when the ſores were all healing, he returned to ſea bathing; which ſtrengthened the parts: and he has been very well, as far as I can learn, ever ſince. In this caſe, there was a deſquamation of the whole ſkin, like the *exuviæ* of a ſerpent.

The ſecond hiſtory is almoſt ſimilar to the firſt, but as it was attended with great emaciation, I will inſert it.

A woman, upon the ceaſing of the *menſes*, had a return of a humid *lepra*, which had left her from the time of puberty, or at the firſt breaking down of the *menſes*, till now. This was one of the moſt general caſes I ever ſaw of the kind, and had been increaſed by imprudent and untimely ſea bathing; the ſalt water having irritated the ſore parts. The

itching in this caſe was ſo intolerable, that it had almoſt worn out the patient, for want of reſt; and ſhe was hardly able to wear any clothes.

Under theſe circumſtances I adviſed bleeding once or twice, and that ſhe would take the *vegetable æthiops*, and *lac ſulphur.* with a medicated whey, night and morning; and enter into the tepid bath, as before deſcribed; with a third part of whey or buttermilk added to the bath. By theſe means the irritation was taken off; and to recruit the patient, I ordered warm chicken or mutton broth to be drank night and morning, during the time ſhe was in the bath; which nouriſhed her: and, as ſhe was more at eaſe, ſhe ſlept better, and grew plump. And when I found the quickneſs of her pulſe, which attended her all the time the caſe was in that irritated ſtate, to be abated, and grown quiet, I then ventured upon ſea water again, which ſoon took off the fluxion: and the cure was finiſhed by ſea bathing.

This caſe remained two years without a relapſe; but this year ſhe ſhewed me a return of it again, in the bending of the arm; tho' the appearance was very mild: which ſhews, when glands have been ſo much diſeaſed, how

eaſily they are brought to ſuffer again, when any new plenitude ariſes in the habit.

The eaſtern people medicate their broths; but, in general, I think that unneceſſary. I muſt own, I took this hint of giving reſtoratives, during the time of my patient's being in the bath, from PROSPER ALPINUS; who ſays, he hath ſeen many Egyptian women grow fat, by this method of tepid bathing. *Ex quo auxilii genere plures vidi emaciatas mulieres pingues evaſiſſe; præſertimque parato in pingui gallinarum jure.* And the ſame author ſays, he was informed by an Egyptian woman, who profeſſed the *ars pinguefaciendi*, that the poorer people uſed *fenugreek* tea for the ſame purpoſe. And we find, our doctors for cattle give *fenugreek* to their horſes with good ſucceſs, when they don't thrive.

And what would induce us to this practice, of giving reſtoratives to emaciated perſons during the time of their being relaxed in the tepid bath, is, that children and women, from whoſe laxity of fibres the adipoſe glands are leſs compreſſed, are more inclined to be fat than men, or thoſe whoſe fibres are more firm and rigid.

I ſhall venture to add one caſe more, in which

which tepid bathing was of great ſervice, joined to the uſe of ſea water.

A man aged twenty one came to me, with ſuch an ouzing from the cutaneous glands, that it wet through his breeches, as he ſat on the chair. The fluxion was ſo great, that I conceived hopes of reſtraining it only by making revulſion with *turpeth mineral* vomits, and by giving *calomel.* &c. with his ſea water: but this rough method would not do by any means; it irritated ſo much, that he grew infinitely worſe. The eruptions became now almoſt general; he could hardly bear any clothes on; his hands and feet grew incruſted, as did his ears; and he was one of the moſt afflicted patients I ever ſaw.

Under theſe circumſtances, I ordered him to lay aſide the uſe of mercurials, and to ſit in the bathing tub, of bran, mallows, milk and water, as before deſcribed, and to waſh out the ſalts of the ſkin with the mallow leaves, to continue the uſe of ſea water, the *vegetable æthiops*, *hermodactyls*, and *lac ſulphur*. and this method ſucceeded to my wiſh; the incruſtations came off from his hands and and feet; and the whole body healed.

But a very remarkable circumſtance in this caſe was, that whilſt the glands of the ſkin

diſcharged, or ouzed ſo much, one quart of ſea water would not purge the patient; whereas afterwards one pint anſwered very well. This ſhews that the inteſtinal glands, when provoked to do their duty, will ſupply in a great meaſure the deficiency of ſecretions by the ſkin.

