

A treatise on febrile diseases: including the various species of fever, and all diseases attended with fever (Volume 2).

Contributors

Philip, Alexander Philip Wilson, 1770-1847.
Smith, Nathan, 1762-1829.
Hamlen, Benjamin L., 1791?-1864
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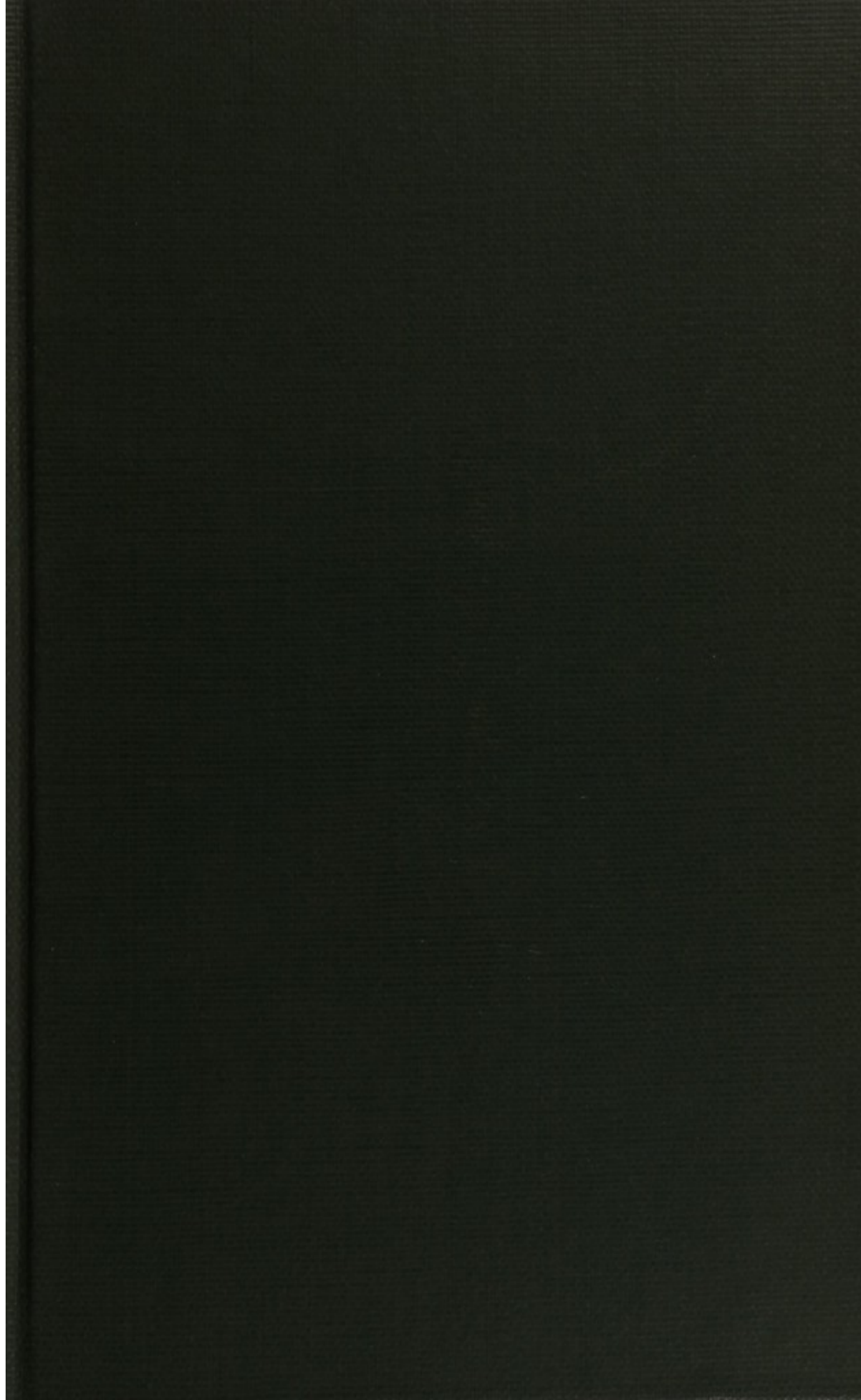
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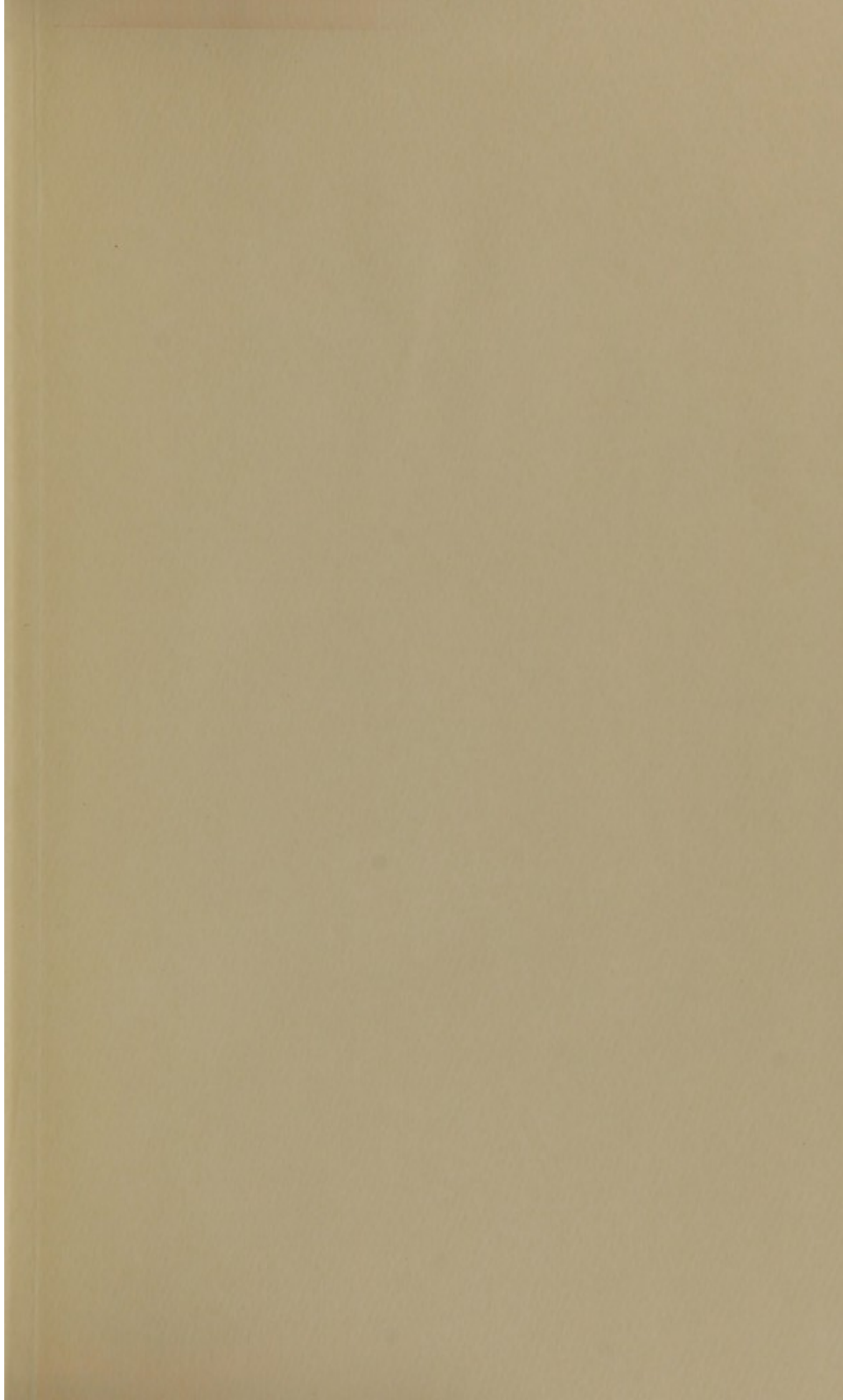


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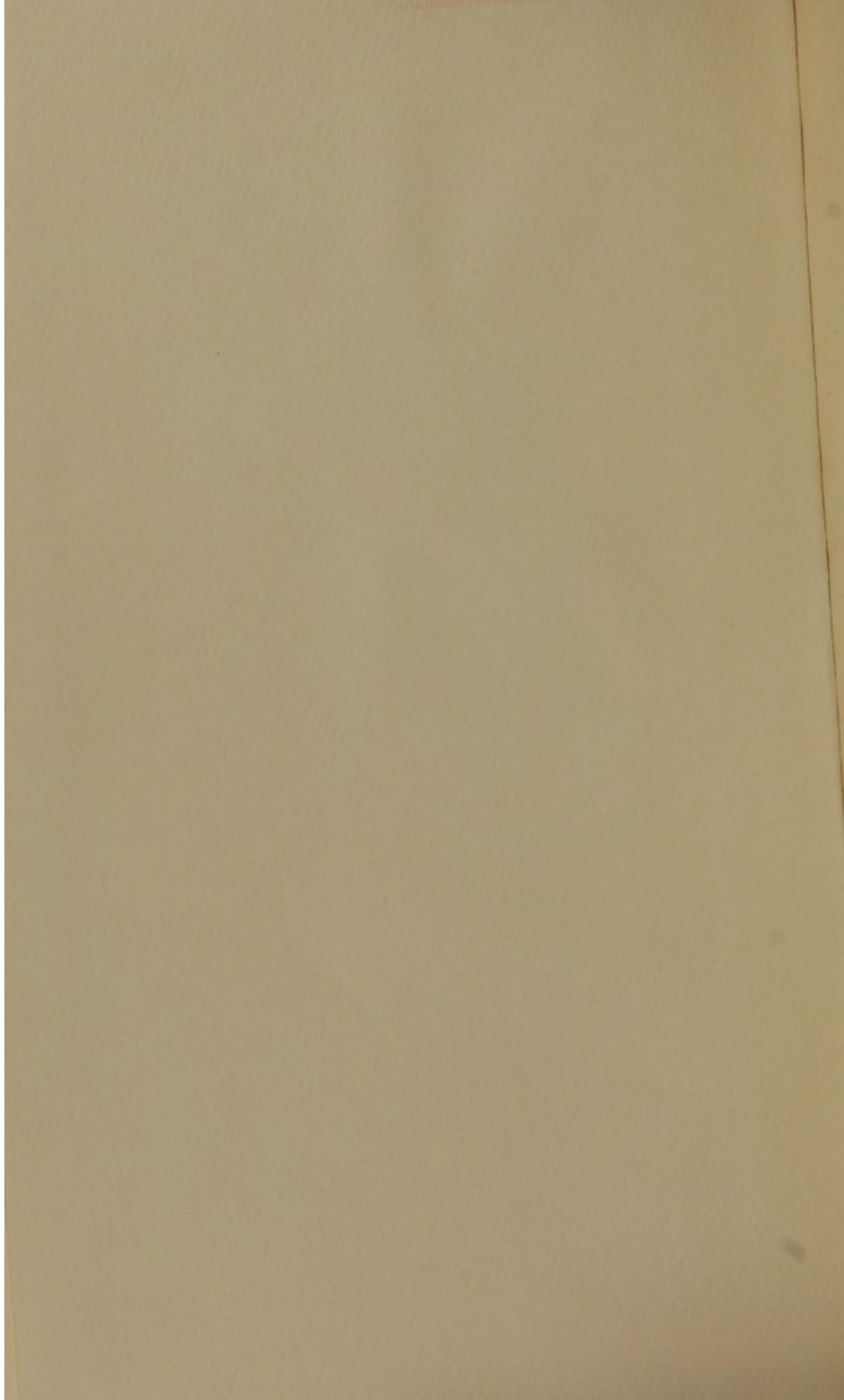
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U. S. Department of Health, Education, and Welfare
Public Health Service





Dementia. de se mens
absence of mind, without
intellect. Madness.
Fatuity.



H. Magruder M. D.
Georgetown
D.C.



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.



Fig. 5.

A

TREATISE

ON

FEBRILE DISEASES,

INCLUDING

THE VARIOUS SPECIES OF FEVER,

AND

ALL DISEASES ATTENDED WITH FEVER.

BY A. P. WILSON PHILIP, M. D. F. R. S. ED.

Fellow of the Royal College of Physicians of Edinburgh, Physician to the
Worcester Infirmary, &c.

WITH NOTES AND ADDITIONS,

BY NATHAN SMITH, M. D.

Professor of Physic, Surgery, and Obstetrics, in Yale-College,

IN TWO VOLUMES.

VOL. II.

THE SECOND AMERICAN, FROM THE THIRD LONDON EDITION.

HARTFORD :

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1816.

B. & J. Russell, Printers.

ANNEX
Fever, Gen

DISTRICT OF CONNECTICUT, ss,

***** BE IT REMEMBERED, That on the eighth day of August, in
** the forty-first year of the Independence of the United States of
** SEAL. ** America, *Oliver D. Cooke*, of the said district, hath deposited in this
** office the title of a book, the right whereof he claims as proprietor,
***** in the words following, to wit :

“A treatise on Febrile Diseases, including the various species of Fever, and all diseases attended with Fever. By *A. P. Wilson Philip*, M. D. F. R. S. Ed. Fellow of the Royal College of physicians of Edinburgh, physician to the Worcester infirmary, &c. With notes and additions, by *Nathan Smith*, M. D. professor of physic, surgery, and obstetrics, in Yale College. In two volumes. Vol. I. The second American from the third London edition.”

In conformity to the act of the Congress of the United States, entitled, “An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned.”

HENRY W. EDWARDS,

Clerk of the District of Connecticut.

A true copy of record, examined and sealed by me

H. W. EDWARDS,

Clerk of the District of Connecticut.

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▲

TREATISE, &c.

PART II.

OF

SYMPTOMATIC FEVERS.

INTRODUCTION.

WE have now considered all those Fevers which deserve the name of Idiopathic, that is, which are not symptomatic of some local affection. A local affection attends the eruptive Synochi and Exanthemata, but has no share in producing the fever. And such is the resemblance of the different genera of Idiopathic Fevers, that it would not perhaps be generalising too much to regard the whole as one disease, their differences rather marking species than genera.

The remaining orders of Dr. Cullen's Pyrexiaë, namely the second, fourth, and fifth, the Phlegmasiaë, Hemorrhagiaë, and Profluvia, essentially differ from them. In these we shall find a local affection the primary disease, and the fever so constantly proportioned to it, that we can almost always judge decisively of the degree of the local affection by observing that of the fever. Hence it is, that the principles, on which the treatment of these diseases is founded, differ widely from those which regulate that of fevers properly so called, and the exanthemata. For these reasons, which were considered more at length in the general Introduction, I have divided Dr. Cullen's Pyrexiaë into two classes, abandoning the term altogether, and using instead of it, the circumlocutions, Febres Idiopathicaë, and Febres Symptomaticaë.

Symptomatic Fever was defined, a primary local affection, attended with increased temperature and a frequent pulse.*

In this class are arranged three orders, the Phlegmasiæ, Hemorrhagiæ Febriles, and Profluvia Febrilia.

¶ The first of these orders was defined, Symptomatic Fevers, in which the local affection is either an external inflammation, or a fixed pain with derangement of some internal function.

Febrile Hemorrhagies were defined, Symptomatic Fevers, in which the local affection is a flow of blood, not occasioned by external injury.

The definition given of the last order, Febrile Profluvia, was, Symptomatic Fevers, in which the local affection is an increase of some excretion, not naturally red.

Before we enter on this class of diseases, it will be necessary to make some observations on the local affections which form so essential a part of them. Inflammation, Hemorrhagy, and Profluvium. I have treated of their definitions and nosological arrangement in the general Introduction.

Of Inflammation.

Inflammation was defined, † redness, and swelling with heat and pain. This is a sufficient enumeration of its symptoms. It varies according as it terminates in resolution, suppuration, or gangrene; according as the suppuration produces a well or ill conditioned sore, &c. but of this hereafter.

Of the Causes of Inflammation.

All parts of the body, if we except a very few, the cuticle, nails, hardest parts of the teeth, and hair, are subject to inflammation.

The strong, vigorous, and plethoric are most liable to it. A peculiar strength and vigour of constitution indeed seems independently of plethora to dispose to this disease. "Those," Dr. Millar ‡ observes, "of a thin make, rigid fibres, and a quick digestion, are liable to inflammatory diseases."

Too full a diet, particularly too free an use of fermented liquors may be regarded as the chief predisposing cause of such diseases. All causes which check habitual discharges, whether artificial or natural, especially the excretion by the skin, and all causes which considerably increase the force of the circulation, predispose to inflammation; and if applied suddenly and to a great degree, may act as exciting causes.

* General Introduction, vol. 1.

† General Introduction, vol. 1.

‡ Dr. Millar on the prevailing diseases of Great-Britain.

Such are the causes of inflammation acting on the system in general ; those which act locally may be arranged under three heads.

1. Whatever increases the impetus of the blood towards the part.

2. Mechanical irritation.

3. Chemical irritation, under which are included extremes of temperature.

It is to be recollected that the effects of any temperature are not proportioned to its degree only, but to that and the difference between it and the previous temperature of the part to which it is applied ; hence sudden changes of temperature are apt to excite disease. There are few causes of simple inflammation more frequent than sudden warming the hands or feet when chilled with cold.

Irritation will sometimes excite inflammation, not in the part to which it is applied, but in a distant part. Thus we have seen in considering eruptive fevers, that inflammation of the skin is often excited by irritation of the bowels ; and in considering the phlegmasiæ we shall find this observation still more strikingly illustrated.

The causes of the phlegmasiæ are the same with those of simple inflammation ; for in these we shall find that the local affection excites fever, not because it is of a different nature from simple inflammation, but because it is more extensive, or situated in a part of greater importance and sensibility.

Of the Nature of Inflammation.

Inflammation forms the principle part of so many diseases, that to determine its nature is an object of the first importance.

It was observed, in speaking of the *modus operandi* of emetics,* that such is the constitution of the animal body, that whatever injures it, excites motions calculated to correct or expel the offending cause. This observation we found illustrated by the operation of emetics, cathartics, &c. In such cases we can readily trace the motions excited, and the manner in which they act, but cannot trace the manner in which the offending cause excites these motions.

Any thing greatly offending the stomach excites the action of the diaphragm and abdominal muscles which is necessary for its expulsion, and we can easily trace the way in which the action of these muscles produces its effect ; but why the offending cause excites these muscles and not those of the limbs, for example, we cannot tell. The final cause is evident, but the efficient cause is involved in obscurity.

* See Vol. 1. Book 1. Sec 2.

Till we are enabled to trace the intervening events between the irritation of the stomach, and the action of the muscles employed in vomiting, our knowledge of this operation must be imperfect. And imperfect, we have reason to believe, it must ever remain; for we cannot hope that our senses, assisted by all that art can do, will ever detect the finer motions of the animal system; the changes which takes place in a nerve, for example, when it conveys impressions, or obeys the dictates of the mind.

Most physiologists have wisely admitted that the motions of the nervous system are placed beyond our view; and those who have endeavoured to trace them have only shewn the futility of the attempt. In pathological inquiries, therefore the changes of this system, on which sensation and motion depend, are overlooked; and we confine ourselves to tracing the causes or consequences of such changes, and when we have succeeded in tracing these in any of the functions, we consider ourselves as having arrived at a knowledge of that function. In this sense we say we understand the operation of vomiting, coughing, &c. and if we are right, as far as we attempt to go, these operations, we have reason to believe, can never be better understood.

Now if it can be shewn that inflammation, like vomiting and coughing, is an effort of the system to remove an offending cause, and if we can trace every step of this operation with the exception of the changes induced on the nervous system, we understand the nature of inflammation as perfectly as that of any function of the body.

Let us take a view of the opinions which have prevailed on this subject, and see how far they are well founded.

Of these, four only deserve attention.

1. That which supposes inflammation to arise from a morbid lentor of the blood clogging the minute vessels.

2. That which ascribes it to what has been termed error loci, the grosser parts of the blood getting into vessels too small to transmit them.

3. That which supposes a spasm of the extreme vessels to be the cause of this disease.

And lastly, that which supposes it to consist in a morbidly increased action of the vessels of the inflamed part; and this is the favourite hypothesis of the present day, at least with the Physicians of this country.

The reader will readily perceive that the principle of the three first dotrines is the same. In all, obstruction is regarded as the

cause of inflammation. It is surprising, therefore, that none of the supporters of these opinions thought of trying whether or not obstruction is capable of producing inflammation. Admitting that the vessels of a part are obstructed, it does not follow that an accumulation of blood will take place in the part; the blood may pass off by anastomosing branches, or the vessels may resist the distending force. If it be found that obstruction of the vessels may exist without producing any symptom of inflammation, these doctrines must be abandoned.

I passed a hot wire through the web of a frog's foot, by which the skin about the whole was shrivelled, and the vessels obstructed, no fluid of any kind being discharged. Here an obstruction was produced, surely more than equal to what takes place in many inflammations of small extent, and yet no symptom of inflammation followed, every part of the web appearing as pale as before the experiment.

It remains to enquire how far the opinion of inflammation depending on a morbidly increased action of the vessels of the part, is well founded.

Whatever may be the arguments now brought in support of this opinion, there can be no doubt I think respecting its origin. It was an inference from the mistaken opinions which prevailed respecting the cause of animal temperature.

When physicians believed the temperature of the animal body to depend on the friction of the blood against the sides of its vessels, it was a necessary inference that when the temperature of any part is increased above the usual degree, the motion of the blood in that part, the only acknowledged cause of animal temperature, is increased in the same proportion.* But the velocity of the blood cannot it is evident be partially increased, except by an increased action of the vessels of the part.†

* "A renixu, pulsu, compactu, vasorumque adhuc meabilium angustatione a tumore obstructorum, attritus fit ingens partium liquidi inter se, in solidum, solidi in illas, inde calor et, æstus." Aph. Boerhaavii 382.

† "The phenomena of inflammation all concur in shewing that there is an increased impetus of the blood in the vessels of the part affected; and as at the same time the action of the heart is not always evidently increased, there is reason to presume, that the increased impetus of the blood in the particular part is owing especially to the increased action of the vessels of that part itself." Dr. Cullen's first lines, par. 239th. "Inflamed vessels seem likewise to acquire a great deal of additional strength, or at least they act with greater energy than formerly. for the blood is observed to circulate with far greater rapidity through an inflamed, than through an uninflamed part." See a paper, by

It required no nice experiments, however, to discover, that the circulation is as rapid in many of the cold, as in some of the warm blooded animals ; and consequently, that the above doctrine of animal temperature is erroneous.

With this doctrine, the hypothesis which was founded on it should have been abandoned. But were the doctrine true, the question would still remain ; does the blood move with increased velocity in an inflamed part ?

It will hardly be believed that the increased redness of the part has been adduced as an argument in favour of this hypothesis ; for although we were assured that this symptom, which can only depend on an increased quantity of blood in the vessels,* arises from their increased action, it would be impossible to shew how this can happen ; how a more vigorous contraction of the vessels can enable them to receive a greater quantity of blood.

I need hardly remind the reader of what is generally admitted respecting the structure of the blood-vessels, and the manner in which they assist the heart in supporting the circulation.

Every systole of the heart distends those arteries into which it immediately propels the blood. But the artery is furnished with an elastic coat which resists this pressure, and which, immediately after the impulse which distends it ceases, begins to resume its former dimensions, contracting the diameter of the artery, and thus pressing the blood on in that direction where the least obstacle is opposed to its passage.

But we are acquainted with no body so perfectly elastic as to return to its former dimensions with a force equal to that which compressed or distended it. If then there be no power inherent in the arteries by which the blood may be propelled, but a degree of elasticity, the impetus given by the heart must not only be sufficient to overcome friction and other causes impeding the circulation in every part of the body, but also to admit of considerable diminution from the loss it suffers in distending the blood-vessels.

It would be improper here to enter on the various arguments which render the opinion of the circulation depending on the ac-

Mr. Moore, on the process of nature in filling up cavities, &c. which obtained the prize-medal given by the Lyceum Medicum Londinense for 1789. It seems surprising that physicians should have formed so decided an opinion respecting the state of the circulation in an inflamed part, when it is certain that none had been at the trouble to examine it.

* All agree that in inflammation there is not necessarily any extravasation of red blood.

tion of the heart alone, inadmissible; nor is it necessary, since this opinion I believe is universally abandoned. The vessels, then, are endowed with a power different from mere elasticity, and there are a sufficient number of observations to leave no room to doubt that this power differs only in degree from that of the heart, that is, is a muscular power.

Such are the powers of the blood-vessels; let us consider how an increased exertion of these powers, what has been called a morbidly increased action of the vessels, in any part, can there occasion a morbid accumulation of blood.

When we speak of a morbidly increased action of vessels, do we allude to the state of their muscular coat? As this possesses transverse fibres,* the effect of unusual contraction must be an unusual diminution of their area. Do we mean by morbidly increased action, an increase of elasticity? the consequence of this can only be a greater tendency in the vessel to preserve its mean area.

After each contraction of the muscular coat, the elastic acts as its antagonist till the vessel arrives at the mean degree of dilatation; there is then no farther power of distension inherent in the vessel.

The only power by which the vessel can be farther distended is the *vis a tergo*; after the vessel arrives at its mean degree of dilatation, both the elastic and muscular coats are antagonists to the *vis a tergo*, to the force propelling the blood into, and thus tending farther to distend the vessel. If then the *vis a tergo* becomes greater than in health, the powers of resistance inherent in the vessel remaining the same, or if the latter be weakened, the *vis a tergo* remaining the same, the vessel must suffer a morbid degree of dilatation. There appear to be no other circumstances under which a vessel can suffer such dilatation.

When on the other hand the powers of the vessel remaining the same, the *vis a tergo* is diminished; or the *vis a tergo* remaining the same, the powers of the vessel are increased, a preternatural diminution of their area is the consequence.

In the one case, the distending bears too great a proportion to the resisting force; and preternatural distension is the consequence. In the other, the resisting bears too great a proportion to the distending force; and preternatural contraction is the consequence.

But it is said that an increase of the resisting force, that is, an increased action of the vessels occasions increased redness. Increased redness can only be the effect of an increased quantity of

* See the Observations and Experiments of Haller and others.

blood in the part. That the quantity of blood in any part may be increased, either the area of its vessels must be increased, or blood must be extravasated.

Let us for a little advert to the only attempt to reconcile the phenomena of inflammation to the popular doctrine which, as far as I know, has been offered to the public, namely, that by Dr. Fowler of Salisbury,* in his inaugural dissertation, published at Edinburgh, in 1798; entitled “*Quædam de Inflammatione*”

Dr. Fowler’s attention had for some time been turned to the subject of inflammation, and his attempt is perhaps as good a one as the nature of the case admits of; how far it is successful the reader may judge.

In defending his own opinion, Dr. Fowler is led to combat that proposed about the year 1790, by Dr. Lubbock and Mr. Allen;† but in stating this opinion, “*arterias inflammatus, quam in statu sano debiliores esse,*” he appears to me to commit an inaccuracy which runs through many parts of his reasoning.

According to the theory of inflammation which he combats if I take the same view of it with the above gentlemen, it is not necessary that the vessels should be in a state of debility, their action may be more powerful than in health; it is only necessary that the proportion which their action bears to the *vis a tergo* should be less than in health. The *vis a tergo* remaining the same, the vessels before inflammation can take place according to this doctrine, must be debilitated, but if the *vis a tergo* is increased, as in Synocha, inflammation may take place, although the vessels of the part act as powerfully as in health, or more so. But after the inflammation has taken place, they are supposed to be preternaturally distended, we must suppose them debilitated. We shall consider Dr. Fowler’s observations nearly in the order in which he makes them.

“*Hi, quibus altera opinio maxime placet, contendunt, auctam actionem arteriarum partis inflammatæ demonstrari calore immodico,*

* Previously well known to the medical world by his *Essay on Galvanism*.

† It has been asserted, that the opinion here alluded to is of much older date; and that imperfect traces of it are to be found in the works of various writers cannot be denied, but their observations in one passage contradict those in another, so that Dr. Lubbock and Mr. Allen have the merit of having first advanced the opinion in a connected form, and of having separated it from the remains of the old hypothesis. Neither of these gentlemen have, as far as I know, published any thing on the subject, nor made experiments to ascertain the truth of their opinion. In the Medical Society of Edinburgh, I have often heard Mr. Allen, with great perspicuity, defend his opinion, that the vessels of an inflamed part are debilitated, resting his defence on this ground alone, that it is the only supposition by which we can explain the increased redness of an inflamed part.

qui nunquam nisi ex cursu sanguinis incitatori nascitur,"* &c.
 "Calet præter modum, quia (ut omnia quæ exhibet animal phenomena demonstrant) caloris evolutio fere semper in ratione est arteriarum actionis."†

It is true that the temperature of the animal is increased when the circulation becomes more rapid, in consequence of exercise for example, so that the blood is sent more frequently through the lungs; but where are the phenomena which prove that an increased action of the vessels of any part, increases the temperature of that part? The only instance to which Dr. Fowler can allude is that of inflammation, for in no other is there a local increase of temperature, so that he is here begging the question, the very subject of dispute is whether or not the vessels of an inflamed part are in a state of increased action.

I may refer to the observations and experiments of Dr. Crawford, Lavoisier, Girtanner, Hassgenfratz, and almost every other late writer on the subject, to prove that blood does not evolve caloric in proportion to the velocity of its motion, but to its degree of decarbonisation.‡

In another place§ Dr. Fowler again begs the question by adducing the increased pulsation in an inflamed part as an argument for his opinion.

Dr. Fowler is at much pains to prove, that when the arterial trunks supplying any part are debilitated, no inflammation ensues,|| h. e. that when the *vis a tergo* is nearly destroyed, (for let it be recollected that in the capillary, not in the larger arteries, we are to look for the proximate cause of inflammation, as will presently more fully appear) inflammation is not the consequence. Nor can it possibly be so according to the opinion in question. The action of the capillaries cannot bear too small a proportion to the *vis a tergo*, when their loss of power arises solely from a diminution of the *vis a tergo*.

Nor are the following observations of weight, according to the view I have taken of this opinion.¶ "Sed præcipue a sensu pulsa-

* Page 9.

† Page 24.

‡ Mr Ellis's Inquiry into the changes induced on atmospheric air, &c.

§ Page 18.

|| Pages 11, 12, 22.

¶ Whether Dr. Fowler or I take an erroneous view of Dr. Lubbock and Mr. Allen's opinions, they only can determine. But whether the doctrine of inflammation, such as I state it, is just (the only point in which the public is interested) can only be determined by an appeal to facts.

tionis in parte, quo certe indicatur, differentiam contractiones inter et dilatationes arteriarum (ex qua pulsus percipitur) majorem esse in inflammatis quam in sanis arteriis.* “ Nemo sanus negabit arterias tonsillarum in cynanche maligna ; artuum in rheumatismo chronico ; scroti in hydrocele ; urethræ post gonorrhœam multo debiliores esse, quam in cynanche inflammatoria ; in rheumatismo acuto ; in inflammatione testiculorum ; vel denique ineunte gonorrhœa : non tamen in illis sed in his exemplis tumor et maximus reperitur, et vasa sanguinea turgidiora.”† As the degree of the inflammation is not proportioned to the debility of the vessels of an inflamed part, but to the diminished proportion of their power to the vis a tergo, the greater the vis a tergo, ceteris paribus, the more considerable must be the phenomena of inflammation. It is not difficult to explain, therefore, why the swelling and other phenomena of inflammation are more considerable in the latter, than in the former, cases.

With respect to the argument drawn from inflammation seeming sometimes to restore the vigour of debilitated parts,‡ it may be observed, in the first place, that the opinion Dr. Fowler combats, supposes that the larger arteries of an inflamed part are in a state of increased action ; but this is not a fair argument in favour of either opinion, as we can by no means explain in what way inflammation produces this effect. It cannot be by directly restoring the vigour of the blood vessels, because we know, that even in a part previously sound, inflammation leaves the vessels debilitated.

But Dr. Fowler endeavours to support the popular opinion by experiments, as well as inferences from the phenomena of inflammation.

He quotes an experiment of Verschuir to prove that although inflamed vessels are contracted in some parts, they suffer proportional dilatation in others. But Verschuir's experiment was made on a large vessel, whereas the proximate cause of inflammation exists in the capillaries, as is evident, with the assistance of the microscope. Besides we shall presently find that an inflamed vessel never assumes the appearance described by Verschuir.

“ Major nempe, aut minor portio sanguinis projicietur in partes dilatatas arteriæ, prout major minorve portio sit, quæ e partibus contractis extrudatur.”§ This mode of reasoning would be just, were the vessels tubes closed at both ends ; but what prevents the blood, which is extruded from the contracted parts of the vessels from moving forward, as we shall find from direct experiment it does, when

* Page 9.

† Page 12, and 13.

‡ Page 13.

§ Page 15.

the vessel acts with increased, as when it acts with its usual, force ? The only difference is, that in the former case the blood moves with greater velocity. What detains it to occasion a preternatural dilatation of any part of the vessel ? To account for such a state of the vessels, we must have recourse to the doctrine of obstruction, which we shall find doubly refuted, by the experiment already related, and the experiments which are about to be laid before the reader.

Dr. Fowler irritated the ear of a rabbit by gently rubbing it ; it became red, but soon resumed its natural colour ; the irritation was repeated with the same effect more than ten times in a quarter of an hour. “ *Vim contractilem arteriarum,*” he observes, “ *minime exhaustam fuisse frictione, ut nonnulli volunt : nam si fuisset, omnino improbable est, eandem (admoto iterum stimulo) tam cito et frequenter potuisse redintegrari.*” I need hardly observe, that any conclusion from this experiment is begging the question. It was impossible to ascertain how long a time is necessary for restoring the excitability ; but his conclusion on several other accounts is exceptionable. He still keeps his, as it appears to me, erroneous definition in view, and forgets that inflammation may be excited in any part by stimulating the larger vessels.

He also overlooks a fact well known, and which must strike every one, in making even coarse experiments on the circulation, that the farther the vessels are removed from the heart, the more readily they are debilitated. I have seen a degree of friction, which would produce no sensible effect on a vessel of the 20th or 30th, part of an inch in diameter, instantly produce such a degree of debility in the capillaries, that in the space of a few seconds they were distended by the *vis a tergo* to two or three times their former diameters. Might not the friction in the foregoing experiment then, while it excited the larger arteries, debilitate the capillaries ? Nay, the very circumstance of exciting the larger arteries is sufficient to debilitate, by overdistending, the capillaries ; but as soon as the friction was removed, the preternatural excitement of the large arteries ceasing, the capillaries would regain their vigour. If it be only granted that it is possible to explain the phenomena, in this way, Dr. Fowler’s inference, it is evident, is invalidated.

Of his experiment in which the trunk of an artery in a rabbit’s ear was laid bare, it is only necessary to observe, as of the experiment he quotes from Verschuir, that it does not bear upon the point in dispute, the proximate cause of inflammation having its

seat in the capillaries, and it being admitted on all sides that the larger vessels of the part are in a state of increased action.

With respect to that with opium on the ears of six rabbits; might he not from a paralytic limb with equal accuracy have drawn the conclusion, “*Distensionem partis alicujus arteriæ non ex debilitate tunicæ ejusdem muscularis provenire (quoniam quo magis debilitata eo minus distenta fuit arteria): sed ex contractionum vigore et frequentia.*”* In short these experiments only prove what cannot be questioned, that in proportion as the *vis a tergo* is lessened, the vessels are less distended.

Of the colour of an inflamed part, Dr. Fowler observes, “*Rubet etiam fortasse, quia plus sanguinis in venas propellitur, quam ab eis facile potest reduci; actione earum non pari ratione, ac arteriarum aducta.*”† But how is it ascertained that the veins of an inflamed part are more debilitated than the arteries? The phenomena of inflammation having forced Dr. Fowler into this concession, he admits almost all that his opponents contend for; if the veins are in a state of preternatural distension, they must be in a state of debility; but he says the arteries are in a state of increased action. Where is the line of distinction between a capillary artery and the vein in which it terminates?‡ He adds besides, “*Valde porro probabile videtur ruborem, magna saltem ex parte, deberi vasis lymphaticis sanguine jam turgidis.*”§ The colourless are a principal part of the capillary arteries. They cannot admit the red particles without being preternaturally distended. And consequently, without being debilitated.

But there are surely more direct and simple means of determining the question than those adopted by Dr. Fowler. It is only necessary in order to ascertain whether inflammation consists in an increased action of the vessels, to induce such an action, and observe whether inflammation is the consequence. Having adapted the web of a frog's foot to a microscope, I now and then, during

* Page 22, 23.

† Page 23.

‡ If the reader will take the trouble to view through the microscope by transmitted light, the edge of a fish's fin, he will see the red capillary arteries running into their corresponding veins, and forming with them small arches, arranged with great regularity, in which, from the degree to which it is necessary to magnify the part, the globules of the blood seem to move with astonishing velocity, presenting an appearance striking and beautiful beyond, perhaps, any other which the microscope affords.

§ Page 23.

some minutes, observed the velocity of the circulation which continued, as far as I could judge the same. I then wetted the foot with distilled spirits, and in a few seconds observed the blood in all the vessels moved with a greatly increased velocity, which, as I constantly kept the web moist with spirits, continued as long as I observed it, ten minutes or a quarter of an hour. But during no part of the time could I perceive the slightest symptom of inflammation, either with or without the microscope. The vessels, instead of appearing redder and more turgid, were evidently paler and smaller than before the application of the spirits. I farther increased the velocity of the circulation by throwing on the web the concentrated rays of the sun from the speculum of the microscope, and still with the same effect.

Is it not a fair inference from what has been said, that the opinions hitherto maintained respecting the nature of inflammation, namely, those attributing it to obstructing lentor, error loci, spasm, and increased action of all the vessels of the part, are unfounded? Let us now consider how far the opinion which ascribes it to the power of the capillaries bearing too small a proportion to the vis a tergo is correct. If it is proved to be so, the foregoing opinions are doubly refuted; and with respect to the last of these, as it has been shewn that where increased action of all the vessels of a part is present, inflammation is not; if it can be shewn that where inflammation is present, increased action of all the vessels is not, the inference will surely be conclusive.

An inflammation had been excited, I do not know how, in the web of a frog's foot; having applied it to the microscope, I found the vessels of the part greatly dilated, and the motion of the blood extremely languid. In several places, where the inflammation was greatest, it had ceased altogether. It was at once evident, on observing the part through the microscope, that where the inflammation was greatest, the vessels were most distended, and the motion of the blood was slowest. Nor did I, in one instance, observe the alternate contractions and dilatations supposed by Dr. Fowler to be essential to inflammation.

The distention of the vessels, which in the healthy state admit only the colourless parts of the blood, was apparent; for in the inflamed parts a much greater number of vessels admitted the red particles than in the sound, and the interstices of the red vessels appeared more opaque, probably from the enlargement of innumerable small vessels, still too small to admit the grosser parts of the blood.

While I was viewing the inflamed web it occurred, that the inflammation might be removed by stimulating its vessels, which would afford an additional proof of the opinion before us.

With this view I wetted the inflamed web with distilled spirits, at the same time throwing upon it the concentrated rays of the sun from the speculum of the microscope. The blood, in all the vessels except in those of the most inflamed part, began to move with greater velocity, and in proportion as this happened, their diameters were diminished, their interstices became less opaque, and the redness of the part was evidently lessened.

After I had despaired of restoring action to the vessels of the most inflamed part, I saw the blood begin to move slowly in a vessel which ran directly through the middle of it. It soon acquired a considerable velocity, and on taking a superficial view of the part through the microscope, the course of this vessel appeared like a streak of a lighter colour through the middle of the inflamed part.

As I had not in this experiment, observed the inflammation from its commencement, I repeated it, with the assistance of the Rev. Mr. Boraston, on a small fish (the lampern.)

We found that exposure to the air produces a degree of inflammation, evident to the naked eye, in the fins and tail of this fish. On viewing the former through the microscope, we observed the circulation become more languid, and the vessels enlarge as the inflammation came on. The motion of the blood in the most inflamed vessels at length ceased altogether.

By gentle friction and applying distilled spirits, we repeatedly succeeded in accelerating the motion of the blood, and in proportion to the velocity of the circulation, the vessels became evidently paler, the deeper red returning as the circulation became more languid.

On roughly irritating a part of the fin where there was no inflammation, the part being pale and the circulation as rapid as natural, the motion of the blood was for a second or two wholly interrupted, (Mr. Boraston observed the part while I irritated it) the force I used having compressed the vessels. The *vis a tergo*, however, soon forced the blood into them, and this experiment having been repeated several times, both Mr. Boraston and myself saw the now debilitated vessels of the parts which had been irritated, gradually dilated by the blood propelled into them, till the vessels having acquired many times their former dimensions, the parts appeared highly inflamed. The motion of the blood at the same time became extremely languid, and in the most distended vessels ceased

altogether. Some, even of these last, we succeeded in exciting to action, and in proportion as the motion of the blood was accelerated, the vessels became paler, the inflammation being evidently diminished. In these experiments there was no extravasation of blood, except in one instance, in which the vessels were so roughly irritated as to wound some of them.

The foregoing experiments having been made on cold blooded animals, to obviate any objection which might hence arise, it was necessary to repeat them on an animal of warm blood.

The ear of a very young white rabbit seemed from its transparency the most proper subject for such experiments. It was accordingly submitted to the microscope, with every advantage of light that could possibly be obtained, but the endeavours, both of Mr. Boraston and myself, to distinguish the circulation with sufficient accuracy, were fruitless. I therefore made a small opening through the skin and muscles of the abdomen, through which, by the struggles of the animal, a portion of the intestines and mesentery were soon protruded. I then brought part of the latter within the field of the microscope, and gently irritated it with the point of a pair of forceps, while Mr. Boraston, who has been much accustomed to the use of the microscope, and to delineate the objects it presents, observed the effects; the account of which I give in his own words, with engravings from the drawings he was so kind as to favour me with, representing the different stages of inflammation from its commencement to its height. That the reader may be assured that Mr. Boraston's account is wholly unbiassed, it is proper to remark, that till after he described to me what he had observed in this experiment, he was unacquainted with the object I had in view in making it.

“ The large arteries and veins were too opaque to admit of my distinguishing the motion of the blood, but in the small vessels, which were more transparent, the circulation was easily observable, and I perceived the globules of the blood moving along with great rapidity, but not in sufficient quantity to give a red colour to the vessels. The appearance of a small portion of the mesentery on its first examination, is given at figure 1.

“ After a few minutes exposure to the air, the vessels became visibly enlarged, and in some parts assumed a reddish colour, while the velocity of the blood was proportionably diminished.

“ As soon as a part of the mesentery, which lay within the field of observation, and appeared almost colourless, was irritated with the point of a small pair of forceps, a red spot appeared, as in

fig. 2. In a few seconds it increased in size, the adjacent parts of the vessels were distended, and, the current of blood becoming less rapid, was for some distance slightly tinged with a red colour, as represented in fig. 3.

“ This enlargement of the vessels gradually extended till the part presented the appearance of fig. 4. The circulation was at this time extremely languid, and at length was not discoverable at all. When, in this last stage the motion of the blood was entirely stopped, a reddish shade was seen to have diffused itself over those parts of the membrane contiguous to the inflamed vessels : see figure 5.”

The reddish shade here mentioned, was evidently owing to the irritation and distension having produced a slight rupture of some of the vessels, by which a small quantity of blood escaped.

It appears then, from the foregoing experiments, that the state of the capillaries in an inflamed part is that of preternatural distension and debility. That of the larger vessels may be ascertained without the aid of the microscope. Unassisted by glasses we readily perceive that they do not suffer a similar distension, and the increased pulsation of the arteries sufficiently evinces their increased action. Nor is this increase of action so obscure as to be observed with difficulty ; I have often, in inflammatory affections of the jaw, applied the finger to the external maxillary artery, both where it passes over the bone, and after it assumes the name of labialis, and in rheumatic affections of the head to the temporal arteries, and perceived them beating with unusual force. The reader will find authors observing, that an unusually strong beating in the arteries indicates that inflammation, if not present, is about to begin in the parts supplied by them.

It is to be observed, that, although inflammation, as was evident from several of the foregoing experiments,* begins in the capillaries ; if it continues, the circulation in the smallest vessels being obstructed by their debility, those immediately preceding them will soon begin to be distended, and consequently debilitated, so that, in inflammations which have lasted long, the vessels preceding the capillaries, in the course of circulation, as well as the capillaries themselves, are distended. Thus when the lampern was first exposed to the air, the inflammation in the fins and tail assumed the appearance of a slight blush, in which it was difficult with the

* Particularly from viewing through the microscope the fin of the lampern, and mesentery of the rabbit, while exposure to the air was exciting inflammation in them.

naked eye to discover any vessels. But after some time had elapsed, vessels of a considerable size, were seen creeping through the inflamed parts. It is evident that this cannot go very far, because when the vessels preceding the capillaries have lost their power, the circulation is no longer in any degree supported in the latter, and gangrene soon ensues.

When the larger arteries are debilitated, and consequently distended, in the first instance, the disease which may be termed turgescence, or partial plethora, is of a nature very different from inflammation. In this case there is little or no accumulation of blood in the capillaries, as appears from their being pale, or only slightly turgid, the *vis a tergo*, from the debilitated state of the larger vessels being too weak to occasion preternatural distension in them. They, therefore, more or less perfectly, retain their power, and as long as the larger vessels can supply them with blood preserve the circulation, so that the states of turgescence and inflammation are opposite. In the one case, the action of the capillaries is weak, compared with that of the larger vessels; in the other, the action of the larger vessels, compared with that of the capillaries. The justness of this distinction will, I think, appear more fully as we proceed in considering the phenomena of inflammation. On the difference of these states seems to depend for example, all the difference between the cold apoplectic, and the furious phrenitic.

In the latter we find on inspecting the brain, a general redness in the parts affected, indicating distension of the capillaries; in the former often little or none of this appearance, but an evident distension of the larger vessels.

The difference between what is called active and passive inflammation seems to depend on the degree, in which the arteries, supplying the *vis a tergo* to the debilitated vessels, are excited.

We shall find that, in the cure of inflammation by resolution, in proportion as the debilitated vessels are excited to action, the action of the larger arteries abates, and the inflammation is cured as soon as the proper balance is restored between the larger arteries and the capillaries, although the vessels are upon the whole in a state of greater debility, than previous to the attack of the disease. And that such is the case appears among a variety of more direct observations, from this consideration alone, that when the inflammation is of such importance and extent that the increased action of the larger vessels extends to the heart, so that the inflammation is attended with general increased action of the vascular system; we

observe that, as the inflammation yields, the general excitement subsides, and that when the inflammation is removed, the whole system is left in a state of greater debility than before the disease.

In short, inflammation seems to consist in the debility of the capillaries followed by an increased action of the larger vessels, and is terminated as soon as the capillaries are so far excited, and the large arteries so far weakened by the preternatural action of the latter, that the power of the capillaries is in due proportion to the *vis a tergo*.

The symptoms of inflammation, we have seen, are redness, swelling, increased temperature and pain.

It appears from what was said above, that it is so difficult to account for the increased redness of an inflamed part by the popular doctrine, that this symptom alone seems sufficient to invalidate it. According to the opinion we have just been considering, the increased redness is a consequence of inflammation, too evident to require any comment. We shall presently have occasion to consider why the redness is of the florid kind, and assumes a purplish hue, where there is a tendency to gangrene.

To account for the swelling of an inflamed part by the commonly received hypothesis, it is asserted that inflammation is always accompanied by effusion into the cellular substance, for it is impossible even to conceive how a more vigorous action of the vessels can occasion their general dilatation. Of this mode of explaining the swelling, it may, in the first place, be observed, that it has never been shewn that any degree of effusion necessarily attends inflammation; but admitting that it does, the swelling should be white as in anasarca, not red, for we certainly know that there is no effusion of red blood. Besides, on examining an inflamed part through the microscope by transmitted light, it is at once evident that its increased size is, at least in great part, occasioned by vessels turgid with red blood.

Nay, on the common hypothesis, it is even difficult, as Dr. Fowler confesses,* to account for the pain of an inflamed part, which is doubtless the consequence of the preternatural distension of the capillaries, and which is often pulsatory corresponding with the pulsation of the larger arteries which, being in a state of increased excitement, tend at every contraction farther to dilate the capillaries, the sensibility of which is increased by the unusual accumulation of arterious blood, for the whole blood of an inflamed part,

* Page 24.

we shall find, in what is called active inflammation, is arterious. The pain remits as the blood becomes venous, which only happens in proportion as a tendency to gangrene supervenes.

The increased temperature appears to be no less a necessary consequence of the debility of the capillaries. This symptom which we have reason to believe first suggested the popular opinion, now that the old hypothesis respecting the cause of animal temperature is refuted, is wholly inexplicable upon that opinion. It seems impossible to conceive how an increased action of the vessels of a part can occasion an increase of its temperature.

To those who are acquainted with the late chemical discoveries respecting the cause of animal temperature, it is almost superfluous to point out why debility of the vessels of a part, and consequent accumulation of blood in it, is attended with increased temperature.

As animal temperature seems to be chiefly* supported by the change of the blood from the arterial to the venous state, by which its capacity for caloric is lessened, and as this change is constantly going on, wherever there is an accumulation of arterial blood, there must also be an increase of temperature.

It may be urged as an objection to this, and at first sight it appears a considerable one, that if the velocity of the blood in an inflamed part be much diminished, it will not be prepared for the evolution of caloric, since it is not sent through the lungs so frequently as blood supplying parts where the circulation is more rapid, and we know that it is chiefly† in the lungs that it is prepared for this process. But it appears from a variety of observations, that although the temperature of an inflamed part is increased, any portion of its blood must evolve less caloric than the same quantity of blood in a healthy part.

The experiments of Dr. Crawford, Dr. Fordyce, Mr. Hunter, and others, prove that in proportion as the temperature is increased, the evolution of caloric from the blood is diminished; and, that when the blood is raised to a degree, but a very little higher than the natural temperature, it ceases altogether. Whatever, therefore, be the accumulation of blood in any part, no more caloric can

* Many of the secreted fluids having a less capacity for caloric than the blood, secretion must be regarded as one, though probably a very inferior source of animal temperature.

† It has been found by experiment that the blood undergoes the same change though in a less degree, on the surface of the body as in the lungs.

be evolved than is sufficient to raise the temperature to⁷ this degree.

Besides, although the blood continues to evolve caloric till it arrives at this temperature, yet each portion constantly evolves less, the nearer it approaches to it.* To place what is here said in a clearer point of view, let us suppose that a quantity of blood as 49, evolves a quantity of caloric capable of raising the temperature of the part to 98 degrees, and suppose 100 degrees the highest temperature in which blood evolves caloric, then, if this part, instead of being supplied with a quantity as 49, be supplied with a quantity as 50, the temperature of the part will not be increased to 100 degrees, which ought to be the case, making allowance for the increased size of the part, if each portion of blood evolved the same quantity of caloric as when the temperature was at 98 degrees. But the temperature of the part being increased we shall suppose to 98 degrees, 30 minutes, each portion evolves less caloric. Then suppose the quantity of blood as 60, and that this quantity evolves caloric sufficient to raise the temperature to 100 degrees, it is then evident that, although the temperature of the part is raised, each portion of the blood evolves still less caloric than when the temperature was 98 degrees, 30 minutes. It is also evident, that after the temperature is increased to 100 degrees, that is, as high as it can be raised by the blood, the only effect of every fresh portion of blood accumulated in the part, will be to diminish the quantity of caloric supplied by every other, by supplying part of that which raises the temperature to 100.

From all which it is evident, that the greater the quantity of blood accumulated in any part, the less is the waste of that principle, whatever it be, by means of which caloric is evolved, and therefore that, if it receives a less supply of this principle, it also requires a less supply of it. The waste of this principle in the whole inflamed part is greater than it was when the part was sound; but the waste of it in any particular portion of its blood is less. But it is only in proportion to the waste of this principle, that the blood assumes the venous colour; hence the florid appearance of an inflamed part.

Were this a proper place for such discussions, it would be easy to shew that the late experiments of Mr. Ellis,† throw additional

* See the experiment of Dr. Crawford, by which he shews that the higher the temperature in which the animal is placed, the less caloric is evolved from the blood.

† Mr. Ellis's Treatise on the changes induced on atmospheric air, &c.

light on this subject. They set aside some of the most prevalent opinions respecting the office of the lungs, and consequently, respecting the process by which the capacity of the blood for caloric is increased in this organ, and the additional caloric is supplied.

It appears from some experiments of Mr. Hunter, on the temperature of inflamed parts, that it is much lower than, from what we perceive by the sense of touch in external inflammations, we should be inclined to suppose. Mr. Hunter found that it did not at any time exceed the temperature at the heart, so that, according to these experiments, inflammation did not produce a greater evolution of caloric than is capable of raising parts at some distance from this organ, but not immediately exposed to the influence of the air, about one degree. He made his experiments on various animals, of different temperatures. According to these experiments, then, the additional caloric evolved in an inflamed part, making allowance for its increase of size, is only one in 97 or 98. Now if we suppose the quantity of blood in an inflamed part only double of that in the sound part, (and I have no hesitation in saying, from what I have observed with the assistance of the microscope, that it is often many times as much) the waste of that principle by which the blood evolves caloric must be diminished about one half, or so nearly one half, that the difference may be overlooked.

It seems probable, however, that Mr. Hunter's experiments were not quite accurate, we know that the blood is capable of evolving caloric at a higher temperature than that stated by him; but this allowed, the above statement is nearly accurate, the blood certainly ceasing to evolve caloric at a temperature a few degrees higher.

Admitting that the temperature may be raised eight degrees, the statement will then be thus: a quantity of blood as 1, gives 98: as 2, gives 106. In the latter instance the same quantity of blood supplies little more than half the quantity of caloric, that is allowing for the increased size of the part.

But the quantity of blood in an inflamed part is at least six times that in the sound part. Then supposing the size of the part doubled, we shall have the following proportions.

The quantity of blood multiplied by 6.

The size of the part by - - - 2.

The proportional quantity of blood therefore multiplied
by - - - - - 3.

Thus we have a quantity of blood as 1, evolving caloric sufficient to raise the temperature of the part to 98 degrees; and a quantity of blood as 3, raising it to 106 degrees.

According to this, a very rude,* but I believe, moderate statement, the waste of the principle by which caloric is evolved from the blood in an inflamed part, is about three times less than in the same part when sound; so that we readily account both for the increased temperature and arterial colour of the blood, although the rapidity of the circulation is greatly lessened.

But may not the rapidity of the circulation, it may be said, be so much lessened as not to be compensated for in this way? When the circulation ceases altogether, as in the most inflamed parts in the foregoing experiments, when consequently there can be little or no supply of that principle by which caloric is evolved from the blood, what then preserves the increased temperature and florid colour of the part? The increased temperature and florid colour then disappear; the part assumes a purplish hue, and soon becomes gangrenous.

One symptom of inflammation still remains to be considered, which is not indeed mentioned in the definition, as, however remarkable in many cases, it is often distinguished with difficulty, namely, the increased pulsation of the larger arteries of the part; and in the Phlegmasiæ, of the heart and whole arterial system.

The final cause of this symptom is sufficiently evident; as the inflamed vessels are debilitated, an increase of the *vis a tergo* is at once a means of promoting the circulation in the part, and stimulating the debilitated vessels to action. Thus we find, that wherever the *vis a tergo* is much diminished, the circulation in an inflamed part is apt to fail altogether. We shall find indeed that gangrene is often the consequence of the *vis a tergo* being too great, and consequently overstretching the vessels of the inflamed part; so that a principal object in the treatment of inflammation is to regulate this power.

Here it may be objected, that increasing the *vis a tergo* must always, by farther distending the debilitated vessels, tend to increase the inflammation. It certainly appears, from what has been said, that inflammation may arise either from a debility of the capillaries, or an increased *vis a tergo*. If from the latter cause, it can only be cured by diminishing the *vis a tergo*, which is lessened

* It is evidently impossible in this case to arrive at perfect accuracy, as we can never determine exactly how much the quantity of blood, or size of the part, is increased. All that can be looked for is, to be assured that we do not assume too much. There is every reason to believe, that the quantity of blood in an inflamed part is often more than six times that which circulates in it while sound.

in proportion as the excitability of the larger arteries is diminished by their excessive action, or as we diminish it by means we are immediately to consider. When the inflammation arises from the debility of the capillaries, the *vis a tergo*, it is true, also sometimes becomes too powerful, but are we not often obliged to have recourse to means which increase it, to bark and wine? And would not means to increase the *vis a tergo* be necessary in all cases of inflammation which originate from debility of the capillaries, did not the nature of the system itself supply them? If the vessels of an inflamed part can no longer be excited to due action by the usual *vis a tergo*, the most evident means of exciting them is an increase of this stimulous, on which their action at all times depends. Increasing the *vis a tergo*, certainly must farther distend, but whether that farther distension farther debilitates, or excites to action, will depend on the degree of excitability which remains in the vessels.

The next step is to inquire into the efficient cause of the increase of the *vis a tergo*, but here our inquiry is necessarily bounded by an obstacle which I have already had occasion to consider.*

The increased *vis a tergo* may in some measure depend on the increased stimulous applied to the larger vessels, by the impediment to the passage of the blood through the debilitated capillaries. But when more distant vessels, and particularly when the whole system is affected, we cannot attribute it to this cause, especially when we reflect that the slightest inflammation of an important viscus, the stomach for instance, will excite fever, while a very extensive inflammation in the skin or muscles is often unattended by it. We are forced therefore, for an explanation of these facts, to look to the nervous system. But to trace the changes which here take place in it, and the manner in which these excite the larger arteries in inflammation, is as impossible as to trace the changes produced in it by an emetic, and the manner in which they excite the action of the abdominal muscles, and diaphragm. Neither in the case of vomiting nor inflammation can we detect the changes induced on the nervous system; but if what has been said be just, we understand the nature of the one, as well as that of the other.

I might now shew in what manner the operation of the remote causes is explicable on the doctrine of inflammation we are considering, and consequently tends to support it. But when we recollect, that it appears from the foregoing experiments, that whatever diminishes the action of the capillaries of the part occasions, and

* See Pages 3 and 4 of this volume.

whatever increases it tends to remove, inflammation, the manner in which most of the remote causes act is too evident to require any comment.

If inflammation arise from the diminished proportion of the power of the capillaries to the vis a tergo, it will, it is evident, be most apt to supervene under the three following circumstances. 1. In a state of plethora, because then all the vessels are overdistended, and consequently any cause tending farther to distend any of them, whether it be a cause debilitating them, or increasing the vis a tergo, will be more felt than in health. 2. In a state of general excitement, because then the vis a tergo, is every where strong, and consequently apt to occasion distension of the vessels wherever any degree of debility occurs. 3. In a state of great general debility, because then the vital powers in any part are more easily impaired than in health. These are the states of the system, it has been observed above, which are found to predispose to inflammation. In the first and second the inflammation is generally of that kind, which has been termed active, the vis a tergo, is considerable, the larger arteries being readily excited to increased action. In the last, it is what has been termed passive inflammation, the larger arteries, in proportion as the system is debilitated, being less readily excited.

The greater the general debility, the greater it is evident, must be the partial debility before inflammation can take place, because, however debilitated the vessels of any part may be, inflammation will not supervene if the vis a tergo is debilitated in the same proportion; hence in very debilitated states of body inflammation soon runs to gangrene, as happens in the inflammations so readily excited in typhus, &c. Nay, in cases of extreme debility an injured part runs to gangrene almost without any symptom of inflammation, the vis a tergo being too feeble to distend the vessels, however much debilitated.

Of the Terminations of Inflammation.

The most common terminations of inflammation are, Resolution, Suppuration, and Gangrene.

Of the first there is little to be added to what has been said. We have seen in the foregoing experiments that, in proportion as we succeed in exciting the capillaries of an inflamed part, we relieve the inflammation. When an inflammation is cured by resolution, that is, without the destruction of any of the parts it occupies, the vis a tergo has succeeded in restoring the proper action of

the capillaries. Resolution is often promoted by an effusion from the inflamed vessels, for when the vessels are so much debilitated by distension that the only effect of the vis a tergo is farther to distend them, there is no hope of exciting them to action with diminishing the volume of their contents. Sometimes a vessel gives way and the inflammation terminates by hemorrhagy, when this does not happen, the fluid discharged is often serum or coagulable lymph. If the inflammation has its seat in a secreting organ, its secretion is generally increased, and sometimes, particularly on secreting surfaces, the fluid discharged we shall find is a true pus, for it will appear that the formation of pus is not always attended with a destruction of parts. Whether the termination by a secretion of pus,* the texture of the parts remaining entire, deserves the name of suppuration or resolution, it is of little consequence to inquire. It belongs to the latter according to the sense in which I use the terms.

The resolution of inflammation is sometimes promoted by a discharge, not from the part itself, but some other, often from a neighbouring secreting organ, sometimes, particularly where the whole system is affected, by a discharge of blood in consequence of the rupture of vessels in some of those parts, where they are most numerous and delicate, the internal nares, lungs, &c.

When inflammation terminates by suppuration, there is a destruction of a certain portion of the inflamed part, in consequence of which a cavity termed an abscess, is formed, which from the first is filled with pus, the quantity of which increases in proportion as the cavity enlarges.

It has been a prevalent opinion, that pus is nothing more than serum discharged during the inflammation, and changed by stagnation. It is now generally admitted, however, that the experiments of Sir John Pringle,† and M. Gaber,‡ at one time regarded as conclusive, do not warrant the inferences of these writers.

M. Brugman, in the first section of the second chapter of his *Puogenia*, has ascertained that the sediment from the serum is not the same with purulent matter. “Nec juvat unum alterumve prædicatum habuisse commune, aut externo habitu quodammodo convenire. Quid enim inde, nonne et cremor lactis varia cum pure communia habet? Utrumque album est viscidum blandissimumque.”

* We shall presently have occasion to consider the properties of this fluid.

† The appendix to Sir John Pringle's work on the *Diseases of the Army*.

‡ *Miscell. Taurin.* vol. ii.

In the second section, Brugman compares pus with the coagulable lymph of the blood, in the third with the buffy coat, in the fourth with the muscular fibre, in the fifth with fat; and from all his experiments concludes, "Naturam, corruptione vel partium
"qualiumcumque putredine, tanquam medio in creando pure, non
"uti." This inference is confirmed by the observations of Mr. Home,* who made a very conclusive set of experiments on this subject.

He found pus formed by a blistering plaster in twenty-four hours; by means of the microscope he from time to time examined the discharge while it was being changed from a colourless fluid into pus. In another experiment he found that pus is formed by irritating the urethra in the short space of five hours, and that in half an hour the discharge begins to assume the purulent appearance.

He also found that it has not this appearance, when it is first poured out, but acquires it while it remains on the inflamed surface, and that this change takes place as readily, although the matter discharged be removed while it still remains colourless, provided the proper temperature be preserved, as when it remains on the part. It is promoted by exposure to the air.

Mr. Hunter was led, from the phenomena of inflammation to regard pus as a secreted fluid. He found vessels formed in extravasated blood and lymph, and supposes that in the extravasated lymph, which precedes the formation of pus in wounds, a system of vessels is formed for the secretion of this fluid.

Mr. Home adduces several facts to countenance this opinion. In performing the operation for strangulated hernia, he observed the intestines smooth and polished, an inflammation supervened and speedily proved fatal, and the body was opened within twenty four hours after the operation. On various parts of the inflamed intestines, whose surface the day before had been uniformly smooth, there were found small masses of extravasated lymph in which vessels were formed. Pus, he observes, is more readily formed by secreting surfaces, on the skin for example and in the urethra, than in the body of a muscle. Many proofs of the tendency of secreting surfaces to form pus will occur in considering the Phlegmasiæ. The part in which pus is about to be formed assumes a more vascular appearance, that is, more of the appearance of a gland; and pus bears much resemblance to some secreted fluids, particularly milk and the pancreatic juice.

* A Treatise on the Properties of Pus, by Everard Home, Esq.

Independantly of these reasons, which Mr. Home justly considers as favourable to the opinion, if it can be shewn that pus is different from any of the component parts of the blood, and that neither these nor the solids are by any spontaneous change convertible into pus, the only opinion which seems to remain is, that pus is a secreted fluid. We have no other proof of the nature of many secreted fluids, for the secretion of which the glandular structure is at least as obscure, as in the case of suppuration ?

But the manner in which pus is produced is of less consequence than a criterion to distinguish it from other fluids, which in some cases, we shall find, is an object of the first importance.

Chemical analysis, it is probable, will never enable us to distinguish pus with sufficient ease to render the distinction useful. Most animal substances, when chemically analysed, give very similar results. Other means of distinguishing it have therefore been looked for.

M. Brugman,* Mr. Darwin,† and others indeed have attempted to distinguish it in the former way. To determine, however, with certainty the presence of pus, by their criteria, supposing them accurate, requires more experimental nicety than is possessed by the generality of practitioners. The most useful tests, as far as I am capable of judging, are those proposed by Mr. Hunter :‡ Its coagulation by sal ammoniac, and globular appearance through the microscope. If to these we add some of the most remarkable of its other properties, we shall seldom be at a loss to distinguish it.

The following is the selection made by Mr. Home. Pus is of the consistence of cream, its colour is whitish, it has a maukish taste. When cold it is inodorous, when warm it has a peculiar smell. Examined by the microscope it consists of semi-opake globules, and a transparent colourless fluid, which is coagulated by sal ammoniac. Pus may be evaporated to dryness without coagulating. Its specific gravity is greater than that of water. It does not putrify readily. It is not readily diffused, in cold water. In warm water it is readily diffused, and remains diffused after it cools.

It is a property of pus that it separates readily from the sore, discovering granulations on the places it covered.

* Brugman's Puogenia,

† Experiments determining a criterion between mucilaginous and purulent matter, by Mr. Charles Darwin.

‡ Mr. Homes paper, just alluded to.

Mucus is the fluid from which it is of most consequence to distinguish pus, which may, for the most part, be readily done by the foregoing properties. With respect to the test most commonly employed for this purpose, derived from the specific gravity of the two fluids, it is very fallacious. The specific gravity of the mucus of those cavities to which the air is not admitted, is greater than that of water,* and even in those to which the air has free access, it becomes so, if the mucus is allowed to stagnate, by which its thinner parts are absorbed, it is not uncommon as I have often observed, for mucus expectorated in the morning, when it has lain, during the night, in the trachea and its branches, to sink in water; and on the other hand, when pus, which is specifically heavier than water, has entangled small globules of air, which frequently happens in that which comes from the lungs, it will remain suspended in water.†

From the other animal fluids, which bear a resemblance to pus, Mr. Home points out the following means of distinguishing it.

From chyle it differs in its globules being larger, and in its not coagulating by exposure to the air and a high temperature.

The globules of the pancreatic juice are smaller than those of pus.

Solutions of animal substances contain flakes instead of globules, or at the same time with globules.

The globules of milk are nearly of the same size with those of pus, but much more numerous. Milk coagulates by runnet; pus does not. Milk contains oil and sugar which are not found in pus.

Pus is distinguished from the discharge of ill-conditioned sores, by the latter, when examined by the microscope, being found to contain a flaky matter; and from the discharge of blisters, by this containing neither flakes nor globules.

It has been the opinion of some, that pus may be formed without previous inflammation. This opinion Mr. Home combats, and observes, that the matter discharged where there had been little or no previous inflammation, differs materially from true pus. Instead of being globular, it has a curd-like appearance, and contains flakes.

The formation of proper pus seems to depend much on the state of the circulation in the part, and in the system in general. The author just mentioned found that, *cet. par.* pus is more apt to degenerate the farther it is from the heart, and relates a striking instance,

* Mr. Darwin's paper, just alluded to.

† "Corrosive sublimate coagulates mucus but not pus." Mr. Darwin's paper.

in which a cause, affecting the whole system, produced at one time a sudden alteration in the discharge of the sores, in no less than twenty patients. From a sudden change of weather, instead of a well formed pus, coagulable lymph was spread over their surface like melted tallow, adhering to it with such force that it could not be separated without injury. Few have long attended hospitals without having occasion to make similar observations.

The discharge from ill-conditioned sores is very various. Instead of coagulable lymph or a flaky discharge, they often pour out a thin ichorous matter, which, examined with a microscope, is found to contain few or no globules. It is often mixed with blood, probably in consequence of its eroding some of the small vessels.

Mr. Home made some experiments to determine whether true pus, as some have supposed, is capable of eroding the animal solids, the result of which is, that the purer the pus, the less of this property it has, and that the purest pus is a very mild fluid.

When suppuration commences in an inflamed part, the pain and redness generally abate, the temperature falls nearer to the healthy degree,* and the throbbing becomes more sensible. In the phlegmasiæ we shall find the commencement of suppuration indicated also by certain symptoms affecting the system in general.

The matter of an abscess is either absorbed or discharged, if it is well conditioned, the cavity is obliterated either by its sides growing together, or by its being filled up by an operation of nature, termed granulation, from the new parts appearing in the form of small red grains. When this process is most favourable, the granulations are of a florid red colour, and proceed in a regular manner till the cavity is accurately filled, its edges (if the matter of the abscess has been discharged externally) being even or nearly even with the sound skin.

The cavity of an abscess is never filled up with matter exactly similar to that which was destroyed, often, however, with such as is capable of performing its functions. Thus, the matter formed in wounds of the skin, tendons, ligaments, bones, and some other parts, performs the functions of these parts; and sensation has sometimes been restored through a nerve which had been divided. The matter formed in wounds of muscles or glands appears to be wholly incapable of performing the office of these parts.†

* When, however, the matter is confined by the less yielding parts of the body, the symptoms often do not abate much till it is discharged.

† See Mr. Moore's paper on the filling up of cavities, &c.

The last of the more common terminations of inflammation is gangrene. Under Dr. Cullen's seventh genus, (Phlogosis) he gives the following definition of it.

“Post phlogosin, pars vivens, mollis, parum sensibilis, sæpe cum vesiculis ichorosis.”

Such is the appearance which precedes mortification; the circulation fails, the vessels are obliterated, or an ichorus and bloody matter runs from their relaxed extremities. Mortification, or as it is termed by medical writers, sphacelus, is defined by Dr. Cullen,

“Post grangrænam pars nigricans, flaccida, facile lacerabilis, sine sensu vel calore, et cum fœtore carnis putridæ; vitio celes-
“riter serpente.”

It happens, however, especially in those cases where gangrene comes on without much previous inflammation, that the mortified part assumes a different appearance, becoming dry and hard, as for example, in the sphacelus produced by caustic. It has then been termed necrosis, or the dry gangrene. As in the case of suppuration, gangrene in the phlegmasiæ is attended with a change in the state of the general symptoms, which will presently be considered.

The milder the symptoms, the better is the chance of the inflammation's terminating by resolution. When it is of the pustular kind and does not readily yield to proper remedies; or when erythematic, if unusually obstinate and deep seated, there is reason to believe that it will terminate by suppuration. When the symptoms are very violent, especially if the inflammation is of the erythematic kind, we have reason to fear gangrene.

Resolution is always a favourable termination. Suppuration also, for the most part, is favourable, if the inflammation be external and the habit good; in internal inflammations it is generally unfavourable. Internal gangrene is always fatal. It is only when the gangrene is external that any means can avail, and then they often fail.

The steps by which inflammation terminates in gangrene are sufficiently obvious from what has been said. By degrees, the debilitated vessels wholly lose their power, and the part becomes subject to the laws of dead matter. The process of suppuration is more complicated; and between the inferences from the experiments which have been related respecting the state of the vessels in an inflamed part, and those afforded by Mr. Home's experiments on the formation of pus, there is a chasm which must be filled up by future observation. It appears from what has been said, that

when the capillary vessels of any part remain for a certain length of time in a state of debility and distension, the part begins to secrete a fluid which becomes pus; but whether this fluid is secreted by a new action of the capillaries, or, which seems more probable, as Mr. Hunter supposes, by a new set of vessels formed in the diseased part, we cannot tell. We are also unacquainted with the process by which the diseased parts are removed in the formation of abscess. It is probable that this process is also performed by a new set of vessels, which, as the secretion of the purulent fluid goes on, make room for it by the absorption of the now useless parts. We cannot suppose that these parts are melted down and assimilated into its own nature by the powers of this fluid; because we find, that pus, with all its properties, may be secreted by inflamed surfaces without occasioning any loss of substance, and it appears from experiments of Mr. Home, above alluded to, that it does not possess the property of eroding the solids. These topics open a fruitful and interesting field of inquiry. By patient observation, and the aid of powerful glasses, it is not improbable that the whole process of suppuration might be unfolded.

Some have ranked schirrus among the terminations of inflammation. "The schools," Dr. Cullen observes, "have generally marked a fourth termination of inflammation, which is by a schirrus, or an indolent hardness of the part formerly affected with inflammation. This, however, is a rare occurrence, and does not seem to depend so much on the nature of inflammation, as upon the circumstances of the part affected. It is in glandular parts chiefly that schirrosity is observed, and it is probably owing to the parts readily admitting stagnation of the fluids. I have observed that inflammation seldom induces schirrus, but that this more commonly arises from other causes; and when inflammation supervenes, which it is sooner or later apt to do, it does not so commonly increase as change the schirrosity into a kind of abscess. From these observations it does not seem necessary to take any further notice of schirrus as a termination of inflammation."

Other terminations, or rather consequences of inflammation will be noticed as we proceed in considering the phlegmasiæ, depending, like schirrus, on the structure of the part, as palsy or rigidity of the muscular fibres, opacity of the cornea, &c.

Of the Treatment of Inflammation,

As simple inflammation is generally a slight disease, considerable inflammations, though external, being always accompanied by fever, it will not be necessary to enter particularly on its treatment, which indeed will sufficiently appear from what will be said of the treatment of the Phlegmasiæ.

The means which promote the resolution of inflammation may be arranged under two heads :

1. Those which lessen the volume of fluid distending the debilitated vessels by directly abstracting part of it, by occasioning a discharge from, or an accumulation of blood in, some neighbouring part, or by diminishing the vis a tergo.

2. Those which stimulate the vessels of the inflamed part.

How well the operation of these means correspond with the foregoing doctrine of inflammation need not be pointed out. It is true that, did inflammation depend on a morbidly increased action of the inflamed vessels, it would be relieved by abstracting part of the fluid which supports this action. But how shall we on this supposition explain the effects of astringents and other stimuli applied to the inflamed part? These, it has been said, exhaust the excitability of the inflamed vessels, and thus lessen their action. But it appears from the foregoing experiments, that their effect is that of increasing the action of the inflamed vessels, and that it is only in proportion as they have this effect, that they relieve the inflammation.

After what has been said of inflammation, a very few observations on the other local affections of symptomatic fevers, hemorrhagy, and profluvium, will be sufficient. The experiments which have been related, appear also to throw light on the nature of these affections.

Of Hemorrhagy

The effusion of red blood is generally the consequence of rupture, either from external violence or increased vis a tergo; hence the frequency of hemorrhagy in synocha, and in active inflammation. In the latter, the local debility at the same time rendering the vessels more subject to rupture and increasing the vis a tergo,

some vessel at length gives way, the distension is relieved, the vessels recover their tone, and the inflammation ceases. Hence we may see why inflammation is cured by a spontaneous hemorrhagy from the part; and why more or less inflammation often precedes what is called active hemorrhagy; the increased *vis a tergo* before it occasions rupture, necessarily occasioning more or less distension. Thus the only difference between active hemorrhagy and inflammation is, that in the former a vessel gives way, the flow of blood relieving the distended vessels in the same way that artificial blood-letting from the part is found to do.

The *vis a tergo* previous to hemorrhagy sometimes distends the larger vessels of the part instead of the capillaries, and then the symptoms of congestion, not of inflammation, precede the hemorrhagy, the patient complaining rather of a sense of fullness and distension, than of heat and pain in the part from which the blood is about to flow.

Active hemorrhagies then, are spontaneous evacuations of blood which relieve an inflammation, or what has been termed congestion, and in proportion as the hemorrhagy is profuse, the inflammation or congestion, we shall find is more perfectly relieved.

Passive hemorrhagy is only a greater degree of that state which we term passive inflammation. When the vessels of a part, we have seen, are greatly debilitated at a time when the *vis a tergo*, from general feebleness, is much below the healthy degree, but still sufficient to distend the vessels of the debilitated part, passive inflammation ensues; that is, that kind of inflammation in which the local symptoms, as well as general excitement, are inconsiderable, the *vis a tergo* not being sufficient to distend the vessels to the degree which occasions the pain, temperature, and other symptoms of active inflammation.

But when the relaxation of the vessels is extreme, the blood oozes from their extremities, preventing its accumulation in the part, and consequently the symptoms of inflammation. Thus in bad forms of typhus, any irritating cause readily excites languid inflammation of the stomach, intestines, &c.; but in extreme cases of typhus, instead of inflammation, dark coloured blood oozes from the sides of these cavities.

Of Profluvium.

If the relaxation is chiefly in the colourless vessels, and particularly in the exhalants, which frequently happens, because the farther vessels are removed from the heart, they are the more easily debilitated, the discharge is colourless; and this discharge increasing as the *vis a tergo* increases, prevents inflammation by preventing distension of the capillaries.

But should any cause debilitate the red vessels of the part, the smallest of which supply the *vis a tergo* to the colourless vessels, the colourless discharge must cease, from the want of the *vis a tergo* which supports it; and the smaller red vessels, now debilitated, will be distended by the *vis a tergo* which impels the blood into them, and inflammation ensue; as often happens from cold in gonorrhœa, coryza, catarrh, &c; for it is to be remembered, that the heart supplies the whole *vis a tergo* only to the arteries, into which it immediately propels the blood, the *vis a tergo* in all the other vessels, whether arteries or veins, depending more or less on the action of those which immediately precede them in the course of circulation.

On the other hand if the colourless discharge by which local congestion is prevented, be checked by powerful astringents, the congestion must soon extend to the red vessels, and all the symptoms of inflammation in this way also supervene, as happens in gonorrhœa, dysentery, &c. from astringent applications.

But if in either of these cases, any of the red vessels give way, the flow of blood relieves the distension, and the symptoms of inflammation are mitigated or disappear.

If instead of the rupture of a red vessel, the exhalants in the latter case again become debilitated, or the red vessels in the former case are excited to action, the colourless discharge is restored, and the distension and consequently the inflammation are thus also relieved.

In the phenomena of symptomatic fevers, we shall find all these observations fully illustrated.

It is evident from what has been said, that the local affections of the different orders of symptomatic fevers are of a similar nature, and we readily perceive why they are so easily convertible into each other. Thus it appears, if what is said in the preface re-

specting the nature of idiopathic fever be admitted, that a state of fever always originates in debility of the extreme vessels.

Having now considered simple fever, and the different local affections of symptomatic fevers, we are prepared to take a view of the various combinations of these diseases, which have been arranged under the three heads, Phlegmasiæ, Hæmorrhagiæ Febriles, and Profluvia Febrilia, the definitions of which have been given in the general Introduction.

BOOK I.

OF THE PHLEGMASIÆ.

THE Phlegmasiæ are those symptomatic fevers in which the local affection is inflammation; when the inflammation is external, it is known by the symptoms already laid before the reader; when internal, by a fixed pain and lesion of function. To prevent repetition it will be proper, before we treat of the Phlegmasiæ individually, to make some general observations on this order of diseases.

CHAP. I.

Of the SYMPTOMS of the PHLEGMASIÆ.

THE only diagnostic between simple inflammation and the phlegmasiæ is the presence of fever in the latter. There is certainly a considerable difference between a pimple and a boil, and between erythema of the face and erysipelas. The difference, however, is only in degree. In both instances the disease is characterised by redness, increased temperature, pain, and swelling.

We cannot, therefore, give any other account of the local affection of the phlegmasiæ than has been given of simple inflammation.

The combinations of inflammation and fever are of three different kinds, to one of which only the term phlegmasiæ is applied; the others being of a nature very different from the phlegmasiæ, and requiring very different modes of practice.

Inflammation and fever may be combined by a simple inflammation supervening on fever, as in the exanthemata; or they may be combined by the inflammation producing fever, as in the diseases we are about to consider; or by a phlegmasiæ (that is, the inflammation and the fever it occasions) supervening on simple fever.

The first of these is readily distinguished, by the appearance of the inflammation not aggravating the fever. The last is readily distinguished where the phlegmasiæ supervenes a considerable time after the commencement of the fever, as happened in many epidemics alluded to in the first volume of this treatise, in which inflammation of the stomach, bowels, brain, &c. supervened on intermitting or continued fever, or on the exanthemata, forming diseases essentially different, although they have not always been accurately distinguished, from the phlegmasiæ.

But when the phlegmasiæ supervenes soon after the commencement of the fever, the diagnosis, although still necessary in regulating the treatment of the disease, is more difficult. All that can be said on this subject, as far as I am capable of judging, is, that wherever the fever is completely formed and unaccompanied by external inflammation, or any of those symptoms which we are about to consider as denoting the presence of internal inflammation, however early they may supervene, the case is to be regarded as a combination of fever and phlegmasiæ, whether they arise from the same causes or not.

It must be granted that if the fever has lasted for a considerable time, some days for example, before the local affection appears, the case is complicated. If then it be asserted, that there are cases of phlegmasiæ in which the fever is formed before the symptoms, denoting the local affection, appear, the question arises, how long may the fever last before the appearance of such symptoms, and the disease still be regarded as a simple case of phlegmasiæ?

In the true phlegmasiæ both sets of symptoms, especially if the seat of the inflammation be internal, generally appear together. It is evident, that if any degree of the local affection produces a cor-

responding degree of fever, the symptoms denoting the former cannot appear unattended by fever.

How then, it may be asked, do we determine which is the primary affection? To this the following circumstances readily afford an answer. The causes which produce fever, do not at the same time produce inflammation. In 19 cases of 20 inflammation does not supervene on fever, and when it does, it generally arises from causes different from those which produced the fever. But if, on the other hand, such inflammation as attends the phlegmasiæ, be excited, fever is the constant attendant, and its degree is proportioned to that of the local affection.

Besides, as we succeed by local remedies in relieving the inflammation, we find that in precisely the same degree the febrile symptoms abate. If the inflammation be not terminated by resolution, but run on to some of its other terminations, the febrile symptoms are still found to correspond to the changes which take place in the local affection, and so constant is this correspondence, that we can determine, from the state of the febrile symptoms alone, in what way the inflammation is terminating. Similar observations apply to the other symptomatic fevers. I cannot perceive the grounds on which some have maintained, that the local affection in the phlegmasiæ is the consequence of the general disease, and that when the inflammation proceeds merely from a local cause the disease is not a true phlegmasiæ. I have mentioned the local affection in the first part of the characters of symptomatic fevers, as forming the most essential part of the disease; and Dr. Cullen perhaps falls into an inaccuracy of some consequence, when he makes the febrile symptoms the first part of these characters. From regarding the fever as the most essential part of the phlegmasiæ, physicians seem often to have placed too little reliance on local means in their plans of cure, for we may regard it as a rule without exception in this order of diseases, that when the end we have in view can be answered by such means, they are always preferable to those which more generally affect the system. This inaccuracy in Dr. Cullen's definitions (for such I think it will appear from what will be said of symptomatic fevers) may be traced to the same source with others mentioned in the general Introduction. For as his method obliged him to arrange under one class, idiopathic and symptomatic fevers, it induced him to give to the latter as much as possible the appearance of the former.

In the phlegmasiæ, then, the local affection is to be regarded as the primary disease, and it either comes on before the febrile symptoms or at the same time with them.

Although the line of distinction between the true simple inflammation and the phlegmasiæ is well marked, the one never running into the other, (we never see pimples, or habitual erythema of the face produce fever,) yet there are some external inflammations which may be regarded as forming the link of connection between these diseases. Thus a small boil is unattended by fever, but if it be increased by local irritation, for example, it then occasions fever, farther proving the fever to be the consequence of the inflammation.

It may be observed indeed of all the phlegmasiæ in which the inflammation is external, that in their symptoms, prognosis, and mode of treatment, they approach nearer to the nature of simple inflammation than the other phlegmasiæ do. The fever is more moderate, the mode of treatment less vigorous, and the prognosis much better. In inflammations of those parts which can neither be regarded as wholly external nor internal, the fauces rectum, meatus auditorius, muscles, &c. the degree of fever and the prognosis are between these extremes.

Upon the whole, it may be observed, that the nearer the seat of inflammation approaches to the brain or stomach, the more considerable is the fever, and the greater the danger. Inflammations of the head, we shall find are the more dangerous, the nearer they approach the brain; and inflammations of the trunk, the nearer they approach the stomach. Inflammation of the œsophagus, for example, occasions a greater degree of fever, and is more dangerous than inflammation of the fauces; and inflammation of the duodenum than inflammation of the colon; and inflammation of the stomach is not only more dangerous than any of these, but also than inflammation of the lungs, or of any other part of the trunk. Inflammations of the extremities are less dangerous than those of either the head or trunk.

We determine the presence of internal inflammation by certain symptoms, which, from dissection after death, it has been ascertained, always indicate this species of derangement. These symptoms are shortly enumerated in the definition of the phlegmasiæ. "*Dolore topico, simul læsa partis internæ functione;*" wherever there is fixed pain with derangement of function, and fever, we have reason to believe that local inflammation is present, which we cannot doubt if the pulse be hard.

It appears from what was said of inflammation, that when it is present to a considerable extent, and almost always when it affects

a vital organ, the whole sanguiferous system is excited to increased action, the final cause of which appears to be, to restore due circulation to the debilitated part. The vessels, it was observed, possessing transverse muscular fibres, the effect of unusual action must be, that they embrace their contents more forcibly, and consequently feel harder, and the difference between a strong pulse and a hard pulse seems to arise from the artery in the latter case never being wholly relaxed, while in the strong pulse, however powerful the contraction may be during the systole, we have reason to believe that there is a complete relaxation in the diastole, the time at which it strikes the finger.

In the case of the hard pulse, the end being to propel the blood into the debilitated vessels of the inflamed part, the arteries in the neighbourhood of these vessels, the better to effect this end, seem forcibly to embrace their contents, although in a less degree, during the diastole; and at length, the whole arterial system is affected in the same way, so that, however debilitated the circulation becomes, while the inflammation lasts, the hardness of the pulse is still remarkable, and by this means we may often detect inflammation when there is no other symptom to guide us.

The foregoing symptoms not only leave no room to doubt the presence of inflammation, but also point out its seat. When we know the seat of the pain, as we know that of the different viscera, we conjecture which is affected; but when we, at the same time, observe what function is affected, the matter is generally placed beyond a doubt. Thus, if the patient inform us that the pain is in the chest, we suspect the lungs to be the seat of the inflammation; but if, at the same time, he labours under cough and difficulty of breathing, no other function being more deranged than is usual, in the same degree of fever, we no longer hesitate in pronouncing the disease to be inflammation of the lungs. In like manner, when the patient tells us that the pain is in the region of the stomach, and he is distressed with thirst and incessant vomiting, we know that he labours under inflammation of the stomach; and so on.

But the manner in which we judge of the seat of the inflammation, is not always so simple as in these cases; for it often happens, from the sympathy of parts, that although the inflammation is confined to one organ, the pain, and even derangement of function, extends to others. Thus, in inflammation of the kidneys, pain is often felt in the stomach, and its functions are often as much deranged as those of the inflamed part.

Nay, a pain is often felt in a distant part, while there is no pain whatever referred to the part affected. In inflammations of the liver, for example, the pain is sometimes confined to the shoulder. It also sometimes happens, that the functions of neighbouring parts are more obviously deranged than that of the part affected. The patient is often affected with dyspnoea and cough, or with vomiting, or with hiccup, when on dissection it is found, that the liver alone was the seat of inflammation.

In such cases, it is often very difficult precisely to determine its seat; sometimes, we shall find, it is impossible; but fortunately, it is not always necessary, and a person well acquainted with the symptoms of the phlegmasiæ, will never find himself at a loss to determine the seat of the inflammation with all the accuracy that is requisite in practice; for although neither the pain nor lesion of function is always observed in the part affected, yet both the one and the other are always the same or similar when the same part is affected, at least in the same degree, and in the affection of no other part does the same combination of symptoms occur. Thus some difficulty of breathing, sickness at stomach, or hiccup, with pain in the right shoulder, and a hard and frequent pulse, as certainly denote inflammation of the liver as if the pain were referred to this organ, and accompanied with an evident derangement of its function.

In this and some other of the phlegmasiæ, other circumstances, particularly an increase of the pain on pressure, assist the diagnosis.

Dissection has ascertained, that in internal as in external inflammations the redness and swelling are either diffused, the latter being hardly perceptible, or more circumscribed, and the swelling considerable.

Such, in a general view, are the symptoms which attend the commencement and progress of the phlegmasiæ.

Like simple inflammation, these diseases terminate by resolution, suppuration, or gangrene.

The local symptoms indicating the resolution of internal inflammation, are the gradual abatement of the pain, and the restoration of the function of the inflamed part.*

* See what was said of the various evacuations which frequently attend the resolution of inflammation, in speaking of simple inflammation.

When suppuration takes place, the pain, for the most part, also abates. It is sometimes kept up by the distension which the collection of pus occasions. As in external inflammations, the throbbing often becomes more remarkable during suppuration, or supervenes where it had not previously been perceived. The patient also feels a sense of weight where the collection of matter is considerable, and if the part is not very deeply seated, fluctuation may be perceived through the integuments.

The only local symptom which indicates the termination of internal inflammation by gangrene, except the gangrene by destroying some considerable vessel occasions hemorrhagy, is the abatement or total ceasing of the pain.

As far as we judge of the tendency to these different terminations by the local symptoms, we form our judgment in the same way as in simple inflammation. When the pain and derangement of function are unusually obstinate, we have reason to fear suppuration; when unusually violent, mortification. We shall find that our judgment in this respect is also influenced by the nature of the part affected, some of the internal organs, the stomach and intestines for example, being more liable to gangrene; others, as the lungs and liver, to suppuration.

But in ascertaining the tendency of internal inflammations, as well as the manner in which they are actually terminating, we trust more to the general than the local symptoms.

When the fever is moderate, and yields readily to the means employed, we may hope for resolution. During this termination, the fever abates with the local symptoms, and with them disappears. When the febrile symptoms, though not very considerable, are obstinate, and either yield little to the remedies employed, or soon suffer a new exacerbation, we have reason to fear suppuration; especially if the inflammation has its seat in those organs which are most liable to this termination.

When suppuration begins, the pulse gradually loses its hardness, and becomes fuller, but continues more frequent than natural, and at the same time more or less of a cold stage is formed, the chills often continuing or recurring for many hours or even days, sometimes followed by hectic fever; a species of symptomatic fever, which we shall soon have occasion to consider at length. It is enough to observe here, that it is a fever consisting of evening exacerbations, and morning sweats which never bring complete or permanent relief.