Having given you ſome obſervations upon the uſe of *hermodactyls*, and *tepid bathing*; we will now proceed to the conſideration of *cold ſea bathing*; which is one of our principal objects.

Of SEA BATHING.

SEA BATHING is another remedy, which may be traced up to great antiquity. HOMER makes DIOMEDE and ULYSSES uſe ſea bathing to cleanſe off their ſweat, and ſtrengthen their nerves, after they had brought the ſpoils of Dolon on ſhipboard, to dedicate them to Minerva. The Greeks had ſo general an eſteem for it, that ARISTOPHANES, in his comic ſcene, of leading PLUTUS to the temple of ÆSCULAPIUS, to cure him of his blindneſs, has choſen ſea bathing, to purify him:

Igitur

Igitur ſimulatque pervenimus ad hunc Deum
(Æſculapium)
Ducentes PLUTUM (*eo tempore miſerrimum,*
Nunc autem, ſi quis alius felicem et beatum)
Primo omnium nos ad mare eum perduximus,
Et aquis marinis abluimus.

And baron SPANHEIM, in his note upon this paſſage, has judiciouſly obſerved, that ARISTIDES, in his fourth diſcourſe, has ſhewed, ÆSCULAPIUS himſelf uſed particularly to preſcibe theſe kinds of ablutions; where he quotes the following paſſage out of HIPPOCRATES: [a] *Pruriginoſis, et qui acribus humoribus vellicantur lotiones in mari prodeſſe.* The Romans alſo held bathing generally in great eſtimation; and SUETONIUS ſays, ſea bathing was introduced at Rome by NERO; the magnificence of whoſe baths far exceeded all things of that kind, which had been conſtructed even by the Grecians.

[b] *Quid* NERONE *pejus?*
Quid THERMIS *melius* NERONIANIS?

Many extracts might be made alſo out of the Egyptian and Jewiſh antiquities, to ſhew

[a] HIPPOCRAT. *de humid. uſu* cap. 7.
[b] MARTIAL. lib. vii. Epig. 33.

the early uſe, which different nations of the world made of this purifying remedy: but as this little eſſay is intended to ſhew, in what caſes it may be uſeful, or hurtful, I have choſe to confine myſelf to the obſervations I have made upon ſea bathing myſelf, and what has been mentioned by others.

I diſtinguiſh ſea bathing into general, and topical; by the former I mean, when the whole body is immerſed; by the latter, when ſea water is applied to ſome particular part of the body only. We will begin with the conſideration of the firſt: and that naturally ſuggeſts the ſituation of the place; which, I think, ſhould be clean and neat, at ſome diſtance from the opening of a river; that the water may be as highly loaded with ſea ſalt, and the other riches of the ocean, as poſſible, and not weakened by the mixing of freſh water with its waves. In the next place, one would chooſe the ſhore to be ſandy and flat; for the conveniency of going into the ſea in a bathing chariot. And laſtly, that the ſea ſhore ſhould be bounded by lively cliffs, and downs; to add to the chearfulneſs of the place, and give the perſon that has bathed an opportunity of mounting on horſeback dry and clean; to purſue ſuch exerciſes, as may be

adviſed

adviſed by his phyſician, after he comes out of the bath.

The ſituation of the place being premiſed; as to what regards the patient, and his entering upon ſea bathing, if he be an invalid, he ſhould not attempt it without adviſing with ſome ſkilful perſon; as this remedy, like others, may be miſapplied. And as all cold bathing acts upon the body according to the coldneſs or temperature of the bath, ſo the phyſician ſhould direct, not only at what period of his diſeaſe it is proper, but how long the patient is to remain in the bath; what is to be done at his coming out; and at what time of the day he ſhould enter it. By which means the phyſician may direct different temperatures of the bath, according to the conſtitution of his patient. For as the ſea is never equally cold with cold ſpring bathing, ſo in proportion as the ſun grows higher, it becomes ſtill warmer; and you may have the benefit of the temperate bath, with the addition of the ſalts of the ſea.