If the abscess, instead of healing, continues to form matter, especially if the discharge is of an unfavourable kind, this fever continues till the patient gradually sinks under it. In this way internal suppurations may prove fatal, or they may destroy life more suddenly by destroying some of the vital organs, or laying open some of the larger vessels, or by the abscess bursting into the cavity of the lungs and occasioning suffocation.

When in the phlegmasiæ, the febrile, as well as the local, symptoms are unusually violent, and yield little to the means employed, we dread mortification, especially if the inflammation has its seat in the parts most liable to this termination.

As soon as gangrene takes place, the pulse loses its hardness, and becomes very feeble, frequent, and often irregular. The debility is extreme, and the surface bedewed with partial cold clammy sweats. So sudden and complete in many cases is the relief from pain when mortification supervenes, that the patient, for a short time, often believes himself well. A person acquainted with the nature of his disease, however, knows that he has but a few hours to live, which is soon apparent by the rapidly-increasing debility. But such is the tranquility of this period, that many, in such circumstances, being made aware of their situation, have made their wills; for unless the inflammation has its seat in the brain, it is unusual for coma or delirium to supervene in the phlegmasiæ.

Mortification may take place, however, without a cessation of pain. When the mortification is confined to a small portion of the inflamed part, the pain may continue to the last, as happened in a case in which I found, on examining the abdominal viscera after death, almost every part of the intestines more or less inflamed, and a gangrenous spot about the size of a sixpence on the stomach.

In such cases it is very difficult to ascertain the presence of gangrene, particularly if the inflammation has its seat in the stomach and bowels, all inflammatory affections of which are attended with much debility from the commencement. To determine the presence of a disease, however, in which no remedy can avail, is of little consequence.

Such is the general view of the symptoms of the phlegmasiæ. Considerable deviations from the ordinary course however frequently occur; thus, in some cases, particularly of inflammation of the lungs and liver, anxiety attends instead of pain, sometimes the pulse is not hard; this deviation however is rare. Nay, it sometimes, though very seldom happens, that inflammation is present without producing any of its usual symptoms.

The reader will see instances in which the intestines were inflamed, with little or no pain, in the 35th Epistle of Morgagni's work, *De Causis et Sedibus Morborum*, in Van Swieten's *Commentaries*, Sir John Pringle's Account of the diseases of the army, and in the fourth volume of De Haen's *Ratio Medendi*. In the last work he will find one case where the stomach was inflamed without vomiting, and another in which there was neither vomiting nor pain: and even the heart, as appears from cases related in the *Sepulchretum Anatomicum* of Bonnetus, and the Epistles of Morgagni, has been inflamed without either pain or lesion of function; a striking instance of which I have myself seen ascertained by dissection. I have also seen the appearances of inflammation in the intestines after death, where there had neither been pain nor derangement of their functions. Nay the brain itself as appears from the works of Huxham and others, has been found inflamed where none of the symptoms of phrenitis had existed. Such anomalous cases occur so rarely, however, that they must not be allowed to influence our practice.

CHAP. II.

Of the CAUSES of the PHLEGMASIÆ.

THE causes of the phlegmasiæ, as I have already had occasion to observe, are the same with those of simple inflammation. The difference of the phenomena, depending not on any difference in kind, but on the different degree or extent of the inflammation, or the nature of the parts it occupies. For the causes of the phlegmasiæ, therefore, the reader is referred to the Introduction to the Second Part.

CHAP. III.

Of the TREATMENT of the PHLEGMASIAE.

THE treatment, like the symptoms of the phlegmasiæ, might be divided into two parts, the local and general; and these subdivided, according as our view is to procure resolution or suppuration. It will give a more connected view of the subject, however, to reverse this order, and divide the treatment into that which promotes resolution, and that proper when suppuration is desirable; dividing the means employed in each case into local and general.

We are now, as it were, to survey a new field in the practice of medicine. The maxims on which the treatment of all the fevers we have hitherto considered, is founded, are no longer applicable.

The most characteristic difference between the treatment of idiopathic fevers and the phlegmasiæ is, that in the latter we employ antiphlogistic means more liberally, and the stimulating plan with more caution.

It is not meant that the unguarded employment of antiphlogistic means, particularly evacuations, is not attended with danger in the phlegmasiæ. Besides the danger of inducing a state of general debility; if we greatly weaken the *vis a tergo*, the circulation in the inflamed part may cease altogether, and gangrene ensue. This, as might be supposed, is most apt to happen in the phlegmasiæ of longest duration, certain species of cynanche for example, or the more chronic forms of erysipelas.

The accession of gangrene in the phlegmasiæ may be regarded as in some measure analogous to that of typhus in idiopathic fevers. The latter, we have seen, may be rendered formidable either by the excess of the previous excitement, or the unguarded use of antiphlogistic measures; in like manner gangrene in the phlegmasiæ is to be dreaded when the various symptoms denoting active inflammation run unusually high, and when antiphlogistic measures have been carried very far. In some of the phlegmasiæ we have to fear another consequence from profuse evacuations, their degenerating into chronic diseases, always more obstinate, and often more dangerous, than the phlegmasiæ themselves.

The maxims which regulate the employment of evacuants in idiopathic fevers will not apply to the phlegmasiæ. In the former,

we have seen, we almost always, *cet. paribus*, proportion the evacuation to the degree of general excitement; in the phlegmasiæ we, *cet. paribus*, proportion them to the violence of the local affection, and we attend to the nature and degree of the febrile symptoms chiefly with a view to ascertain the state of that affection; and, as in some phlegmasiæ, the inflammation is the greater, the greater the general depression and debility, we sometimes have recourse to powerful antiphlogistic measures on account of the very symptoms, which, in idiopathic fevers, render the tonic plan indispensable. In some of the phlegmasiæ. we shall find that a weak and even irregular pulse indicates the necessity of liberal evacuations.

Such a state of depression, however, is to be carefully distinguished from debility, properly so called. The one is transitory, the other permanent. A depression of strength even to syncope may arise from the morbid contents of the stomach, and on the removal of these may cease in the space of half an hour. But debility, properly so called, is that which arises from want of nourishment, profuse evacuations or diseases of long continuance.

A careful distinction between these species of debility is nowhere more necessary than in the phlegmasiæ. While in them, depression of strength, properly so called, never counterindicates evacuations, real debility often does. How they are to be distinguished in each case will appear as we proceed. They are chiefly to be distinguished by depression of strength coming on suddenly, and only attending inflammations of particular viscera; while real debility almost always comes on slowly, and may attend any of the phlegmasiæ if long protracted.

The extent to which antiphlogistic measures should be carried in a great measure depends on the nature and seat of the inflammation. If these are such that resolution is the only safe termination, they should be carried farther, than where suppuration also is favourable; because, to procure a proper suppuration, a greater degree of general excitement, than that most favourable to resolution, is requisite; and it is sometimes better, particularly in external inflammations, to induce supuration, than to carry evacuations to the extent that would be necessary to procure resolution.

Such are the general principles on which the treatment of the phlegmasiæ is founded; it will be proper to consider more particularly the different means employed in these diseases.

Of the Treatment of the Phlegmasiæ when the view is to procure Resolution.

As resolution is the most favourable termination in all the phlegmasiæ, we always in the first place, endeavour to procure it. It is only where we fail in this attempt, or find that it cannot succeed without inducing a degree of debility more to be feared than supuration, that we endeavour to induce the latter.

We procure resolution,

1. By removing the remote causes if they still continue to act.
2. By diminishing the distension of the vessels in the inflamed part.
3. By diminishing the vis a tergo.

Of the first of these indications little need be said; it is only necessary, for the most part, to be acquainted with the causes of inflammation, in order to remove them if they are still applied.

Of the means of relieving the congestion in the inflamed part it will be necessary to speak at greater length.

These may be divided, as in simple inflammation, into those which relieve the congestion by exciting the debilitated vessels, and those which directly remove part of their contents.

Many of the first we shall have occasion to enumerate in speaking of the different phlegmasiæ. They are used either by washing the inflamed part, or parts in its immediate neighbourhood, with solutions of them, or such solutions are made into poultices and kept applied to the parts. When the application is made to a neighbouring part, it seems to relieve the inflamed part in consequence of the sympathy which exists between all contiguous parts.

The means which act by lessening the contents of the distended vessels are upon the whole more powerful; these are of two kinds,

1. Such as debilitate the vessels of some neighbouring part, in consequence of which, a congestion being formed there, that of the inflamed part is relieved.

The means belonging to this class are termed rubefacients. These are more powerful if, at the same time that they excite inflammation, they occasion some evacuation. Blisters therefore are found the most successful rubefacients. The evacuation they occasion, however, is slow; and it may be observed of local, as it was formerly observed of general, evacuations, that their effects are, *cet. par.* proportioned to the rapidity with which they are made.

2. Such as at once draw off a considerable portion of the blood distending the vessels.

Of all the remedies employed in the phlegmasiæ there is no other at the same time so powerful, and so generally applicable, as local blood-letting, and when, as in visceral inflammations, we can-

not let blood from the inflamed part itself, it often has an excellent effect to draw it from the skin in its immediate neighbourhood.*

Local blood-letting is performed either by cupping or by leeches. The former has the advantage of acting at the same time as a rubefacient. The cupping glasses are often applied as a rubefacient without the scarificator.

In many cases, however, leeches are preferable. If the inflammation be external, they can be applied to the part, and even in internal inflammations, the tenderness on pressure is often so great as not to admit of cupping.

The principal inconvenience in the use of leeches arises from our not being able to limit with accuracy the quantity of blood lost. If few leeches are applied, the blood is slowly abstracted; if many, the discharge after the removal of the leeches may be too copious; a little lint with moderate pressure is generally sufficient to check the bleeding. Where these can be conveniently employed, it is the best plan to apply a considerable number of leeches; where they cannot, the number must be smaller, and the flow of blood promoted by cloths dipped in warm water, and renewed as soon as they cool, or, which is a much more effectual means, the application of a large poultice.

When either the excitement or the hardness of the pulse is considerable, the more stimulating of the foregoing means, blisters and rubefacients, are exceptionable, as might, a priori, have been supposed, inflammation being the cause both of the increased excitement and hard pulse. In such cases, therefore, these symptoms are to be moderated by evacuations, before we have recourse to them.

Such are the local remedies employed in the phlegmasiæ, and in the milder cases, with proper means to remove any cause of irritation, and support a proper action of the bowels, they are all that are necessary. In more severe cases, however, general, as well as local, remedies must be employed, and then the third indication must direct our practice, to diminish the vis a tergo.

This part of the treatment bears a greater resemblance to that of idiopathic fevers; the line of distinction, however, is still well defined. It is unnecessary to repeat what is the same in the treatment of both sets of diseases; for which I shall refer the reader to the first volume, confining myself to the circumstances in which they differ.

* See what was said in Vol. I. on the modus operandi of blood-letting.

The animal functions must by a mild and cooling diet, rest, &c. be so managed as to lessen as much as we can in this way the force of the circulation. On this part of the subject the observations are nearly the same as in idiopathic synocha. The differences which occur will be noticed in considering the phlegmasiæ separately.*

As cold is a frequent cause of the phlegmasiæ, the reader will not be surprised to find, that it is never applied so freely in these diseases as in many idiopathic fevers. The opposite extreme, however, is not less pernicious; the temperature should be moderate and regular, and the drink tepid.

The phlegmasiæ, it has been observed, as well as idiopathic fevers, have their crises. When a tendency to sweat appears in the former, it is to be encouraged by more warmth than is advisable in idiopathic fevers. But even here the hot regimen cannot be carried far; if the sweat does not flow readily it will probably be of little service.

The most important part of the treatment of the phlegmasiæ is the diminution of the vis a tergo by venesection. Were we at all times capable of taking from the inflamed part, or some part near it, with sufficient rapidity, the necessary quantity of blood, there can be no doubt that this would be the most successful mode of blood-letting in the phlegmasiæ. In this class of diseases we have two objects in view from blood-letting; to diminish the congestion in the inflamed part, which is best performed by blood-letting from the part, and to diminish the vis a tergo, which can only be effected by the loss of a considerable quantity of blood. But as the increased vis a tergo is supported by the inflammation, if the abstraction of blood be made in such a manner as to serve at the same time the purpose both of local and general blood-letting, a less loss of blood will, it is evident, answer the purpose. It is often difficult, however, and sometimes impossible, to take the necessary quantity of blood from the part affected, or its neighbourhood; and then we must let blood from the arm as in idiopathic fevers. If, for example, the inflammation have its seat in the head, it is better to take blood from the jugular vein than from the arm;

* We shall then also have occasion to consider a circumstance which, though never a source of irritation in idiopathic fevers, in some of the Phlegmasiæ appears to be a very material one. Breathing pure oxygen gas, it has been found, is capable of exciting inflammation of the lungs, (see the experiments of Lavoisier and others) and we have reason to believe, that the greater the proportion of oxygen in atmospheric air, the greater is its tendency to excite inflammation.

but if it have its seat in the stomach, as there is no considerable vein which can be opened in the neighbourhood of this organ, we take the blood from any of the vessels in the upper part of the body which is most convenient.*

We determine the propriety of blood-letting in the phlegmasiæ, as well as the extent to which it is to be carried, by comparing the state of the general symptoms with the seat of the inflammation.

The presence of inflammation in most parts occasions general excitement. In such cases we judge of the degree of inflammation by that of the excitement, and regulate the employment of blood-letting in the same way as in simple synocha, except that the same degree of excitement warrants a more copious evacuation, both because other means are less powerful in the phlegmasiæ, and because in these diseases the excitement is succeeded by a state of mere debility, not by typhus as in idiopathic fevers.

Inflammation of certain parts, it has been observed, instead of increased excitement is attended by a state of general debility. We then employ antiphlogistic measures the more assiduously, the greater and more sudden the depression of strength, the inflammation being generally proportioned to this symptom. It sometimes happens indeed, that the circulation is rendered so languid, that even at an early period it is difficult to procure the proper quantity of blood, and in a very short time it becomes impossible. In a case of inflammation of the stomach and bowels which had only lasted ten or twelve hours, I ordered all the larger veins of both arms and both legs, and also the temporal artery to be opened, without being able to procure more than two or three ounces of blood. The patient died within 24 hours from the commencement of the disease, and on opening the body the stomach was found gangrenous.

But even where the inflammation is attended with increased excitement, and there can be no difficulty at any period of the inflammatory stage in taking the necessary quantity of blood, early and decisive evacuations are necessary; for after a tendency to suppuration has come on, (and the same remark applies to gangrene if the inflammation be internal) we have no means of preventing it; besides the disease is confirmed by its continuance, and at the same time the strength impaired; hence it generally happens, that if evacuations are neglected at an early period, they

* See what is said of the effects of abstracting the blood rapidly in *Cynancha Tensillaris*, vol. I. and Sequel.

must be carried to a greater extent, while at the same time the patient is less able to bear them.

The propriety of having immediate recourse to general blood-letting, then, in all the more alarming cases of the phlegmasiæ, that is in all cases of visceral inflammation, is unquestionable; and in this most essential respect, therefore, the practice is more uniform and simple than in idiopathic fevers.

This observation, however, applies only to the phlegmasiæ not complicated with other diseases. When they supervene on diseases of debility, or in habits debilitated by previous diseases, the employment of blood-letting requires more caution and discernment. Cases of this kind we shall have occasion to consider more particularly in speaking of the phlegmasiæ separately; it is enough at present to observe, that experience has confirmed what, from the foregoing view of the nature of inflammation, might, a priori, have been supposed, that in such circumstances the indication is rather to relieve the congestion in the inflamed part, than to diminish the vis a tergo, and consequently that we are rather to depend on local than general evacuations. I have seen general blood-letting in gastritis supervening on a very debilitated state of the system, serve no other purpose but that of hastening the fatal termination.

With the exception of such cases, then, to determine the presence of visceral inflammation, and the propriety of general blood-letting is the same thing. It requires more attention, however, to determine the extent to which it should be carried, and it is in vain (as some have attempted) to state the precise quantity of blood which must be lost to procure resolution in the different phlegmasiæ. It is true that some phlegmasiæ require more profuse evacuations than others, but the severity of the symptoms, and the strength of the patient, must always influence the treatment.

In visceral inflammations, we immediately have recourse to general blood-letting, because its effects are more speedy than those of any local evacuation. By general blood-letting, we at once diminish the vis a tergo, and hardly ever fail to procure more or less relief.

But the vessels gradually adapting themselves to their contents, the vis a tergo often becomes as great as ever, and thus, when the inflammatory tendency is considerable, by repeated general blood-letting the strength of the patient is often exhausted before the disease is subdued. Such, however, is a very general practice in visceral inflammations, as if the only indication were to diminish the vis a

tergo. The conjection in the inflamed part, which supports it, is overlooked.

If one or two general blood-lettings remove a visceral inflammation, they are the most easy and expeditious means of cure, but wherever the symptoms require a frequent repetition of this remedy, we should call in the aid of local evacuations.

When therefore the symptoms do not yield to a second general blood-letting, we should without loss of time, apply leeches, or the scarificator and cupping glasses, as near the part as possible, by which a repetition of the general blood-letting will often be prevented, and the extent to which it will be necessary to carry it, always diminished.

In cases where resolution is the only favourable termination, we are to repeat the local and general blood-letting, trusting as much as the state of the symptoms admits of, to the former, till the inflammation is subdued, or symptoms denoting the presence of suppuration or gangrene, supervene.

It often happens, that after the *vis a tergo* has been diminished by two or three general blood-lettings, the cure may be completed by local blood-letting alone, and when it is sufficient, which will be known by its effects, no other should be employed.

With respect to the quantity of blood taken at each blood-letting, in an adult of ordinary vigour, labouring under visceral inflammation, fourteen ounces is a moderate general blood-letting; a moderate local blood-letting is from four to six ounces; and both will be the more effectual, the earlier they are employed, and the more quickly the blood is taken.

The repetition of the blood-letting must be regulated by the effects of that which has been employed. If the symptoms return with diminished violence, a smaller blood-letting will be sufficient; if with equal violence, an evacuation equal to the first will be necessary; and if with increased violence, we must still proportion the evacuation to the state of the symptoms; and the quantity of blood which is sometimes lost, without fatal effects, in visceral inflammations, is astonishing.

There are two changes in the state of the pulse which we wish to obtain by blood-letting (whether local or general) in the phlegmasiæ. The one, to reduce its strength, and of course only applies to those cases where the excitement is greater than natural; the other is our aim in all the phlegmasiæ, to remove its hardness, and it is generally in proportion as it has this effect, that blood-letting is successful in these diseases; the reason of which will readily ap-

pear from what has been said of the nature of a hard pulse. When the evacuations have greatly reduced the excitement, without removing the hardness of the pulse, the prognosis is bad. When they have been carried as far as they can be with safety, without removing this symptom, it is generally fatal. An extremely small and hard pulse, in those cases where the pulse is generally strong, is one of the worst symptoms; because, while it indicates the necessity of evacuations, it informs us that the patient can no longer bear them.

Although in the phlegmasiæ we take more blood from the full and plethoric, than from those of an opposite habit, yet, in determining the quantity, we pay less attention to the habit than in the treatment of synochus, because the blood-letting, as appears from what has just been said, is more generally requisite in the phlegmasiæ, and bad consequences are less apt to follow it.

For the same reasons we pay comparatively little attention to several of the other circumstances, which were enumerated in the first volume as demanding attention in the employment of this remedy in synocha, namely, the nature of the cause from which the disease proceeds, the season and climate, and the nature of the prevailing epidemic.

Some of the circumstances alluded to, however, must materially influence the employment of blood-letting in all cases. The period of the disease, and the effects of the blood-lettings which have been employed, I have already had occasion to mention; we are influenced also, as in idiopathic fevers, by the appearance of the blood which has been drawn. The age of the patient likewise demands attention; the younger he is, if not an adult, the same loss of blood will produce the greater effect. In the decline of life more is to be apprehended from venesection than at an earlier period, and then, the older the patient is, it is the more to be dreaded.

Among the consequences to be feared from blood-letting in the phlegmasiæ, was mentioned its tendency to convert certain species of these, into chronic diseases. In advanced age, when the powers of the system become languid, this effect is particularly to be dreaded; in old people, for example, inflammation of the lungs often degenerates into the disease called peripneumonia notba, and acute rheumatism into chronic.

Such are the circumstances which influence the employment of blood-letting in the phlegmasiæ, and if what has just been said be compared with the observations made on catharsis in idiopathic

fevers, the reader will readily perceive what part of those observations is applicable to the phlegmasiæ. We are never to substitute catharsis for venesection in these diseases; but more or less of it is almost universally proper in them.

Every degree of irritation in the phlegmasiæ is particularly hurtful, and even that degree which attends the healthy state of the bowels must be lessened, the fæces should be of a thinner consistence, and discharged more frequently. The bowels, as in simple fever, are generally languid, so that cathartics are doubly indicated. Although cathartics are much less effectual than blood-letting in directly diminishing the vis a tergo, yet, when they act by relieving the congestion in the inflamed part, the cause of the increased vis a tergo, their effects may be even greater than those of a moderate blood-letting: thus it is, that in all inflammatory affections of the alimentary canal, catharsis is of the most essential use.

From the immediate connection of the vessels of the head and trunk, we can hardly more effectually relieve those of the former, than by abstracting part of the contents of the latter; hence it is, that from profuse evacuations by the bowels, the depletion of the vessels of the head often goes so far as to produce syncope; hence also, we easily explain the turgescence of the vessels of the head, with the various symptoms it occasions, previous to an attack of hemorrhoids, and the immediate relief and pale countenance which follows the discharge from the hemorrhoidal vessels. We might therefore, a priori, have supposed, that in inflammations of the head, a copious discharge from the bowels would be found one of the best remedies, and experience has ascertained that venesection itself is often less powerful.

With respect to the evacuation by emetics, it is less generally, though often very useful, in the phlegmasiæ. It is sometimes of service by evacuating the morbid contents of the stomach, more frequently by promoting a discharge by the skin. In some of the phlegmasiæ it is otherwise serviceable, and in some it is in every case inadmissible. In inflammation of the pharynx, larynx, and trachea, for example, we shall find it a powerful means of relief; in inflammation of the encephalon, one of the most certain means of aggravating the disease.

We trust less to the effects of diaphoretics in the phlegmasiæ than in idiopathic fevers: most of the phlegmasiæ, indeed, are too rapid and dangerous for such means. To this observation,

however, we shall find a few exceptions; and in all the phlegmasiæ, proper diaphoretics aid more powerful remedies.

It has not, perhaps, been sufficiently attended to in the treatment of the phlegmasiæ, that evacuations are not the only means we possess of diminishing the *vis a tergo*.

It is sometimes advisable in these diseases, when the patient is too weak to bear a considerable loss of blood, to place him in the erect posture while the blood is taken, by which a tendency to syncope will be induced by a smaller loss of blood, and temporary, perhaps permanent relief obtained. It often happens that this tendency is more easily induced in the first, than in the second or third blood-letting.

Nausea, it is evident, acts in a similar way. Of the medicines which tend to diminish the *vis a tergo*, one has lately demanded much attention. There have been various opinions respecting the effects of digitalis; we shall have occasion to consider them more particularly in speaking of the diseases, in which this medicine has been employed.

Of the Treatment of the phlegmasiæ when the view is to procure Suppuration.

When the symptoms either do not remit on the use of proper remedies, or constantly return with the same, or greater violence, we have little hopes of procuring resolution.

In commencing the treatment of any of the phlegmasiæ, we should consider, whether, if we fail to procure resolution, suppuration will be desirable. If so we must not greatly reduce the strength, because, after the excitement falls to a certain point, the more the system is debilitated, the less inflammations tend to suppuration, and the more to gangrene. This is one reason, why, in external inflammations, and those of the fauces, we do not carry antiphlogistic measures so far as in inflammations of the lungs, stomach, intestines, &c. and if in the former cases these measures have been carried far in hopes of procuring resolution; in order to induce a favorable suppuration, we must often have recourse to such as increase the excitement.

It is not, however, to be inferred, that the presence of much excitement, and a great degree of inflammation, are favourable to suppuration. Although from the very commencement of a phlegmasiæ we had nothing in view but to procure suppuration, we should almost always find it necessary to employ to a greater or less extent the means for promoting resolution.

The same principle regulates the employment of the local means.

While the inflammation is very considerable, attended with much pain and swelling, although we have no prospect of procuring resolution, we must have recourse to the same local means which are employed for this purpose ; they must not, however, be carried so far.

When, on the other hand, the inflammation is too languid, we must, by warm poultices and fomentations, endeavour to promote it ; and if the system partakes of the langour, we must have recourse to the means which increase general excitement.

It is a common opinion, that in external inflammation, applications which clog the pores promote suppuration by preventing the exudation of the matter. This practice seems to have originated from the opinion of pus being formed by stagnation from some of the component parts of the blood. Such applications may be of use by increasing the heat of the part, and applying a stimulus to its vessels.

In short, the chief difference between the treatment for resolution and that for suppuration is, that in the former we endeavour entirely to remove, in the latter only to moderate, the inflammation.

When internal suppurations occur without immediately proving fatal, our practice is so much influenced by the nature of the part affected, that I must defer speaking of the treatment till we come to consider the phlegmasiæ separately.

As an abscess increases, it is most enlarged on that side where the least resistance is opposed ; when it is situated near the surface, therefore, it generally points externally, and the matter is readily discharged, which, for the most part, should be done by an artificial opening, rather than by waiting for the slower operations of nature. But when the abscess is deep seated, or when, as in abscesses of the lungs, the greatest resistance is opposed on the external side, they point and burst internally.

It is always of consequence, therefore, in forming the prognosis, to ascertain on which side of an abscess the least resistance is applied, and it sometimes influences the mode of treatment, for where there is reason to apprehend that the abscess will burst internally, it is advisable, in some cases, to attempt the evacuation of the matter by an external opening, although there is no appearance of its pointing externally. This, we shall find, has often been practised with success in abscesses of some of the viscera.

The more perfect and unmixed the pus,* the more readily may we expect the abscess to heal, and the less injury will the habit sustain. It is therefore our view in promoting suppuration, to procure a pus of the most favourable kind. For answering this intention, however, there are no other means than those which have been pointed out. The nearer the general excitement and the degree of the local affection approach to those best suited to promote suppuration, the more favourable will the suppuration be.

There is one case of suppuration which demands particular attention. When gangrene supervenes, if the case terminates favourably, it is by suppuration that the dead are separated from the living parts. Those states which are unfavourable to resolution and suppuration, tend to gangrene. On the means of preventing gangrene, therefore, nothing more need be said. It remains to make a few observations on the mode of treatment after it has supervened.

The whole system we have seen, partakes more of the affections of the internal, than external parts. The slightest visceral inflammation, it has been observed, occasions fever, and the different changes which take place in the local affection are indicated by corresponding changes in the state of the general symptoms; on the surface, on the contrary, a considerable degree of inflammation may exist and even run on to suppuration without being attended with symptoms of general derangement: so in the case of gangrene, when it is seated in external parts, the vigour of the system may still be such as to excite suppuration, and thus throw off the gangrened part; but when the gangrene is internal, the system in general partakes too much of the local affection to support, or indeed to afford time for, this process by which alone the progress of the gangrene can be stopped. This is the less to be regretted, because the injury done by internal gangrene is generally such, that a separation of the gangrened parts would only prolong the patient's sufferings.

Of gangrene of the throat and muscles it may be observed, as of inflammation of these parts, that the state of the system is neither so much affected by it as by the gangrene of more internal parts, nor so little as by that of the surface, and the prognosis is neither so bad as in the one case nor so favourable as in the other; farther

* See what was said of pus and the discharge from foul ulcers in speaking of the terminations of inflammation.

demonstrating that the danger of gangrene is proportioned to the degree of sympathy, which subsists between the system in general and the part affected.

It is only then when gangrene is seated on, or near the surface, that we can attempt the cure with any hopes of success.

The treatment may still be divided into general and local.

The general treatment is nothing more than that employed in all stages of the disease, when the inflammation is too languid, only in the case before us this mode of treatment is carried to the greatest extent. The patient must be supported by the liberal use of wine, and the bark must be given as freely as the stomach will bear. To this, however, there is one exception, when gangrene is the consequence of excessive inflammation it sometimes appears while the general excitement is great, and if the seat of the disease is external, the increased excitement sometimes continues after the commencement of the gangrene, supporting the inflammation, and occasioning the gangrene to spread. In such cases it is evident that any means which increase the vis a tergo must promote the progress of the gangrene. "When the gangrene arises from the violence of inflammation," Dr. Cullen* observes, "the bark may not only fail in proving a remedy, but may do harm, and its power as a tonic is especially suited to those cases of gangrene which proceed from an original loss of tone, as in the case of palsy and œdema; or to those cases of inflammation where a loss of tone takes place, while the original inflammatory symptoms are removed."

When therefore gangrene proceeds from excessive excitement, we must delay the invigorating plan till the presence of the gangrene has reduced the morbid activity of the system, which soon happens, and in such cases considerable attention and nicety is often requisite, to determine the period at which the exhibition of bark and wine should commence. The best rule perhaps is, as soon as the excitement is reduced to the natural degree, that is, as soon as the preternatural strength of the pulse has subsided, to exhibit small doses of bark and wine, and be regulated by their effects.

With regard to the local remedies, they are all such as tend to excite the suppuration by which the gangrened parts are to be thrown off. Among the applications found serviceable are many

* Dr. Cullen's First Lines, paragraph 272.

of those termed antiseptics, and it has been a prevalent opinion, that these act by checking, by their antiseptic power, the farther tendency to gangrene. But the same substances applied to parts separated from the body will not have the same effect, at least in any considerable degree, nor are the best antiseptics, best fitted for checking the progress of gangrene. Besides, whatever other effect they produce, they must tend to excite the powers employed in casting off the dead parts; and as this alone accounts for their effects, there is no occasion for any other supposition.

That they may have this effect, they must be applied to parts which still retain some degree of excitability; it is proper therefore, especially if the integuments remain entire, to make incisions through the gangrened part, previous to their application. Heat is still one of the most powerful means of exciting suppuration, so that warm poultices, whatever be their composition, are among the best applications. Some practitioners recommend the application of warm bricks over the dressings,* and they are prepared in Holland of various shapes for this and similar purposes. But the local treatment of gangrene belongs to the province of the surgeon.

There is one case which deserves notice, as particularly illustrating a law of the animal system, by which it is rendered morbidly sensible to any of the natural agents, in consequence of its usual application or its application in the usual degree being interrupted, without becoming more sensible to the action of any other.

When heat is so rapidly abstracted from any part that it falls below the temperature necessary to life, like other dead animal matter, it runs to putrefaction. Thus the occurrence of gangrene in those parts of the body where the circulation is languid, is not uncommon in cold climates. As we should, a priori, expect gangrene from this cause, it is most effectually checked by increasing the temperature of the part. Were we, however, at once to apply a temperature equal to the common temperature of the body, its effect would be that of increasing, instead of checking, the gangrene. Had not the parts in the neighbourhood of the gangrened part suffered from the application of cold, this practice might succeed; but the temperature of these parts having been greatly reduced for a considerable length of time, the usual temperature becomes an agent sufficiently powerful to derange the mechanism on

* Van Swieten's Comment. in Aph. Boerhaavii.

which life depends; and as the phenomena are the same after life is destroyed, whether this be effected by too great an increase or diminution of temperature, the only effect of the sudden increase of temperature is that of causing the gangrene to spread.

The proper treatment therefore is to bring the part to the natural temperature by very slow degrees, and the first application is generally snow or iced water.

I have already had occasion to observe, that in cases of extreme debility, gangrene often supervenes almost without any previous inflammation, the *vis a tergo* being too feeble to occasion much distension in the vessels of any part, however much debilitated. But should it happen, even where the system is not particularly debilitated, that by any abuse the vessels of a part, instead of being debilitated, which gives rise to inflammation, are instantly deprived of vital power, gangrene would, in this instance, also, supervene with little or no previous inflammation. This has sometimes though very rarely happened.*

What has been said may be regarded as nearly the sum of all that is common in the symptoms, causes, and cure of the phlegmasiæ. We are now to consider the different species separately; and notwithstanding the nature of all being the same, such, we shall find, is the difference arising from the function and situation of the parts affected by the inflammation, that there are hardly two diseases more different than some of these.

Different divisions of the phlegmasiæ have been proposed; that most generally adopted appears on many accounts to be the best, namely, the division according to the different organs occupied by the inflammation.

It is true indeed that the inflammation may occupy the membranous or paranchimatous part of the organ,† and we know, from dissection, that the inflammation is often confined to one of these parts. No parts of the body being more different in their structure, we should be inclined, a priori, to believe, that the symptoms of inflammation in them would essentially differ, and require in some respects different modes of treatment. And in most wri-

* A remarkable instance is related in the Philosophical Transactions for the year 1763. A poor family in Suffolk were attacked with gangrene without previous inflammation. Some died, others lost different parts, the feet, and even the legs. No probable account of the cause is given.

† See a paper on the Phlegmasiæ by Dr. C. Smith, in the 2d vol. of the London Medical Communications.

ters the reader will find this distinction made, and even different names applied to the different inflammations of the same organ. Thus they point out the symptoms which distinguish inflammation of the brain from that of its membranes, terming the one Cephalitis or Sphacelismus, and the other phrenitis; those which distinguish Pleuritis, inflammation of the pleura, from Peripneumonia, inflammation of the lungs: and so on.

In paranchimatous inflammation, it is said, that as the parts are soft and yield readily, the pain is never so acute nor the fever so violent as in membranous inflammation, where, from the parts yielding with more difficulty, the symptoms are necessarily more severe.

This hypothesis seemed confirmed, when it was observed that in most visceral inflammations the symptoms are sometimes of the one kind, sometimes of the other. The opinion, therefore, was implicitly received, till Sauvages, Linnæus, and others, whom I shall hereafter have occasion to mention, made dissections in order to ascertain its validity. The result was so far from being such as was expected, that the membranes were often found inflamed where there had been only symptoms of paranchimatous inflammation, and the paranchima where the symptoms had been those of membranous inflammation. Nay, we shall find, when we consider the cases in which the distinction has been chiefly insisted upon, that where symptoms of paranchimatous inflammation alone have been present, the membranes alone have been found affected, and vice versa. In short, from these dissections it appears that there are no symptoms by which we can distinguish the paranchimatous and membranous inflammations of any organ, nor is this to be regretted, since experience has proved the practice to be precisely the same in both. We can, for the most part, readily determine what organ is affected by the inflammation, and as this knowledge is all that is necessary for conducting the treatment of the disease, we need not be solicitous for more.

It is unnaecessary, therefore, to look for a more minute division of the phlegmasiæ than that adopted by Dr. Cullen, who, with a few exceptions, afterwards to be pointed out, considers the inflammation of each organ a different disease, and arranges the whole under the three heads of *Cutaneous*, *Visceral*, and *Articular*.

CHAP. IV.

Of the PHLEGMON.

It was observed, in speaking of simple inflammation, that there are but two species which can be well defined, the others appearing to be only varieties of these. The same observation applies to the cutaneous phlegmasiæ; the two species of which are termed by Dr. Cullen, Phlegmon, and Erythema, forming the seventh genus in his system of nosology, which he calls Phlogosis, and defines,

“Pyrexia, partis externæ rubor, calor, et tensio, dolens.”

The first species of this genus, the Phlegmon, he defines,

“Phlogosis rubore vivido; tumore circumscripto, in fastigium
“plerumque elevato, sæpe in apostema abeunte; dolore sæpe pul-
“satili.”

The Erythema is defined,

“Phlogosis colore rubicundo, pressione evanescente; ambitu
“inæquali, serpente; tumore vix evidente, in cuticulæ squamulas,
“in phlyctænas vel vesiculas abeunte; dolore urente.”

Although pyrexia is the first word in the definition of phlogosis, Dr. Cullen, for reasons pointed out, in the general introduction, uses the term Phlogosis to express all species of cutaneous inflammations, whether accompanied by fever or not, as appears both from there being no other place in his system of nosology for cutaneous inflammation unattended by fever, and from the manner in which he uses the term phlogosis in his definitions of the exanthemata and phlegmasiæ.*

Strictly speaking, then, the term phlogosis, as used by Dr. Cullen, although he defines it to be a febrile disease, and arranges under it only two species, includes four; the two phlegmasiæ, the definitions of which have just been given, and the two species of simple inflammation considered in the Introduction.

* Introduction, Volume I.

As there does not appear, however, to be any occasion for a generic name for the cutaneous phlegmasiæ, the two species being diseases nearly as different as almost any two of this order, and in reality, although both external, not having their seat in the same parts, I shall abandon both the term phlogosis* and its definition. Were there no other reason for abandoning this term, the inaccurate manner in which it is used by Dr. Cullen, and by others who have adopted it from him, would be sufficient.

The phlegmon, Dr. Cullen's first species of phlogosis then is, according to the arrangement I have adopted, the first genus of the phlegmasiæ. Of all the phlegmasiæ this is in general the least important, its symptoms are least varied, and its prognosis, most favourable. From peculiarity of habit, however, it now and then assumes a very serious form, spreading to great extent, and sometimes even running to gangrene. Dr. Cullen also arranges as species of phlegmon, phimosis, paraphimosis, spina ventosa, &c. But all these affections belong to the province of the surgeon.

The only alteration I would propose on Dr. Cullen's definition of the phlegmon is to adapt it to the mode of arrangement I follow. It may be defined,

“Phlegmasiæ, rubore externo vivido; tumore circumscripto, in fastigium plerumque elevato, sæpe in apostema abeunte; dolore sæpe pulsatili.”

SECT. I.

Of the Symptoms of the Phlegmon.

It has already been remarked that the phlegmon does not differ from the pustule, except in its being larger, the inflammation running higher, and being accompanied by fever. What has been said of the latter, therefore, and the definition of phlegmon just

* That Dr. Cullen was aware that his use of this term was not accurate, appears from the following note. “Pro nomine generis cujus species est erythema minus recte in priore editione usurpatum fuit Phlegmone. Novum nomen necessarium nobis videbatur, et nihil aptius quam Phlogosis suppetebat.” Synopsis Nosologiæ Method. vol. ii. page 83.

given, comprehend all that need be said of the symptoms of this disease.

The fever generally supervenes some time after the local affection, for the most part not till the latter has become considerable, and is always proportioned to it. The phlegmon rarely terminates either by resolution or gangrene, and the suppuration is generally of a favourable kind.

Dr. M'Bride,* regards, the phlegmon and boil as different, but the diagnosis which he proposes is too imperfect to afford grounds for such a distinction. When the inflammation is circumscribed, he observes, and deeply seated in the vessels of some fleshy part, the term for the disease is phlegmon. The forunculus or boil is an inflamed swelling more circumscribed and pointed than the phlegmon, very hard and painful, arising indifferently on all parts of the body.

Dr. Cullen regards this, as well as many of the other species enumerated by authors, merely as varieties of the phlegmon, which differs in its form on the same parts, and still more on different parts of the body. It may be doubted indeed whether some of his varieties† are properly arranged under phlegmon. Many of them evidently belong to the locales.

SECT. II.

Of the Causes of Phlegmon.

OF the causes of phlegmon, there is little to be said in addition to what was said of those of simple inflammation. In plethoric and vigorous habits its exciting causes are often so slight as to escape attention.

The chief seat of the phlegmon and pustule is the inner surface of the true skin and cellular substance contiguous to it, from which it extends to the adjoining parts of the cellular membrane and skin, so that the surface generally soon assumes a florid colour, the tumor at the same time extending both in depth and circumference.

* Introduction to the Theory and Practice of Medicine.

† Culleni Synopsis Nosologiæ Method. v. ii. p. 84.

SECT. III.

Of the Treatment of Phlegmon.

ON this part of the subject it is only necessary to refer to what has been said of the phlegmasiæ in general. We may attempt the cure of phlegmon by resolution. As this mode of treatment, however, would generally be tedious, and after all that could be done, would often fail to produce the desired effect, as suppuration in the phlegmon, is generally of a favourable kind, and lastly, as some cases of phlegmon, (those for example, proceeding from extraneous matters introduced into, and irritating the skin) whatever relief be obtained by resolvents, must at length terminate by suppuration, it is upon the whole found the best plan from the first to promote this termination.

Both on this account, and because the fever is seldom considerable, it is rarely proper to have recourse to the more powerful anti-phlogistic measures, particularly general blood letting. It is sufficient that the fever be kept moderate by rest, dilution, and aperients.

With respect to the local treatment, if the inflammation run high, it must be relieved in the earlier stages by local blood-letting, and it is generally proper to diminish the temperature of the part, by the repeated application of wet clothes; the effect of which is increased by adding to the water the saturn. acetat. the aq. ammon. acetat. or other refrigerants.

When the inflammation is moderate, no local application is necessary, till, from the diminution of the pain and increase of the throbbing, there is reason to believe that suppuration has commenced, which is to be promoted by warm poultices and emollient fomentations. The matter should be discharged as soon as it is completely formed, and if the wound does not heal readily, the tonic plan is proper and should be continued till the patient is restored to health, when gangrene is threatened this plan must be carried to its full extent.*

In some of Dr. Cullen's species of phlegmon, phymosis, paraphymosis, &c. other means are occasionally necessary, but for these I must refer to the works on surgery.

* See the 57th and following pages of this volume.

CHAP. V.

Of ERYSIPELAS.

It appears from what was said of this disease in the general introduction, that I use the term erysipelas in the same sense in which Dr. Cullen uses phlogosis erythema. His definition requires no other alteration than what is necessary to adapt it to the mode of arrangement followed in this treatise.

Phlegmasia rubore externo, pressione evanescente; ambitu inæquali, serpente; tumore vix evidente, in cuticulæ squamulas, in phlyctænas vel vesiculas abeunte; dolore urente.*

SECT. I.

Of the Symptoms of Erysipelas.

As the combination of erysipelas and fever had been so generally regarded as an exanthema, and confounded with erysipelas according to the above use of the term, I found it necessary in considering eruptive fevers to treat of what I have termed the erysipelatous fever. In considering the nature of this fever, it was necessary to enter particularly into the symptoms of erysipelas. For this part of the subject, therefore, I must refer the reader to the first volume.

From what is there said, he will find that the erysipelas bears the same resemblance to the simple inflammation termed erythema, which the phlegmon does to that termed pustule. The only difference in both cases, being, that in the phlegmasiæ the inflammation is generally of a greater extent, its symptoms run higher, and it is attended with fever.

† This definition does not include all the varieties enumerated by Dr. Cullen, some of which are merely local diseases.

Such then are the four species of cuticular inflammation, the pustule and erythema which are merely local affections, the phlegmon and erysipelas which are febrile diseases.

SECT. II.

Of the Causes of Erysipelas.

In determining the nature of the erysipelatous fever, it was necessary to consider the causes, as well as the symptoms, of erysipelas. For these also, I must, therefore refer the reader to the first volume; he will there find that erysipelas arises from all the causes of the phlegmasiæ in general, and also from certain causes which particularly affect the state of the skin, derangement of the primæ viæ, &c. Like the other phlegmasiæ, by leaving the part in a state of debility, it leaves behind it a predisposition to future attacks.

The chief seat of the erysipelas and erythema is the outer surface of the true skin and the corpus mucosum, but the former often spreads through the skin and affects the cellular substance beneath it.

Although it was necessary, in order to place the nature of the erysipelatous fever in a clear point of view, to enter fully into the symptoms and causes of erysipelas, the treatment could not be laid before the reader till he was made acquainted with the principles on which that of the phlegmasiæ is founded. On this part of the subject, therefore, I am now to enter.

SECT. III.

Of the Treatment of Erysipelas.

THE plan of treatment common to all the phlegmasiæ has been laid before the reader. In considering the treatment of each separately, it will only be necessary to point out what is peculiar to it.

It was observed of the phlegmasiæ, that the symptoms are more moderate, the prognosis better, and consequently the means required less vigorous, the more external the seat of the inflammation. On this account, in most cases of erysipelas, we do not find it necessary to have recourse to very vigorous antiphlogistic measures; a cooling diet, an emetic at the commencement, and gentle saline laxatives repeated so as to keep the bowels freely open, are generally sufficient, if the inflammation is confined to the extremities.

When the fever is considerable, diaphoretics, particularly antimonials, are proper. In this case the best plan appears to be, after the operation of an emetic, to give one or two brisk saline cathartics according to the urgency of the symptoms, and then support a moderate catharsis by antimonials.

When a tendency to sweating appears, we must be careful not to check it.

The propriety of attempting the cure of erysipelas rather by catharsis than by blood-letting farther appears from the evident connexion between erysipelas and the state of the primæ viæ, which was considered at length in speaking of the symptoms and causes of this disease.

Venesection, however, is still the best means of lessening excitement when it becomes considerable; and although in erysipelas a brisk cathartic, by removing the cause which produced or tends to support the disease, is often the best means of relieving it, yet if this fail, blood-letting will have a better effect than the continued repetition of powerful cathartics.

It is also to be observed, that although, as the inflammation is external, we do not, *cet. parib.* carry antiphlogistic measures so far as in many other of the phlegmasiæ, yet as our view in erysipelas is always to procure resolution, erysipelas having little tendency to suppuration except when it spreads deep, and suppuration, when it does occur in this disease, being generally unfavourable, antiphlogistic measures should be carried farther than in the phlegmon.

While we endeavour to procure resolution, however, we must keep in view the tendency of erysipelas to gangrene. If the habit is good, indeed, this tendency is generally slight, and accompanied with little danger: but in debilitated habits, and particularly in those advanced in life, the gangrene, we have seen is apt to spread deep, and sometimes proves fatal.