The advantages, which ariſe from this management, will be very great: for the blood being not ſo violently forced upon the *viſcera* and brain, as in more intenſe cold bathing, the tender *viſcera* will not be ſo li-

able to be injured, by too great an afflux. But the *viſcera* indeed, if they are much vitiated, will not bear cold bathing at all: as I have already obſerved in my former treatiſe; where I never adviſed bathing, till the obſtructions are partly removed. But if the *viſcera* and inteſtinal glands are leſs loaded, leſs care is neceſſary upon that account; becauſe while the obſtructions are recent, and ſmall, cold ſea bathing will do good. For from the increaſed quantity of the blood, which is ſent to the brain and *viſcera*, there is a greater ſeparation of animal ſpirits; and the glandular ſecretions by the liver, kidnies, and all the internal glands, are augmented; by which means meſenteric obſtructions, amongſt the reſt, will be removed. And as theſe ends are moſt effectually brought about by ſuch means as compreſs the fibres, and increaſe the weight of the water, ſo the ſalt in ſea water, adding to its weight, makes it more uſeful in many diſeaſes, than ſpring water: beſides the advantage it receives from its ſoapyneſs; which deterges the ſkin, ſcours the pores of their impurities, and renders them more fit to let paſs the humours, which uſed to go off by tranſpiration.

But, as the contractions of the *fibrillæ* are ſudden, and continued throughout the machine; ſo the preſſure ſhould be equal, and all the parts ſuſtain it equally, at the ſame time. Therefore it will be incumbent on the phyſician to direct his patient to go all over at once, and enter the bath empty; to avoid JUVENAL's cenſure:

——— *Crudum pavonem in balnea portet.*

By theſe means head-aches are prevented, and the *viſcera* left more at liberty. Farther it is obſerved, that altho' cold water contracts at firſt, yet a patient may ſtay in the water till the muſcles are weakened and tired by that contraction; and inſtead of that agility he finds on coming out, if he ſtays a ſhort time in the cold bath, the fibres are ſoaked, and weakened, and he has a laſſitude, which he did not feel, before he bathed.

But I muſt not finiſh this part, which relates to cold bathing, before I have related two caſes, cured by cold bathing, and drinking the ſea water; to ſhew, how the nerves are ſtrengthened thereby. One is a caſe of Dr. SMYTH's of Bloxham; which confirms your's, of the cure of a *chorea Sti. Viti* by the ſame remedy. The Doctor, in a letter to me,

me, dated June 4, 1752. ſays, *I have had a remarkable inſtance of a* chorea Sti. Viti *perfectly cured by the uſe of ſea water internally, and the cold bath afterwards. This caſe for three weeks or a month had reſiſted all other methods; till by joining the uſe of ſea water with the medicines, which had been taken before without any effect, I ſoon compleated the cure. This hint I took from your treatiſe* De tabe glandulari. This ſhews, how uſeful it is for gentlemen of the profeſſion to communicate their experience to one another; as the cure of this unhappy perſon was owing to your excellent hiſtory of the youth cured of the ſame diſeaſe, and by the ſame methods, which are mentioned in the epiſtle, you did me the honour to publiſh with my work.

Another caſe, which was under my own care, follows.

I was called to a young lady, who had a ſhew of the menſes at twelve years old; but they did not continue to return periodically. Upon their not appearing, purging emmenagogues, ſteel, and the like methods had been uſed: but theſe were laid aſide, when I viſited her; becauſe I thought the ſhew of the menſes untimely, and the parts not rendered fit for menſtruation. She had a nervous paroxyſm

came

came on every day, to a minute. When I ſaw her, ſhe was diverting herſelf with her friends at a chriſtmas feſtival; and I aſked how I came to be ſent for to a perſon ſo well: to which I was anſwered; two minutes before two o'clock, I ſhould ſee the occaſion. The gentleman ſhewed me his watch at that time, when ſhe was playing at cards, and knew nothing of my obſerving her.

It began exactly at the time, with a yawning, which increaſed momentarily, drawing in a vaſt quantity of air into the lungs, and ſending it out at one guſt; till the repetitions of yawning were ſo quick, that there was no pauſe: then began a convulſive motion of the muſcles of the thorax, and thoſe concerned in inſpiration and exſpiration; the *ſcapulæ* and ſhoulders began to be lifted up and down, under the greateſt difficulties; as in ſome high fits of aſthmatics; and the air pumped out of the lungs with a ſtrange noiſe, that reſembled the barking of a dog. This convulſion continued till the muſcles were tired; and then the pumping out of air from the lungs gradually declined into larger diſtances betwixt the barkings. She made a prodigious quantity of pale nervous water; and

and the fit went off, leaving her very ſore and weary, till the next day.