What has been said of the treatment of erysipelas is rather applicable to that of the trunk and limbs than of the face. When neither

coma nor delirium attends the latter, indeed, which is not often the case, its treatment is the same as in erysipelas of other parts, with these differences, that on account of its tendency to affect the brain, the antiphlogistic means should be more powerful in proportion to the symptoms, and, as the seat of the inflammation is in the head, more is to be expected from catharsis, after the removal of irritating matter from the *primæ viæ*, than in erysipelas of the trunk and extremities.*

But when coma or delirium is present, the inflammation of the face is the least important part of the disease. There is then reason to believe, that the inflammation has attacked the brain,† and experience has pointed out that the treatment in such cases is the same as in phrenitis, the disease we are next to consider.

In laying down the treatment of the phlegmasiæ, I passed over in silence the employment of opium in these diseases, which by some has been warmly recommended, because, as there is much difference of opinion on this subject, it seemed better to defer any observations on it, till we came to consider the particular cases in which it has been recommended.

The indication in all the phlegmasiæ, we have seen, is to restore the proper ballance of power between the vessels of the inflamed part and the *vis a tergo*. Now as in active inflammation the *vis a tergo* is generally too powerful, especially, if resolution is the termination we have in view, and as opium, for sometime after it is received into the system, increases the force‡ of the circulation, we should, a priori, believe, that in most cases of the phlegmasiæ, it would be found pernicious. But as the *vis a tergo*, on the other hand is often in a great measure supported by the pain and irritation of the local affection, opium, by allaying these, may sometimes be the means of diminishing it. It appears from these observations, then, that the effects of opium in the phlegmasiæ are most to be dreaded where the *vis a tergo*, which is best measured by the hardness of the pulse,§ is, *cet. paribus*, greatest; and most

* See the observations on catharsis in inflammations of the head, in the chapter on the treatment of the phlegmasiæ in general.

† See what is said on this part of the subject, in speaking of the symptoms of erysipelas, in the first volume.

‡ See Dr. Crump's experiments on the pulse, in his Treatise on Opium, and a variety of other observations on this subject.

§ See what was said of a hard pulse, in the section on the symptoms of the phlegmasiæ. While the pulse is hard, the blood is always propelled into the vessels of the inflamed part with a force greater than in due proportion to their strength, however great the general debility may be.

benefit is to be expected from this medicine where the pain and irritation are so. At the commencement of the phlegmasiæ, before the mass of blood has been lessened, the same cause will produce a greater increase of the vis a tergo, than after the contents of the vessels have been diminished; then the pain and irritation often bearing a greater proportion to the vis a tergo, we may attempt allaying them at the risk of some temporary increase of it.

The result of experience in this part of the treatment, coincides with these observations. At the commencement of the phlegmasiæ, opium is found hurtful, but after we have reduced the vis a tergo, if the pain and irritation are still considerable, it is often attended with advantage to allay them by a cautious use of opium. I have repeatedly employed it in this way with advantage, and, cannot help dissenting from those who would strike out opiates from the catalogue of medicines in this class of diseases, or only employ them to procure sleep after almost every symptom has disappeared.

It is also to be observed, that the temporary increase of the vis a tergo occasioned by opium will be the less injurious in the phlegmasiæ, the less important the seat of the inflammation, and the less suppuration and gangrene are to be dreaded. Hence we may employ opium earlier in external, than internal inflammations. We often see so trifling a disease as a small suppuration in the finger, occasion sleepless nights and a considerable degree of fever; both of which may often be prevented by a moderate dose of opium.

In erysipelas of the trunk and limbs, then, after the vis a tergo is to a certain degree reduced, opiates, with proper means to prevent their constipating effects, are often useful.*

In erysipelas of the face, even without coma or delirium, from the tendency of this form of the disease to affect the brain, they are a more doubtful remedy

Of the local means employed in erysipelas.

Local blood-letting from the skin, in the immediate neighbourhood of the inflamed part, is often attended with advantage. Cupping is generally inadmissible on account of the irritation which attends it, frequently causing the erysipelas to spread. Even the application of leeches sometimes has this effect. Blisters are not to be employed in this disease, except for the purpose of recalling the inflammation to the skin, when it has left it, and seized on an internal part.

There is much difference of opinion respecting the best application to the inflamed part. "As in this disease," Dr. Cullen

* See the 12th vol. of Dr. Duncan's Med. Co.

observes, " there is always an external affection, and as in many instances there is no other ; so various external applications to the part affected have been proposed ; but almost all of them are of doubtful effect. The narcotic, refrigerant, and astringent applications are suspected of disposing to gangrene ; spiritous applications seem to increase the inflammation, and all oily or watry applications seem to occasion its spreading. The application which seems most safe, and which is now most commonly employed is that of a dry mealy powder frequently sprinkled on the inflamed parts." Many, however, particularly foreign writers, are of a different opinion. Quarin, * Vogil, † and others dissuade, indeed from solutions of lead, once much employed, and resinous and oily applications, which they think tend to induce gangrene, but they warmly recommend mild vegetable decoctions, particularly that of elder flowers in milk. ‡ Quarin even condemns all dry applications. Most of the external applications recommended in erysipelas, Burserius observes, if not hurtful, are useless ; he however, advises the part to be kept moist with mild decoctions of marshmallows, &c. or with tepid milk. It is not improbable, I think, that as the erysipelas of different countries is found to differ in several respects, namely, its tendency to gangrene, to be accompanied by typhus, to attack particular parts of the body, &c. the same applications will not in every country be found the best. Most British practitioners agree with Dr. Cullen that a dry mealy powder is the best application ; I have generally seen it attended with good effects.

When the part is very tense, and there is reason to dread gangrene, Burserius recommends making incisions. These are also necessary when the inflammation has spread deep, and abscess is formed under the skin. §

When vesicles arise, it has been recommended to open them, ¶ that the acrid matter, it is said, may not erode the parts beneath ; the propriety of this practice may be questioned.

Such is the mode of treatment in the more common forms of erysipelas. The malignant erysipelas and the erysipelas infan-

* De Febribus.

† De Cog. et Cur. Morb.

‡ If erysipelas of the breast, Quarin observes, be treated with irritating applications, it often terminates in schirrus and even cancer.

§ Vogil de Cog. et Cur. Morb.

¶ Quarin De Febribus.

tum, are the only forms of the disease to which the foregoing observations are not applicable.

I have already had occasion to consider the treatment of erysipelas supervening on the typhus gravior, and it appears from the observations of Burserius, Quarin, and other foreign writers, that the treatment of malignant erysipelas, after the typhus supervenes, is the same.

Burserius chiefly relies on the bark, Virginian snakeroot, camphire, and the sulphuric acid. To these Quarin adds scordium, and wine. In malignant erysipelas, however, the typhus is not always present from the beginning. It is therefore necessary, where this form of the disease is common, to proceed with much caution at the commencement, and not carry antiphlogistic measures farther than the state of the symptoms absolutely requires. What was said of the treatment in those idiopathic fevers, which are apt suddenly to assume the form of typhus, is with little change applicable here.*

The erysipelas infantum is of a peculiar nature, and has not till lately demanded much attention. Hoffman seems to be the earliest writer who describes it. It has since been treated of by several writers, particularly by Dr. Underwood, in his Work on the Diseases of Children, and by Dr. Bromfield and Dr. Garthshore, in the second volume of the Medical Communications.

The tendency of the erysipelas infantum to gangrene, pointed out the bark, and its effects seem fully to have answered expectation. There is no disease, Dr. Garthshore observes, in which the bark is more evidently beneficial. When it cannot be taken in sufficient quantity by the mouth, it must be given in clysters. To this medicine, with the addition of local applications, practitioners seem wholly to have trusted.

With regard to the local applications, farinaceous powders have been less employed in this than in other forms of erysipelas. They are not even mentioned by those who have been most conversant with the disease.

Dr. Bromfield recommends fomentations, spiritous embrocations, and emollient cataplasms. Dr. Garthshore, who observes that he

* Anomalous cases occur in this as in most other diseases. We sometimes meet with cases of erysipelas attended with little general excitement, particularly of habitual erysipelas, in which, although there is no tendency to gangrene, the tonic plan proves most successful. Thus, in the 16th volume of Dr. Duncan's Medical Commentaries, the reader will find a case of erysipelas of the hands where the fever was slight, which was repeatedly removed by a free use of wine.

has found these applications beneficial, also recommends saturnine ointment and poultices. Saturnine poultices, he remarks, generally removed the inflammation without the aid of the bark, but removed in this way from one part, it always attacked another; at length he was led to trust the cure wholly to the bark, and the common fomentation with a little soap dissolved in it; and thought that saturnine applications were upon the whole prejudicial.

In the treatment of erysipelas infantum, as in all other forms of the disease, much attention should be paid to the state of the bowels. Clearing the primæ viæ should always make the first part of the treatment. The erysipelas infantum has, with much probability, been ascribed to some fault in the milk; and it is asserted that the nurse's indulging in the use of spiritous liquors often occasions it.

I shall finish the account of erysipelas with the following observations of Tiffot, respecting the means of preventing its return. Those subject to returns of the erysipelas, he observes, should carefully avoid the use of milk,* cream, and all rich and viscid aliment, baked and strong meats, aromatics, strong wines, a sedentary life, strong affections of the mind, above all, rage, and, if possible, chagrin. They should live chiefly on herbs, fruits, and other articles slightly ascendent, drink water and some of the light white wines, and make frequent use of cream of tartar.†

These precautions, he adds, are of the greater importance, because not to mention the danger from frequent returns of the erysipelas, they denote slight affections of the liver or gall bladder, which, when neglected, often become serious.

* With respect to the use of milk, it can only be prejudicial when it oppresses the stomach. Whatever hurts the digestion, disposes to this disease. See what was said of dyspepsia, in the 1st vol.

† This diet, however, is only proper in plethoric habits, and when the stomach bears it well.

CHAP. VI.

Of PHRENITIS.

THE symptoms of phrenitis differ essentially from those of the other phlegmasiæ. The symptoms denoting the local affection being such as frequently attend idiopathic fevers. Contrary to what happens in the other phlegmasiæ, it is generally accompanied with coma or delirium, and the excitement often runs as high, as in the most strongly marked Synocha.

The causes of these peculiarities the reader will readily perceive. Simple fever consists in a general affection of the sanguiferous and nervous systems; to these, in the phlegmasiæ, are superadded certain local symptoms, pain, and the derangement of some of the functions. But when the inflammation is seated in the brain, on which sensation and motion in every part of the system depend, the symptoms of the local affection are not local, but general symptoms. Hence the difficulty of finding a diagnosis between phrenitis and idiopathic fever, which is farther increased by the latter, sometimes becoming a real phrenitis.

When the velocity of the blood is much increased, indeed, from the nature of the circulation in the head, there must always be a tendency to distension of its vessels. Hence head-ach, suffusion of face, inflammation of the eyes, and bleeding from the nose are among the most common symptoms of synocha.

Phrenitis is the third genus of Dr. Cullen's phlegmasiæ. The only alteration which will be necessary in his definition, is to adapt it to the mode of arrangement which I follow.

Phlegmasiæ, dolore capitis, rubore, faciei et oculorum, lucis et soni intolerantia, pervigilio, delirio feroce vel typhomania.

I have already had occasion to allude to the division into phrenitis, and cephalitis or sphacelismus.

With regard to the circumstance which determines the disease to assume the one or other of these forms, on comparing what has been said of the nature of inflammation with the symptoms of phrenitis we shall have reason, I think to believe, that phrenitis properly so called, is the only real inflammation of the brain. The cephalitis or sphacelismus being merely a congestion in the larger vessels, and not essentially differing from apoplexy.

In all parts of the body a congestion in the larger vessels occasions comparatively little pain, little increase of temperature, and little fever.

SECT. I.

Of the Symptoms of Phrenitis.

Phrenitis often makes its attack with a sense of fullness in the head, flushing of the countenance, and redness of the eyes, the pulse being full, but in other respects natural. As these symptoms increase, the patient becomes restless, his sleep is disturbed or forsakes him.

It sometimes comes on with pain, or a peculiar sense of uneasiness of the head, back, loins, and joints,* in some cases with tremors of the limbs, and intolerable pains of the hands, feet and legs. It now and then attacks with stupor and rigidity of the whole body; sometimes with anxiety, and a sense of tension referred to the breast, often accompanied with palpitation of the heart. Sometimes nausea and a painful sense of weight in the stomach are among the earliest symptoms. In other cases the patient is attacked with vomiting, or complains of the heart burn, and griping pains in the bowels.

When the reader reflects on the intimate connection which subsists between the brain and every part of the system, he will not be surprised to find the symptoms attending the commencement of phrenitis so various, and that the stomach in particular should suffer, which so remarkably sympathises with the brain. These symptoms assist in forming the diagnosis between phrenitis and synocha.†

* Saalman's Observations on Phrenitis, in the Acta Erudit. Lipsien.

† The pain of the head soon increases, and sometimes becomes very acute. "If the meninges" says Dr. Fordyce, (Practice of Medicine), "are affected, the pain is acute; if the substance only, obtuse and sometimes but just sensible." And Dr. Cullen remarks, "I am here, as in other analogous cases, of opinion, that the symptoms above mentioned of an acute inflammation, always mark inflammations of membranous parts, and that an inflammation of paranchima or substance of viscera exhibits, at least commonly, a more chronic inflammation."

It is unnecessary here to make any farther observations on this part of the subject. When we consider pæumonia, in which the distinction has been chiefly insisted upon, and is still very generally admitted, I shall have occasion to enter upon it at length.

The the seat of the pain is various, sometimes it seems to occupy the whole head : sometimes, although more circumscribed, it is deep-seated and ill-defined. In other cases it is felt principally in the forehead or occiput. The redness of the face and eyes generally increases with the pain, and there is often a sense of heat and throbbing in the head, the countenance acquiring a peculiar fierceness.

These symptoms for the most part do not last long before the patient begins to talk incoherently, and to show other marks of delirium. Sometimes, however, Saalman observes, delirium did not come on till the fifth, sixth, or seventh day.

The delirium gradually increases, and often arrives at a state of phrenzy. The face becomes turgid, the eyes stare, and seem as if starting from their sockets, tears and sometimes blood flow from them, the patient resembling a furious maniac, from whom it is often impossible to distinguish him, except by the shorter duration of the disease.

The delirium assists in distinguishing phrenitis and synocha,* as it is not a common symptom in the latter. When delirium does attend synocha, however, it is of the same kind as in phrenitis.

As we should, a priori, expect in phrenitis, the different organs of sense are generally much affected.

The eyes are incapable of bearing the light, and false vision, particularly that termed *muscæ volitantes*,† and the appearance of flashes of light passing before the eyes, are frequent symptoms.

The hearing is often so acute, that the least noise is intolerable ; sometimes, on the other hand, the patient becomes deaf, and the deafness, Saalman observes, and morbid acuteness of hearing now and then alternate. Affections of the smell, taste, and touch, are less observable.

As the organs of sense are not frequently deranged in synocha, the foregoing symptoms farther assist the diagnosis between it and phrenitis.

The pulse is not always so much disturbed at an early period, as we should expect from the violence of the other symptoms compared with what we observe in idiopathic fevers. When this circumstance is distinctly marked, it forms perhaps the best diagnosis

* Lobb's Practice of Medicine.

† It may sometimes arise from this deception of sight that the patient picks the bed-clothes. This, however, I have observed, he often does without directing his eyes to the bed-clothes, or indeed particularly to any object.

between phrenitis and synocha, and gives to the former more of the appearance of mania. "Interea exurgit febris nunc levis nunc intensa, nec semper morbi impetui consona, adeo ut sola diurnitate dis-crepare videatur hoc deliri genus a mania, quam contumaciorem esse nemo nescit."*

In many cases, however, the fever runs as high as the delirium. In general, the hardness of the pulse is more remarkable than in synocha, sometimes it is both small and hard, and sometimes irregular; the pulse in synocha is always strong, full, and regular.

The respiration is generally deep and slow, sometimes difficult, now and then interrupted with hiccup, seldom hurried and frequent, except from the patient's exertions. In many of the cases mentioned by Saalman, pneumonia supervened.

The deglutition is often difficult, now and then convulsive. The stomach is frequently oppressed with bile, which is an unfavourable symptom; and complete jaundice, the urine and skin being tinged with yellow, sometimes supervenes. Worms in the stomach and bowels are also frequent attendants on phrenitis, and there is reason to believe, may have a share in producing it. The hydrocephalus internus, which is more allied to phrenitis† than to dropsy of the brain, properly so called, seems often, in part at least, to arise from derangement of the primæ viæ, particularly from worms. We cannot otherwise, I think, account for the frequent concurrence of these diseases. As we proceed in considering the different phlegmasiæ, we shall find that there are few to which derangement of these passages does not give some predisposition.

Instead of a superabundance, there is sometimes a deficiency of bile, which seems for the most part to afford a still worse prognosis. The fæces being of a white colour, and a black cloud in the urine are regarded by Lobb‡ as fatal symptoms. The black cloud in the urine is owing to an admixture of blood; when unmixed with either blood or bile the urine is generally pale.

There is often a remarkable tendency to the worst species of hemorrhagy towards the fatal termination of phrenitis. Hemorrhagy from the eyes has already been mentioned. Hemorrhagy from the intestines also, tinging the stools with a black colour, is not uncommon. These hemorrhagies are never favourable; but the he-

* Lieutaud's Synopsis Med. Pract. de Phrenitide.

† See what is said in the next section on the appearances on dissection in phrenitis.

‡ Lobb's Practice of Physic.

hemorrhagies characteristic of synocha, particularly that from the nose, sometimes occur at an earlier period, and, if copious, bring relief. More frequently, however, blood drops slowly from the nose, demonstrating the violence of the disease without relieving it. In other cases there is a discharge of thin mucus from the nose.

Tremors of the joints, convulsions of the muscles of the face, grinding of the teeth, the face from being florid suddenly becoming pale, the urine being of a dark red or yellow colour or black, or covered with a pellicle, the fæces being either bilious or white and very foetid, profuse sweat of the head, neck, and shoulders, paralysis of the tongue, general convulsions much derangement of the internal functions, and the symptoms of other visceral inflammations, particularly of pneumonia, supervening, are enumerated by Saalman as affording an unfavourable prognosis. The delirium changing to coma, the pulse at the same time becoming weak, and the deglutition difficult, was generally the forerunner of death.

When, on the contrary, there is a copious hemorrhagy from the nose, hemorrhoidal vessels, lungs, mouth, or even from the urinary passages; when the delirium is relieved by sleep, and the patient remembers his dreams, when the sweats are free and general, the affection of the sight is diminished or removed, and the febrile symptoms become milder, the prognosis is favourable.

In almost all diseases, if we except those which suddenly prove fatal, as death approaches, a similar train of symptoms, denoting extreme debility of all the functions, supervenes. These the reader will find enumerated at length in the first volume; it is unnecessary to repeat them here.

The blood does not always shew the buffy coat.

Phrenitis, like most other diseases, has sometimes assumed an intermitting form, the fits coming on daily, sometimes every second day.*

When phrenitis terminates favourably, the debility which succeeds the increased excitement is less, in proportion to that excitement, than in idiopathic fevers, a circumstance which assists in distinguishing phrenitis from synocha.

The diagnosis between these diseases is farther aided by the effects of the means employed. For if in phrenitis, we succeed in removing the delirium and other local symptoms, the febrile symptoms in general soon abate. Whereas in synocha, although the

* Saalman.

delirium and head-ach be removed, the pulse continues frequent, and other marks of indisposition remain for a much longer time.*

It will be of use to present at one view the circumstances which form the diagnosis between phrenitis and synocha.

Synocha generally makes its attack in the same way ; its symptoms are few and little varied. The symptoms at the commencement of phrenitis are often more complicated, and differ considerably in different cases.

Derangement of the internal functions is comparatively rare in synocha. In phrenitis it almost constantly attends, and often appears very early. The same observations apply to derangement of the organs of sense.

In synocha, the pulse from the commencement is frequent, strong and rapid. In phrenitis, the symptoms denoting the local affection are often well marked before the pulse is much disturbed.

In phrenitis we have seen, the pulse sometimes very suddenly loses its strength, the worst species of hemorrhagies and other symptoms denoting extreme debility shewing themselves. This never happens in idiopathic synocha, at least in this country.

When the termination is favourable, the degree of debility which succeeds is less in proportion to the preceding excitement in phrenitis than in synocha.

Lastly, if we succeed in removing the delirium and other symptoms affecting the head, the state of the fever is found to partake of the favourable change more immediately and completely than in synocha, where, although we succeed in relieving the head-ach or delirium, the fever often suffers little abatement.

In speaking of the phlegmasiæ in general, I had occasion to observe that certain anomalous cases now and then occur, in which they are unattended by the usual symptoms. Thus, Drs. Willis, Langrish, and Huxham relate cases in which traces of inflammation of the brain were discovered after death where the symptoms of phrenitis had not appeared, and Bonnetus and Morgagni on the other hand, relate some in which the symptoms of phrenitis were present, and yet no traces of inflammation discoverable after death.

* "Delirium vero febrile vel symptomaticum," says Lieutaud (*Synopsis Medici. Practic.*) "præviæ feбри appenditur, solosque febricitantes adoritur, cur minime mirum si hoc sedato, perstet febris, solitamque periodum absolvat. Aliter se res habet sub phrenitide ; si enim resipiscant ægri, illico sanati restituuntur, si excipias virium debilitatem qua aliquandiu tenentur hoc gravissimo morbo convalescentes."

With regard to the duration of phrenitis, Eller* observes, that when it proves fatal, the patient generally dies within six, or seven days. In many fatal cases, however, it is protracted for a longer time, especially where the remissions have been considerable.

Such are the symptoms of the only form of phrenitis which, as far as I am capable of judging, deserves the name, for the comatose phrenitis differs in no essential from apoplexy. It is true indeed, that the furious and comatose phrenitis by imperceptible degrees run into each other; for as phrenitis on the one hand runs into synocha; on the other, it runs into apoplexy.

From what has been said of congestion and inflammation, we may see why coma supervening on delirium in phrenitis, generally proves fatal: if, while the capillaries are debilitated, the larger vessels, supplying the vis a tergo which supports the circulation in them should greatly partake of the debility, there will be little hopes of restoring the action of the former. But in those cases where the congestion of the larger vessels, and consequently the coma has been present from the beginning, the capillaries have never been much distended, the vis a tergo propelling the blood into them, having, from the first attack of the disease, been enfeebled; they therefore support the circulation, and the hope of recovery is better.

SECT. II.

Of the Appearances on Dissection.

It appears from dissection, that inflammation of the brain, like other inflammations, may terminate in suppuration, or gangrene.†

But it sometimes proves fatal without running to either of these terminations. The part affected then exhibits the same appearance as in external inflammations.

Inflammation of the brain generally appears in distinct spots, and for the most part spreads to the membranes in the neighbourhood of the parts affected.‡

When the dura mater, is inflamed, the number of red vessels passing between it and the cranium is increased. Dr. Baillie observes, that there is sometimes, though very seldom, a layer of coagulable lymph formed on its inner surface. It is also rare for adhesions to

* Eller de Cog. et. Cur. Morb.

† The Sepulcretum Anatomicum of Bonnetus, the Epistles of Morgagni, Dr. Baillie's Treatise on Morbid Anatomy, &c.

‡ Dr. Baillie's Morbid Anatomy.

form between it and the pia mater. It often secretes pus. Sometimes, though rarely, it is found ulcerated, more frequently mortified.

The pia mater is not apt to adhere to the brain, but is sometimes converted into a membrane resembling the dura mater in thickness and consistence. Dr. Baillie observes, that the processes arising from the under surface of the pia mater, sometimes adhere more strongly than usual to the brain. This membrane also frequently secretes pus, but very seldom forms a layer of coagulable lymph.

There is often a considerable effusion into the ventricles. If a tendency to gangrene has taken place, the fluid effused is a thin acrid serum.

In those who have laboured under phrenitis, and died afterwards of other diseases, the membranes of the brain have been found thickened, and in some instances converted into a substance almost as hard as bone,* and the dura mater is sometimes found firmly adhering to the skull in the places which had been occupied by the inflammation.

SECT. III.

Of the Causes of Phrenitis.

In temperate climates phrenitis is a rare disease, and when it does appear, it is generally as symptomatic of fever. In the works of Sir John Pringle, and a few other European practitioners, the reader will find an account of dissections in which abscesses of the brain were found in those who died of fever. This, however, is very rare.

It is in warm latitudes that idiopathic phrenitis most frequently occurs. Young people, especially those of a sanguine and plethoric habit, are liable to it, and all who indulge freely in the use of fermented liquors.

The exciting cause can frequently be traced to an injury immediately applied to the brain, such as violent exercise, intoxication, rage, the head being long exposed to a warm sun, long and intense study, or any other cause tending to occasion an accumulation of blood in it.

It often arises, however, from causes less exclusively affecting the brain, cold, fatigue, excessive venery, indigestible and pois-

* Van Swieten's Comment. in Aph. Boerh. Aph. 775.

uous substances received into the stomach, and the suppression of habitual discharges.

It is evident that many or all of these may sometimes act merely as predisposing causes.

Saalman saw phrenitis epidemic, and asserts that it was contagious. It was chiefly confined to the lowest ranks of the people, who were covered with filth; and the contagion, he observes was rendered so virulent by a neglect of cleanliness, that in a single novel five or more were seized with the disease.

This epidemic attacked the old rather than the young; it was most fatal to those above 40. The hypochondriacal and melancholic were most subject to it.

Phrenitis often arises in the predisposed, when it cannot be traced to any particular cause, especially in those who have formerly laboured under it, for, like the other phlegmasiæ, it leaves behind it a predisposition to future attacks.*

SECT. IV.

Of the Treatment of PHRENITIS.

FROM what has been said of the treatment of the phlegmasiæ, and of the nature of phrenitis, the reader will infer that the most vigorous antiphlogistic measures are requisite in this disease.

It fortunately happens, that a sufficient quantity of blood can generally be procured from the neighbourhood of the part affected, so that the same operation serves the purpose of both local and general blood-letting. Many therefore advise blood to be taken from the temporal artery in phrenitis. Dr. Cullen thinks blood-letting from the jugular vein preferable; which is also particularly recommended by Hoffman and Eller. The frantic state of the patient, however, often renders it troublesome to let blood from this vessel.*

* Van Swieten's Comment. in Aph. Boerhaavii.

* Several other modes of blood-letting have been proposed in this disease. We have been advised to open the sublingual veins; this, however, is attended with several inconveniences. It is difficult to open them when the patient is delirious, a small orifice is not sufficient, and a large orifice is dangerous on account of the difficulty of stopping the bleeding. Some recommend opening the frontal vein, others, scarifying the nostrils. In neither of these ways, however, can we in general procure a sufficient quantity of blood. If phrenitis be threatened, Hoffman observes, in consequence of the suppression of the menstrual discharge, or lochia, venesection is to be performed from the foot

Dr. M'Bride recommends carrying the blood-letting to syncope. With regard both to its extent and repetition, our practice is regulated in the same way as in synocha, except that the evacuation should be more copious in proportion to the violence of the symptoms.

It may be inferred from what has been said of catharsis in inflammatory affections of the head, that when spontaneous diarrhœa supervenes, we should be careful not to check it, and that when it does not, the free use of cathartics is proper in all cases. Saalman gave calomel with other cathartics. Blood-letting, cathartics, and acidulous fluids he found the most successful remedies.

To assist in diminishing the determination of the blood to the head, the patient should be kept as nearly in the erect posture as can easily be borne.

A very few observations on the local remedies employed in phrenitis will be sufficient. Of these, local blood-letting is still the most powerful, and in all cases, where the blood in the general blood-letting is not taken from the head or neck, should be employed at an early period.

The head should be shaved, and, after the excitement has been sufficiently reduced, a blister applied over it.

A variety of rubefacients have been applied to the head in phrenitis, the effects of which, especially at an early period, are doubtful. The application of cold to the head is often beneficial; cloths dipped in cold water and vinegar, or iced water, are applied with advantage. Is the alternate use of cold and warm applications preferable? An irruption on the head has sometimes followed these applications, and very suddenly brought relief.

Warm bathing of the inferiour extremities, and the application of rubefacients to them, have been very generally recommended. Dr. Cullen, however, regards them as ambiguous remedies. If they be employed before the excitement has been sufficiently reduced, they may do harm. Some recommend immersing the trunk and limbs in the warm bath, while cold applications are made to the head.

if by a suppression of the hæmorrhoids, leeches should be applied to the hæmorrhoidal vessels; concerning the efficacy of these practices, at least after the symptoms of phrenitis have actually appeared, there is much doubt. Local blood-letting appears always to be most successful when the blood is taken from the part affected, or as near it as possible. In the above cases, however, the application of leeches to the abdomen and hæmorrhoidal vessels may assist more powerful remedies, and is a probable means of preventing a relapse.

When phrenitis can be traced to the suppression of some discharge, attempts to restore the discharge must make a part of the treatment.

CHAP. VII.

Of OPTHALMIA.

OPHTHALMIA is defined by Dr. Cullen, "Rubor et dolor oculi, lucis intolerantia, plerumque cum lacrimatione." Except omitting plerumque, for a reason which will presently appear, the only alteration I would propose on this definition is similar to that proposed on the definition of phrenitis. Phlegmasia cum rubor et dolor, &c.

Here, however, the change proposed is of more importance, and confines the definition to one species of ophthalmia. A defect in Dr. Cullen's mode of arrangement, which I have already had occasion to consider, is again felt here. The reader will observe, that fever makes no part of his definition of ophthalmia, and although he arranges ophthalmia among febrile diseases, there is but one species of it, and that the least common, which is attended with fever. It is evident, however, that this is the only species which belongs to the phlegmasiæ. The others belong to the order of simple inflammations.

Dr. Cullen divides ophthalmia into idiopathic and symptomatic.

It is the former only we are to consider. The latter proceeds either from diseases of the eye, or parts in its neighbourhood, and comes under the care of the surgeon; or from diseases of the system, scrophula, lues venerea, or fever. The last I have frequently had occasion to mention; like it, the other species of symptomatic ophthalmia can only be considered with the diseases of which they form a part.

Dr. Cullen divides the idiopathic ophthalmia into two varieties; the ophthalmia membranarum, and ophthalmia tarsi. The former he defines,

"Ophthalmia in tunica adnata et ei subjacentibus membranis sive tunicis oculi."

The latter,

"Ophthalmia cum tumore, erosione, et exudatione glutinosa tarsi palpebrarum."

Other writers have divided ophthalmia into many varieties; for most of their distinctions there appears to be no sufficient foundation; but Dr. Cullen, as far as I am capable of judging, has attempted to simplify too much.

Had he made fever part of his definition of ophthalmia, he would have excluded by far the majority of cases. He therefore, in his Nosology wholly overlooks that species of ophthalmia which almost uniformly occasions fever, and in his First Lines he regards it as only a greater degree of the ophthalmia membranarum; and it is true, that the inflammation of the adnata often spreads to the deep-seated parts of the eye, and produces the form of the disease alluded to, but it also spreads to the tarsi, producing Dr. Cullen's second species of ophthalmia, and the inflammation of the deep-seated parts often exists with little or no inflammation of the adnata, and produces a disease certainly as different from the ophthalmia membranarum and tarsi as these are from each other.

This species of ophthalmia has been termed ophthalmitis; to which I have adapted the definition by introducing the term phlegmasia, and omitting plerumque, the ophthalmitis being always attended with an increased flow of tears.

Ophthalmia then is divided into three species, according as it affects the eye-lids, the membranes which cover the anterior part of the eye, or the deep-seated parts of the eye, its muscles, and the lachrymal gland.

It is very rarely, however, that any of these exist in a considerable degree without producing some degree of the others. The inflammation readily spreads along the conjunctiva, from the tarsi to the eye, or in the contrary direction. When the conjunctiva of the eye is much inflamed, the adnata soon partakes of the inflammation, and if the disease increases, it gradually spreads to the deep-seated parts. When, however, it first seizes on these parts, it is often very severe, and continues for a long time, without appearing externally.

From the connection of the ophthalmitis with the other species of ophthalmia, it will be proper to lay the symptoms of all before the reader; and it will be the most distinct plan to consider those of each species separately, beginning with the most common, the ophthalmia membranarum.

SEC. I.

Of the Symptoms of Ophthalmia.

THE tunica conjunctiva, is the chief seat of the ophthalmia membranarum. It was formerly doubted whether this membrane covers the cornea, by later anatomists it has been dissected from this as well as from the tunica albuginea; to the former, however, it adheres much more firmly. In the eye of some quadrupeds, particularly that of the ox, the conjunctiva is separated from the cornea more readily.

The part of the conjunctiva covering the cornea is least subject to inflammation. Neither in this part nor that covering the albuginea while in a perfectly healthy state, are there any red vessels. That part of the conjunctiva which lines the eyelids, however, is at all times supplied with red blood.

Ophthalmia sometimes comes on almost instantaneously. In general, however, its attack is more gradual.

The first symptom of the ophthalmia membranarum is an unusual redness of the conjunctiva covering the albuginea. The redness is sometimes diffused over the whole albuginea, and sometimes appears in pretty well defined blotches on different parts of it. I have observed it come on in this way in both eyes at the same time, where the injury was not applied to any part in particular.

In general the red vessels appear ramified on the albuginea, but in more severe cases it is so completely covered by a thick network of vessels, that it seems as if uniformly painted of a red colour, and then some red vessels can generally be traced on the cornea.

At the same time the inflammation spreads along the conjunctiva lining the eye-lids, and often extends to the tarsi.

The patient complains of a sense of heat, and of a pricking or stinging pain, frequently resembling the sensation produced by a sharp particle of dust blown into the eye.

In mild cases the sensation accompanying ophthalmia is rather an itching than pain. Sometimes the itching is felt not in the eye itself but in the forehead.

Although the inflammation has not spread to the lachrymal gland, ophthalmia membranarum, except in the mildest cases, is very frequently accompanied with an increased flow of tears. It has hence been divided into wet and dry.

The secretion is sometimes vitiated, becoming glutinous, adhering to the tarsi, and often during sleep glueing them together. This symptom, however, is more troublesome in the ophthalmia tarsi. Sometimes pus is secreted by the inflamed conjunctiva.

The mildest form of this species of ophthalmia, is termed taraxis. The more severe form, chemosis.*

In the taraxis the swelling is generally inconsiderable and wholly confined to the eye-lids, for even in mild cases of ophthalmia, the inflammation generally spreads to the conjunctiva lining the eye-lids. In the chemosis the swelling of the eye-lids is often so great, that the tarsi are turned inwards upon the ball of the eye, the irritation of the eye-lashes rubbing against the conjunctiva increasing the inflammation: or the eye-lids are almost inverted, the tarsi being turned outwards and the eye remaining open.†

But in the more severe cases, the swelling is not confined to the eye-lids; the coats of the eye partake of it. "Conjunctivam," Schmuckerus observes, "ab accumulato sanguine usque adeo tumuisse observatum est, ut tres quartuor pluresve lineas crassa fuerit."‡ So great a degree of swelling in the conjunctiva is uncommon, but the coats which lie under it partaking of the swelling, it often appears upon the whole very considerable.

As this, like the other symptoms, is generally less considerable in the cornea than the other parts of the eye, it often appears sunk in a hollow formed by the tumified coats. "Son epaisseur," St. Ives§ observes, "egale celle d'un travers de doigt, ce qui fait paroître la cornee transparente comme dans un enfoncement."

When the swelling of the eye and eye-lids is such that the patient is unable to open the eyes, the disease has been called phymosis, the name of a similar affection of the penis. The degree of swelling in the worst cases of the ophthalmia membranarum is sometimes astonishing; we find one author relating a case in which the tumour equalled a man's hand, and another declaring that he has seen the eye so far protruded from the socket, that it rested on the upper lip.

* Trnka's Historia Ophthalmiæ. The reader will find a good account of chemosis in the 127th and following pages of Vogel's Prælectiones Academicæ.

† Vogel Præl. Acad. de Cog. et Cur. Morb.

‡ Trnka, Historia Ophthalmiæ.

§ Traite des Maladies des Yeux, by St. Ives. See also Vogel's Præl. Acad.

In such cases the inflammation not only spreads to every part of the eye and eye-lids, but to the whole side of the face; the cheek becomes swelled and inflamed, and the patient complains of violent pains in the forehead and temples.

Although the disease is at first confined to one eye, when it becomes considerable, the other always partakes of it.

The intolerance of light in the less violent cases of ophthalmia membranarum seems to proceed from the sympathy which subsists between the retina and other parts of the eye. In the worst cases the retina itself is inflamed, and complete ophthalmitis supervenes.

Spasms of neighbouring parts, particularly of the eye-lids, often attend ophthalmia. In the more severe cases they sometimes spread to all the muscles of the face.

It was observed above, that external inflammations are less apt than internal to produce fever, and that inflammations of the head are apt to produce fever in proportion to their vicinity to the brain. In all cases in which fever is symptomatic of ophthalmia, we have reason to believe that the inflammation has spread to the deeper-seated parts.

Such are the symptoms which attend the commencement and progress of ophthalmia membranarum; its consequences are very various.

Like other inflammations it is subject to resolution, suppuration and gangrene.

If the inflammation be confined to the eye, resolution is the only termination which can be regarded as favourable; for according to the definition of suppuration I have adopted, a discharge of pus without ulceration, which frequently takes place from the eye and has given rise to the name purulent ophthalmia, does not deserve the name of suppuration. When the eye-lid partakes much of the inflammation, suppuration is often a favourable termination. If the abscess is discharged on the inner side of the eye-lids, it frequently proves very troublesome.

The effects of suppuration of the eye itself are different in different cases, but as this part of the subject belongs to the province of the surgeon, I shall not enter upon it here.*

Mortification is a rare occurrence in any form of ophthalmia, and never perhaps supervenes in the ophthalmia membranarum, unless it be complicated with the ophthalmitis.

* See these effects detailed in Mr. Ware's Treatise on Ophthalmia, and other late works on the Eye.

Besides the terminations common to all cases of inflammation, ophthalmia is sometimes followed by consequences resulting from the nature of the parts it occupies. For these, which also belong to the province of the surgeon, the reader is referred to the works just alluded to.

In its attacks the ophthalmia tarsi often resembles the ophthalmia membranarum, the inflammation first appearing on the eye, or to speak more accurately, the former often follows a slight attack of the latter. The inflammation, however, soon spreads to the tarsi, where it frequently indeed makes its first appearance, but it seldom becomes considerable there, without affecting the conjunctiva of the eye.

The tarsi are red and swelled, and pour out a glutinous matter which glues the eye-lids together during sleep, and both in this way, and by forming small hard masses adhering to the eye-lashes, increases the disease.

The patient complains of a constant uneasiness of the eyes, but never of the severe pain which sometimes attends the ophthalmia membranarum. The uneasiness is increased by the falling off of the eye-lashes which defend the eye from strong light, dust, &c.

Both the ophthalmia membranarum and tarsi are apt to become chronic diseases, but the latter much more frequently than the former. It is not uncommon, particularly in scrophulous habits, for the ophthalmia tarsi to last for the greater part of life, but it is less apt to be followed by injury of the sight than the ophthalmia membranarum. It more frequently runs to suppuration than the other varieties of ophthalmia, small suppurations often forming at the same time in various parts of the tarsi, and frequently without considerably relieving the inflammation. Except when combined with ophthalmia membranarum, it never runs to gangrene.

It often happens when the ophthalmia tarsi is attended with much swelling, as where it is accompanied with a considerable degree of the ophthalmia membranarum, that the eye-lids grow together. This is the consequence of small suppurations forming on the tarsi, or of the cuticle being abraded by the acrimony of the discharge.

When inflammation attacks the deep-seated parts of the eye, it gives rise to one of the most tormenting diseases we are subject to. It is termed by some ophthalmitis, by others pblegmon oculi, some

term it chemosis, the appellation generally used for the severer cases of the ophthalmia membranarum.

It sometimes comes on without being preceded by either of the other species of ophthalmia, and it now and then happens, as I have already had occasion to observe, that the anterior parts of the eye remain free from inflammation. In many cases, however, the anterior parts are first affected, and the inflammation spreads gradually to the deep-seated, sometimes leaving the former. As soon as the inflammation spreads to the deep-seated parts, the pain becomes more severe, extending to the temple and over a great part of the head, often particularly felt, St. Yves remarks, on the crown of the head. It is generally by the slightest pressure of the eye.

When the inflammation seizes the lacrymal gland, there is a severe pain referred to its seat, the flow of tears is very great, and some protuberance of the upper eye-lid may often be observed.*

As soon as the retina partakes of the inflammation, the sight becomes confused, every thing is seen covered with black spots, incessant clouds pass before the eyes, or fire seems to dart across them. As the disease increases, the intolerance of light becomes extreme, and the patient is often seized with a degree of phrenzy, if the eyes be exposed to it.

These symptoms never last long without producing fever; and when the pain of the eye is great, delirium is not uncommon.

With one or both eyes thus affected, he passes sleepless nights, always in severe pain, and often in excruciating torture.

When the retina is much affected, the disease sometimes terminates in amaurosis.†

It is unnecessary to observe, that resolution is the only favourable termination of ophthalmitis. Suppuration is often attended with a general efflux of the humours: and gangrene, while it proves as destructive to the eye, endangers life.

We judge of the tendency to these terminations in the same way as in the other phlegmasiæ. When the symptoms are moderate, and yield to the usual remedies, we have reason to hope for resolution; when they are unusually obstinate, suppuration is to be dreaded; when unusually violent, gangrene.

With respect to schirrus, regarded by many as a consequence of ophthalmia; it seems to proceed less from the inflammation, than peculiarity of habit.

* Lieutaud's *Synopsis Medicinæ Praxeos*.

† Lieutaud's *Synopsis* Truka's *Historia Ophthalmiæ*.

Like other febrile diseases ophthalmitis is occasionally terminated by critical evacuations, by spontaneous hemorrhagy, sweat, or diarrhoea.

SECT. II.

Of the Causes of Ophthalmia.

THE different species of ophthalmia may appear at any age and in any habit. In the young, robust, and sanguine, the ophthalmia membranarum and ophthalmitis are most common. The ophthalmia tarsi is more apt to attack those of a delicate habit or of an advanced age.

Those who have already laboured under ophthalmia are most liable to it.

The scrophulous ophthalmia at least, is often hereditary.

It is more frequent in spring and autumn, particularly in the former, than when the weather is less variable.

Among the predisposing causes may be ranked the diseases in which ophthalmia most frequently supervenes. It more frequently accompanies synocha than typhus, and some of the exanthemata, we have seen, more frequently than either; particularly, measles, small-pox, and scarlatina. It is a frequent attendant on all inflammatory affections of the head.

Dr. Cullen arranges the exciting causes of ophthalmia under ten heads; and numerous as his catalogue is, he seems to have omitted many. The situation, use, and extreme delicacy of the eye, render it so subject to injury, that there is no disease, perhaps, which may arise from a greater variety of causes.

Dr. Cullen's first division of the exciting causes of ophthalmia is, "External violence, by blows, contusions, and wounds applied to the eyes, and even very slight impulses applied, whilst the eyelids are open, to the ball of the eye itself."

These causes may excite inflammation of the eye in the same way in which mechanical injury excites inflammation in any other part; but they may also act only indirectly, by occasioning some derangement in the structure of the eye, which often proves a more obstinate cause of inflammation. In consequence of a blow on the eye, for example, the crystalline lens has sometimes been forced through the iris into the anterior chamber of the eye,

where it has lain for years, or even the greater part of life, occasionally exciting this disease.*

A blow on the eye may occasion an extravasation of blood under the conjunctiva, which is absorbed very slowly; the quantity is sometimes so great as to distend the conjunctiva; at other times, it forms only a red spot or blotch. Before the extravasated blood is absorbed, it becomes dark and livid. It seldom excites much inflammation, nor leaves any permanent affection of the sight; where these happen, the cause which produced the extravasation has at the same time otherwise injured the eye.

That wounds with sharp instruments may in various ways so derange the structure of the eyes as to leave it subject to ophthalmia, may be readily conceived.

Dr. Cullen's second set of causes, is, "Extraneous bodies introduced under the eye-lids, either of an acrid quality, as smoke and other acrid vapours, or of a bulk sufficient to impede the free motion of the eye-lids upon the surface of the eye-balls."

To this head belongs ophthalmia from the eye-lashes growing in upon the eye, which happens either from the tarsi being turned inwards, or from the growth of preternatural hairs. When the disease proceeds from an inversion of the tarsi, it has been termed trichiasis.

"3. The application of a strong light, or even of a moderate light long continued.

"4. The application of much heat, particularly that with moisture." To this division may be referred the ophthalmia caused by weeping, or by the tears being confined by the swelling of the eye-lids, as frequently happens in measles, or accumulated and falling over the cheeks where the passage from the lacrymal sack is obstructed, forming the disease termed by surgeons fistula lacrymalis.

"5. Much exercise of the eyes in viewing minute objects."

"6. Frequent intoxication."

Dr. Cullen's seventh, eighth, and tenth divisions of the causes of ophthalmia belong to symptomatic ophthalmia, namely,

"7. Irritation from other and various diseases of the eyes."

"8. An acrimony prevailing in the mass of blood, and deposited on the sebaceous glands on the edges of the eye-lids."

* The reader will find two cases of this kind related by Mr. Noble, in his Treatise on Ophthalmia.

“ 10. A certain consent of the eyes with the other parts of the system, whereby, from a certain state of these parts, either a simultaneous, or an alternating affection of the eyes is produced.”

In the eighth division, Dr. Cullen alludes to the ophthalmia, which sometimes accompanies scrophula, lues, venereal, and some other diseases. It would be foreign to the object of this treatise to enter into the dispute, whether there really be such a disease as the venereal ophthalmia,* or whether ophthalmia ever arises from the absorption of pus.

The causes included in Dr. Cullen's ninth division may produce either symptomatic or idiopathic ophthalmia. “ A change in the distribution of the blood, whereby either a more than usual quantity of blood, and with more than usual force, is impelled into the vessels of the head, or whereby the free return of the venous blood from the vessels of the head is interrupted.” Hence the ophthalmia symptomatic of synocha, of apoplexy, &c. and hence, also ophthalmia from violent exercise, &c.

There are some causes of idiopathic ophthalmia, however, not referable to any of the foregoing heads.

Ophthalmia, like most other inflammations, often arises from cold, especially if alternated with a high temperature, and combined with moisture. The application of cold to the eye itself sometimes produces it in the predisposed. Cold more frequently has this effect, however, when applied to the body in general, and particularly to the extremities. Hence the frequency of ophthalmia in cold, moist, and variable weather.

Certain ingesta sometimes produce it in the predisposed. Instances are related by Trnka and others, in which a small quantity of certain fermented liquors produced ophthalmia, while the patient could take many times the quantity of alkohol in any other form without experiencing the same effect. Whatever indeed produces much irritation of the primæ viæ, may excite it in the predisposed.

The ophthalmia which sometimes accompanies considerable derangement of the stomach and bowels, from worms for example, lodged in these cavities, may be regarded rather as symptomatic than idiopathic.

Cases are mentioned by Dr. Whytt of Edinburgh, and others, of people subject to disorders of the stomach, who never had an attack of this kind, without, at the same time, suffering from oph-

* See the Treatises of St. Yves, Mr. Ware, and others,

thalmia, a remarkable instance of which I have frequently witnessed. The reader will find cases (one is related by Trnka) in which ophthalmia was induced by hypercatharsis. The opposite state of the bowels is a more frequent cause of it. There is reason to believe that these causes act chiefly by the irritation they occasion. They may partly, however, be referable to Dr. Cullen's ninth division. Are the following causes referable to the same division? A check given to perspiration: The retrocession of inflammation of the surface, or of eruptions of various kinds: The ceasing of habitual hemorrhagies or other discharges, and the subsiding of tumours.

It is an opinion as old as Ovid, that ophthalmia is contagious; and that that species of it which prevailed among our troops in Egypt, and is remarkable for its severity, the suddenness of its attack, and the copious purulent secretion from the conjunctiva, is so, we cannot doubt.

It is also a popular opinion that the tears of those labouring under ophthalmia, may, if applied to the eye, produce the disease.

In speaking of the causes of diseases, a circumstance which greatly multiplies the exciting causes should be kept in view. Where a strong predisposition exists, almost every thing which deranges the system, or affects the seat of the disease, acts occasionally as an exciting cause, although it may have no power to produce the disease in the unprepared. This observation is particularly applicable to some of the foregoing causes of ophthalmia.

SECT. III.

Of the Treatment of Ophthalmia.

THE indications in the treatment of ophthalmia when attended with fever, are the same as in the other phlegmasiæ.

1. To remove the remote causes if they still continue to act.
2. To diminish the vis a tergo.
3. To excite the debilitated vessels of the part.

In many cases the application of the remote causes is only momentary, as in ophthalmia from blows and wounds; or they are such as we have no means of removing.

When ophthalmia arises from hard particles introduced under the eye-lids or adhering to the eye, these must in the first place be removed. This the patient often instinctively does by rubbing the

eyes, which both increases the flow of tears occasioned by the extraneous body, and by moving it from place to place promotes its expulsion. Immersing the eye in an eye-cup filled with water, and opening it, is often successful; or if many particles have entered the eye, it may be gently syringed with warm water. When the offending cause lies under the upper eye-lid, it is sometimes necessary to invert the lid. When it adheres to the cornea or other parts of the eye with such force as resists gentler means, it must be removed with the point of the lancet, or as Mr. Ware advises, with a blunt pointed scoop.

One of the most troublesome causes of ophthalmia is an inversion of the eye-lids, so that the eye-lashes press on the ball of the eye.

For the means of removing these and other such causes, I must refer to the surgical works above alluded to.

If ophthalmia proceed from irritating matter in the stomach and intestines, it must be removed by cathartics; if from hypercatharsis, we must have recourse to astringents and anodynes; if from suppressed perspiration, to diaphoretics.

If it arise from the drying up of sores or issues, or the suppression of hemorrhoids, we must restore the discharge; if from the retrocession of eruptions, the means of recalling these pointed out in speaking of eruptive fevers, must be resorted to. Heat and light are the causes of ophthalmia most frequently applied after the commencement of the disease. The evident advantage derived from excluding the light has given rise to various contrivances, which, by increasing the temperature of the eye, often do more harm than good. The light should be excluded without preventing the access of cool air. In severe ophthalmia, the patient should be confined to a dark well ventilated chamber. The total exclusion of light is not necessary where the inflammation is slight. But exercise of the eye must be avoided in all cases.

The morbid secretion from the inflamed eyes should frequently be washed off. Of the composition of the lotion, we shall presently have occasion to speak. The gluing together of the eye-lids should be prevented by interposing between them some mild ointment. By the same means the discharge may be prevented from forming into small hard masses on the tarsi.

As every thing which occasions a determination of blood to the head may increase ophthalmia, much exercise is to be avoided, and every other cause which increases the rapidity of the circulation, and the head should be raised when the patient is in bed.

Having, as far as we are able, removed the causes of ophthalmia, we must endeavour, more directly, to allay its symptoms.

Catharsis, independently of its removing irritating matter from the primæ viæ, produces the same good effects in ophthalmia as in other inflammations of the head, and is of great service, whether the disease be accompanied with fever or not; with this exception, the means which diminish the general excitement are of comparatively little service where the disease is merely local. Their employment, therefore, is chiefly confined to the ophthalmitis; and respecting it there is little to be said in addition to what was delivered when speaking of the treatment of the phlegmasiæ in general.

As in phrenitis, blood-letting from the temporal artery or jugular vein is more effectual than from the arm. In the worst cases of ophthalmitis, the inflammation, we have seen, spreads to the brain; the disease is then to be treated in the same way as phrenitis.

With regard to the other evacuations affecting the whole system, diaphoresis is always beneficial, when it is general and excited without much increase of temperature and heating medicines; it is particularly indicated, I have just had occasion to observe where the disease has arisen from cold, or other causes checking perspiration.

While we are endeavouring to diminish the vis a tergo by evacuations, we must be careful not to increase it by improper diet. The food should be of the mildest kind, and, in order to defend the stomach and bowels against the irritation of their contents, mucilaginous. In the more severe cases it should consist chiefly of some mild farinaceous decoction.

We may sometimes produce a local evacuation sufficient to relieve ophthalmia, by increasing some of the neighbouring secretions; that of the tears, of the mucus of the nose, or of the saliva.

Few substances, however mild, can be applied to the eye without occasioning an increased secretion of tears, and the various collyria, which we shall presently have occasion to consider as otherwise useful, may be of service in this way. But certain acrid substances which have been employed merely with a view to increase the secretion of tears, generally do more harm than good.

Authors are much divided in opinion respecting the employment of errhines in ophthalmia. Trnka, who gives cases in which they seemed to be of service, and some others warmly recommend them, while many pronounce them at all times inadmissible.

The sudden determination of blood to the head which they occasion would, a priori, induce us to decide against them; there are

probably cases in which they may be used with advantage, but as it is very difficult to distinguish these cases, errhines, if not wholly abandoned in ophthalmia, must be used with caution.

Two cautions particularly insisted on by Trnka are never to be overlooked in their employment, that they should be delayed till the excitement has been reduced, and that the more gentle errhines only should be employed. Trnka recommends a mixture of calomel and sugar. “*Vidi solius hujus pulveris usu, magnas contumaces ophthalmias fuisse profligatas.*”

Sialogogues are safer remedies, but little to be depended on. Some assert that they have seen even severe cases yield to them. They may be used in the solid, or liquid form, or in the form of vapour. The liquid form is the least, and that of vapour the most powerful. Most acrid vapours which are innocent may be employed; that of tobacco is among the most effectual, but its employment requires much caution.

It has been proposed to induce salivation by mercury received into the system, in the worst cases of ophthalmia, even where no venereal taint is suspected.

The means which increase the secretion from the skin of the head are more powerful. Trnka relates cases in which they succeeded after every other remedy had failed. A general application of watry vapour to the head soon induces profuse perspiration, and if it be supported for some time, paleness of the countenance, giddiness, and at length even syncope.

It seems to be of little use to impregnate the vapour with medicine, as it is not from its effects on the eye that we expect benefit.

But of all local evacuations none is so effectual as blood-letting. I have already mentioned bleeding from the temporal artery and jugular vein as at once answering the purpose of both local and general blood-letting; the former is most effectual when performed nearest to the seat of the disease. “*Opening the temporal artery,*” says Mr Ware, “*is on all hands allowed to be a mode of bleeding the most effectual as well as speedy for the purpose.*” He also proposes dividing this artery to lessen the supply of blood to the inflamed part.

Will compression of the temporal artery relieve the symptoms of this disease?

Leeches are applied to the eye-lids, and even to the inner canthus. By some we are dissuaded from applying them so near the eye, as they sometimes occasion swelling of the eye-lids, and even a temporary increase of the inflammation. The temple and

upper part of the cheek appear, upon the whole, to be the best places for their application.

Scarifying and cupping the temples or parts behind the ears are often practised with success. Scarifying the back of the head, a common practice in some parts of the Continent, is less effectual.

It has been proposed to bleed from the eye itself. The reader will find various means for this purpose detailed in Mr. Ware's treatise above referred to, the simplest is opening the turgid vessels of the conjunctiva with the point of a fine lancet.

In all the more severe cases of ophthalmia, general and local blood-letting are the remedies chiefly to be relied on, and they cannot be employed too early. "Nam ab initio sanguis mittendus est, cum id postea fieri non possit, inflammatione enim ad suppurationem nunc disposita, oculus jam perditus est.*" In the Egyptian ophthalmia, the characteristic symptoms of which I have had occasion to mention, it is often necessary to carry the blood-letting to syncope. Even in the more common forms of the disease, Boerhaave says he has sometimes seen it carried to this extent before the symptoms were at all relieved.

Blisters are often a powerful auxilliary to blood-letting. The temples, parts behind the ear, or the nape of the neck, are the proper places for their application. If applied between the shoulders, they must be large. In obstinate cases it is sometimes proper to shave the head and apply a large blister over it. Boerhaave talks of blistering as a doubtful practice in ophthalmia, and if blisters be employed early when the fever is considerable, they may do harm, as in the other phlegmasiæ, by increasing the vis a tergo.

In this, as in all other inflammatory affections of the head, rubefacients applied to the feet were once a favourite remedy. The pediluvium is still much employed, and frequently with advantage, especially where the local affection is considerable, compared with the increase of the general excitement.

It often happens where relief has been obtained by blistering, that the symptoms increase on the ceasing of the discharge; it is then proper to support it for some time by dressing the blistered part with issue ointment; and when ophthalmia becomes habitual, we often find it necessary by issues, to keep up a discharge for months, or even years. A seton in the neck is the most effectual issue in ophthalmia.

* Boerhaave de Morbis Oculorem.

As it is of consequence to have the issue as near as possible to the seat of the inflammation, some have recommended an issue in the lobes of the ears, which Dr. M'Bride says, he has found more effectual than any other. The lobes of both ears are pierced, and the discharge supported by passing through the holes small pieces of silk wrapt up and covered with ointment, by the quality of which, the discharge may be increased or lessened at pleasure.

Such are the local evacuations employed in ophthalmia. In certain species of this disease, various applications are made to the eye in the form of lotion, ointment, or poultice. The most powerful of those derived from the vegetable kingdom, are opium, wine, distilled spirits, and essential oils, properly diluted; balsams, gums, acetous-acid, various astringents, such as oak-bark and galls, some nutral salts, &c. Mr. Ware's observations on the application of opium to the inflamed eye, are particularly deserving of notice. Mr. Thomas in his observations on the Egyptian ophthalmia, speaks very highly of the effects of pot-ash. From the mineral kingdom the preparations of mercury, lead, zink, and copper, are powerful ingredients. Some salts derived from this kingdom are also employed. Allum is often useful, particularly in habitual ophthalmia. In many cases warmth, and in some electricity are beneficial. For the use of these various means, and the choice to be made in different cases, as well as the manner of preparing the different applications, I must refer to the works on the subject.

In ophthalmitis, the only form of the disease which, strictly speaking, belongs to the department of the physician, eye-washes either have no place, the anterior parts of the eye not being inflamed; or when they partake of the inflammation, are a doubtful remedy. I have seen them evidently injurious, whatever relieves the inflammation of the anterior parts appearing to increase that of the deep-seated.

It is often necessary to use means to prevent the return of ophthalmia. Issues, one of the most powerful for this purpose, I have already had occasion to mention. Its recurrence seems often connected with a debilitated state of the habit, and then the best means of prevention are those which tend to correct this state, and in particular to strengthen the vessels of the eye, which will sometimes even remove habitual ophthalmia when all other means have failed.

One of the most powerful is the cold bath, and the shower bath is here perhaps the best mode of using it. Shaving the head and merely applying to it every morning a cloth dipped in very cold

water, and even applying cold water to the eyes themselves or behind the ears, is often of great use.

For the same purposes the bark and wine have been successfully employed.

Ophthalmia has sometimes accompanied the fits of an intermittent ceasing during the apyrexia, and has sometimes continued to recur at certain intervals after the fever has been removed. In both these cases the bark given during the intervals is the best means of cure.

It is by correcting some fault of the habit that a course of mercury, and more rarely the internal use of the muriate of ammonia has been known to remove chronic ophthalmia.

Various other medicines have been employed internally for this purpose, and to prevent the return of the disease. Of these, the cicuta appears to promise most. But there is none of them on which much dependence can be placed. As the various consequences of ophthalmia come under the department of the surgeon, their treatment is not to be considered here. The public have lately been put in possession of several excellent works on these, and other diseases of the eye.

CHAP. VIII.

Of OTITIS and ODONTALGIA.

INFLAMMATIONS of the ear and of the teeth and neighbouring parts, like inflammation of the eye, are for the most part unaccompanied by fever, the latter indeed almost uniformly so, and rather belong therefore to simple inflammations than to the phlegmasiæ.

Very few nosologists, for what reason it does not appear, have admitted otitis into their systems, which is the more remarkable, because, although while unaccompanied by fever, if we overlook the sufferings of the patient, which even in this case are often great, it is a disease of little importance; when attended with fever, it often assumes a very formidable appearance, delirium, coma, and convulsions sometimes supervene, and it has even terminated fatally.

Vogel has given it a place. It is his 48th genus, and the 4th of the diseases termed inflammatoriæ. He defines it,

“*Inflammatio auris internæ, dolor immanis in aure, febris, cephalalgia, agrypnia, delirium.*”

According to the mode of arrangement I follow, the only form of it which belongs to the diseases we are considering, may be defined,

Phlegmasia cum dolor auris internæ, nonnunquam cum delirio.
Otitis is produced by the same causes with other inflammations.

In the treatment of otitis we proceed on the same principles as in that of ophthalmia. While it is merely a local affection, if we except cathartics, local remedies alone are necessary. Local blood-letting, and blisters applied behind the ear, with warmth, are the best means.

If the pain does not soon abate, and still more if it increases, we may expect suppuration. When the pain has been confined to the ear, and there is little or no fever, suppuration is not to be dreaded. When the abscess bursts, the matter is discharged by the meatus auditorius externus. It is then proper to syringe the ear from time to time with some mucilaginous and gently astringent decoction.

The treatment must be very different when the pain spreads from the ears over the whole or a great part of the head, attended with fever, especially if delirium, coma, and convulsions supervene. It may then, Vogel observes, prove fatal even on the first day, and very often destroys the patient before the seventh.

The most powerful local and general means are now to be combined. There is reason to believe that the inflammation has spread to the brain, and the treatment is the same as in phrenitis.

Even the most violent forms of otitis, however, more frequently terminate in suppuration than in death, and if the brain has partaken of the inflammation, the suppuration of the ear generally relieves it.

But suppuration is then more formidable. The structure of the whole internal ear is often destroyed, the bones being discharged through the meatus auditorius with much purulent, and often fetid matter.

Fistulous ulcers of the internal ear are sometimes the consequence of suppuration, which are very troublesome, and may even prove fatal by spreading to the brain.

Most nosologists have given a place to Odontalgia. It is Dr. Cullen's 23d genus, and the 17th of his phlegmasiæ. He defines it,
“*Rheumatismus vel arthrodynia maxillarum a carie dentium.*”

The tooth-ach is so rarely attended with fever that there is no form of it which can be regarded as a phlegmasia.

Sauvages makes seven varieties of tooth-ach, dividing it according to the causes which produce it. 1. Odontalgia from a carious tooth; 2. from scurvy; 3. from catarrh; 4. from gout; 5. from child-bearing; 6. from an hysterical habit; 7. from affections of the stomach. Besides these, tooth-ach may arise from any of the causes of inflammation.

I have known it so intimately connected with the state of the stomach, that for two months it constantly returned on the patient's taking any solid food. Even one mouthful of bread was sufficient to occasion such a paroxysm of pain, which generally continued from half an hour to two or three hours, that he was almost starved, being supported solely by strong soups and other fluids, no quantity of which he found capable of affording sufficient nourishment, or even of allaying the calls of hunger. It was observed in the first volume, that fluids, however nutritious, if unmixed with any solid matter, are very imperfectly digested.

As tooth-ach is merely a local affection, local remedies alone, are for the most part necessary.

Where the tooth is apparently sound, a large dose of opium may be tried previous to extraction. This will always afford temporary relief, and by promoting the perspiration, if the disease rather proceeds from cold than any fault of the tooth, will often remove it. A small dose, by quickening the circulation, frequently does more harm than good. When tooth-ach arises from the state of the stomach, an emetic will frequently give relief, and in such a case as that just alluded to, where it has become habitually connected with the state of the stomach, stomachic medicines particularly bitters and steel, afford a probable chance of cure. It is needless to mention various means of temporary relief, with which every one is acquainted.

The means of preventing the tooth-ach, which is always sooner or later attended with decay of the teeth, demands serious attention. I believe they may all be arranged under three heads, cleanliness, means of obviating the effects of cold, and those of strengthening the gums.

To keep the teeth perfectly clean, they should, after every meal, be freed from the small pieces of aliment which often lie between them till they putrify. The concretion which is apt to form on the teeth should be prevented by carefully brushing them, and as soon as any appears it ought to be removed.

The effects of cold on the teeth are best obviated by habituating them to its application, which may be done most effectually by repeatedly washing the mouth morning and evening with cold salt and water.

If the tendency to tooth-ach proceeds from fault in the gums, this must be corrected by strengthening the system in general, by the frequent use of stimulating and astringent applications to the gums themselves, and by occasionally bleeding them if they appear inflamed and spongy ; but frequently bleeding them soon produces a habit which demands a constant repetition of the remedy.

CHAP. IX.

Of CYNANCHE.

Dr. Cullen defines cynanche, his 10th genus, and the 4th of the phlegmasiæ,

“ Pyrexia aliquando typhodes, rubor et dolor faucium, deglutitio et respiratio difficiles, cum angustię in faucibus sensu.”

This disease he divides into five species in most of which the symptoms, and in some the mode of treatment, are very different. These differences arise partly from the nature of the organs affected in the different species of cynanche, and partly from less evident causes.

The first species, the cynanche tonsillaris, he defines,

“ Cynanche membranam faucium mucosam et præcipue tonsillas tumor et rubor afficiens, cum febre synocha.”

His second species I had frequent occasion to mention in treating of the scarlatina, the cynanche maligna. It is defined,

“ Cynanche tonsillas et membranam faucium mucosam afficiens tumor, rubor, et crustis mucosis coloris albescentis vel cineritii, serpentibus et ulcera tegentibus ; cum febre typhode et exanthematibus.”

The third species, the cynanche trachealis, is defined,

“ Cynanche respiratione difficili, inspiratione strepente, voce rauca, tussi clangosa, tumor fere nullo in faucibus apparente, deglutitione parum difficili et febre synocha.”

The fourth species is the cynanche pharyngea.

“Cynanche cum rubor in imis præsertim faucibus; deglutitione
 “maxime difficili, dolentissima; respiratione satis commoda et fe-
 “bre synocha.”

The last species, cynanche parotidæa, is defined,

“Cynanche cum tumor externo parotidum et maxillarum gland-
 “ularum magno; respiratione et deglutitione parum læsis; febre
 “synocha plerumque leni.”

The definition of cynanche must be adapted to the mode of arrangement I follow, and I would propose to omit rubor in this definition, in two of the species, there being no redness of the fauces; and to change deglutitio et respiratio, to, deglutitio vel respiratio, because both of these functions are rarely impeded, unless two of the species are combined. I would also propose to include in the definition of the cynanche tonsillaris that of cynanche pharyngea. These varieties of cynanche differ considerably when they are exquisitely formed. But the one is seldom present in any considerable degree without being attended with more or less of the other. Dr. Cullen declares indeed, that he never saw a case of the true cynanche pharyngea, that is, a case in which the inflammation was confined to the pharynx; it almost constantly spreads in a greater or less degree to the tonsils and neighbouring parts. Besides, the mode of treatment is in almost every instance the same in both cases; and it will appear, from what is about to be said of the symptoms of these forms of cynanche, that if we admit the cynanche pharyngea to be a distinct variety, we must admit another, the cynanche œsophagea, for the inflammation, we shall find, frequently attacks the œsophagus, and is sometimes confined to it.

The following may be assumed as the definition of cynanche:

Phlegmasia pulsu plerumque valido, nonnunquam debili, cum dolor faucium, respiratione vel deglutitione difficili, cum angustiae in faucibus sensu.

The first species of cynanche, then, according to the mode of arrangement I shall follow, includes the inflammation of the tonsils, velum pendulum, uvula, pharynx, and œsophagus. As the tonsils are the parts in most cases principally affected, and it is rare for the others to be affected without some affection of them, we may, for the sake of brevity, assume the term cynanche tonsillaris to express the inflammation of all these parts; which may be defined,

Cynanche, pulsu valido membranam faucium et pharyngis mucosam, præcipue tonsillas tumor et rubor afficiens, deglutitione difficili nonnunquam dolentissima.

The only alteration which, the mode of arrangement I follow renders necessary in the other definitions, is to insert, *pulsus validus* and *pulsus debilis*, instead of *synocha* and *febris typhodes*; symptomatic fevers, according to that mode of arrangement, forms a class of diseases distinct from the idiopathic.

SEC.T I.

Of the Cynanche Tonsillaris.

1. Of the Symptoms of the Cynanche Tonsillaris.

THIS disease generally begins with an uneasy sense of tightness about the fauces, which, when the inflammation occupies the pharynx, is deeper seated than when it occupies the tonsils and neighbouring parts.

The deglutition soon becomes more or less difficult and painful; in the former case more so than in the latter, for, while the inflammation is confined to the tonsils, *velum pendulum palati*, and *uvula*, the pain is rather while we are preparing to swallow, or in the very first act of swallowing, than during it. In most cases, however, more or less of the inflammation spreads to the pharynx, and then the pain peculiar to both forms of the disease is perceived.

On inspecting the fauces, the parts, as far as the inflammation extends, appear swelled and of a more florid red than natural, and here and there, particularly on the tonsils, small white or yellow specks are often observed. While these remain of a light colour, and the pulse continues sufficiently strong and full, they never indicate danger.

The inflammation is generally confined to the parts which can be brought into view; it sometimes, however, extends along the *œsophagus*, which is known by the greater difficulty and pain of swallowing, as well as by the seat of the pain. In some rare cases, I have just had occasion to observe, the inflammation is wholly confined to the *œsophagus*. In these no morbid appearance presents itself on inspecting the fauces.

Whether the *œsophagus* be primarily affected, or the inflammation has spread to it from the fauces, it is a very alarming accident. Cases have occurred in which, the cavity of the *œsophagus* being wholly obliterated by the swelling, the patient has been starved to death. Even in less violent cases the pain of swallowing is sometimes such, that he abstains from food, and some have sunk under the debility thus occasioned.

The deglutition is now and then impeded by the inflammation's spreading in an opposite direction. It is not very common for the tongue to be affected in cynanche; in some cases, however, it has been so much swelled as to fill the mouth, and wholly prevent deglutition, nay, it sometimes, Tissot observes, becomes too large to be retained in the mouth, and is thrust out, assuming a purple colour.

The pain during deglutition in cynanche seems often in a great degree to depend on the muscles employed in this function, partaking of the inflammation; hence it seems to be, that fluids, contrary to what we should, a priori, suppose, are swallowed with more pain than solids; in swallowing liquids, a greater number of muscles being employed, and those employed in both cases acting more powerfully. The patient feels most difficulty in swallowing the saliva, partly owing to its being a fluid, and the quantity being small, and partly to its becoming viscid.

In some cases, however the saliva becomes thinner, and is poured out in great quantity. This, although it often relieves the inflammation, sometimes proves a source of much uneasiness. If the inflammation runs high, the exertion of spitting it out is attended with considerable pain; and when as happens in all the severer cases of cynanche tonsillaris, the disease extends to the pharynx, the pain of swallowing it is greater.

When the inflammation extends to the œsophagus, the pain of swallowing the thin saliva is sometimes such as to throw the patient into convulsions;* and to avoid swallowing it is not always optional, for the irritation it occasions frequently excites involuntary attempts to swallow. This is particularly apt to happen during sleep, as the saliva is then permitted to accumulate in the fauces, and it is generally owing to this cause, that the patient often starts up with horror. The only situation in which he finds relief is lying in such a position that the saliva may run from the mouth. Sleep is often wholly prevented by this symptom. Long continued sleep, indeed, when the throat is much inflamed, by permitting the morbid secretion to accumulate in it, is generally injurious. The irritation occasioned by the accumulation in the throat often

* Tissot says he has seen women in this disease thrown into convulsions from excess of pain every time they attempted to swallow the saliva. In the third vol. of the Physical Essays, the reader will find a case related by Dr. Monro, which in a striking manner exemplifies this symptom.

excites frequent attempts to vomit, which may be mistaken for an indication of a foul stomach.

The pain is generally greatest when the patient attempts to swallow lying on the back ; and when the œsophagus is much affected, the pain is often felt chiefly in the back, and is of the same kind with that produced by any acrid or bulky substance passing along the œsophagus. If the pharynx, and still more if the œsophagus, be much inflamed, the fluid, instead of passing to the stomach, is often returned by the mouth, thrown through the nose, or into the wind-pipe, exciting a painful fit of coughing.

The inflammation is not apt to spread to the stomach. I had occasion to observe, in speaking of erysipelas, that that species of inflammation sometimes spreads along the œsophagus to the stomach ; but erysipelas of the fauces, which is more uniformly diffused, generally of a darker red, and attended with little swelling, is of a very different nature from the cynanche tonsillaris.

When the inflammation spreads to the trachea, the danger is very great. But the inflammation of this organ forms a distinct species of cynanche according to the foregoing division ; it is sufficient here to remark, that we may sometimes look for a concurrence of these species.

Although the inflammation spread no farther than the fauces properly so called, the breathing is often considerably affected. The more, we have seen, the disease partakes of the cynanche pharyngea, that is, the more the inflammation spreads towards the œsophagus, the more difficult is the deglutition ; it is the reverse with respect to the respiration, for if the inflammation be wholly confined to the pharynx and œsophagus, however violent it may be, the breathing is always free, but when its chief seat is in the tonsils, velum pendulum palati, and uvula, the passage of the air is often much contracted, and sometimes almost closed ; that by the nose frequently is so, and the patient can only breath with the mouth open.

In such cases it might be imagined that deglutition is wholly interrupted. This, however, very rarely happens, except where the tongue partakes considerably of the swelling, the tonsils, velum pendulum palati, and uvula, being very compressible.

The voice is often affected, becoming hoarse and confused, and being sometimes almost lost, especially where the swelling is considerable. The affection of the voice, however is more remarkable in the cynanche trachealis than tonsillaris, and never attends

the exquisitely-formed cynanche pharyngea or the cases in which the inflammation is confined to the œsophagus.

None of the neighbouring parts so frequently partake of this disease as the internal ear. The patient at first complains of a ringing, and a sense of rattling in it when he swallows, and at length often of severe pain following the course of the eustachian tube. A degree of deafness which frequently attends violent cases of cynanche is probably owing to the swelling occasioned by the inflammation obliterating this passage. When the deafness is complete, it must arise from some other cause.

In severe cases, the whole face partakes of the disease, the eyes are inflamed, the cheeks swelled and florid. I have already had occasion to observe, that the muscles employed in deglutition generally partake of it, in the more violent cases it often spreads to almost all the muscles and more external parts of the neck, which becomes stiff, hard, swelled, and sometimes red, and the sublingual and other glands in the neighbourhood are often enlarged. This affection of the external, frequently relieves the internal parts.—The swelling which appears externally, however, proceeds in many cases, not from the disease spreading to neighbouring parts, but from the swelling of the internal fauces. The enlarged tonsils in particular may often be perceived externally.

In mild cases it is common for the inflammation to be chiefly confined to one of the tonsils at the commencement, and to leave it, or in some measure to leave it, when it attacks the other.

Such are the local symptoms of cynanche tonsillaris. It appears from what has been said, that the difference between the symptoms of cynanche occupying the tonsils, velum pendulum palati, and uvula, and that occupying the pharynx, consists chiefly in the former being often attended with some difficulty of breathing, on account of its having its seat in the passage which the air takes to the lungs; and in the latter being attended with more difficulty of swallowing, from its affecting parts more essentially concerned in the act of deglutition. In this form of the disease, we have seen, the inflammation sometimes spreads to the œsophagus and the deglutition is wholly interrupted. On this account the cynanche pharyngea is a more dangerous disease than the cynanche tonsillaris strictly so called. Besides having its seat nearer to the stomach, the whole system, according to the general rule, sympathises more with this form of the disease. It is very rare for the swelling of the tonsils, velum pedulum, and uvula, to increase till it occasions suffocation. This, however, has sometimes happened.

The foregoing symptoms are seldom present to a considerable degree without being attended with those of general derangement. In the mildest cases the fever is hardly perceptible, and it is seldom so considerable in proportion to the local symptoms in cynanche tonsillaris, as in the cynanche trachealis and maligna. These symptoms, however, never run high in this form of cynanche, without the pulse becoming stronger, harder, and more frequent than natural; and all the usual symptoms of fever soon shew themselves. The thirst is often great in proportion to the other febrile symptoms, particularly when the œsophagus is inflamed.

It sometimes, though very rarely happens, that the febrile symptoms run so high as to endanger life. Even delirium and coma supervene. Whether in such cases the brain or its membranes are affected (which there is reason to believe) has not been determined.

Those who have seen only the more common cases of cynanche tonsillaris, can form little idea of the appearance which it now and then assumes. As the return of the blood, Boerhaave observes, is obstructed in the external jugulars by the swelling of the neighbouring parts pressing on them, and he might have added, as Van Swieten has done, in all the veins of the neck by the dyspnœa impeding the passage of the blood through the lungs, a swelling of the face, tongue, lips, and fauces is the consequence; the tongue is thrust out, distorted, and inflamed; the eyes are red, swelled, frightfully staring, and pushed from their sockets; the brain is compressed and overpowered, the sight, hearing, and touch being impaired. In other cases the patient becomes delirious, lies with the mouth open, snores, and is obliged to be supported in nearly an erect posture to prevent suffocation. There is frequently, redness, swelling, pain, and pulsation in the external fauces, neck, and even breast; hence, he continues, the jugular veins with those of the forehead and under the tongue become distended with varices.*

The cynanche tonsillaris, may terminate in resolution, suppuration, gangrene, or schirrus. The two former are common, the two latter very rare.†

* Aph. Boerb.

† It sometimes leaves a permanent hard swelling of the tonsils, which does not deserve the name of schirrus, and is attended with no inconvenience but from its bulk. This affection of the tonsils more frequently comes on without inflammation, and sometimes goes so far as to render it necessary to remove one or both, which is done by throwing a ligature around the base.

Resolution is at all times a favourable termination, and, in the present case, suppuration, although troublesome, is seldom attended with danger. If indeed the suppuration of the fauces is very general, even although the trachea is not affected, the matter may be suddenly poured into it, and induce suffocation, which, Van Swieten and others assert, sometimes happens; it is so rare an accident, however, that it is hardly to be feared.

When suppuration takes place, the febrile symptoms abate, generally with some degree of shivering, the throat becomes paler and less painful, and sometimes a sense of pulsation is felt, or if it has been present at an earlier period, becomes more sensible. We know that the abscess is ripe by a small white soft tumor appearing about the centre of the inflamed part.

The quantity of pus discharged from such abscesses is often very considerable, and of an intolerable taste and smell.

The abscess sometimes points at a more concealed part; the surgeon must then feel for it with the finger, when there is reason to believe it formed. There is always reason to suspect the presence of an abscess, when the patient, after the febrile symptoms have abated, experiences a considerable difficulty of swallowing, although the inflammation is evidently diminished, is restless and complains of a general pain in the mouth, with slight and irregular shiverings. The pulse, Tissot observes, is then soft, without being natural; there is a sense of weight in the tongue, small white spots often appear on the gums and inside of the cheeks, and the patient complains of a disagreeable taste and smell.

"Cynanche tonsillaris," Dr. Cullen remarks, "hardly ever terminates by gangrene, although, in this disease, some sloughy spots, commonly supposed to be the forerunners of gangrene, sometimes appear upon the fauces." By other writers, however, who seem to have met with the disease in a more violent form, gangrene is regarded as rather a more frequent occurrence.* It is almost always fatal.

Like suppuration, the gangrene is sometimes situated in parts which cannot be brought into view. From the course of the disease, however, and the state of the symptoms in general, we may always readily determine its presence.

Upon the whole, when both the local and general symptoms have been unusually violent, and the means employed have failed to procure any considerable remission; when the pain and inflam-

* See the observations of Van Swieten and others.

ed appearance of the fauces are suddenly diminished, the deglutition rendered easier, the pulse from being strong becomes small, weak, and irregular, the face assumes a cadaverous appearance, the extremities become cold, with clammy sweats, and the breath fetid, although we cannot perceive the gangrene, we may be assured that it has taken place.

The termination in schirrus* is still more rare. Tissot observes that he has seen the cynanche tonsillaris terminate in mortification or schirrus when treated with heating medicines, in order to force out sweats, but that if properly treated, it never terminates in either of these ways.

Like other febrile diseases, it is sometimes relieved by a critical discharge, a flow of sweat, or a diarrhœa. The increased flow of saliva is sometimes so great, and attended with such relief, as to deserve the name of critical. The disease generally comes to its height on the fifth or sixth day.†

2. Of the Causes of Cynanche Tonsillaris.

Like most of the other phlegmasiæ, the cynanche tonsillaris is most apt to attack the young, robust, and plethoric, especially those of a sanguine temperament. It is a remark of Sydenham, that those who have red hair are most liable to it. Quarin thinks that men are more subject to it than women.

It is most frequent in spring and autumn. In summer it rarely appears; sometimes it appears periodically in the former seasons.

In its exciting causes, also, the cynanche tonsillaris agrees with the other phlegmasiæ. Cold, particularly if alternated with a high temperature or partially applied, especially if applied to the seat of the disease, is still the chief exciting cause. Sudden vicissitudes of temperature, riding against a cold wind, much singing or vociferation, the blowing of the wind instruments, acrid aliments, medicines, or poisons, the suppression of accustomed evacuations, and a peculiar state of the atmosphere, are enumerated by Quarin‡ as the chief exciting causes of cynanche tonsillaris.

With respect to the last of which much has been said, if we except cold, damp, and variable weather, there does not appear to be any peculiar state of the atmosphere which tends to produce this disease.

* Mead's *Mon. et Præc. Med. cum Notis Wintringhami*, vol. 1. Quarin de Feb. Aph. Boerhaav. cum Com. Van Swieten. de Angina.

† Dr. Sims on Epidemic Diseases.

‡ Dr. Febribus.

Cynanche tonsillaris is usually a mild disease. It is in the highly-predisposed that it assumes its more alarming forms.

3. Of the Treatment of *Cynanche Tonsillaris*.

There is a striking resemblance between the treatment of the inflammatory sore-throat and ophthalmia; the chief differences arising from the nature of the part affected, and from the former being more frequently a febrile disease.

In the milder cases of *cynanche tonsillaris* we trust chiefly to local means. They are either internal, or external. In the mildest cases the former only are necessary. They consist chiefly of mixtures for washing the inflamed parts, the composition as well as the effects of which are analogous to those of collyria in inflammation of the eyes. They may be divided into four classes, according to the different objects we have in view in employing them.

1. Those employed for the purpose of procuring resolution. 2. Those proper when suppuration is unavoidable. 3. Those employed when the abscess has burst spontaneously or been laid open; and, 4. Those which are necessary when a tendency to gangrene has supervened.

The purposes for which they are employed point out what their composition ought to be. In the use of the first class our objects are, by their stimulous, to diminish the inflammation; by their mucilaginous property, to defend the parts when the saliva is thin and acrid; and by their detergent quality, to cleanse them, when clogged with thick viscid mucus.

The first purpose may be answered by the vegetable and mineral acids, vinegar, the juice of acidulous fruits, the sulphuric and muriatic acids properly diluted, &c. by some of the neutral salts, particularly borate of soda, nitrate of potash, and muriate of ammonia, alcohol in various forms, and many of the gums, particularly myrrh, capsicum, an infusion of which is an excellent vehicle for other ingredients, horse-radish, mustard, &c. Various astringents, particularly allum and Peruvian and oak bark. The gargle may be made more or less stimulating according to its effects, and the degree of the inflammation.

When mucilaginous gargles are indicated, we may add, gum arabic, or the white of egg, or use a decoction of some of the mucilaginous herbs.

When the fauces are clogged with thick mucus, a mixture of honey and the muriatic acid may be applied with a pencil. Sydenham recommends the sulphuric acid. A principal part of their

effects seems to arise from their increasing the flow of saliva, by which the mucus is diluted and washed off.

But if the disease has continued for a considerable time with little remission, especially if the pain abates while the swelling still continues or increases, we have little hopes of procuring resolution. Our view is then to induce a speedy and favourable suppuration, and for this purpose gargles of a different kind are proper.

They should consist entirely of warm emollient fluids, and be used in large quantity. “*Sed hoc primo elapso tempore, emollientia et demulcentia præscribi solent, e lacte nimirum, radicibus althææ, floribus malvæ, seminibus lini, carricis pinguibus, gumi arabico,*”* &c.

In short, here, as in the former cases, the composition of the gargle is readily determined by reflecting on the end we have in view. It is no longer our wish to diminish the inflammation, we therefore avoid those applications which tend to reduce it, the gargle ought therefore to be mild. We wish to promote suppuration; nothing for this purpose is more powerful than warmth, the gargle should therefore be used warm, and in large quantity, that its temperature may not be suddenly reduced.

The best way of using this gargle is from time to time to permit as large a quantity as can conveniently be retained to lie on the part, till its temperature falls to that of the mouth.

After the abscess has burst, our view is to dispose the parts to heal, emollient and gently astringent gargles are the best for this purpose.

If a tendency to gangrene appear, the gargles may be composed of infusion of bark and capsicum with port wine or diluted spirits. If the parts lie within reach, they should be scarified and touched with more stimulating applications. But the local means employed in such cases we shall presently have occasion to consider more fully. They are the same as in cynanche maligna. As gangrene in cynanche tonsillaris, however, is the consequence of increased excitement, we must, especially on its first appearance, be cautious in the use of means which tend to increase the inflammation, lest we rather increase than diminish the tendency to gangrene.

There has been some difference of opinion respecting the best way of applying medicine to the internal fauces. Gargling washes them best; but the motion seems often to increase the inflam-

* Lieutaud's Synopsis Prax. Med.

ination, so that many dissuade from it in the severer cases. The medicine should then be thrown into the fauces by means of a syringe, or applied by a pencil; or, as Sydenham recommends, merely kept in the mouth for sometime and then allowed to run out. In this way, however, it is only applied to the anterior parts.

When the deep seated parts are affected, swallowing is the only means of making any application to the inflamed part, and it unfortunately happens, we have seen, that in these cases swallowing is most difficult and painful, and most frequently interrupted. When the pain occasioned by swallowing is very great, it more than counterbalances any advantage to be expected from this class of medicines.

Some practitioners affirm that gargles and other washes for the throat should be used cold, while others maintain that they should always be of the same temperature with the body. When the inflammation is slight, it is of little consequence whether they be cold or tepid; we have reason to believe, that when it is more severe, they should be of the same temperature with the body. If we are endeavouring to promote suppuration, their temperature, we have just seen, should be higher.

Applications to the internal fauces are sometimes made in the form of vapour. The vapour of warm water employed at an early period tends to procure resolution; at a later period to induce a favourable suppuration. In the former case, vinegar, distilled spirits, &c. may be added to the water. The vapour may be drawn in through the spout of a tea-kettle, or more effectually by the instrument termed an inhaler. We have reason to believe that little advantage is derived from impregnating the vapour with flores sambuci, and other herbs recommended by Elier, Lieutaud, and other foreign writers.

There is some difference of opinion respecting the employment of sialogogues. The advantage often derived from spontaneous salivation has induced some to recommend them, but the irritation they occasion seems generally to counteract any benefit to be expected from the increased flow of saliva. Physicians therefore seldom employ mere sialogogues in cynanche tonsillaris, but if the means which prove otherwise serviceable excite a flow of saliva, it adds to their good effects.

According to the mode of arrangement I follow, local blood-letting, when performed from the internal fauces, should be considered here. It will be better, however, to throw into one place the few remarks to be made on this remedy.

When the inflammation is considerable, the foregoing must be aided by external means. The simplest are warm applications and rubefacients. With respect to the composition of the rubefacients, mustard is too harsh an application here. Sir John Pringle advises a piece of flannel to be applied to the neck, moistened with oil and a solution of the carbonate of ammonia, in the proportion which the patient can easily bear; by which he remarks, a sweat is brought out on the part, and sometimes over the whole body. This application is more effectual than bags of hot salt or sand recommended by some, and more agreeable than the dung of animals which has actually been employed for the same purpose.* A plaister composed of the liniment, sapon, and muriate of ammonia, in which the ammonia, being gradually evolved, acts as a powerful rubefacient, is perhaps the best application of this kind.

If the general excitement be considerable, it is proper to delay the use of rubefacients till it has been reduced by proper evacuations. The same may be said of the employment of blisters, which are a more powerful remedy in this disease. They should be pretty large, and applied near the seat of the disease. Although blisters do not at first bring relief, we are not to despair of their proving useful, for when the first fails, a second often succeeds, or when the discharge excited at first brings no relief, the continued discharge kept up by the ung. cantharid. frequently succeeds better.

But no local remedy is so generally beneficial in such cases as local blood-letting. Scarifying the parts affected as far as they can be reached, is often recommended. This is particularly serviceable when the swelling is great. The ranular veins are sometimes opened, but this, as Dr. Cullen observes, is an insignificant remedy, and as it is at the same time a troublesome one, it is seldom put in practice.

Scarification and cupping on the neck is more effectual. When the neck is much swelled and inflamed, Tissot observes, one or two cuts made pretty deep have often saved the patient's life; leeches, however, are here the most convenient means.

When a tendency to suppuration has taken place, emollient poultices are useful.

Certain operations form part of the local means employed in the cynanche tonsillaris. These belong to the province of the surgeon. I have already had occasion to mention laying open the abscess, which lessens the duration of the disease.

* Dr. Sims on Epidemic Diseases.

Bronchotomy is a more serious operation, and, fortunately, less frequently necessary. When the swelling threatens suffocation, however, it ought not to be delayed. Many have laid it down as a rule, never to perform this operation, when, from a weak and intermitting pulse, and other symptoms of extreme debility, the patient's death appears inevitable. This advice seems to proceed from too anxious a regard for the practitioner's reputation. It is to be recollected that in such cases the most alarming symptoms are often the consequence of impeded respiration, and will disappear when a free passage is given to the air. The reader will find Michaelis, in his *Treatise de Angina Polyposa*, and others, who were conversant with bronchotomy, speaking of it as a comparatively trivial operation, always to be resorted to where there is any risk of suffocation.

When the general excitement is increased, every part of the antiphlogistic regimen is necessary; all kinds of animal food and fermented liquors must be avoided, and the diet should be mild and diluent. The patient should not, however, be forced to drink when the pain of deglutition is great, but copious clysters should be exhibited. In the one way or the other, dilution should, in all the severer forms of the disease, make a principal part of the treatment. "*Interea larga manu propinantur serum lactis aqua nitrosa aliaque diluentia et demulcentia.*"*

When deglutition is wholly interrupted, the patient must be nourished by farinaceous clysters, till by the most active means the inflammation of the fauces is reduced.