Under theſe circumſtances, ſeeing the patient much weakened, and the uſe of one leg much impaired, and a hanging down of one lip, with flowing out of the ſpittle; I adviſed her being moved to the ſea; and by the uſe of nervous medicines, and cold ſea bathing, this caſe was ſoon perfectly cured; tho' it had reſiſted all other meaſures. As ſhe grew ſtronger, menſtruation, which is the buſineſs of nature, was brought about in its proper time.

This caſe not only ſhews the great efficacy of this remedy; but of what conſequence it is, to obſerve nature's time in directing the ſecretions.

Having given you thoſe obſervations and caſes, which I propoſed concerning cold ſea bathing, applied generally, I muſt now beg the indulgence of your attention, whilſt I relate to you the advantages, which in many caſes *topical* or *partial bathing* has, in preference to *general* ſea bathing. And I will endeavour to illuſtrate this matter in the following caſes.

A woman aged thirty was brought to me with obſtructed menſes, her noſtrils ſtuffed with

with ſtrumous *ozenæ*, her upper lip very thick; and her eyes had ſuſtained ſo long a fluxion, that an ulcer on the *cornea* had taken away the ſight of one eye, and both lids were turned out, and ſo loaded with the fluxion, that ſhe was what they commonly call blear-eyed. Under theſe circumſtances I ordered all her mercurial remedies to be laid aſide, which ſhe was taking before; directed ſome blood to be taken away; and ſent her to bathe in the ſea, and drink the ſea water. I ſaw her about a fortnight after, and found the fluxion not in the leaſt abated. I then adviſed her to leave off the uſe of the general bath for a while, and uſe it *topically* only; that is, to have her head ſhaved, and to waſh her head, neck, and temples, as well as her eyes, with freſh *alga* dipt in a bucket of ſea water, very often every morning; and to clean them with a cloth or ſponge dipt in ſea water afterwards. Then I ordered her to dreſs her head cool, and drink the ſea water; enough to purge her three or four times every day. During this time ſhe joined proper abſorbents with her ſea water, and uſed a *collyrium* with the levigated *pumex aſat.* &c. to help rub off the *albugo* in the worſt eye; and this was attended with wonderful ſucceſs.

After

After the operation of the water was over, ſhe waſhed all the parts again once or twice in the day; and by this method got rid of the fluxion entirely, and the *albugo* was ſo far cured, as not to be unſeemly. But there remains a pit in the *cornea* of the worſt eye, that obſtructs the ſight of it; the other is perfectly well. She continued this courſe for three months, recruited her fleſh, and as her habit grew plumper, and approached nearer to the *embonpoint*, her menſes returned, and the cure was finiſhed by general ſea bathing. This poor woman had been formerly a ſervant of mine, the recovery of whoſe health I ſo much deſpaired of, that I had her taught to knit fiſhing nets to prevent her from coming to want; in which art under this blind condition ſhe had learnt to be very ſkilful.

Upon my tranſcribing this letter to you, I have a recent inſtance of the great uſefulneſs of this method; for the young lady you lately ſent me is perfectly recovered of her eyes; tho' you well know, her caſe had eluded all other care before ſhe came to you; and what had given her phyſicians trouble enough for two or three years, has been cured in ſix weeks.

Another

Another inſtance, out of many of the ſame kind, is of a girl about thirteen, ſent to me with ſtrumous ſwellings in her noſe and lip, a very foul ulcer upon the wriſt, with the joint much thickened, and a puffy or elaſtic ſwelling, that aroſe again from the preſſure of the fingers. She had the ſame kind of ulcer upon the internal ankle, the knee ſwelled, and one tumour of the ſame kind upon the ſide of the hip. When ſhe was brought to me, the ulcers were filled with red precipitate, to keep down the *fungus*, and dreſſed with *ung. baſilic. flavum.*

I directed theſe dreſſings to be laid aſide, and the ſores to be ſtrewed with an antiſtrumous medicine, which was not corroſive; compreſſes to be wet in ſea water, and laid over the ſores; being gently rolled on with what the ſurgeons call a retentive bandage. Which bandage alſo I cauſed to be wet four or five times a day with cold ſea water, preſſed out of a ſponge, and the dreſſings to be taken off and the parts waſhed with ſea water only once a day. By theſe means the tumours were wonderfully diſperſed; no new *fungus* aroſe in the ſores, and they healed. She then entered upon ſea bathing to ſtrengthen her habit, continued the uſe of ſea water inter-

internally, and went away from me cured of this great and deſperate illneſs.