The first evacuation affecting the whole system, generally employed in inflammatory sore-throat, is vomiting. Emetics given early, and they should never be omitted where the symptoms are considerable, often put a stop to the disease, and seldom fail to bring considerable relief. Where there is much fever the effects of emetics may be explained by their tendency to promote perspiration; but it is remarkable, that even where there is no affection of the system, they often, in a way it is not easy to explain, more effectually relieve the inflammation at an early period, than any local remedy we can employ. After the disease has lasted for some time, their exhibition requires more caution, and is always less effectual. If the inflammation runs very high, they may do harm. Tissot even asserts, that under such circumstances they may render the disease fatal. Where, however, the swelling is considerable compared with the other symptoms, but not extreme, they are

* Lieutaud's *Synopsis Prax. Med.*

often serviceable, even at a late period. Lieutaud says he has seen patients labouring under inflammatory angina snatched from the jaws of death by an emetic.

Emetics are indeed sometimes employed with advantage even after the formation of the abscess. When the abscess is situated in the deeper parts of the pharynx, or in the œsophagus, the surgeon cannot reach it, and the exhibition of an emetic, if it is ripe, will almost always occasion its bursting. Not only vomiting, but even coughing or laughing, will sometimes have this effect.*

Vomiting is also proper towards the end of the disease, when a collection of irritating matter is accumulated in the stomach, in consequence of the patient's having swallowed large quantities of acrid or viscid saliva, which both load the stomach and vitiate its secretions.

From the general efficacy of cathartics in inflammatory affections of the head, and from the cynanche tonsillaris sometimes terminating by a spontaneous diarrhœa, physicians were led to rely much on them. More than a free action of the bowels, however, is seldom beneficial. When the inflammation and general excitement are great, some degree of catharsis may be kept up with advantage. At an early period saline and mercurial cathartics are the best.

In the worst cases, where either the pain of swallowing is so great that the patient refuses to take any thing by the mouth, or deglutition is absolutely interrupted, we must have recourse to the exhibition of copious cathartic clysters.

When the excitement is great, venesection should never be neglected at an early period, and the blood as in other inflammations of the head, should be taken from the jugular vein, if it can be readily done, that the same operation may serve the purpose of both local and general blood-letting. When delirium or coma supervenes, the treatment, with the addition of local means to relieve the throat, must be the same as in phrenitis.

Diaphoretics are more serviceable in inflammatory sore-throat than in most of the diseases we have been considering. It is often terminated, we have seen, by spontaneous sweating. A sweat forced out by external warmth and heating medicines, however, is rarely serviceable, and generally does harm. If diluting fluids, with the ammonia acetata, or any other mild diaphoretic, induce a sweat, it often brings relief.

* Tissot.

When a tendency to gangrene appears, we must have recourse to the bark and wine, with caution, however, lest by exhibiting them too early we rather increase than diminish this tendency.*

There is a material difference in the treatment as well as prognosis of gangrene supervening on the cynanche tonsillar, and the cynanche maligna. In the latter, it arises directly from debility; the most invigorating plan is proper and often successful. In the former, it is the consequence of excessive general excitement; till this is sufficiently diminished, the invigorating plan will do harm, and then it is often too late for any plan to be of service.

When deglutition is interrupted, the bark and wine must be exhibited per anum.

Such are the various means employed in the inflammatory sore-throat. It is to be remembered that the practice should be the more vigorous, the more the inflammation extends towards the œsophagus, and most so when it has its seat there. "Funestissima est angina, quæ nec in faucibus nec in cervice quidquam conspicuum exhibit."†

As metastasis sometimes happens, in the cynanche tonsillar, most frequently to the lungs, we must be prepared for this accident, and watch the tendency to it.

The deglutition in this disease is now and then interrupted by spasm of the œsophagus which sometimes appears as an idiopathic disease. Various remedies have been recommended in it, few of which, however, are of much service. As in the case before us it arises from the irritation of the primary disease, antiphlogistic measures are chiefly to be relied upon. Emollient and oily applications used externally, and internally if any power of deglutition still remains, and the medicines which have been termed antispasmodic, particularly opium, are occasionally useful. — Van Swieten‡ recommends a soap composed of oil of turpentine, vegetable alkali, and muriate and acetate of ammonia, to be applied externally, and also used internally if it can be swallowed. But the relief obtained by oily and emollient medicines is seldom permanent.§

Dr. Johnstone thinks that opium and extract of cicuta promise most in this case. When any power of deglutition remained, he

* See what was said on this subject in speaking of the treatment of the Phlegmasiæ in general.

† Quarin De Febris.

‡ Com. in Aph. Boer. Aph. 797.

§ See a paper by Dr. Johnstone, in the 2d vol. of the Memoirs of the Med. Soc. of London.

desired the medicine to be swallowed; in other cases the opium and cicuta were made into pills which the patient was desired to hold in the mouth. The exhibition of mercury has been carried to salivation without bringing relief.* Mechanical force has been employed. This, however, is always attended with danger, and has even proved fatal, as in a case mentioned by Dr. Johnstone.

A schirrous affection of the œsophagus or permanent enlargement and induration of the lymphatic glands of the neck sometimes, though rarely, succeed cynanche tonsillaris. They more frequently arise from other causes. When there is reason to believe that deglutition is prevented by a schirrus of the œsophagus bougies of a proper size may be used, and we have been advised to let small doses of hydrag. submuriat. and cicuta remain in the mouth, that they may be gradually swallowed. I have seen several cases of this kind, but none in which this or any other mode of treatment proved successful.

If the dysphagia arises from a swelling of the lymphatic glands, the means employed in scrophula are sometimes serviceable.

When the inflammatory sore-throat has been severe, it is often succeeded by a considerable degree of debility. Nourishing food and the moderate use of wine are generally sufficient to restore the strength. Dr. M'Bride and others recommend the bark and iron, which may be used, if the tendency to the disease has wholly subsided.

Frequent attacks leave the fauces in a state of relaxation which is favourable to the return of the disease; by the use of astringent gargles the parts are strengthened. The recurrence of the disease, however, can only be prevented by carefully avoiding its exciting causes, and by temperance and exercise, which correct the tendency to plethora.

SECT. II.

Of the Cynanche Maligna.

THIS form of cynanche, as appears from the definition quoted from Dr. Cullen's synopsis, affects the tonsils and mucous membrane of the fauces with tumor, redness, and mucous crusts of a whitish or ash colour gradually spreading and covering ulcers.—The fever which attends it, contrary to what happens in the other phlegmasiæ, partakes more of the typhus than synocha, and it is

* Dr. Johnstone succeeded in one case by means of corrosive sublimate and the bark, but thinks they do not promise to be generally successful.

very frequently attended with an eruption on the skin of the same nature with that of the scarlatina.

Some doubt whether cynanche maligna and scarlatina should be regarded as different diseases. If by different diseases we mean those whose symptoms differ, they are surely very different; if by different diseases we mean those whose causes are different, and which never run into each other, they must be regarded as varieties of the same disease.

Others have not only regarded the scarlatina and cynanche maligna as different diseases, but have looked on those cases in which they are combined, as of a nature different from either. This view of the subject is neither useful in practice nor accurate in a nosological point of view.

According to the most accurate view perhaps, the scarlatina simplex alone should have been ranked among the exanthemata; and the pure cynanche maligna, namely, that unattended by an affection of the skin, alone considered as a distinct disease. It would then have been easy to describe the appearances resulting from the combination of the two diseases, and the manner in which the treatment should be adapted to different cases, according as the symptoms of the one or other prevail. As the scarlatina and cynanche maligna strictly so called appear unattended by each other, in a system of nosology they should be regarded as distinct diseases; as they are so frequently combined, their combinations must be treated of in a system of practice; and this arrangement would appear to be sanctioned by the history of the diseases, which on their first appearance were certainly more distinct than we find them at present.

1. Of the Symptoms of the Cynanche Maligna.

The symptoms of this disease are so complicated, that it is difficult to give a view of them at the same time sufficiently full and distinct.

We shall in the first place consider the manner in which the disease makes its attack; then describe the affection of the fauces; next the symptoms which attend it; then the various appearances of the eruption; and lastly the different ways in which the disease terminates.

The attack of cynanche maligna often differs but little from that of simple fever. The patient complains of lassitude, dejection of spirits, and giddiness. He is generally affected with more or less shivering, frequently alternating with fits of heat. The pulse is frequent, and the breathing more or less hurried.

These symptoms seldom continue long before the patient complains of a sense of stiffness about the neck, with some pain and difficulty of swallowing, and on inspecting the fauces, they appear red and swelled. In many cases the affection of the fauces is troublesome from the beginning, and sometimes it is the first symptom.

When the disease makes its attack in this way, the prognosis is favourable; it is probable that the disease will partake considerably of the nature of scarlatina.

But when along with the foregoing symptoms the patient complains of severe head-ache, especially a pain in the crown of the head, violent pains of the back and limbs, or pain in the stomach, with nausea and vomiting, or with diarrhoea;* when instead of giddiness, he is affected with coma or delirium; when the eyes are heavy and watery, the countenance either full and bloated, or pale, shrunk, and dejected; when he complains of an unusual sense of oppression and debility; when the pulse is small, irregular, or tremulous, whether frequent or not,† or full, heavy undose, and unequal, as Huxham‡ expresses it; when the breathing is small, hurried, anxious, and interrupted with sighing; when the urine is quite limpid, or very high-coloured and turbid; when the sensation in the fauces is rather that of an uneasy stiffness than of pain, the deglutition being little impeded;§ when the internal fauces appear of a dark red with brown spots, the tongue, especially towards the root, being loaded with much viscid white mucus; when an eruption of small red postules or purplish blotches appear on the skin soon after the commencement, or at the very commencement, (for in the worst cases of cynanche maligna the eruption has been known to be among the first symptoms,) the prognosis is bad.

* The diarrhoea is often bilious. Both the vomiting and diarrhoea are most frequent in children. Although nausea and vomiting are among the worst symptoms of this disease, they do not always appear even in fatal cases. Mr. Colden says they rarely occurred in the epidemic he saw. See Mr. Colden's letter to Dr. Fothergill, in the first volume of the Medical Obs. and Inq.

† Quariti (Dr. Febribus) observes, that the pulse is sometimes less frequent than natural at the commencement of cynanche maligna.

‡ On the malignant Ulcerous Sore-throat.

§ The pain and difficulty of swallowing, Dr. Wall observes, is sometimes so trifling, that the disease often makes great progress without the patient knowing that there is any disorder in the throat. He relates a case in which this happened.

It is not meant that all the foregoing symptoms shew themselves at the commencement even of the worst cases. It is sufficient, if several of these appear, to denote the malignity of the disease.

The very worst cases of cynanche maligna, however, sometimes make their attack in so deceitful a way, that for some time, the symptoms differ little or not at all from those of the most favourable cases, so that although the one set of symptoms always affords an unfavourable, the other does not uniformly afford a favourable prognosis. In some cases the symptoms remain very mild for several days. The strength in particular is often not much impaired at an early period, nor always indeed at a later period. Even in the worst cases, Mr. Colden observes, many walked about till within an hour or two of their death.*

It has sometimes happened, as in an epidemic described by Mr. Stephen,† that the temperature of the body was hardly greater than natural, not only at the commencement, but throughout the whole disease.

The absence of all the symptoms of fever indeed at an early period, does not always assure us that the case is free from danger. Mr. Collins‡ remarks, that in the malignant sore-throat epidemic in St. Vincent, the fever did not usually appear till the affection of the throat had lasted seven or eight days, and the patient generally walked about, notwithstanding a very bad state of the throat, till the fever came on. It is even asserted by some that the cynanche maligna has appeared without being accompanied by fever at any period.§ Such varieties, however, are very rare.

On the state of the throat depends the prognosis at every period of the disease. At first, we have seen, the patient complains of a stiffness of the muscles of the neck, and some difficulty in swallowing.|| As the affection of the fauces increases, it is often attended with a degree of hoarseness, which, like the difficulty of deglutition, however, is seldom considerable.

If the breathing be much affected, it proceeds from the inflammation spreading to the trachea.

* Med. Obs. and Inq. vol. i.

† Med. Comment. vol. xii.

‡ Med. Comment. vol. ii.

§ Mr. Short, in his Chronological History of the Weather, observes, that this was the case in the malignant sore-throat which raged in England in 1742.

|| As in the cynanche tonsillaris, the œsophagus is sometimes but rarely affected with spasm, rendering the deglutition very difficult or wholly interrupting it.

However florid and free from specks the fauces may appear at the commencement of cynanche maligna, they soon assume a dark red colour, and specks of some shade between a light ash colour and a dark brown appear scattered over the tonsils, velum pendulum palati, and uvula. The lighter the colour of the specks, the better is the prognosis. The formation of these specks, it has been observed, is sometimes preceded by inequality and increased frequency of the pulse, and by an increase of the restlessness and depression.*

The first appearance of the internal fauces, is sometimes that of a large whitish coloured stain, surrounded with a florid margin, the stain soon becoming a large slough.

The swelling is sometimes considerable, but seldom so much so as in the cynanche tonsillaris. In the appearance of the throat indeed, as well as the other symptoms, the cynanche maligna, frequently at an early period so nearly resembles this disease, that they can only be distinguished by the causes from which they arise, and the nature of the prevailing epidemic.†

As the specks spread, they generally become of a darker colour, the interstices at the same time assuming a purple hue, new specks appear, and the whole internal fauces are at length covered with thick sloughs, which frequently fall off, discovering ulcers sometimes deep-seated.

When the sores left after the separation of the sloughs, appear of a fiery red, the danger is very great. If they become covered with a black crust, the event is generally fatal. When, on the other hand, the parts which the sloughs covered appear florid and clean, the prognosis is more favourable.

As the disease advances, the breath becomes fetid and is often disagreeable to the patient himself. He generally spits up mucus tinged with blood, and often a matter of a livid sanious appearance, which sometimes excoriates every part it touches. The lips are frequently of a livid or black colour, and on their inner sides, covered with small vesicles containing an ichorous matter. The sudden suppression of the discharge from the throat has been observed, especially in children, to be followed by a fatal train of symptoms.

In the worst cases, the fauces at length appear quite black, and pieces of mortified skin and flesh are spit out. It is needless to

* Dr. Willan on Cutaneous Diseases.

† See the diagnosis between these diseases, in the 211th page of Dr. Forthgill's works published by Dr. Lettson.

say that this symptom affords a very unfavourable prognosis ; it is not always fatal, however, as I have myself witnessed.

When the disease takes a favourable turn, the parts surrounding the sloughs begin to assume a more florid appearance, and a better conditioned matter is discharged from the ulcers.

While the affection of the fauces increases, the various symptoms of general derangement keep pace with it. If delirium or coma has not come on at an early period, it generally appears in the progress of the disease. The eyes become more fixed, dull, and heavy ; the delirium for the most part being of that kind which attends typhus. Dr. Fothergill has observed, that the delirium in cynanche maligna is of a peculiar kind ; an observation which has not been confirmed by the experience of others.

In some cases it is of the phrenitic kind. There is then reason to believe that the inflammation has spread to the brain ; generally a fatal accident. The countenance is then flushed and assumes an expression of fierceness. In the generality of cases it is either swelled and bloated, sometimes so much swelled as to close the eyes,* or shrunk and cadaverous. Early in the disease, it has a strong expression of anxiety, which wears off as the debility increases. At a more advanced period the eyes are generally affected with a languid inflammation, and in the worst cases often suffused with blood.

All hemorrhagies, except very early in the disease, are unfavourable in the exquisitely-formed cynanche maligna. Though some, as in fever, indicate more danger than others. The observations made respecting them in typhus are applicable here.

Petechiæ do not so frequently attend cynanche maligna, as the other symptoms would lead us to expect. In some epidemics they are more frequent than in others : Dr. Wall, and a few other writers speak of them as not an unusual symptom. In an epidemic mentioned by Mr. Short, they seem to have been almost a constant symptom.

As the disease advances, the pulse becomes more depressed. On touching the skin, which is generally parched, the same sensation of heat is experienced as in malignant typhus. There is often an exacerbation in the evening, during which the breathing is sometimes rattling or even sterterous.

The diarrhœa increases in the progress of the disease, or supervenes if it did not appear at the commencement, the patient com-

* Mr. Russell's *Œconomy of Nature in Acute and Chronic Diseases*.

plaints of griping pains, and the matter discharged often excoriates the anus and neighbouring parts. When the fæces become black, the prognosis is very bad.

The supervening or increase of the diarrhœa seems often to proceed from the acrid matter of the fauces getting into the stomach and intestines, or from the sloughy affection spreading to these parts, for in some cases it has been traced along the whole course of the alimentary canal,* and considerable hemorrhagies often succeed the abrasion of the sloughs in the intestines.

It was observed above, that the inflammation in some cases spreads to the larynx and trachea. The same is true of the ulcers; they have been traced by dissection even beyond the division of the trachea. When the disease attacks the wind-pipe, a very troublesome set of symptoms come on; the voice is altered, assuming a wheezing or ringing sound, sometimes it is lost; the breathing becomes difficult; the patient is teased with a severe cough, endeavouring to bring up the acrid matter secreted by the ulcers, which resembles that spit out from the fauces; it is sometimes mixed with tubiform substances, once supposed to be portions of the internal membrane of the trachea and bronchiæ, but now known from dissection to be a matter formed by the disease, which lines these canals, and which we shall have occasion to consider more particularly in treating of the cynanche trachealis. In such cases the patient is sometimes suddenly carried off by suffocation. The tendency of the cynanche maligna to affect the trachea has induced Dr. Johnstone to propose dividing the disease into the cynanche maligna tonsillaris, and trachealis.

In the more severe cases indeed, almost every part in the neighbourhood partakes of the state of the fauces; the membrane lining the nostrils is generally much affected, often occasioning fits of sneezing, an acrid matter mixed with blood frequently runs from it, excoriating the lips; sometimes even blisters are raised on the hands and arms of children, when they use them for wiping away the discharge. However unfavourable this discharge, its sudden interruption is still more so.† It is seldom so considerable in adults as in children.

The inflammation, as in the cynanche tonsillaris, sometimes spreads to the tongue, sometimes along the eustachian tube to the

* Mr. Russell's Treatise just referred to, Huxham on the Ulcerous sore-throat, &c.

† See the Observations of Huxham and others.

internal ear, occasioning ulceration, and sometimes wholly destroying its structure.

Sometimes it spreads to the parotid, maxillary, and other glands in the neighbourhood of the fauces, which become swelled and painful. Huxham says that he has seen this happen at the very commencement of the disease to such a degree as to threaten suffocation. They sometimes suppurate and form tedious and painful abscesses.

The whole neck indeed sometimes swells, becomes tender to the touch, and assumes a dark red colour, and the head is retracted. Even the arms, hands, and fingers, in some cases are inflamed, swelled, stiff, and painful.

When the trachea is much affected, particularly if the disease spread beyond its division into the bronchiæ, inflammation of the lungs often comes on and proves fatal. This indeed sometimes happens in cynanche maligna, without being preceded by any affection of the trachea, and has even suddenly destroyed the patient, where there had been no symptom of alarm, as Mr. Colden ascertained by dissection. Mr. Collins observes, that the cynanche maligna sometimes proved fatal after the affection of the fauces had wholly disappeared, the inflammation having spread to the stomach or lungs. Hiccup, which particularly at the height of the disease, has been observed to be a very unfavourable symptom, seems often to arise from the inflammation spreading to the œsophagus and stomach.

Mr. Colden makes the following curious remark; that some had sores, like those in the throat, behind the ears, on the genitals, or other parts of the body, and in these cases there was sometimes no ulceration nor even affection of the throat. Others make similar observations.

The cynanche maligna generally arrives at its height about the fifth or sixth day, and in cases which terminate favourably declines in five or six days more. It has been observed, that it runs its course more slowly in adults than in children.

Such are the symptoms attendant on the worst state of the fauces in the cynanche maligna. When the disease takes a favourable turn, the symptoms which have just been enumerated are either absent or considerably modified. The countenance begins to lose that peculiar expression, so characteristic to the worst forms of the disease. The pulse becomes stronger and less frequent. The respiration freer. The skin from being parched becomes soft and often moist, one of the most favourable symptoms, the evening ex-

acerbations, less remarkable, and the discharge from the intestines and nares, if it still continues, less acrid.

But whether the disease proves favourable or otherwise, a set of symptoms which still remain to be considered, generally attends it.

The connection between the cynanche maligna and scarlatina, I have already had occasion to notice. It sometimes happens, we have seen, that the former, such as it has just been described, appears without any affection of the skin, in the same manner, as we sometimes meet with the scarlatina without any affection of the throat; in general, however, both affections are combined, and seem wonderfully influenced by the state of each other. But while the absence of the sore-throat in the scarlatina always affords a favourable prognosis, that of the eruption in the cynanche maligna generally affords an unfavourable one.

In some epidemics, the generality of cases have appeared without any affection of the skin. Lieutaud even speaks of the eruption as a rare occurrence in cynanche maligna. "Ut sileamus de efflorescentiis cutaneis aliisque variis symptomatibus."* Dr. Wall also observes of an epidemic cynanche maligna, that very few had the scarlet eruption. There are instances of epidemics indeed, as that described by Dr. Collins, in which the eruption did not appear in a single instance.

The period at which the eruption shews itself, is various; it is rarely later than the fourth day, and seldom so early as the first. The early appearance of the eruption is unfavourable. It generally first shews itself about the neck and breast, sometimes with itching of the skin, more frequently without this symptom;† and, as in the scarlet fever, the eruption spreads to the mouth and throat; the inner surfaces of the nostrils and eyelids also partake of it, and it sometimes even extends to the tunica albuginea.‡

The eruption, often attended with some degree of swelling, gradually spreads over the trunk and extremities. As in the scarlatina, it comes out in stains which, when nearly inspected, appear composed of small prominent pustules, with the interstices, Dr. Willan observes, of the natural colour. Their prominence may be distinguished by the eye, more easily, by the touch.

* Synopsis Prax. Med.

† In some cases, Huxham observes, there is itching and desquamation without any eruption.

‡ Dr. Willan, on Cutaneous Diseases,

There are sometimes pustules of a larger size, particularly on the extremities, which are readily seen, being of a more intense red than the parts which surround them.

The appearances of the eruption affording a favourable prognosis, are the same as in the scarlatina, a florid colour, uniform diffusion, and a copious desquamation.

The eruption being full, however, by no means insures the mildness of the disease, nor does an unsteady and partial eruption universally indicate that the disease will be severe. Huxham says, he has seen some in this disease die of a phrensy, who were covered with "the most fiery rash" he ever saw.

It rarely happens, however, that the eruption is uniformly diffused in severe cases of cynanche maligna; it generally comes out in blotches, or small points scattered over the trunk and extremities, which are seldom of a florid red, but of a dark purplish or livid hue, and which terminate in but a very scanty desquamation.

When the eruption is favourable, a remission often takes place on its appearance, and almost always at the period of desquamation. When it is unfavourable, its appearance never, and its termination rarely, brings relief.

The duration of the eruption, like that of the disease, previous to its appearance, is seldom less than one day, and seldom more than four. In some cases its duration on the whole is longer, from its disappearing and returning again, which is far from being favourable. Dr. Willan observes that it is generally more florid in the evening than in the morning.

As in other eruptive fevers, the eruption has sometimes suddenly receded, an alarming train of symptoms supervening.* The patient falls into dropsical swellings, the countenance assumes a cadaverous appearance, and he is frequently carried off by convulsions. A similar train of symptoms has supervened on the eruption suddenly assuming a livid appearance, or becoming pale from being very high coloured. All these symptoms it is evident are the effects of debility, farther illustrating what was said of the retrocession of eruptions.

The desquamation often continues a long time after every other symptom has disappeared. It is not uncommon to see patients peeling the cuticle from their fingers, after they have been well for a fortnight or three weeks.

In the cases which terminate favourably, the symptoms sometimes gradually abate without the appearance of any which can be

* Mr. Russell and others, on the Cynanche Maligna.

regarded as critical; in most favourable cases, however, a gentle sweat appears about the time of desquamation. This crisis has been observed to be less perfect in adults than in children. The sweat sometimes appears earlier; it then generally brings relief, but seldom wholly removes the fever.* A moisture on the skin in the mornings, however, which does not bring relief, seems merely the consequence of debility, and indicates danger. The cynanche maligna, like most other febrile diseases, often abates with a copious sediment in the urine.

The other symptoms occasionally critical in continued fever, seldom prove so in this disease.

With regard to the unfavourable terminations, some I have already had occasion to mention; the patient, we have seen, is sometimes destroyed by the inflammation's spreading to the trachea, or lungs, or to the stomach, or brain; and more rarely by metastasis of the inflammation to these parts.

A retrocession of the eruption, and ceasing of the discharge from the fauces, have also been mentioned as sometimes attending the fatal termination. The discharge from the fauces is most apt to be diminished during sleep.

Some die of profuse hemorrhagy from the intestines, nose, mouth, or ears. The menstrual discharge frequently appears before the usual period in the cynanche maligna, and sometimes becomes profuse. Many in this disease have had it for the first time. If copious, or before the proper period, it is generally an unfavourable symptom; if very profuse, it may prove fatal.

Some die suddenly by suffocation, in consequence of the swelling of the glands of the neck.

In other cases the patient is gradually reduced by an acrid catharsis.

When the trachea and its branches have been much affected, ulcerations are sometimes formed in the lungs, and hectic fever comes on. I shall not here enter into the question whether the cynanche maligna gives rise to phthisis, except where tubercles have previously existed, it is certain that it has occasioned phthisis where no tendency to this disease had previously appeared.

In many cases, the fatal, like the favourable termination, is unattended by any peculiar symptoms. The worst of the symptoms

* "General sweats," Huxham remarks, "on the third, fourth, or fifth day, or later, were salutary." Dr. Fothergill observes, that the morning sweats, when they occurred early in the disease, often brought such relief that the disease assumed the intermitting form.

which have been enumerated gradually supervene; the fauces become black; the eruption assumes a dark purple colour, especially about the throat; the breathing becomes difficult and sonorous, and is frequently interrupted for some seconds. A degree of stupor comes on, the eyes appearing glossy. Dark coloured and very offensive fæces are passed involuntarily. Hiccup, in bad cases one of the most fatal symptoms, supervenes, the extremities become cold, and are covered with a clammy sweat; the pulse intermits, at length cannot be felt, and the patient gradually expires, or is carried off by convulsions.

We estimate the danger more by the state of the general than the local symptoms. Whatever be the appearance of the fauces, if the pulse be pretty steady, and the strength not much exhausted, we need not despair.

The prognosis in cynanche maligna is best determined by observing how far the symptoms incline to those of scarlatina. To place it in a clear point of view it will be useful, notwithstanding it must occasion some repetition, to contrast the symptoms of the exquisitely-formed cynanche maligna with those indicating a tendency to scarlatina.

In the scarlatina the first symptoms are those common to fevers in general, particularly to the varieties of synocha.

If these be the only symptoms at the commencement of the cynanche maligna, they are generally more severe than in the scarlatina. In most cases, however, the patient complains at the same time of acute pains in the back and limbs, he is troubled with nausea and vomiting, or diarrhœa, or both. In the worst cases the pulse from the first is weak and tremulous; the loss of strength for the most part, great and sudden; the extreme anxiety which generally attends this disease is strongly marked in the countenance; and even delirium or coma supervenes on the first night.

In the scarlatina the eyes are inflamed and prominent. In the cynanche maligna they are often more or less inflamed also, but heavy, watery, and in the progress of the disease, fixed and glossy.

When the eruption is florid and uniformly diffused, there is generally from the beginning considerable pain of the throat increased on swallowing, the fauces are florid, and considerably swelled, and if specks appear they are almost always of a light colour. In the true cynanche maligna the patient complains of little pain, but rather of an uneasy stiffness about the neck; the fauces have a dark red or purple hue, and are covered with crusts of an ash or brown colour. In this respect, however, there is much variety.

In some cases of cynanche maligna the fauces at the commencement appear of a florid red, and not unfrequently redder in some places than in others.

In the progress of the scarlatina the specks are not readily changed into ulcers, and never spread so as to cover the whole or greater part of the fauces, nor erode the subjacent parts; those parts which are not occupied by them remain of a florid colour, and if there is an unusual secretion from the fauces it is only of a thin or viscid mucus or saliva. The contrary of all this is true of the cynanche maligna, the specks soon degenerate into ulcers, which spread rapidly to the adjacent parts, eroding those which lie beneath them. The whole fauces often assume a black colour, mucus mixed with blood, a livid sanies or even pieces of mortified flesh are spit out, and the fœtor of the breath is intolerable.

In the scarlatina there is no acrid discharge from the nostrils or intestines; in the cynanche maligna the discharge from both is often so acrid as to excoriate every part it touches.

The worst hemorrhagies occasioning a bloody saliva, bloody urine and stools, and bloody suffusion of the eyes, and tinging the sweat, are symptoms which we never meet with in scarlatina.

In the progress of scarlatina the face is generally red and somewhat swelled; in the cynanche maligna it is pale, swelled, and bloated, or shrunk and cadaverous.

In the scarlatina the mental functions are rarely deranged. In the cynanche maligna, if delirium or coma do not appear at the commencement, they seldom fail to supervene afterwards.

Various symptoms above enumerated, which never appear in scarlatina, often attend cynanche maligna from the affection of the fauces spreading along the œsophagus to the stomach, or even along the whole tract of the intestines, and from its spreading to the trachea and larger branches of the bronchiæ.*

All the parts in the neighbourhood of the fauces, the eustachian tube, the internal ear, the parotid, maxillary, and other glands of the neck, more frequently partake of the affection of the throat in the cynanche maligna than in the scarlatina.

In the cynanche maligna, the period at which the eruption shews itself is uncertain; we have seen that it sometimes comes out even on the first day; in the scarlatina it generally makes its appearance on the third or fourth day.

* All those parts to which the inflammation spreads, are often found on dissection in the same gangrenous state with the throat.

In the latter it is of a florid colour, and soon spreads uniformly over the whole or a great part of the body. In the former it often appears in blotches or points, and is frequently either pale or purplish.

In the scarlatina the appearance of the eruption often brings relief, particularly to the sickness and anxiety; it terminates in a copious desquamation of the cuticle, and if its appearance failed to bring relief, its termination seldom does. In the cynanche maligna it terminates in but a very partial desquamation, which, like the appearance of the eruption, rarely brings relief.

In the scarlatina the eruption for the most part is steady, gradually assuming a brownish hue, which precedes the desquamation. In the cynanche maligna it is often inconstant, disappearing and again coming out several times in the course of the disease.

It is in the cynanche maligna that a retrocession of the eruption, and the symptoms which accompany it, are most apt to occur.

Phrenitis and pneumonia rarely supervenes in the scarlatina, nor is it liable to be followed by phthisis.

A gentle sweat, which only sometimes appears at the time of desquamation in the cynanche maligna, and seldom proves critical, very generally accompanies the same period in scarlatina, and is almost constantly attended with an abatement of the symptoms.*

Such are the symptoms of the cynanche maligna, and the means of collecting the prognosis in this disease. Death may happen at any period; it has often happened even on the first day. Dr. Fothergill observes, that in the greater number of cases which terminated fatally under his care, the patient died before the fourth day. Those, he observes, who survived the fourteenth, were thought to be out of danger, at least from the disease itself, though some died unexpectedly after a much longer reprieve. The patient sometimes recovers from the disease, and falls a sacrifice to its consequences, dropsy or other diseases of debility. The anasarca which succeeds the disease, and is generally unattended with danger, belongs rather to the scarlatina than cynanche maligna, as it is most frequent and considerable where the eruption is fullest and most florid. When the voice is much impaired, it sometimes does not recover its tone for many months or even years.

2. Of the Causes of Cynanche Maligna.

The cynanche maligna is one of the few phlegmasiæ which are produced by a specific contagion. The proofs of its arising from

* See a short parallel of the symptoms of the scarlatina and cynanche maligna, given by Dr. Withering in his Treatise on the Scarlatina.

contagion, and not from the causes of the other phlegmasiæ, are so well known, that it is needless to insist upon them.

It is very generally allowed, that at one time the cynanche maligna was unknown in Europe. Huxham, Mr. Russell,* Lieutaud, and others, maintain that it was known to some of the ancients. Lieutaud says, that Aretæus was the first who gave any account of it. It is the opinion of most writers, however, that the disease mentioned by Aretæus under the name *Ulcera Syriaca* was of a different nature from the malignant sore-throat. The dispute is of little consequence.

It appeared first in modern times in Spain about the year 1610; and spread thence to Malta, Sicily, Otranto, Apulia, Calabria, and Campagna, in the space of a few years. It broke out at Naples in 1618, and continued to rage in different parts of that kingdom for no less than twenty years.†

Ludovicus Mercatus, physician to Philip II. and III. kings of Spain, published a treatise on it in 1612. Andreas Sgambatus, a physician of Naples, in 1620. Baptista Cortesius described it about the year 1625. Eleven years after, Oetius Cletius of Sigenia published a treatise *De Morbo Strangulatorio*, the name which he gives the cynanche maligna. In 1643 Aurelius Severinus, professor of anatomy and surgery, and physician to the hospital of incurables at Naples, wrote on it. Petrus Michael de Heredia, physician to Philip IV. of Spain, also wrote on this disease; Dr. Fothergill has not been able to discover the precise date of his work. Thomas Bartholine published a treatise on it in 1648.

After the time of these authors, it seems to have disappeared for many years. The first accurate accounts we have of it afterwards, having appeared near our own time.

Dr. Fothergill does not consider the affections of the throat, described by Wierus, Forestus, and Ramazzini, as the true cynanche maligna, nor does he esteem as such the scarlet fever and sore-throat which raged at Edinburgh in 1733, an account of which the reader will find in the third volume of the *Medical Essays*.

There is a disease which resembles it, shortly described by Tournefort, in his *Voyage to the Levant*; he calls it a carbuncle or plague-sore at the bottom of the throat, attended with much fever;

* Mr. Russell in his *Œconomy of Nature in Acute and Chronic diseases*, quotes several passages from Hippocrates, in which he thinks this disease is mentioned.

† Dr. Fothergill's Paper, entitled, *Of the sore-throat attended with Ulcers*.

but his account is so imperfect, that Dr. Ruddy thinks it bears a stronger resemblance to the cynanche trachealis.

Dr. Fothergill seems to have overlooked Morton's account of a scarlet fever which raged in London towards the end of the 17th century, and was very different from the mild form of this disease described by Sydenham. "Cæteraque," Morton observes "anginae et peripneumoniae symptomata sæpius ingravescent." What he says in the next sentence is very characteristic of the cynanche maligna. After the eruption, he remarks, the disease frequently changes to a malignant form, and then it is highly dangerous; cough, phthisis, ophthalmia, obstinate and colliquative diarrhoea, strumous affections, cachexy, leucophlegmasia, and ascites, often supervene.

The reader will find a particular account of many of the principal works on this disease in Dr. Willan's Treatise on Cutaneous Diseases.

Notwithstanding the frequent occurrence of cynanche maligna in our days, few of the circumstances which predispose to it are ascertained. Adults are less subject to it than children, and when they are attacked with it, generally have it in a milder form. Dr. Fothergill says he never knew an adult attacked with the cynanche maligna while in health and vigour, in whom it proved fatal. I have repeatedly seen it fatal under these circumstances.

It has also been maintained, as of the scarlatina, that women are more subject to it than men, and girls than boys; the accuracy of these observations, however, is at least doubtful. Those of a weak and lax habit are more subject to it than the robust and firm. This circumstance may be regarded as assisting the diagnosis between the cynanche maligna and the cynanche tonsillaris, which most frequently attacks the healthy and vigorous.

The cynanche maligna most frequently appears in autumn and the beginning of winter; it sometimes, however, prevails without interruption for several years.

The reader will find the state of the weather in the summers preceding the appearance of this disease particularly noticed by writers. It would seem, however, that if we except an unusual degree of warmth and moisture, we can detect no state of the weather, that particularly predisposes to it.

The circumstances which tend to increase its severity are the same with those which increase the severity of common typhus, warm and moist weather, a sickly habit of body, putrid effluvia, a number of people being crowded together, especially if labouring

under the disease, and every other cause of irritation, whether making its first impression on the mind or body.

It has been observed that the cynanche maligna, like the plague, and indeed most other contagious diseases, is most fatal on its first appearance, gradually becoming milder, till towards the end of the epidemic it is scarcely attended with any danger.

It also resembles other epidemics, in preventing the prevalence of other diseases while it rages, and in giving a disposition to those which do appear to partake of its nature. The reader will find it observed by Huxham,* Rush,† and others, that while the cynanche maligna raged, sore throats of all kinds, in different cases approaching more or less to its nature, were the most frequent diseases; and the former also observes, that there was a surprising tendency to eruptions on the skin, and to aphthæ, in fevers.

3. Of the Treatment of Cynanche Maligna.

The treatment admits of the same division as the symptoms, into general and local. To avoid interruption, I shall defer the few observations to be made on the treatment of certain symptoms, obstinate vomiting, diarrhœa, &c. which are not essential to the disease, till the general plan of cure has been considered.

As there are no cases of cynanche maligna in which local remedies alone are sufficient, there is not here the same reason for considering the local, before the general treatment, as in the cynanche tonsillaris. As, however, the same parts are affected in both cases it will assist the memory to adopt the same mode of arrangement.

Of the local means used internally.

Many of the gargles mentioned in treating of the cynanche tonsillaris are used here. The medicines which have been termed antiseptic, and the more acrid applications, are most useful in cynanche maligna.

During the first stage the older writers recommended, mild acetous liquors, a decoction of barley with vinegar, the juice of the pomegranate or mulberry, &c. When white sloughs appeared, they prescribed a decoction of lupins, vetches, &c. with honey of roses; when the throat was ulcerated, myrrh or allum mixed with honey of roses, the unguentum egyptiacum in barley water, the sulphate of iron and copper, or the diluted sulphuric or muriatic acids. Even arsenic and the actual cautery were occasionally recommended.

* Huxham on the Ulcerous Sore-throat.

† Med Obs. and Inq. by Dr. Rush.

As soon as the symptoms were mitigated and the ulcers had lost the gangrenous appearance, they employed gently astringent gargles, and directed the patient to receive into the mouth the fumes of various substances thrown on live coals.

In this as in the other species of the sore-throat, we determine the composition of the gargles by reflecting on the ends we have in view in prescribing them. Three purposes are answered by them in the cynanche maligna; the acrid matter is washed out, which, if allowed to remain in the fauces, at once occasions the spreading of the disease, disposes to gangrene, and, if swallowed, tends to produce oppression and diarrhœa; the tendency to gangrene is at the same time more directly counteracted by their stimulating property; and the secretion from the fauces supported; for, however injurious this secretion may be in the fauces and other parts of the alimentary canal, still more is to be apprehended from its sudden failure, or even from a sudden and considerable diminution of it.

It is true, indeed, that the same gargle will not fully answer all the foregoing indications; astringents, among the most powerful means of checking gangrene, tend to impede the secretion. It therefore requires some attention after we are made acquainted with all the ingredients employed in the composition of gargles in this disease, to suit them to the circumstances of the case.

We must be directed by the general tendency of the symptoms. If the flow of mucus has been considerable, but is suddenly diminished, and especially if any of the symptoms which sometimes attend such an accident supervene, it will be proper, for some time, wholly to lay aside the use of astringent gargles. If, on the other hand, the secretion of mucus continues considerable, or has never been so, astringent gargles will generally be found the best.

As other stimuli, which may be termed acrid, tend less than astringent to check this secretion, and at the same time if used with astringents, co-operate in checking the tendency to gangrene; it is proper in all cases to employ the former.

There are two kinds of gargles then employed in the cynanche maligna, those composed of acrid, or as they are generally termed, stimulating substances, and those composed of these and astringents. There is perhaps no case of cynanche maligna, in which it is proper to employ gargles merely astringent. A plain decoction of the peruvian or oak bark would be far from a proper gargle in any stage of this disease. Among the substances best fitted for the composition of acrid gargles, are the capsicum, myrrh, marine

acid, wines that are not astringent, or diluted alcohol in any other form.

We do not here dread the motion of the fauces in gargling, as in the worst cases of the cynanche tonsillaris : the inflammation generally falling below the degree most favourable to suppuration. We often, however, have a more perplexing difficulty to struggle with. It is impossible to make children, the most frequent subjects of this disease, use a gargle. We can generally indeed make them swallow a little extract of bark mixed with wine ; but this is far from answering the purposes of a gargle. Many who have been conversant with this disease, think that its fatality among children is in a great measure to be attributed to their swallowing the morbid secretion from the throat. This, it was observed above, seems often to induce vomiting, griping pains, and purging of the worst kind, by causing the disease to spread along the alimentary canal. It is very frequently by these symptoms that children are destroyed. They may in some measure be prevented by from time to time removing the acrid matter by a small sponge at the end of a stick, and by means of another sponge at the other end, the ulcerated fauces may be touched with the mixtures best calculated to promote their healing. There is no necessity for using these mixtures in such quantity as to excite swallowing. Syringing the throat is a good means of washing out the mucus, but caution is requisite in its employment, when the power of swallowing is much lessened part of the fluid may fall into the trachea.

The vapour of water variously impregnated has long been a favourite remedy in cynanche maligna. The patient is directed to breathe the steam arising from an infusion of myrrh, camphor, red roses, camomile flowers, &c. in boiling water or vinegar.* The vapour of myrrh and vinegar in particular, is recommended by several writers. That of the nitrous acid raised in the way proposed by Dr. C. Smith† often appears to have excellent effects. “The refreshing antiseptic vapour,” Dr. Willan observes, “detached by this process, and circulated through the room, presently clears the patient’s throat, and at the same time removes the fœtor both of the breath and perspiration.”

When the sloughs are numerous and extensive, other means have been employed to promote their separation. The older practitioners having observed that the spontaneous separation of the sloughs

* See Huxham and others on this disease.

† See vol. i. Continued Fevers.

is generally attended with a mitigation of the symptoms, concluded, by a very inaccurate mode of reasoning, that could they by any means procure their separation, the same good effects would attend it, for they did not regard the separation of the sloughs merely as a symptom, but as the cause of returning health; with this view they endeavoured forcibly to rub them off with the finger or an instrument, which has been done even by late practitioners. Experience, however, sufficiently warns us against it. "In a case where I was concerned," Dr. Fothergill observes, "previous to my being called in, a surgeon had endeavoured to separate the sloughs by the assistance of his probe. He succeeded in his attempt without much difficulty, but was surprised to see the same parts covered the next day with thick dark ash-coloured sloughs penetrating deep into the substance."

If we do not find the sloughs beginning to separate from the use of the foregoing gargles, all that can be done is to touch them with some more acrid preparation, the powder of myrrh, burned allum, the marine acid diluted with honey, &c. applied with a pencil or a small bit of rag. It is perhaps unnecessary to remark, after what has been said, that in this, as in all other gangrenous affections of the throat, the applications to the fauces should be warm.

Scarification of the parts occupied by the sloughs, has been practised, but seems upon the whole to do more harm than good.

Of the Local Remedies used externally.

We less generally find occasion for applications of the external fauces in the cynanche maligna, than in the form of cynanche last considered.

As the pain and swelling are seldom considerable, local blood-letting is rarely proper; when they are considerable, which now and then happens at the commencement, local is preferable to general blood-letting, even where the pulse is full.

Scarification and cupping of the shoulders and back of the head have been employed to remove the pain in this part of the head, but as far as I have been able to perceive, Dr. Fothergill observes, without much benefit. Dry cupping has also been recommended, but does not seem to have been of much service.

Blisters applied to the nape of the neck are often more successful but except at the commencement their application in cynanche maligna is a precarious practice. Dr. Clark observes, that he employed blisters in only one case of this disease, and the blistered parts became gangrenous. Mr. Colden and others experienced the same effect from them, and with respect to their stimulating

property on the system in general, the purpose for which the older practitioners chiefly employed them, the observations made respecting it in typhus, are applicable here.

Rubefacients may be employed with more safety ; their effects however, must be carefully watched. The reader will find them particularly recommended by Quarin, in those cases where the swelling of the glands is considerable.

Of the general Means employed in Cynanche Maligna.

It is chiefly on general means that we depend in the treatment of this disease. As almost every thing said of the treatment of typhus is applicable here, a few additional remarks will be sufficient.

The prejudice in favour of general blood-letting has extended to the cynanche maligna. It is chiefly at the commencement, however, that it has been recommended, for even the older practitioners regarded it as inadmissible at an advanced period. Later experience has evinced that it is rarely admissible at any period. Dr. Fothergill confesses that even in cases where it seemed indicated it was often injurious.

It is needless to repeat the observations of Huxham, Quarin, Cullen and indeed all the best writers on the disease to the same purpose. "The consequence of evacuations," says Mr. Colden, "is an insurmountable tendency to mortification, so that the very orifice made by the lancet mortifies."

Quarin only admits of venesection when pneumonia supervenes,* and even here he cautions against repeating the blood-letting too frequently, and insists on a circumstance which I have more than once had occasion to mention, that the appearance of the buffy coat does not always warrant a repetition of blood-letting, for under this coat, he observes, there is often a tender black crassamentum, the parts of which scarcely at all cohere. "Hinc patet, quam graviter errant illi, qui ob solam adparentem in sanguine crustam venesectionem aut largiorem instituunt aut eam repetunt."†

It particularly demands attention ; that when the affection of the fauces has spread to the trachea, the difficulty of breathing it occasions, may be mistaken for pneumonia, and venesection recommended when it is the most fatal step we can take. Hence probably it is that Dr. Fothergill remarks, that the heat, restlessness, deli-

* This case nearly resembles the pneumonia putrida of foreign writers, which will be considered in treating of pneumonia.

† Quarin De Febribus.

rium, and difficulty of breathing, which this evacuation commonly prevents or mitigates in other cases, in this are increased by it. Nor does the swelling, he adds, of the tonsils, fauces, &c. seem to receive the least benefit from it; on the contrary, though the fullness of these parts decreases, the sloughs thicken and change to a livid, or black colour, the external tumor enlarges, and the spitting is commonly lessened.

We have not here even that argument for the employment of blood-letting which has been so often urged in some other cases of typhus, that a spontaneous flow of blood sometimes brings relief, for here, hemorrhagies, we have seen, from whatever part, are almost uniformly prejudicial. Thus we find, this disease, in its mode of treatment, as in its symptoms and causes, differing essentially from the diseases with which it is classed.

Some equally dissuade from cathartics in cynanche maligna. I have not, however, seen the effects from them which they dread, and many of the best practitioners join in recommending nearly as free a use of cathartics here as in simple fever, particularly in the early stages. By cathartics, only the thinner parts of the blood are carried off, the extreme vessels are excited, and a fruitful source of irritation removed. Physicians have been deterred from the use of cathartics by finding that the worst cases are often attended with diarrhœa, but this inference is not conclusive. The diarrhœa may be an effort of nature to relieve the system in severe cases. In whatever way we explain it, the fact seems to be, that the disease runs its course most favourably when we keep up a free action of the bowels, taking care, however, to proportion the evacuation to the patient's strength.

The advantage derived from emetics at the commencement of the cynanche maligna,* has been observed by practitioners from its first appearance in Europe. Dr. Cullen also recommends nauseating doses. Neither are well adapted to the advanced stages. Tartarised antimony and ipecacuanha are the emetics which have been chiefly employed. Some condemn all antimonials, even at the commencement of this disease, not however, it would appear, on sufficient grounds.

Physicians have not, in the cynanche maligna, as in many other febrile diseases, endeavoured by the hot regimen to induce sweating, the bad effects which would have attended this practice were too apparant. The aq. ammon. acetat. and other mild diaphoretics

* See the observations of Huxham, Withering, Rush, &c.

however, have been generally recommended, and, although not to be ranked among the most powerful medicines, are often serviceable before the typhus is distinctly formed. The pediluvium also is frequently employed with the same view, at an early period. Opium may be ranked in this class of medicines. Its exhibition is regulated here by the same rules as in typhus. With respect to a long list of medicines termed diaphoretics, enumerated by authors, many of which I have had occasion to mention at different times, they are upon the whole of little power, and when given freely, by oppressing the stomach, often do harm.

As soon as the state of the excitement admits of it, we must have recourse to the tonic plan. Various medicines which they termed cordials, were much employed by the older practitioners, particularly the Italian and Spanish Physicians who first practised in this disease, bezoar stone, the earth, formerly called Armenian bole, precious stones, the flowers of the bugloss, borage, endive, scordium, scorzonera, scabiosa, &c. from which it is needless to say that little is to be expected; yet these and gentle diaphoretics, if we except evacuations, were almost the only general means they employed, for they did not seem aware of how much the state of the throat in this disease depends on that of the system in general; and indeed we cannot wonder that experience taught them not to trust to their general plans of cure. Some recommended medicines from which better effects might be expected, the carduus benedictus, ammonia, various aromatics, and even a little wine.

Warm aromatic and cordial medicines are still much employed, and it has justly been observed, that when the throat assumes a gangrenous appearance, and the depression and faintness are considerable, we must not be deterred from the use of such medicines by the frequency of the pulse. Many recommend a variety of ingredients in the composition of these medicines, but it seems now to be the opinion of practitioners that their effects are very generally proportioned to the quantity of wine, bark, and mineral acid which they contain.

The rules for giving the bark, wine, and acids, are the same as in typhus, except that when gangrene is actually present, the two first are given in larger quantity, the bark* as freely as the stomach will easily bear.

* Dr. Withering and some others have condemned the use of bark in cynanche maligna. My own experience tends to confirm the common opinion, that

Dr. Willan particularly recommends the oxygenated muriatic acid in this disease : Mr. Kearsly, a preparation of myrrh.*

I have already had occasion to mention the capsicum among the local remedies employed in the cynanche maligna ; it would appear from a variety of observations, that it may often be used internally with advantage. It has been given in very considerable doses, and in some epidemics it is said has succeeded better than bark. Mr. Steuart† was one of the first who gave it in this disease. He directs two table spoonfuls of the small red pepper, or three of the common Cayenne pepper, and two tea spoonfuls of fine salt, to be beat into a paste, on which half a pint of boiling water is poured, and strained off when cold ; an equal quantity of very sharp vinegar being added to this infusion, a table spoonful of the mixture every half hour is a proper dose for an adult. Under Mr. Stephen's care, also, it was exhibited with good effects to 400 patients, and seemed to save some whose state had been thought desperate.

Mr. Collins at first gave the bark and capsicum together, but by subsequent trials he was led to trust to the latter alone.‡

Swallowing the infusion, he observes, occasioned slight convulsive motions, and a sensation of heat in the œsophagus and stomach, and in a short time after it was swallowed, it produced a general glow over the body, but without considerably affecting the pulse. Mr. Collins used Mr. Steuart's preparation of the capsicum, but he thinks smaller doses preferable. It is chiefly in tropical climates that the capsicum has been employed.

It only now remains to make a few observations relating to certain symptoms, the treatment of which does not come under the general plan of cure, profuse diarrhœa, vomiting, hemorrhagies, suppression of urine, which occasionally attends all diseases of debility, and dyspnœa.

The means of restraining diarrhœa are, 1st, Those whose action is confined to the intestines, diminishing the secretion from their after the excitement is sufficiently reduced, it is a valuable medicine in this disease. When children cannot be persuaded to swallow it, it may be given in the less efficacious form of clyster.

* Gentlemen's Magazine, vol. 39.

† See the 12th vol. of the Medical Commentaries.

‡ Mr. Collins also mentions cases of intermitting fever which yielded to the capsicum.

surface and allaying the peristaltic motion, or exciting them to a more speedy evacuation of the offending matter, or correcting its morbid properties: 2dly, Such as act on other parts, there exciting certain effects in some measure incompatible with diarrhœa; and lastly, those which tend to restore the general vigour of the system.

The means of answering these purposes I have already, at different times, had occasion to point out. It is necessary to recollect in the use of them, that our object here is to lessen, not wholly to check the diarrhœa.

Vomiting seldom proves obstinate in this disease, nor does it frequently occur under circumstances which should induce us suddenly to check it. It generally arises from the presence of irritating matter in the stomach, and when it occurs at an early period should be encouraged by camomile tea, or even an emetic.—Dr. Fothergill advises the vomiting to be encouraged by an infusion of green tea or *carduus benedictus*, and observes, that by this method he has seen the disease go off with much more ease than was at first expected. On the evacuation of the offending matter the vomiting generally ceases; when it does not, the saline mixture in a state of effervescence, the mineral acids, or a small quantity of brandy and water sometimes allay it. It is sometimes allayed by a cathartic clyster; for as an emetic tends to check catharsis, catharsis tends to check vomiting. In this way small doses of *magnesia vitriolata* much diluted, which often lie on the stomach when hardly any thing else will, are frequently successful. When other means fail we may succeed, as I have frequently witnessed by a dose of opium and camphor.

In hemorrhagy from the throat or any part of the head, the nose, mouth, ears, clysters should be exhibited, and the patient kept as much in the erect posture as he can easily bear. In all cases of hemorrhagy the application of cold must be as free as it can be made without risking too great a diminution of temperature; considerable doses of *allum* and *vitriolic acid* should be exhibited; while cold and astringent applications are made as near as possible to the orifices of the bleeding vessels.* If these means fail, the hemorrhagy, for the most part, soon proves fatal; and when they succeed, their effects are often transitory.

In suppression of urine also a mild clyster is the first expedient. Fomentations, or cold applications to the region of the bladder,

* We shall soon have occasion to consider at length the various means employed in hemorrhagy. Those which act by lessening the *vis a tergo* seldom have place here.

are sometimes successful. It has just been observed, that this symptom is very frequently the consequence of debility. I have seen it nearly induced where there was no disease but debility from want of food. Suppression of urine, therefore, is often relieved by tonic medicines. If other means fail, we must call in the assistance of the surgeon, which should not be long delayed. It is of consequence in preventing this symptom, frequently to remind the patient to empty the bladder; suppression is most apt to happen when its fibres are stretched.*

Of dyspnœa little need be added to what has already been said. If accompanied with pain in the thorax, and cough, there is reason to believe that it proceeds from inflammation of the lungs, and it must be treated accordingly. As it may proceed from this cause although unattended with pain, and the affection of the trachea produces cough as well as dyspnœa, the nature of this symptom in cynanche maligna is often ascertained with much difficulty.

If it proceeds from the swelling of the glands about the fauces, we must if the state of the patient admits of it, have recourse to local blood-letting and blisters; if not, fomentations and rubefacients are the best substitutes. Mr. Colden recommends in this case, fomentations with bitter and aromatic herbs. If other means fail and suffocation is threatened, bronchotomy is the only remedy.

SECT. III.

Of the Cynanche Parotidea.

THE Cynanche Parotidea, called in English the Mumps, is generally so mild a disease that it does not require the assistance of the physician; it will not therefore be necessary to consider it much at length. It is defined, we have seen, by Dr. Cullen, that species of cynanche in which there is great external swelling from an enlargement of the parotid and maxillary glands, the respiration and deglutition being little disturbed, and the fever, for the most part, a gentle synocha.

This short account of the symptoms is sufficient for ascertaining the presence of the disease. The prognosis, with one exception, is uniformly good.

Towards the termination of the cynanche parotidea, that is, about the fourth day, when the swelling of the glands near the fauces be-

* See what was said of this symptom in speaking of the treatment of small-pox.

gins to abate, some degree of tumour frequently affects the testicles in men, and the breasts in women. Sometimes, though not frequently, they become very hard and painful, in general, however, with little fever.

But it now and then happens when the tumour of the breast or testicle does not succeed that of the glands about the fauces, or when the former does succeed the latter but suddenly recedes, that the fever, which has been very mild, and which generally abates when the swelling of the fauces begins to recede, suddenly becomes considerable, sometimes attended with delirium, and has even proved fatal. In this case we have reason to believe that the inflammation has attacked the brain. I have seen the delirium and fever almost immediately relieved by taking blood from the head.

This species of cynanche, like the last is frequently epidemic, and evidently arises from contagion. Children are the most frequent subjects of it. I have seen it epidemic in a school of above four hundred boys, when hardly one escaped it.

In its usual form a cooling cathartic, avoiding animal food, and an uniform temperature, alone are necessary.

When the train of symptoms just alluded to, supervene, it requires more attention. The mode of treatment then differs in no respect from that of phrenitis, except in the addition of local means to bring back the swelling if it has receded. The continued application of warm fomentations is the best means for recalling it.

Whether fomentations, applied to the breasts or testicles, would prove serviceable where this train of symptoms supervenes without having been preceded by any swelling of these parts, has not been ascertained.

SECT. IV.

Of the CYNANCHE TRACHEALIS.

ONLY one form of Cynanche remains to be considered, the Cynanche Trachealis; Dr Cullen's definition of which has been given.

It seems proper in the present state of medical knowledge to divide this disease into two varieties; that which sometimes appears in adults, and that which attacks children from the time they are weaned till about twelve years of age.

The former, if indeed they are different diseases, although rare, has been long known, now and then appearing alone, rather

more frequently complicated with the cynanche tonsillaris or maligna.

Its presence is readily known from the definition which has been given. The voice, and cough, if there be any, for a cough does not constantly attend the disease, have a peculiar ringing sound. The respiration is difficult, sonorous, and attended with a sense of tightness about the larynx. On inspecting the fauces, we perceive nothing uncommon; they are sometimes redder than usual, but very seldom much swelled. When there is much redness, or swelling, the disease must be regarded as a combination of the cynanche trachealis and tonsillaris. The eyes are red, the face is flushed, and as the difficulty of breathing increases, becomes swelled and purple. These symptoms never continue long without considerably affecting the pulse, and the fever which attends them is a synocha, at least at its commencement. Towards the termination of the disease, when the symptoms have been considerable, the pulse and strength sink.

One of the chief diagnostic symptoms of cynanche trachealis is that however great the dyspnœa, the deglutition is free. It has long been a maxim in medicine, even before physicians had any distinct ideas of this disease, that that species of cynanche in which the respiration is impeded without any redness or swelling appearing in the fauces, is most to be dreaded.* It will not be necessary to say more of the symptoms of the cynanche trachealis as it appears in adults. The degree of danger is best known from that of the dyspnœa.

With regard to the more common variety of the cynanche trachealis, which affects children only, and has not till lately been accurately described, at least in this country, it will be necessary to consider its symptoms more at length. Among the vulgar in England it is termed the croup or the rising of the lights. In some parts of Britain it is also known by the name of the choak or the stuffing. The reader will find it mentioned by authors under various appellations, morbus strangulatorius, cynanche stridula, angina epidemica, suffocatio stridula, asthma infantum, † angina poliposa or membranacea.

* Gravis est illa species anginæ, (Horstius observes) cum gutturis interni musculi sic inflammantur, ut neque in faucibus neque in cervice, quidpiam adpareat, unde Celso merito pestiferus, Galeno morbus extreme peracutus, Hippocrate vero lethalis dicitur.

† We shall find reason to believe that the disease known by this name has been improperly considered as the same with the croup.

Of the Symptoms of the Cynanche Trachealis Infantum.

This disease often makes its attack merely with a degree of dyspnœa, which often comes on very suddenly. As it increases, the breathing is performed with a wheezing sound, apparently from the passage of the air being straitened.

The patient at the same time, if he is old enough to give an account of his feelings, complains of a sense of tightness about the larynx, generally accompanied with some degree of pain, and almost always with some tenderness on pressure. Some pain may often be perceived on turning the head, when there is no pain felt while it is still.

The dyspnœa sometimes increases rapidly, in other cases so slowly that the patient complains of some difficulty of breathing for several days before he is seriously ill. The wheezing is sometimes, though rarely, attended with a degree of rattling. The state of the breathing at length becomes such that the shoulders are raised at each inspiration, the abdominal muscles act strongly, and there is a violent alternate elevation and depression of the ribs and scapulæ. The breath at the commencement is generally free from fœtor, but seldom remains so.

The voice has a shrill ringing sound, which has been compared to a noise issuing from a brazen tube, or the crowing of a cock. A cough very generally attends the cynanche trachealis of children, which also partakes remarkably of the same sound.* The cough is generally dry. When there is any expectoration, especially after the disease has lasted for some time, the matter spit up frequently has a purulent appearance, and is often marked with specks of florid blood. The purulent appearance is an unfavourable symptom; in some cases it has a white cheesey appearance, and flakes are sometimes thrown up by coughing, resembling pieces of a membrane which we shall find lines the trachea in this disease, the expulsion of which often brings considerable relief.†

* Dr. Rush says he has often seen the croupy cough remain several days after all the other symptoms were gone. I have known this cough return in those who had formerly laboured under the croup on exposure to cold, without any other symptom and go off without any remedy.

† The patient has sometimes been suddenly restored to health by the excretion of this membrane. See Michaelis de Ang. Polyp.

There is generally nothing particular to be observed in the fauces. Sometimes they look red and even a little swelled, at other times the uvula, velum pendulum palati, and tonsils are intensely red, but without swelling; and we sometimes observe a little pus-like matter in the fauces, similar to that spit up.

As in the cynanche trachealis of adults, the deglutition is scarcely ever difficult or even at all impeded.

The appearance of the face is the same as in other instances of great dyspnœa, at first red and swelled; sooner or later, if the disease increases, becoming purple and livid. There is often a degree of soft white swelling externally about the larynx, which sometimes spreads along the course of the trachea. The hands and feet too are often affected with the same kind of swelling.

Such are the local symptoms of the croup which may be said to constitute the disease, the general symptoms not differing materially from those attending most other phlegmasiæ.

It has already been observed, that symptoms of general derangement are seldom the first which shew themselves in this disease; in some cases, however, the patient appears oppressed with a general lassitude and languor before the dyspnœa becomes very troublesome.

As soon as the difficulty of breathing is considerable, the pulse becomes frequent, strong, and hard; the patient complains of headache, and becomes restless, with a hot parched skin, thirst, and a white and often very foul tongue.

The urine is generally limpid, discharged in small quantity and sometimes with difficulty. In the progress of the disease it is passed in greater quantity, is turbid, and towards the favourable termination generally deposits a copious sediment, which by some has been attributed to the absorption of purulent matter from the trachea.

The bowels are generally costive during the whole of the disease, and often much inflated. Vomiting is not very common, when it does occur, much viscid matter, sometimes mixed with bile, is frequently discharged. The stomach is often oppressed with wind, and eructation brings temporary relief.

If the symptoms do not abate, the pulse begins to lose its strength and hardness, and becomes weak and intermitting or tremulous, and as the fatal termination approaches, remarkably frequent.

In the cynanche trachealis, as in most other phlegmasiæ, however alarming the other symptoms of fever, there is seldom any delirium. A degree of coma frequently supervenes.

If the symptoms are severe and without remission, the patient seldom survives more than three or four days, and frequently dies in four and twenty hours, or even less. In the more lingering cases the symptoms gradually increase, and many of those which precede death in other febrile diseases supervene. The mouth becomes very foul; the respiration more hurried, small, and difficult, with great restlessness and dejection. Under these circumstances that species of delirium which is most allied to coma sometimes comes on, the patient seeming stupid, and frequently muttering to himself with marks of great impatience. The pulse in such cases is often near two hundred, tremulous, and irregular. At length it can hardly be felt, the extremities become cold, and the patient soon expires.

Death sometimes approaches in a different way; profuse sweats and fainting fits precede the coldness of the extremities. The eyes appear glazed, the lips, tongue, mouth, and throat parched, and the patient falls into general convulsions, the immediate forerunner of death.

Some of Dr. Molloy's patients* had a tumour behind the ears, which run speedily to mortification, and many, he observes, had profuse weeping behind the ears of a very corrosive nature.† The ceasing of the cough is to be ranked among the fatal symptoms, as we might, a priori, have supposed, since its absence can only be attributed to increasing insensibility, and deprives the patient of the chief means of removing the morbid secretion from the trachea.

But whatever accidental symptoms, if I may use the expression, may appear, if the strength fail, the breathing becomes remarkably small and hurried, the face assume a livid and cadaverous appearance, the pulse flutter, and the extremities become cold, we know that death is at hand.

Suffocation may take place at all periods of the disease. When the patient dies on the first or second day, it is generally from this cause. Death from other causes seldom happens earlier than the third day, and often later.

The chief critical symptom is a spontaneous flow of sweat, which sometimes lasts for several days. Spontaneous vomiting and diarrhoea are also sometimes attended with a mitigation of the symp-

* Their disease seems to have rather been the acute asthma than the croup.

† Dr. Bard saw the cynanche maligna complicated with croup epidemic. In some patients, instead of the croupy symptoms, there were ulcers behind the ears. See American Phil. Transact. vol. i.

toms. The same may be said of a discharge of phlegm from the nose. Dr. Bard says salivation sometimes proves critical. A copious sediment from the urine is also regarded as critical. Dr. Rush observes, that he has frequently seen an eruption of little red blotches in the croup which generally brought relief. He sometimes observed them appear and disappear several times in the course of the disease.

Upon the whole, whatever be the attending symptoms, if the pulse become fuller, more steady, and less frequent, the breathing freer and less hurried, the peculiar sound of the voice and cough begin to wear off, and the patient appear less anxious and oppressed, the prognosis is good. We cannot, however, with certainty rely on the favourable change till the remission has lasted a considerable time; for after the most favourable appearances, the disease has returned with greater violence, and proved fatal.

The disease described by Dr. Millar, under the name of acute asthma, which seems at least allied to that we are considering, often wholly assumes the intermitting form, as appears both from his observations and those of Dr. Molloy and Dr. Rush. It is on this account that Dr. Millar terms the disease asthma. He adds acute to distinguish it from chronic asthma, into which, he observes, he has seen it changed, the patient ever after remaining subject to the latter.

It is of the first importance to distinguish a remission, from a complete solution of the disease; a mistake here, by inducing the practitioner to abandon the means of cure too early, has frequently proved fatal. All that can be said on this head is, that where the patient still remains dejected and oppressed, however free the breathing may be, we have reason to dread a return; and the more the symptoms have inclined to those of acute asthma, (of the diagnosis between which and the croup I am about to speak more particularly), the more reason we have to fear that the relief will only be temporary.

Such is the general course of the cynanche trachealis infantum; as in almost all other diseases, we occasionally meet with certain anomalies in it which do not deserve to form part of its history. Thus it has appeared unaccompanied by fever, as observed by Dr. Rush, and others;* the shrillness of the voice and cough, Dr. Home observes, sometimes goes off before death; even the leading

* Dr. Dixon gives an account of a case in which the cynanche trachealis appeared as a chronic disease in an adult. See a paper by him in the 9th vol. of the Medical Communications.

symptoms, the dyspnœa and cough are occasionally absent in the progress of the disease. It may be mentioned among the anomalies of the croup, that the membrane excreted by coughing has sometimes appeared black and gangrenous.

Dr. Home,* who has the merit of having first made this disease known in Britain, divides the croup into two varieties, the one he terms inflammatory, the other purulent. In the former, the pulse is strong, the face florid, the thirst great, and the disease, he observes, is relieved by evacuations; in the other, the pulse is very frequent and soft, the debility great, the tongue moist, the thirst less than in the former case, the anxiety much greater, and here, he observes, evacuations hasten death. It would appear, however, that these ought rather to be esteemed different stages, than varieties, of the disease, the former, if the symptoms are not soon relieved, degenerating into the latter.

I have already observed that the croup and the acute asthma of Dr. Millar, and others, usually regarded as the same disease, are suspected by some to be of a very different nature, and it has even been asserted that a perfect diagnosis between them may be obtained. The following is offered by Michaelis.

All the convulsive affections, he observes, are more violent in the acute asthma, than in the croup. In the former, also, the difficulty of breathing is greater. The acute asthma makes its attack almost instantaneously, giving no warning of its approach; the croup comes on more gradually. In the acute asthma, the peculiar shrillness of the voice, and the pain of the trachea increased on

* Dr. Home is generally supposed in this country to have been the first who distinguished the croup. But it appears from the observations of Michaelis and other foreign writers, that it was known in many parts of the Continent long before his observations were published. And even in our own country it was accurately described in a paper by Dr. Starr, in 1749, published in the Philosophical Transactions for 1750. Dr. Starr's account is in some respects confused; from the cynanche maligna in many of the cases he saw having been complicated with the affection of the larynx. But he has not only given a good account of the croupy symptoms, but a drawing of an expectorated membrane which had lined the whole of the trachea and part of the larger branches of the bronchiæ. Dr. Home, however, may still be regarded as the first person in this country who had any accurate ideas of the disease, for Dr. Starr made no dissections, and understood its nature so little, that he believed the preternatural membrane which he saw coughed up to be the internal coat of the trachea and its branches; although, indeed, in one part of his paper he observes, that were the trachea laid open, he believes it would be found to be lined with a morbid secretion.

pressure, almost constant attendants on the croup, are never observed. The acute asthma observes certain periods. In this disease the urine is thin and watery; in the croup, at the beginning, red, afterwards turbid and white. The pulse in the acute asthma is small and contracted; in the croup, at its commencement, hard, full and inflammatory, afterwards soft and weak.

The reader will find from what Dr. Cullen says in the last edition of his Nosology, that notwithstanding the attempt of Michaelis to distinguish these diseases, with which he must have been acquainted, as he there mentions Michaeli's treatise, he still seems to regard them as the same disease. The observations of some succeeding authors, however, seem to confirm those of Michaelis, and improve his diagnosis. The acute asthma, says Dr. Rush, or, as he calls it, the *cynanche trachealis spasmodica*, comes on suddenly, and generally in the night. It has frequent and perfect intermissions for hours, and in some instances for days, without the least sensible discharge from the trachea, and it yields to antispasmodic remedies, particularly to the warm bath. The croup, or as Dr. Rush calls it, the *cynanche trachealis humida*, comes on gradually, and most commonly in the day time. It continues or increases for several days without any remarkable remission or even abatement of the symptoms. It is accompanied with a discharge of phlegm or mucus from the trachea, or with the stools, and does not yield to antispasmodics.

When the foregoing circumstances are well marked, they will generally be sufficient to distinguish the diseases; but they are far from always being so. The croup, in particular, often assumes more or less of the intermitting form; and with regard to the latter part of the diagnosis, a diagnosis from the effects of remedies is always objectionable, and particularly so, in so rapid a disease. The above diagnosis, however should be kept in view, and must serve till experience has furnished a better. To the circumstances mentioned, it might be added, that the voice in the acute asthma is often hoarse, and the breathing, not wheezing, but rattling.

It is asserted by some that the peculiar membrane lining the trachea in the croup, is not found in those who die of acute asthma. When we see a chapter in Dr. Millar's treatise, entitled Dissections, we expect to find this point determined, but Dr. Millar gives us an account of only two dissections, and that so imperfectly, that it is impossible to know whether or not the membrane was present.

From the observations of others, however, we have reason to believe that the membrane is not formed in the acute asthma. Dr. Rush, in his first publication on these diseases, confounds them; but in a later treatise, in which he attempts the diagnosis, he gives us an account of the dissection of a child that died of the acute asthma, in which no membrane nor even mucus was found in the trachea, this organ and the lungs appearing in a perfectly sound state. I believe the membrane, says Dr. Rush,* to be the effect of the croup only, and not an accidental effect of the spasmodic asthma as I once believed. The sudden manner in which the convulsive asthma makes its attack, and its so frequently assuming an intermitting form, oppose the idea of its being connected with the formation of a membrane in the trachea.

It may be observed, however, that, contrary to what is generally supposed, the symptoms of croup are not essentially connected with the presence of this membrane. The ringing voice has often disappeared, especially towards the fatal termination, where the membrane certainly was present. This happened in the sixth case related by Dr. Home. Dr. Bard observes, that all the symptoms of the croup often intermitted where the membrane was found after death. A case is related in the Philosophical Transactions of a boy who died of phthisis; a membrane was found in the trachea, pieces had often been spit up but no shrillness of voice is mentioned among the symptoms. The reader will find a similar case related by Dr. Dixon, in the 9th volume of the Med. Commun. in which the membrane was repeatedly formed and spit up without any shrillness of voice; and Dr. Bard, on the other hand, gives a case in which the symptoms of croup were well marked, where no membrane but merely signs of inflammation were found in the trachea. It can hardly be supposed indeed that any part of the membrane is formed, as soon as the ringing of the voice and cough are perceived.

Michaelis has not only attempted to distinguish the croup and acute asthma, but also offers a diagnosis between the former and mere inflammation of the trachea. But in this instance he has succeeded worse than in the other.

The cynanche trachealis, he observes, may easily be distinguished from the croup. In the former there is no symptom of a preternatural membrane present in the trachea and bronchiæ. The dyspnœa he accounts for by the inflammation of the trachea, and as-

* See his Med. Obs. and Inq. vol. i.

erts that the peculiar shrillness of voice which we observe in the angina polyposa, or membranacea, as Michaelis calls it, does not attend the true cynanche trachealis. Dr. Cullen and others remark that the ringing voice does attend the cynanche trachealis of adults. In the cynanche trachealis, Michaelis adds, there is a violent pain about the trachea; in the croup but very little. Different degrees of the same symptom, it is evident, must afford a diagnosis little to be depended on. The reader besides will recollect that the pain in the croup, as observed above, is increased on pressure; a circumstance we shall find peculiarly characteristic of pain proceeding from inflammation.

It is of much consequence to distinguish from the croup, the symptoms produced by the introduction of an extraneous body into the trachea. Mr. Balfour told me, says Dr. Home, that he attended a child in a disease, which, from the similarity of voice, appeared to him the croup. The child died, and a piece of shell which he had sucked in with the breath was found lying across the trachea, about an inch below the glottis, and the membrane was inflamed and dry. Here even Michaelis confesses the diagnosis to be extremely difficult, and that the most acute may find it impossible to distinguish the cases. But a cautious physician, he observes, may proceed with safety; he should enquire with much care, whether or not the patient feels any pain, whether it is acute, and in what place it is seated. If he feels no pain, or if the seat of the pain is in the trachea, or some of its branches, or if it changes its place, being felt during coughing in the upper, and at other times in the inferior part of the trachea, or lastly, if it occupy the trachea, and it solely, but is extremely acute and circumscribed, the case is not to be regarded as croup, but as arising from an extraneous body in the trachea. If even these symptoms, he adds, should leave me in doubt, I would immediately have recourse to bronchotomy, by which the nature of the disease would be discovered, and the noxious body whether produced by, or introduced into, the trachea, removed.

When a similar set of symptoms, as sometimes happens, arises not from the introduction of an extraneous body into the trachea, but from the generation of some excrecence or concretion different from that which takes place in the croup, it is, if possible, more difficult to ascertain the nature of the case. The best diagnostic here is the slow and gradual way in which the disease comes on; and the febrile, being moderate compared with the local symptoms.

I need say nothing of the means of distinguishing the croup from certain diseases, such as cynanche maligna, hooping cough, chronic asthma, epilepsy, hysteria, pneumonia, &c. for which those unacquainted with its symptoms have mistaken it.

Appearances on Dissection.

In the trachea we find a preternatural membrane lining but scarcely adhering to it, for it may always be easily separated without destroying its shape. It comes out in the form of a tube exactly adapted to the cavity it lay in. In many cases indeed it cannot be said to adhere at all, and there is a considerable quantity of puslike matter lying between it and the surface of the trachea. This membrane often extends beyond the division of the trachea, lining the larger branches of the bronchiæ, and loosely adhering to them. The purulent matter extends beyond the membrane, often into the smallest branches of the bronchiæ, and even in some instances into the air vesicles. Mr. Wood found it in these vesicles in the 7th and 8th cases related by Dr. Home. On removing it there is no appearance of ulceration in the coats of the trachea and bronchiæ, but the traces of inflammation are in general very obvious, and sometimes extend, Burserius observes, to the very extremities of the bronchiæ. It has sometimes happened, as in more than one dissection recorded by Dr. Home, that no traces of inflammation could any where be observed; but this is comparatively rare.

By squeezing the lungs a considerable quantity of a whitish glutinous fluid may sometimes be forced out. In different cases of the cynanche trachealis the lungs assume, according to Burserius, all the different appearances observed after pneumonia, which are soon to be laid before the reader. Sometimes, however, they are found.*

Small polypus concretions are often found in the vessels of the lungs and in the right side of the heart; never, Burserius observes, in the left side or in the aorta. These concretions, I have already had occasion to observe, seem to be formed in articulo mortis, or soon after death, and the reason of their not being found in this case in the left side of the heart, seems to be, that the blood from

* The appearances of the lungs in those who die of the croup, Michaelis observes, are various; sometimes they are sound, sometimes slightly inflamed, sometime there is a sanious matter extravasated in different parts of them, sometimes the matter found in them is purulent, and sometimes merely a watery fluid, the quantity of which is often considerable.

extreme dyspnœa is chiefly collected in the right. It is also owing to the dyspnœa which precedes death, that the vessels of the head are generally found very turgid.

The preternatural membrane presents different appearances in different cases. Sometimes, Michaelis observes, it is as thin as paper, in other cases so thick that it almost fills up the whole cavity of the trachea. It is often of different thickness in different parts, and the thickest part is sometimes the uppermost and sometimes the reverse. In some cases it is soft and pulpy, in other cases so firm and tough that it will bear maceration in water for several days; but however tough it is in the trachea, it becomes more tender in the bronchiæ, and is always soft before its termination. In some cases it is quite white, in others marked with red spots, and it is now and then uniformly of a dark colour, and sometimes black. Some have thought this membrane possessed a vascular, others, a fibrous structure; the former opinion appears erroneous, and the latter is not confirmed by general observation,

Of the remote causes of the Cynanche Trachealis.

The chief subjects of this disease are children, from the time they are weaned till about twelve or thirteen. After they are weaned, the younger they are the more they are liable to it. It appears to be the most common in marshy countries and near the coast.

It is very generally agreed that the croup is not contagious, but many believe it to be hereditary.

It resembles the other phlegmasiæ, in being most apt to attack those who have already laboured under it. It has been said, however, that after the first attack it generally appears in a milder form.*

Cold is the chief exciting cause. It is more frequent in winter and spring than at other seasons, and seems particularly apt to arise from sudden changes in the weather. It is not improbable that certain states of the alimentary canal may assist in producing it. Underwood, in his Treatise on the diseases of children, observes, that the change from milk to food of harder digestion, is probably sometimes the cause of the croup. The same author alleges that it may be occasioned by fevers or chronic diseases that reduce the strength.

* See Dr. Alexander's Treatise on the Croup.

The acute asthma in its causes as well as its symptoms resembles the croup, the same age predisposes to both, and the application of cold seems the chief exciting cause of both. Among the exciting causes of acute asthma, Dr. Millar ranks a laxity of the solids, food of difficult digestion, and a morbid weakness of the digestive organs.

Of the Nature of the Cynanche Trachealis.

Of the opinion which attributes this disease to an inflammation of the lungs it is unnecessary to say any thing.

The first probable opinion was suggested by Dr. Home. "When there happens," he observes, "a very great secretion of this coagulable fluid from the glands of the trachea in children, they are either not sufficiently attentive, or too young to spit it up. The thinner parts are carried off during expiration, while the remainder is thickened and compressed by the obstruction which the narrowness of the glottis opposes to the exit of the air from a larger canal. Every circumstance, he continues, encourages its concretion into a solid firm membrane, while the more internal parts of the mucus continue still fluid, and the continual secretion of more keeps it separated from the parts below."

But Dr. Home explains the conversion of this mucus into pus by experiments of Sir John Pringle, the inaccuracy of which I have already had occasion to notice. We have seen besides, that the membrane may be formed without occasioning symptoms of croup; which on the other hand may exist without the formation of any membrane.

Dr. Rush of Philadelphia, in a letter to Dr. Millar, published in 1770, takes a very opposite view of the subject; so far from agreeing with Dr. Home in supposing the preternatural membrane to be the cause of all the symptoms, he regards it merely as an adventitious circumstance supervening after the disease has lasted for some time. The disease he regards as a spasmodic affection. But it appears, from what was said above, that Dr. Rush did not at first properly distinguish the acute asthma and croup.

Michaelis has attempted to point out the difference of the nature of these diseases; his opinion of the former nearly corresponds with that of Dr. Rush: with respect to the croup he agrees with Dr. Home in regarding the preternatural membrane as the cause; but this membrane, instead of being concreted mucus, is composed, he maintains, of lymph, and is of precisely the same nature with the polypous concretions found in the heart and large blood-vessels,

This opinion he supports at considerable length, and with a great variety of arguments, for which I shall refer the reader to his work. He concludes with the following observations. These circumstances being granted, none can hesitate in ranking the preternatural membrane among the true polypi. It consists of the same matter, has the same figure, and with respect to its being thinner and less compact than polypi generally are, this is to be considered as a matter of small moment; nor indeed is the difference constant, nor does it seem of more weight than that polypi are sometimes solid and sometimes hollow.

But admitting this membrane to be wholly composed of lymph, from the different circumstances attending its formation and that of polypi, and the different situations in which they are placed we cannot regard them as of the same nature. Besides, if all that Michaelis says were admitted, there would still be the same objections to this opinion as to Dr. Home's. Why has this membrane existed without occasioning symptoms of croup? Why have these symptoms been observed where no membrane was found?

Dr. Cullen's opinion of this disease is different from any of those mentioned, as the reader will infer indeed from what has already been said. He regards it as arising from an inflammation of the larynx, combined with a spasmodic constriction of the glottis. "Though this disease," he observes, "manifestly consists in an inflammatory affection, it does not commonly end either in suppuration or gangrene. The peculiar and troublesome circumstance of the disease seems to consist in a spasm of the muscles of the glottis, which, by inducing a suffocation, prevents the common consequences of inflammation. When this disease terminates in health it is by a resolution of the inflammation, by a ceasing of the spasm of the glottis by an expectoration of the matter exuding from the trachea, and of the crusts formed there. And frequently it ends without any expectoration or at least with such only as attends an ordinary catarrh."

To this opinion, by far the most probable, some objections might be found. Why does the disease chiefly attack children? What proof is there of the spasm of the glottis? Dr. Cullen, indeed, grants that suffocation sometimes happens in consequence of the matter collected in the trachea and its branches. The strongest objection to Dr. Cullen's opinion, is, that traces of inflammation are not always found in the trachea of those who die of this disease. It is far from being improbable, however, that although the cynanche trachealis consists in an inflammation of the trachea, the

patient may die after the inflammation is gone, the effusion which relieves the inflammation occasioning suffocation. When we reflect on the means of cure in the true croup, we cannot, I think, entertain a doubt of its being of an inflammatory nature.

Of the Treatment of Cynanche Trachealis.

It is unnecessary to give the treatment of the cynanche trachealis of adults and that of the croup separately; we have every reason to believe them the same disease, and whether they are so or not, experience has assured us that the mode of treatment in them is the same.

The observations made on the treatment of the phlegmasiæ in general still apply. It will only be necessary therefore to make such additional remarks as particularly relate to this disease.

If we consider the acute asthma and croup as the same disease, the opinion of practitioners concerning the principal means employed are so contradictory, that we shall find ourselves much at a loss what plan to adopt.

Dr. Home, Dr. Cullen, and most other writers on this disease speak decidedly of the advantages of blood-letting. Of all the remedies employed in this disease, Michaelis observes, blood-letting unquestionably holds the first place. Dr. Ruddy on the other hand observes, "I have tried evacuations of all kinds; frequent bleeding and severe blistering were of no service." And with him Dr. Rush, in his first publication, and Dr. Millar agree. "It is difficult to discover," says Dr. Crawford, in his *Thesis de Cynanche Stridula*, "in what cases Dr. Millar judged venesection proper." But it is impossible for us to read the works of these writers, and believe that they are speaking of the same disease.

Without attending to the imperfect diagnosis which we possess between croup and acute asthma, on comparing together the observations of those who have been most conversant with them, we shall find, that in both we may be guided in the employment of venesection by the state of the pulse; if it be strong and hard, venesection will be found useful.

In the true croup, when the pulse becomes soft and weak, as happens in the latter stage, blood-letting, on which we chiefly rely at an early period, is no longer proper.*

In the acute asthma, on the other hand, in which blood-letting is generally hurtful, it is found beneficial if the pulse be strong and

*Home and others.

hard. There can be little doubt, I think, of the disease described by Mr. Russell, in his *Economy of Nature, &c.* under the name *Angina Inflammatoria Infantum*, being the acute asthma. Yet he observed an abatement of the symptoms after blood-letting. Dr. Rush also observes, that blood-letting relieves the acute asthma when it is accompanied with pneumonic symptoms, but when these symptoms do not appear, evacuations always do harm. In the cases described, by Drs. Millar, Molloy, and Ritty, in which blood-letting was always prejudicial, the pulse was either natural, or such as would deter from blood-letting in the croup itself.

By the state of the pulse, then, we are led constantly to employ blood-letting at the commencement of the true croup, but not after we have reason to believe that what Dr. Home calls the purulent state has commenced; we are led to employ it very rarely in the acute asthma, but sometimes here also, proportioning the extent of the evacuation to the strength of the patient and hardness of the pulse.

While we are guided by the state of the pulse, we ought not to neglect any circumstance tending to establish a diagnosis between the diseases; an attention to which will confirm the judgment we thus form.

After the propriety of blood-letting has been ascertained, in determining its extent we are influenced by a variety of circumstances, which I have had occasion to enumerate, the state of the pulse, habit of body, age of the patient,* &c. Dr. Home ordered no less than five ounces to be taken from a child of fifteen months, labouring under the croup. The pulse still remaining hard, he ordered a repetition of the blood-letting to the same extent on the same day. On the following day he ordered the child to be bled largely with leeches, and these repeated evacuations were followed by the best effects. We seldom, however, find it necessary to carry blood-letting as far as this. It has been proposed, as in similar cases, to let blood from the jugular vein, when it can be readily opened, it is the best.

With regard to catharsis in the croup, if we employ it with a view to diminish the inflammatory diathesis, the observations made respecting blood-letting are nearly applicable to it. Blood-letting, however, answers this purpose much better, and cathartics are only necessary for the regular and free excitement of the bowels. Dr. Rush particularly recommends calomel in the croup, and thinks it

* See the observations on blood-letting in continued fever.

possessed of some specific power independently of the evacuation on its occasions. The bark, he says, is hardly a more certain remedy in intermittents, than calomel in the croup, if a large dose be given at the commencement and small doses continued throughout its course; and some late writers have recommended a still freer use of this medicine, and trust to it alone for the cure of the disease.

There has been some difference of opinion respecting emetics in this disease. Dr. Home objects to them, chiefly, however on theoretical grounds; and experience seems to warrant a very different opinion of them. They are employed in the croup with a double view. At an early period, with the hopes of cutting short the disease; in a more advanced stage, with a view to expel the preternatural membrane, which is often brought up by the act of vomiting. The reader will find cases related by Michaelis in which this happened. There is no author, however, who gives so favourable a testimony of the effects of emetics in the croup, as Dr. Crawford. In that part of Scotland, called the Carse of Gowrie, he observes, where the croup is very frequent, the constant practice is to give an emetic at the commencement, even before the employment of blood-letting or cathartics, and this practice, he adds, is not only safe but very successful, few dying when a timely emetic has been exhibited.

It is generally judged proper, however, to begin with blood-letting by which more than one advantage is gained. We both take the earliest opportunity of employing the remedy on which we place most reliance, and lessen the determination of blood to the head during the operation of the emetic.

There is also much difference of opinion respecting the use of diaphoretics in the croup; and the advantage derived from them seems more doubtful. Almost all authors, however, recommend the pediluvium. It is common with nurses, in many parts of Scotland where the disease is frequent, to immerse the whole body in warm water as soon as the disease shews itself, which sometimes, it is said wholly removes it. Next to the warm bath, nauseating doses appear to be the most useful diaphoretics in the croup, and they are useful we shall find in another way. The acetate of ammonia, and other diaphoretics recommended by authors, do not seem to be of much use.

In the disease described by Dr. Rutton and Dr. Molloy, which appears to be nearly the same as that described by Dr. Millar, diaphoretics were the medicines chiefly relied on. Dr. Molloy ob-

serves, indeed, that those only recovered in whom he succeeded in bringing out a sweat.

Respecting antispasmodics, it would appear, on comparing a variety of observations, that the more the disease approaches to the acute asthma, properly so called, they are the more beneficial. In the well formed croup they seem to be quite useless. "Though we suppose," Dr. Cullen observes, "that a spasm affecting the glottis is often fatal in this disease, I have not found antispasmodic medicines to be of any use." Dr. Millar, on the other hand, Dr. Rush, and others, found them the most successful medicines in the acute asthma. Dr. Millar chiefly employed musk and asafœtida, and after repeated trials, he informs us, that he was taught chiefly to confide in asafœtida, very large quantities of which he found necessary. "An ounce of this gum," he observes, "has sometimes been taken by a child of eighteen months in the space of forty-eight hours, and almost as much at the same time injected by clysters, allowance being made for the residue of the gum which is lost in making the solution."

Some of the remedies termed expectorants, are useful in the croup. I have already had occasion to mention emetics and nauseating doses. Opiates, after the symptoms are allayed by blood-letting, are often serviceable. By allaying the cough, they render the matter to be expectorated thicker, and consequently the expectoration more easy. Their employment, however, requires caution, both on account of the inflammatory nature of the disease, and because we cannot greatly allay the cough without increasing the dyspnœa. Gum ammoniac and squills have been recommended, but in the inflammatory stage they are too irritating, and afterwards they seem useless.

While the inflammatory symptoms continue, the diet should be very diluent and strictly antiphlogistic. It may be useful when the symptoms run high to abstain from food of every kind for the first twenty-four hours. Nitre is a good addition to the drink.

As the patient is generally much reduced, the bark is often necessary to restore the strength, but in the true croup it must not be given till all tendency to inflammation has subsided. The bark may be given more early in the acute asthma. It is particularly serviceable during the remissions*.

Such are the remedies acting on the system in general; the local means form a very essential part of the treatment.

* See the observations of Dr. Millar, Mr. Russell, and others.

We still find blood-letting the most powerful. If general blood-letting is not performed from the jugular vein, it is proper to aid its effects by taking blood from the external fauces; and the local as well as the general blood-letting should be repeated according to the state of the symptoms. After proper evacuations, blisters are of great use. They should be applied as near as possible to the part affected. They do not seem to be of equal use in the acute asthma. Dr. Molloy tells us that their application was attended with no advantage whatever in the cases he saw. Dr. Millar, however, thinks a blister between the shoulders a means of preventing the recurrence of the paroxysm.

Rubefacients have not been much recommended in the croup. Dr. Millar found them useful applied to the extremities in the acute asthma.

There is, perhaps, no other form of cynanche in which breathing the steam of vinegar and water is so beneficial. In whatever manner it acts, whether by mixing with and diluting the thick matter which clogs the bronchial vessels, or by its stimulating quality increasing the secretion from them, it is found to loosen the cough, to promote expectoration, and relieve the dyspnœa. Some recommend applying the steam of water externally to the neck. Blistering is certainly more beneficial, and both cannot well be employed.