I muſt obſerve in this place, that as the fluids preſs equally and *undequaque*, when there is any breach of their tubes, as in running ſores, they will run off by thoſe ways where they meet with leaſt reſiſtance. As I have an inſtance now before me of a woman with ſtrumous ulcers upon her wriſt, who aſks me this queſtion; *Muſt I continue my ſea bathing? Becauſe when I bathe, I obſerve my ſores are forced open, and run a-freſh; when I abſtain from bathing and drink the ſea water only, they heal.* As this is the obſervation of my patient, I thought fit to inſert it in her words. Where there is no matter, therefore, and the parts are left only weak, topical or partial bathing is preferable to bathing the body all over in the ſea. The following caſe is an inſtance of this.

A child was ſent me from London with ſtrumous ulcers over both feet, one hand, and upon one leg, with an enlargement of the *tibia*; a large ulcer upon the cubit, with the joint enlarged, rigid, and that part of the *humerus*, joining to form the cubit, ſwelled into a hard node, like the beginning of a *ſpina ventoſa*. I was much diſcouraged at this caſe,

caſe, as all theſe apoſtemations had happened before the child came to me; however I had one thing to found ſome hopes on: there was no cough; no meſenteric diſorders; and of conſequence more probability that the blood might be purged of the *pus* it had abſorbed. I therefore forbad plaiſters, and unctuous dreſſings to the ſores, and tried to force them open as much as I could with general ſea bathing, which I had found from experience to have that effect. After the firſt or ſecond immerſion, the attendants told me, the ſores run worſe than ever. I then directed an antiſtrumous powder to be taken night and morning, my tincture of *millepedes* with Rheniſh before dinner; to drink the ſea water every day, when ſhe came out of the ſea; and to go on with her ſea bathing. The ſores diſcharged largely: by which and the uſe of the cold bath her hectic leſſened, and I had good reaſon to hope, all was well within, and the blood cleanſed of its impurities.

I viſited this patient once a week for about three months, in which time I found the nodes ſunk, and daily leſſened; but the ſores diſcharged much after bathing, and a hardneſs came upon the bone of the ſkull, near

the orbit of the eye; which extended itſelf all over the *os ſquamoſum* to the ear, and the ear grew loaded with eruptions, that run very much. This alarmed me greatly; but as the other ſores were open, I ordered the head to be ſhaved and waſhed with ſponges dipt in ſea water, two or three times a day; and ſuſpended general ſea bathing, till I had fortified this part which was newly attacked, truſting in the mean time to daily purging with ſea water, and the common diſcharges of the other ſores only. This had it wiſhed-for effect: for the application of ſea water to the head, forehead, temples, etc. cooled the parts and diſcuſſed the tumour; the hardneſs ſunk again from the bone, the diſcharge by the ear dried off, and the external ſores leſſened every day. I directed no more ſea bathing, but as her hectic was perfectly gone, I ſuffered the ſores to dry up; which they did in about a month's time more, and ſhe as yet has had no relapſe.

By this method the phyſician can determine the ſecretions almoſt as he pleaſes; for the forcing off purulent matter by theſe ſores, is like running off a venereal infection by a *gonorrhœa*.

If any perſon will take the pains to conſult what the moſt eſteemed authors have written upon the ſubject of diſeaſed glands, and compare it with this new method, he cannot fail of diſcovering at one view the great benefit unhappy ſufferers will receive from it. For in the former practice the knife was the moſt gentle method of treating *ſtrumæ*; nor could that indeed be always uſed; for in many caſes it was found neceſſary to torment the patient, by applying either burning cauſtics, or the actual cautery itſelf; when they were afraid or deſpaired of extirpating by the knife, their ſpongy and luxuriant fleſh. And altho' in many caſes this might ſeem neceſſary, it was the only hope they had: whereas by the preſent method thoſe luxuriances are ſuppreſſed without cauſtics, or the actual cautery; diſeaſed glands are diſſipated; ulcers are healed; and tumours are prevented from riſing again, and the whole habit altered.

I hope you will think theſe little improvements not trifling; and I very much wiſh phyſicians would communicate more freely, even the leaſt obſervations which they make in the MATERIA MEDICA; for theſe, how ſmall

ſoever they may appear to be, are yet ſo many gems placed in the diadem of medicine, that poſterity will look upon with gratitude.

I am, SIR, &c.

R. RUSSELL.

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