From the vicinity of the trachea and fauces, many advise swallowing from time to time some emollient fluid, oil, or mucilage which is preferable because it is less apt to load the stomach. I have seen considerable relief obtained by such means. If small doses, however, do not succeed, little is to be hoped from larger ones.

It has been proposed in this disease to lessen the proportion of oxygen in the air, from which there is reason to expect considerable advantage.

When none of the foregoing means prove successful; and particularly when the dyspnœa greatly increases, bronchotomy is the only remaining chance of relief. This operation is less formidable than it appears, and if carefully performed is generally safe. Dr. Home saw the propriety of it in the worst cases of the croup, and was the first who proposed it as a last resource. Michaelis is bolder, and recommends it in all cases where the symptoms do not yield readily to other means. He gives the arguments for and against it at considerable length, for which I must refer to his Treatise. In avoiding the vulgar prejudices against this operation

he runs, perhaps, to the opposite extreme, and considers it more trivial than it really is. One caution given by Dr. Crawford is not to be overlooked, that while we are endeavouring to extract the preternatural membrane, both the artificial passage and that by the glottis may be so obstructed as to occasion suffocation. In the convulsive asthma this membrane is often formed. Here, therefore, if the seat of the disease is in the larynx, bronchotomy will bring more immediate relief with less danger.

The use of tonic medicines, the cold bath, a diet of easy digestion, a strict attention to the state of the bowels, and guarding against the causes of taking cold, are the best means to prevent a recurrence of this disease.*

* From the appearances on dissection which are here stated, and from the symptoms of the disease, there is reason to believe, that the Cynanche Trachealis, or croup, as it is called, depends on an affection of the mucous membrane lining the Larynx, Trachea, and the whole of the bronchial vessels, which partly by the thickening of those membranes, and partly by the secretion of a viscid mucus, excludes the air from the vesicles, where the functions of the lungs are sustained.

It is not probable, that the abstraction to the inhalation of air into the lungs, is confined to the larynx, and trachea.

We do not often find a single point of the mucous membranes lining parts destined to perform certain functions, affected alone, unless it is produced by some cause purely local in its nature, which cannot be the fact in croup; and as to spasm I have never seen any evidence of it in this, or any other disease affecting the lungs.

The suddenness of the attack in diseases of this kind, is analogous to what takes place in other affections of the mucous membranes. The mucous membrane of the nose is often affected as suddenly as the coming on of the croup, or spasmodic asthma, and is frequently so thickened, as to obstruct the passage of air through the nose, in one, or both nostrils. Sometimes it is caused by exposure to cold, when the body is warm, and at other times, by an epidemic catarrh.

As the croup is often epidemic, it must depend on some cause which affects many persons at the same time, which is in all probability a species of catarrh.

That this kind of epidemic should affect children at one time and adults at another, is not singular. The pneumonia Typhoidea which was evidently the effects of an epidemic catarrh, affected chiefly adults and those advanced in life, and of a robust constitution.

Epidemic Catarrh is a perfect Proteus, in some seasons it affects principally the mucous membranes of the head, and in others, it attacks the mucous membrane of the lungs, as it does in pneumonia typhoidea; and occasionally the same epidemic affects different parts of the system.

Respecting the treatment of cynanche trachealis, I have seen many cases of it in which the pulse did not indicate any active inflammation, and where bleed-

CHAP. X.

Of PNEUMONIA.

PNEUMONIA is Dr. Cullen's eleventh genus. It is defined by him,

“Pyrexia, dolor in quadam thoracis parte, dyspnœa, tussis.”

He divides it into two species, the peripneumonia and pleuritis. The propriety of this division we shall soon have occasion to consider.

SECT. I.

Of the Symptoms of Pneumonia.

THE first sense of uneasiness referred to the thorax and the cough are sometimes so slight as to be almost overlooked, or regarded as nothing more than such as in a greater or less degree frequently attend fevers, so that, for some time, the patient is believed to labour under nothing more than common fever; he is affected with shivering, often alternating with fits of heat, and complains of thirst and anxiety, the breathing is hurried, the pulse more frequent than natural, and the temperature increased.

In general, however, this disease makes its attack in a less ambiguous way. A severe pain and cough, with much difficulty of breathing gave no relief. Emetics have been more successful with me in this disease, than all other remedies. I have seen a single dose of tartar emetic, and of ipecac cure the disease; but we are not to expect this in all cases; and in order to have the full effect of emetics in croup, they should be often repeated. The best emetic I have seen tried, is the infusion of the root of the Sanguinaria Canadensis. A table spoonful of a pretty strong infusion of this root may be given to a child, six years old, and repeated till it operates as an emetic; if the first dose operates, it may be repeated once an hour till relief is obtained.

The inhaling of the vapour of warm vinegar, and water, have some effect; but where it can be effected conveniently, I have thought that keeping the patient immersed in the vapour of warm water for some time was more effectual.

The common expectorant and demulcent medicines, seem to have little or no effect. The palygala senega, or seneca, I have used in every form, and in large doses, and cannot say, that I have seen any benefit derived from it.

breathing, and a strong, hard, and frequent pulse, are often the first symptoms. When the pain, and a degree of dyspnœa arising from it, continue for any length of time without cough and fever, the disease, we shall find, is of a different nature from pneumonia.

Such, in fact, is an enumeration of all the symptoms of pneumonia, which are much less complicated than those of many of the foregoing diseases. In considering each of these symptoms separately, we shall find them varying considerably in different cases.

The dyspnœa, the most constant symptom of pneumonia, becomes considerable in all cases as the disease advances; the breathing is often short and frequent, the violence of the pain preventing a full inspiration; or where the pain is either dull or absent, it is oppressed and laborious, accompanied with anxiety and a sense of weight about the præcordia.

It is greatest during inspiration, and generally greater when the patient is in some particular posture. Sometimes it is greatest when he lies on the side affected, sometimes the contrary. In many cases he is easiest on the back or breast, and very often the erect posture is necessary, some degree of which is indeed almost always so. When the inflammation is considerable, the breath is sensibly hotter than usual.

The pain, in different cases, has its seat in all the different parts of the thorax. It is most frequently felt about the sixth or seventh rib, near the middle or rather more forwards.

It is a belief among the vulgar, that the pain in pneumonia is always in the left side; and it is a common error not to regard the case as pneumonia unless the pain be in the side. It is very frequently, however, under the sternum, the clavicles, the spine, or the scapulæ. It has been an opinion maintained by the best informed, that instead of the left, pneumonia most frequently attacks the right side. This observation is made both by Van Swieten and Triller.* The latter farther observes, that in this side it is least dangerous. All such observations seem founded on a partial view of the subject. It has been observed, says Wendt,† that when the pain in pneumonia occupies the left side, the danger is greater than when it is confined to the right. I have not, however, found this to be the case, and the number of my patients who died of this disease

* Triller de Pleuritide.

† Wendt de Pleuritide, in Sandifort's Thesaurus.

in the right side is only greater by one than that of those who died of it in the left.

The pain, like the difficulty of breathing, is most felt in particular postures, which are different in different cases. In most cases it is fixed, sometimes it shoots in various directions, sometimes it only shifts its place, and a change of place from the sides to the clavicles or scapulæ has been regarded as a favourable symptom. But Wendt justly observes, that we can make no other inference from it, but that the disease has changed its seat; I have more frequently, he observes, known a pain of the arms to supervene in pneumonia, and this I have always found salutary.

The kind and degree of the pain is not less various than its seat. Sometimes it is exquisitely acute, and during inspiration almost intolerable, only differing in its greater severity from the rheumatic affection called a *stich* in the side. At other times it is more general and obtuse, and in some cases rather a sense of weight than of pain. Sometimes it is only felt when the patient lies on the right or left side and makes a full inspiration or coughs; this case has been termed the *pleuritis occulta*, because the pain is only felt by an effort. In some instances, however, it is not felt at all, and the practitioner is left to discover the nature of the disease by the other symptoms. There is so little alarming in the appearance of such cases, the patient being only affected with more or less cough, considerable difficulty of breathing, which often prevents his lying down, and a greater or less degree of fever, that the assistance of the physician is frequently not requested till it can be of no service.

It is chiefly the different seat, kind, and degree of the pain, which has given rise to the division of pneumonia, which we shall presently have occasion to consider at length, into *pleurisy* *peripneumony*, *paraphrenitis*, *pericarditis*, &c.

Cough is a very constant, and when the pain is severe, a very distressing, attendant on all inflammations of the thoracic viscera. In some cases it is dry, in others attended with expectoration; and although dry at the commencement of the disease, it rarely continues so during its progress. The occasional absence of the spitting has given rise to a useless division of pleurisy into dry and humoral, which is as old as the days of Hippocrates.

The appearance and consistence of the matter spit up varies much. At the commencement it is generally thin, becoming thicker during the progress. The prognosis depends much on the kind of cough and the appearance of the matter expectorated, Celsus observes, that when there is no expectoration, the prognosis

is bad, but worse when the expectoration is bloody; the truth of the latter part of this observation experience has since called in question; and although a spitting of much frothy blood is always an alarming symptom, it is now generally admitted that the matter spit up being tinged with blood, which it usually is, is less favourable than an expectoration without blood, affords a much better prognosis than no expectoration at all. The matter spit up being greenish, of a dark brown colour, or thin and acrid, so as to excoriate the epiglottis, or sanious and fetid, is very unfavourable. A bland, copious,* free, white or yellowish expectoration of a thick consistence, is the most favourable. A viscid expectoration is unfavourable. The viscid globular sputa, says Huxham, are bad; and Bianchus observes, in his *Historia Hepatica*, that we cannot always draw a favourable prognosis from the expectorated matter being copious and thick, but on the contrary, that a very viscid expectoration, gradually becoming more so, often portends a fatal termination. It has been an observation from the infancy of medicine, that much rattling in the breast before the matter about to be expectorated is brought up, is unfavourable.

Upon the whole the greater relief the expectoration brings, the better is the prognosis. Every spitting, Wendt observes, which relieves the pain and renders the breathing freer, must be regarded as favourable, let the colour of the matter be what it may, green, livid, or even black.† If, on the other hand, the expectoration has been scanty or absent from the beginning; and still more if it fails during the progress of the disease; if it is difficult and brings little relief, we dread suppuration or gangrene. An expectoration of a thin yellow matter is noticed by many writers, which is very unfavourable. It is termed a bilious spitting, and thought by some to characterize what has been called the bilious pneumonia, of which I shall soon have occasion to speak more particularly.

Suppuration is chiefly to be dreaded when the expectoration is scanty or absent; a tendency to gangrene when the matter coughed up is livid and sanious.

* Schroeder justly observes, that when the expectoration is livid and sanious, the more copious it is, the worse is the prognosis. Schroeder de *Pleuritidum partitione*, in his *Opusc. Med.*

† This observation is to be understood with some limitation; a black expectoration may be regarded as favourable, because it gives temporary relief; but it always indicates a bad state of the lungs. I do not allude to a blackish blue appearance which the mucus of the lungs often assumes, which is always favourable.

The spitting has been regarded as a diagnostic between peripneumonia and pleuritis, that is, between inflammation of the substance of the lungs and that of their membranes; but we shall find this diagnostic as fallacious as others. Nothing can be more inconsistent than the observations of authors on this head. Dr. Cullen in his definition of pleuritis, observes, that the cough although at first dry, becomes moist and sometimes bloody. Wendt remarks, that when a patient labouring under pleuritis begins to spit, he no longer regards the case as a simple pleuritis, but a combination of pleuritis and peripneumony. Sydenham, on the other hand, speaks of expectoration as a constant symptom in the true pleurisy.

Such are the local symptoms of pneumonia and their principal varieties; but no combination of these constitutes pneumonia without the presence of fever. The fever, it is observed above, often shews itself as early as any of the local symptoms, and the latter are never present for any considerable length of time without being attended by the former. If we except the difficulty of breathing and cough, we shall find no symptom of pneumonia so constant as a frequent pulse.

The pulse at the commencement, as in most other phlegmasiæ, is generally strong, hard, and frequent. Several authors have observed, that in pneumonia it often differs on different sides of the body. Zimmerman gives a case in illustration of this; and Cleg-horn says it is often most obscure on the side affected. It was observed of simple fever, that the pulse is sometimes oppressed at the beginning, and rises on blood-letting; the same has been remarked of pneumonia.* But there is a species of pneumonia which comes on with a depressed pulse that sinks on blood-letting, which I shall soon have occasion to notice more particularly.

Soon after the commencement the face becomes flushed, the skin hot and dry, the urine sometimes quite limped and in large quantity, which has since the days of Hippocrates been regarded as an unfavourable symptom; at other times, scanty and high-coloured.

The bowels are seldom regular, but either costive or too much relaxed. The thirst is considerable, and the tongue often dry, white, and rough. In short all the symptoms of synocha are superadded to the foregoing.

Idiopathic pneumonia agrees with the other phlegmasiæ in being rarely attended with delirium or coma, if, according to Boer-

* Huxham and others.

have, we except those cases which are terminating by suppuration. Even in these indeed they are far from being common.

Resolution is the only favourable termination of pneumonia; and is generally attended with a copious and free expectoration.

It appears a contradiction in terms to say that the termination is by resolution when the matter expectorated is evidently purulent. It has long been taken for granted that the formation of pus is always attended with the destruction of parts, so that the word implies not only the formation of pus, but also the ulceration which frequently attends it.

Physiologists have been puzzled to account for the presence of pus in the lungs, where it was impossible to trace any marks of ulceration. De Hean supposed it to be formed in the blood, and poured out by the exhalents. Dr. Cullen accounts for its presence by the experiments of Sir John Pringle above alluded to.* Those of Mr. Home, demonstrating how readily pus is formed by inflamed secreting surfaces, removes the difficulty.

If we except a free expectoration, no evacuation more frequently attends the favourable termination of pneumonia than a flow of sweat; any degree of general moisture appearing on the skin is favourable; a sweat seldom fails to bring relief, and if it be universal and copious often carries off the disease; a sweat that brings no relief, however, is to be regarded as unfavourable.†

Hemorrhagy from the nose often brings relief. Hoffman considers it most salutary when it occurs the fourth day. It is seldom, however, attended with a perfect crisis. Hemorrhoids also, though less frequently, attends the remissions of pneumonia. Many reckon blood in the sputa favourable, so that moderate hæmoptysis may perhaps be ranked among the critical hemorrhagies of this disease.

The appearance of the miliary eruption is favourable when not forced out by the heating regimen, particularly, Allionius‡ observes, when the disease has arisen from cold.

High-coloured turbid urine, depositing a copious sediment, frequently, but not always as some alledge, accompanies the resolution of pneumonia.

* Introduction to the 2d part.

† Wendt observes, that if the symptoms do not soon remit, the sweat often proves fruitless or even hurtful. Much sweating, says Quarin, which does not relieve the symptoms, is dangerous. And Huxham remarks, that the fluid which the patient drinks, running off quickly by any of the excretories, even by profuse sweating, has ever since the days of Hippocrates been regarded as unfavourable.

‡ De Febre Miliare.

Although diarrhœa sometimes brings relief, particularly says Schroeder, at an advanced period, it less frequently does so than the preceding evacuations; and is upon the whole, particularly at an early period, to be regarded as unfavourable, except there be bile or other irritating matter in the bowels.* Whatever oppresses the bowels is particularly hurtful in pneumonia. - Symptoms of indigestion, therefore, especially much flatulence, are unfavourable. In such cases, Schroeder observes, a spontaneous vomiting is often critical.

The discharge from the mucous membrane of the nose and fauces is also unfavourable. This case is termed by Huxham the catarrhal pneumonia, and he regards its prognosis as bad.

Pneumonia sometimes terminates by inflammation and suppuration of the parotid glands, or by erysipelatous inflammation of the surface.†

It is evident that every metastasis is not favourable, the inflammation may seize on a part equally more vital than that which it leaves. The liver and spleen are the viscera most frequently attacked in metastasis of pneumonia.

A general remission of the symptoms, for the most part, precedes any of the favourable terminations just mentioned.

The unfavourable terminations of pneumonia are, suppuration and gangrene, which it has in common with the other phlegmasiæ, and certain terminations peculiar to itself.

We have reason to suppose that suppuration will take place, if signs of resolution do not shew themselves within four or five days, if there be either no spitting or such as brings no relief, if the symptoms have not yielded to blood-letting and proper medicines, especially if delirium with rather a soft undulating pulse supervenes.

That suppuration has actually begun we know from frequent irregular shiverings following the symptoms just enumerated without any manifest cause; from the pain being mitigated or removed while the dyspnœa continues; from the pulse becoming fuller, softer, and either slower or more frequent; from the cheeks and lips looking red; and from an increase of thirst and fever in the evening.

* Quarin de Feb.

† Inflamed swellings, says Quarin, sometimes appear behind the ears, or on the legs, or other parts, and prove critical in pneumonia. Huxham and others make similar observations.

We have reason to believe that a collection of matter, which in the lungs is termed a vomica, is formed, when after the above symptoms there is an obstinate dry cough, the respiration being difficult, short, rattling, and more frequent than usual; when the patient is able to lie only on the side affected; when febrile exacerbations return at intervals, particularly in the evening, with redness of the cheeks and lips, the dyspnœa cough and fever being increased by eating and exercise; when the thirst is considerable, and there are sweats towards morning, especially about the throat and forehead, with turbid urine, a palid countenance, waisting of the flesh, and great debility. The peculiar fever (termed hectic) which attends such cases, we shall soon have occasion more particularly to consider.

When the abscess is situated in the most external part of the lungs immediatly under the ribs, we may often perceive a soft swelling between the ribs, and a fluctuation may sometimes be distinctly felt in it.

Many of the foregoing symptoms are not essentially connected with the presence of a vomica. The rattling breathing often arises from other causes; in many cases after the vomica is formed the patient can lie on both sides without inconvenience, and it has frequently been remarked that its formation is often preceded by little or no shivering.

Upon the whole, however, the ceasing of the pain, or the pain being changed into a sense of weight, without any of the evacuations, which it was observed above frequently attend resolution,* while the cough, dyspnœa, and fever still continue, the pulse loosing its hardness, and the fever assuming the form of hectic, leave no room to doubt the presence of an abscess in the lungs. About the seventh day, not the fourth, as some have alledged, is the period at which, if the disease has continued without any considerable remission, we have reason to fear suppuration; resolution has taken place as late as the eleventh or twelfth day; but this is rare. When there are considerable remissions, it may take place at a much later period. It has been remarked that it seldom happens after the fourteenth day; I have known it happen after the disease had lasted four or five weeks.

Except a vomica be situated on the surface of the lungs, so that the fluctuation may be felt externally, in which case the matter may be discharged by an opening made through the intercostal muscles, it generally proves fatal. There are four ways in which this

* Dr. Millar's Treatise on the Diseases of Great Britain.

may happen. It may without bursting occasion hectic fever, which gradually exhausts the strength. Abscesses of the lungs, however, when their sides have become so callous as to prevent absorption, have remained for many years without producing fever, or otherwise greatly impairing the health. When the abscess is large, and bursts into the substance of the lungs, it often produces immediate suffocation. When the matter is discharged into the cavity of the thorax, the disease has been termed empyema; the matter falls down upon the diaphragm when the patient is in the erect posture, occasioning a sense of weight in the lower part of the chest. The difficulty of breathing; (which is now greatly increased by lying down, especially on the back) cough, and hectic fever continue, and gradually exhaust the strength. In the empyema we may often perceive the fluctuation of the matter in the cavity of the thorax. When the vomica is small, its bursting into the substance of the lungs does not occasion suffocation, but purulent expectoration. An ulcer of the lungs is generally the consequence, and phthisis succeeds, the symptoms of which we shall soon have occasion to consider. It sometimes happens, however, in very healthy habits, especially such as are free from any scrophulous tendency, that the ulcer formed by the bursting of a small abscess in the lungs heals and the patient gets well.

An abscess of the lungs sometimes, though rarely, terminates favourably in another way; cases are alluded to by Quarin and others, in which the pus was absorbed, and passed by urine or stool, and sometimes we have reason to believe it has been deposited in other parts of the body; but these are occurrences so rare, that in forming the prognosis they are hardly to be taken into the account. Wendt observes, that when pneumonia terminates by suppuration, the abscess generally bursts before the twentieth day of the disease. It is often, however, delayed to a much later period.

The termination of pneumonia in gangrene, which is very rare, is always immediately fatal. The tendency to gangrene is known from the unusual violence and obstinacy of the symptoms. When gangrene is about to take place, there is a diminution of the pain, the cheeks become red, the pulse sinks, and the matter expectorated assumes an ichorous appearance. When the gangrene has actually taken place, the pain ceases without any of the salutary evacuations above mentioned, the countenance becomes pale, the pulse still more feeble and intermitting, cold clammy sweats appear on different parts of the body, hiccup, loss of sight, and gen-

eral stupor supervene, and the patient soon expires. Dr. Cullen, however, justly observes, that the termination by gangrene is so conjoined with that by effusion, which I shall presently have occasion to consider, that their symptoms are hardly to be distinguished.

It is supposed by many that pneumonia may terminate in schirrus, which is known according to Quarin, by great difficulty of breathing, and a troublesome dry cough remaining after the other symptoms are gone, and much increased by exercise or a full meal; it is distinguished from a vomica by the absence of hectic fever, and the symptoms being nearly stationary for a considerable length of time, while in the vomica they generally increase.

In some cases, however, there seems to remain after pneumonia, a difficulty of breathing and oppression, indicating no fixed disease of the lungs, but mere debility; this is most apt to happen in nervous irritable habits, and when the disease has been long protracted.

The terminations peculiar to pneumonia are, suffocation from an effusion of red blood, or of a serous fluid into the substance of the lungs, and hydrothorax the consequence of an exudation from the pleura.

The fatal terminations of pneumonia are generally preceded by an evident increase of the whole, or part of the symptoms, the pain is often felt more generally throughout the thorax, the difficulty of breathing is increased, the patient becomes more watchful, or more rarely he is affected with some degree of coma or delirium. The cough is more distressing. The matter expectorated mixed with a larger proportion of blood, or brought up with greater difficulty, either owing to the bronchiæ being clogged by the quantity of viscid fluid poured into them, or the increasing debility.

Upon the whole, the less difficult the breathing, the less severe the cough, the more copious and free the expectoration, and the greater the relief it brings, the more regular and firm, and the less frequent and hard the pulse, and the less the strength is reduced, the better is the prognosis.

Pneumonia generally proves fatal before the seventh day, sometimes as early as the third; but where death is occasioned by the bursting of a vomica it is commonly much later. Vomicae, it is observed above generally burst before the twentieth day, but, if they are succeeded by an empyema or phthisis, death may be delayed to a much later period.

There are few diseases whose diagnosis is more simple than that of pneumonia, the only difficulty is to distinguish it from cases of symptomatic and false pleurisy, of which I shall presently have occasion to speak. Yet there is no symptom in pneumonia which is not met with in other diseases. Few are more frequent than pain in some part of the chest, cough, more or less difficulty of breathing, and fever; but where these, or the three last of these, are combined, we are assured of the presence of pneumonia. The diagnosis of this disease is easy, because the symptoms which mark it are few and distinct.

Although we succeed in removing the symptoms of pneumonia, the danger is not past, the disease is frequently renewed, and the second attack is often more violent, and almost always more dangerous than the first. Wendt even speaks of a recovery from relapses as rare, "non semper sunt lethales;" and Quarin remarks, "Pleuritis recidiva vix curanda." These observations, however, apply only to the more severe cases; and even in these, I have seen the disease return several times, and yet terminate favourably.

SECT. II.

Of the Appearances on Dissection.

ON inspecting the lungs, the inflamed parts appear redder than usual, the colour, Dr. Baillie remarks, being partly florid, and partly of a darker hue, and the pleura covering the inflamed parts is crowded with fine red vessels. "The inflamed state of the lungs," the author just mentioned observes, "is to be distinguished from blood accumulated in some part of them, after death, in consequence of gravitation. From the body lying in the horizontal posture after death, blood is often accumulated at the posterior part of the lungs, giving them there a deeper colour, and rendering them heavier. In this case there will be found no crowd of red vessels filled with blood, nor any other mark of inflammation of the pleura. Where blood too is accumulated in any part of a lung after death, from gravitation it is always of a dark colour, but where blood is accumulated from inflammation, portions of the inflamed part will appear florid."

We often find in the substance of one or more of the lobes of the lungs a collection of a greenish yellow pus, sometimes mixed with blood of a brown or dark red colour, and of a grumous appearance,

There is sometimes an extravasation of blood in the lungs without abscess,* and sometimes of coagulable lymph.

Pus is often found between the folds of the pleura, the abscesses opening on the surface of the lungs, or the pus being secreted by the inflamed membrane itself; very frequently in the bronchiæ. Portions of the lungs and pleura are soft, and sometimes wholly destroyed, having been as it were dissolved in the purulent and sanious matter. There are cases on record, in which portions of the pleura were destroyed, the lungs being entire. This is very rare; and Schroeder and others remark, that it is unusual for the pleura to be affected with inflammation without the lungs partaking of it.

The latter around an abscess are generally more solid than natural in their texture, owing, Dr. Baillie observes, to coagulable lymph being thrown out during the inflammation. This subject I shall have occasion to resume in speaking of phthisis.

When the inflamed pleura remains entire, it is often covered with florid spots.

On examining the lungs more particularly, we frequently find small lurking ulcers in the parenchyma and the branches of the bronchiæ; sometimes the lungs are indurated in different parts; and Dr. Cleghorn observes, that they are now and then changed into a hard substance which sinks in water. This increased gravity, Dr. Baillie observes, often arises merely from an increased quantity of blood.

The aqua pericardii is generally altered either in quantity or quality. In some cases it is much more copious than usual; in some, wholly wanting, and the pericardium itself adheres to the heart throughout its whole extent. It seems to be this consequence of disease which has given rise to the opinion of the pericardium being sometimes wanting. Like the pleura it is now and then soft and partly dissolved. The aqua pericardii is often tinged with blood, and in some cases wholly consists of a greenish purulent matter.

The heart itself, though not often, sometimes partakes of the morbid appearances. Traces of inflammation, extending more or less deeply into its substance, are now and then observed. The inflamed part is more crowded than natural with small vessels, and there is sometimes found in it spots of extravasated blood.† Abscesses, ulcerations, and even gangrene, have sometimes, though

* Wendt. &c.

† Dr. Baillie's Treatise on Morbid Anatomy, p. 12.

rarely, been found in this organ. In some cases, on cutting through its sides, small quantities of pus appear scattered here and there among its fibres.

Polypous concretions are found in its cavities and in the large blood-vessels; the nature of these I have already had occasion to notice. The large vessels are sometimes preternaturally distended, and the blood in them is generally of a dark colour.

The lungs often appear considerably enlarged, apparently from their containing a greater than usual quantity of extravasated fluids. Where the pleura is inflamed they are often covered with a soft whitish viscid crust of coagulable lymph, which frequently assumes a membranous form, and is the cement of the adhesions between the folds of the pleura. There is no consequence of pneumonic inflammation so common as these adhesions, they are either occasioned by inflammation so slight that it is not attended with the usual symptoms of pneumonia, or they arise also from some other cause, for they are found in many who never laboured under the symptoms of this disease. Dr. Monro, in his Anatomical Lectures, observes, that he has examined the thorax of few adults without finding more or less of such adhesions. Some imagine that the adhesions left by pneumonia are a principal cause of the frequent recurrence of this disease; except when very extensive, however, in which case they frequently occasion habitual dyspnœa, they are attended with little inconvenience; and the frequent recurrence of pneumonia is readily accounted for by the tendency to future attacks left by all inflammations, and the exposed situation of the lungs.

It is very common to meet with morbid appearances in the abdomen of those who die of pneumonia. The liver and pancreas are often found indurated, and the former enlarged. There is sometimes also induration of the spleen, and very frequently worms are found in the upper parts of the intestines, particularly in the jejunum. In a very large proportion of the cases related by Wendt, *limbrici* were found in this intestine. The reader will also see similar cases in the 21st Epistle of Morgagni de *Sedibus et Causis Morborum*.

The only morbid appearance usually found in the head is congestion, the effect of the dyspnœa. The reader will find it particularly noticed by Dr. Cleghorn and others.

SECT. III.

Of the Varieties of Pneumonia.

It is only lately that pneumonia has been regarded as one disease. By the older writers, and by many even of our own days, particularly foreigners, it has been divided into different diseases, according to the place which the inflammation occupies. When it is seated in the substance of the lungs, the disease is termed peripneumonia; when in the pleura, pleuritis; in the diaphragm, paraphrenitis; in the heart, carditis; and even inflammations of the mediastinum and pericardium are regarded as distinct diseases. Certain combinations of these affections also have peculiar appellations; that of the inflammation of the substance of the lungs, for example, and their investing membranes, have been termed pleuro-peripneumonia or peripneumopleuritis.

There is so strong, and in some places so general a prepossession in favour of these divisions of pneumonia, that it will be necessary to consider at some length on what observations they are founded, and how far they are useful in practice.

Dr. Cullen, apparently more in compliance with the opinions of others than relying on his own observation, has given a place in his Nosology to the division of pneumonia into peripneumony and pleuritis. The former he defines, pneumonia, with a pulse not always hard, sometimes soft, the pain dull, the respiration constantly difficult, and often only to be performed in the erect posture, the face swelled and purple, the tongue generally moist, and the matter expectorated sometimes bloody. Other authors give a similar, though in some respects a different account of peripneumony. In the peripneumony, Hoffman observes, the inflammation is seated more deeply in the substance of the lungs, the pain is more dull and extends to the back and scapulæ, the breathing more laborious, and the pulse soft. The pulse, Dr. M'Bride observes, is less hard than in the pleurisy. Burserius gives a fuller account of the diagnostic symptoms of peripneumony than any other writer I have met with. It is attended, he observes, with such difficulty of breathing, that the patient is in danger of suffocation, which often obliges him to sit as much as possible in the erect posture, the breathing is frequent, the breath very hot, the cough at first dry or attended with a very scanty expectoration, which is frothy, thin, crude, yellow, or mixed with blood; at a more advanced pe-

riod becoming more considerable, thicker, better concocted, and more easily spit up. The patient complains of a weight, oppression, and distension throughout the whole chest, but there is no pain except such as can hardly be felt, confined chiefly to the region of the sternum and spine, and often only perceived when the chest is strongly agitated by coughing. The cheeks are red and swelled, the eyes prominent, the head pained, the tongue parched, at first yellowish, afterwards covered with viscid mucus, at length black and chopped. These symptoms are accompanied with a great desire for cold drink and fresh air, and a full and sometimes undulating soft pulse. Sometimes, however, he observes, contrary to the assertions of most authors, the pulse is strong and hard; at other times it is irregular and intermitting, or very small and quick. The patient lies with more ease on the back than on the sides. The debility is very great. The urine is sometimes pale and clear, at other times dark-coloured and turbid. Many other accounts of peripneumony nearly in the same tenour might be adduced.

There are but two purposes which can possibly be served by thus separating from the other symptoms of pneumonia, and calling by a particular appellation the symptoms just enumerated. It must either teach us to ascertain the seat of the disease with more accuracy, or enable us better to suit the modes of practice to the various symptoms of pneumonia. Let us consider how far it answers either of these purposes.

In the first place, it may be remarked of the different accounts of peripneumony which have been quoted, that their authors are far from agreeing among themselves what its diagnostic symptoms are, and this is a point which must remain to be settled, although it be found that some of the foregoing symptoms always indicate an inflammation of the paranchyma of the lungs, and demand a treatment different from that necessary in other cases of pneumonia.

However different the characters of peripneumony given by different writers, they seem all to agree that an obtuse and pretty general pain, or the total absence of pain with a great degree of dyspnœa, are its chief characteristic marks; and on comparing these characters we find, that there is no other symptom generally regarded as characteristic of peripneumony.

A similar observation may be made respecting pleurisy. Were we to examine the different accounts of authors, we should find but very few symptoms which all agree in regarding as peculiar to this form of the disease. Dr. Cullen says the cough is moist at certain periods of pleurisy. Wendt says it is always dry. The

hard pulse and quick short breathing, supposed by Hoffman to characterise pleurisy, are mentioned by others as occasional symptoms of peripneumony.

Upon the whole, on perusing what has been written on this subject, we shall find, that the acute pain is the only symptoms regarded by all as characteristic of pleurisy.

We are here, therefore, to consider whether the dyspnœa being great and the pain either dull or absent indicate that the inflammation is confined to the paranchyma, and the dyspnœa being less urgent but the pain more acute, that it has its seat in the membranes of the lungs.

If the reader will consult the 20th Epistle of Morgagni de Sedi-
bus et Causis Morborum, particularly the 9th, 33d, 35th, 39th, 41st,
43d, 47th, 49th, and 62d sections of it, and some parts of his 21st
epistle, he will find, that the symptoms regarded as peculiar to
pleurisy have frequently attended the paranchymatous inflamma-
tion of the lungs, and that, when the pleura was not at all affected.
When we inspect the bodies of those who die of inflammation of
the lungs, (says Schroeder*) they alone are sometimes found in-
flamed, although all the symptoms of pleurisy had been well mark-
ed. Petrus Servius opened three hundred people, at Rome, who
died with the symptoms of pleurisy, in all of them the lungs were
greatly inflamed, the pleura little or not at all. Tissot met with
similar cases, and Diemerbroeck says, that in two or three cases
in which there had been no acute pain, and where consequently,
according to the common opinion, the paranchyma of the lungs
alone should have been affected, the pleura equally partook of the
disease. Even Burserius observes, that dissections are not want-
ing to prove that inflammation of the pleura has been present with-
out any pain. Sydenham seems to go so far as to believe the pa-
ranchyma of the lungs to be very frequently the seat of pleurisy.
And Juncker, in his *Conspectus Pathologiæ*, observes, that pleurisy
often passes into peripneumony, by which we may understand,
that the paranchyma, was found inflamed where the symptoms had
been those of pleurisy; for such is the prejudice in favour of
this division of pneumonia, that when it has been found that the
appearances on dissection did not correspond with it, it was sup-
posed that the one form of the disease had passed into the other;
an opinion which seems to have been sanctioned even by Haller.
Yet we find in some of the oldest writers observations inconsistent

* Opusc. Med.

with it. Hippocrates speaks of pleurisy and peripneumony as affections nearly if not altogether the same; and Galen observes; that the pain in peripneumony is sometimes acute. I need hardly add that the conclusion from the foregoing observations, and many more might be added from authors of equal authority is, that we cannot, from any of the symptoms of pneumonia, determine whether the seat of the inflammation is in the substance of the lungs or the pleura.

It remains to be considered whether the foregoing division of pneumonia assists us in its treatment. We shall find, in considering the treatment of pneumonia, that it is the same whether the symptoms be those of peripneumony or pleurisy; nor does the prognosis vary, the danger being equal in both forms of the disease. Of what use then is the division in question? May we not safely reject it?

There are two other diseases termed peripneumony and pleurisy, frequently confounded with pneumonia, which, both in their symptoms and treatment, differ essentially from it as well as from each other, the peripneumonia notha, and barstard pleurisy; on the latter I shall presently have occasion to make some observations; the former must be considered more at length.

We shall find similar reasons for rejecting the other varieties of pneumonia. An inflammation of the diaphragm and that part of the pleura which lines it, has been termed paraphrenitis, and is said by authors to be attended with such symptoms as enable us to distinguish it from other thoratic inflammations. "Paraphrenitis," says Huxham, "is attended with a very acute fever, and a violent pain extending from the lower ribs to the lowest vertebrae of the back, a short convulsive singultuous kind of breathing, a vast anxiety and uneasiness, dry cough, hiccup, and delirium; an excessive pain is particularly felt on every inspiration, which darts itself from the pit of the stomach to the very loins, and the hypochondrium of the side affected is drawn inwards and upwards under the ribs, while the abdomen is scarce perceptibly moved in respiration, but remains fixed and convulsed as it were by the violence of the pain in attempting an inspiration." To these symptoms many writers add a convulsive laughing, which has been termed risus sardonius, from the name of an herb supposed to possess the power of exciting it.

But although delirium, hiccup, the risus sardonius, &c. occasionally attend inflammation of the diaphragm and its membrane,

it has more frequently happened that traces of inflammation have been found in them where these symptoms had not appeared. Cleghorn confesses that, in a case which he had mistaken for common pleurisy, he found on dissection traces of inflammation neither in the lungs nor pleura, but in the diaphragm. Morgagni relates two cases in which the diaphragm was wounded without producing the risus sardonicus. This symptom has been observed in intermitting fever and in the common typhus without inflammation of the diaphragm. Strack mentions many cases of the latter; and Quarin gives one in which venesection was performed on the supposition of the diaphragm being inflamed, which proved fatal.

The symptoms which are said to characterise an inflammation of the mediastinum are, the pain being acute and felt under the sternum or between the shoulders, and shooting through the thorax, accompanied with a cough which produces but a small and difficult expectoration. When the pericardium is inflamed, the pain, it is said, is deep seated, the oppression and anxiety are excessive, attended with palpitation, and a constant inclination to cough. The same may be said of these cases as of paraphrenitis; traces of inflammation have been found in the mediastinum and pericardium where the foregoing symptoms had appeared, but these symptoms have often appeared when no traces of inflammation could be found in either, and on the other hand they are often inflamed with no other than the usual symptoms of pneumonia. “*Certe novimus pericardium sæpe inflammatum fuisse, sine aliis præter peripneumoniam, signis.*”*

We should, a priori, expect that the symptoms of inflammation of the heart would differ essentially from those of the other thoracic viscera. This however is far from being the case. Dr. Cullen, indeed, in his nosology, makes carditis a distinct genus from pneumonia, but observes, at the same time, that he agrees with Vogel in believing that the symptoms of carditis are almost the same with those of peripneumony, only in general more severe. Linnæus, he observes, must also have been of the same opinion, since neither carditis nor pericarditis are arranged as distinct diseases in his nosology.

Dr. Cullen defines carditis, a fever with pain in the region of the heart, anxiety, dyspnœa, cough, irregular pulse, palpitation, and syncope. Many cases might be adduced to shew the insufficiency

* Culleni Synopsis Nosol. Method.

of any diagnostic symptoms of carditis.* If an irregular pulse attends the symptoms of pneumonia, and actual syncope occurs, it is probable that the heart is inflamed, but these symptoms are far from being constant attendants on carditis, and the former very frequently attends other cases of pneumonia.

There is still another affection which the reader will find, has been regarded as distinct from other forms of pneumonia. It is termed by authors the pleuritis vera by which is understood an inflammation of the pleura costalis, which does not spread to the pleura of the lung. That this sometimes occurs is certain, but dissection is the only means of ascertaining its presence.

Such are the circumstances which have induced some of the best writers to regard inflammation of all the thoracic viscera as one disease.

I have not mentioned the erysipelas of the lungs. This term is now little used, and seems never to have had distinct ideas annexed to it. In different authors the reader will find different accounts of what is meant by it; and as for rheumatism of the lungs, a term used by some writers, it is employed very inaccurately to express some one or other of the foregoing affections.

Pneumonia is either simple and idiopathic, idiopathic and complicated with other diseases, or symptomatic.

Pneumonia complicated with typhus is termed peripneumonia putrida, or maligna; with synocha, the peripneumonia ardens, or synochus pleuriticus; with catarrh, the pleuritis catarrhalis or lymphatica.†

Of these, the first alone requires particular notice here, the treatment of the others being readily understood if we are acquainted with that of pneumonia, and the diseases on which it supervenes. I shall, in considering this form of the disease, as well as the symptomatic pneumoniæ make such observations on the treatment as shall prevent the necessity of recurring to them, which will occasion no embarrassment to the reader if he is acquainted with what has been said of the treatment of the phlegmasiæ in general.

* A man of thirty-six years of age, Wendt observes, complained of a pain in the left side, with a violent and painful cough; and was obliged on account of the dyspnœa to remain in the erect posture; the cough was moist and much yellow matter was expectorated without relieving the symptoms. Guided by the foregoing definition, should we suppose that in this case the heart was inflamed? On dissection it was found that both the heart and pericardium were inflamed, and pus was found among the muscular fibres of the former.

† For other combinations of this kind see Dr. Cullen's Synop. Nos. Method.

Comparatively few authors have treated of the pneumonia putrida; in the accounts which we have of it, there are many observations which cannot be reconciled, and the subject, upon the whole, is involved in some confusion. The following, as far as I can judge, is a general abstract of what has been ascertained respecting it.

The pneumonia putrida is of two kinds, idiopathic and symptomatic. The latter is most generally known; it consists merely in pneumonia supervening on the typhus gravior. This is the only putrid pneumonia acknowledged by Dr. Cullen. But it seems ascertained by the observations of other writers, that there is an idiopathic putrid pneumonia, a primary inflammation of the lungs, accompanied with strongly marked typhus. And this form of the disease has been epidemic, while the more common form did not appear. The idiopathic putrid pneumonia, when exquisitely formed, appears with nearly the same symptoms as the symptomatic, only the inflammation is present from the commencement.

It has been observed to attack chiefly those of debilitated habits, frequently such as labour under chronic diseases of debility; the scurvy for example. Very young and very old people and females, Cappel* observes, are most subject to it. He also thinks, that the presence of tubercles and an ill formed thorax dispose to it.

The occasional causes of the putrid pneumonia are nearly the same as those of the phlegmasiæ in general, with the addition of contagion, for the contagious nature of this form of the disease seems on all hands admitted. Among its causes Cappel enumerates impurities of the primæ viæ, and observes, that the common pneumonia may be changed into the putrid by heating or very debilitating medicines.

The usual treatment of pneumonia is here inadmissible. All who were bled, Tissot observes, died. The general plan of treatment seems to be a combination of that of typhus with the local treatment of pneumonia, particular care being taken to clear the primæ viæ. The employment of these means, however, requires much attention.

Local blood-letting, Cappel thinks injurious; others are of a different opinion, and it is only, perhaps, where the debility is very great, that it is inadmissible. There are instances of bleeding from scarification of the side in this disease becoming so obstinate and profuse as to baffle every attempt to stop it till the patient

* Cappel De Pneumonia Typhode.

expired. Dry cupping, where the debility is very great, is used with more safety, and often brings relief.

When the tendency to gangrene and hemorrhagy is great, blisters are improper. They sometimes occasion gangrenous sores. Cappel advises the plaister to be removed as soon as the skin is inflamed.

Fomentations, cataplasms, volatile linaments, warmth applied in every other way, and watery vapours drawn in with the breath, have been particularly recommended. These are safer means than blisters, but, in proportion as they are so, less effectual.

With respect to general means, there is none of equal efficacy with the bark and wine; the former is particularly recommended by Quarin and others. The expectoration is often increased, says Quarin, and the patient, as it were, snatched from death by the bark, especially if the fever, as sometimes happens, shews a tendency to remit. The bark, however, does harm if given incautiously. If the inflammatory symptoms are considerable, Cappel observes, the bark is hurtful.

Wine is of more general use. There is no case of putrid pneumonia where it may not be employed with advantage. The quantity must be proportioned to the degree of debility. I have several times seen pneumonia complicated with the low fever of this country, and in one instance had the satisfaction to see a case of this kind which was supposed to be hopeless, terminate favourably, in consequence of the repeated application of leeches and blisters to the chest, and the free use of wine. The ammonia acetata has been found useful when the skin is very dry. Antimonials given cautiously are of service when the expectoration is difficult. The seneka is not to be depended on. Cappel recommends camphoir in small and repeated doses, but relies more on musk, which he gave in very large quantity where other means had failed. Mercury he thinks useful if given so as to prevent its occasioning much evacuation. Opium has been recommended for allaying pain, procuring sleep, relieving the cough, and stopping diarrhœa.

The observations made on the diet in typhus are applicable here. It is, however, of still more consequence to guard against every thing that deranges the primæ viæ. This observation will be illustrated by what I am about to say of the symptomatic pneumoniæ. It has just been observed that irritation of these passages may excite the putrid pneumonia. This is particularly the case when it appears as a symptomatic affection in typhus.

Whether symptomatic or Idiopathic, it is often accompanied with the symptoms peculiar to bilious pneumonia, which we shall presently have occasion to consider. In the putrid pneumonia, therefore, clearing the alimentary canal forms an essential part of the treatment. The effect of cathartics, however, is unfavourable, and it seems very generally admitted, both on this account and because the chief cause of irritation seems in most instances to be lodged in the stomach, that emetics are the best means of removing it. It appears from the observations of some, says Quarin, that the life of the patient has been saved by the operation of an emetic. Emetics, says Cappel, are useful if the stomach be oppressed and in other cases at the commencement, especially if the disease arise from contagion. They are also useful when the expectoration is copious and viscid, but we must be cautious, he adds, that we do not occasion purging instead of vomiting, which is attended with great danger. Schroeder also remarks, that if the emetic in putrid pneumonia occasions purging instead of vomiting, the disease generally proves fatal. On this account, the former recommends ipecacuanha in preference to other emetics, as it may be given with safety in large doses. Other writers make similar observations. When we have succeeded in removing the symptoms of putrid pneumonia, it is proper for some time to pursue a tonic plan in order to restore the strength, and prevent a relapse.*

It will be necessary to consider at some length certain species of symptomatic pneumoniæ. Mistaking them for the idiopathic disease has often been attended with fatal consequences.

The reader will find many species of symptomatic pneumonia mentioned in the 102nd, 105th, and 106th pages of Dr. Cullen's Nosology, and many more in the Institut. Med. Prac. of Burserius. But those which chiefly demand attention are the pleuritis or pleurodyne verminosa, or stomachalis, as Bianchus† calls it, and the

* For an account of the putrid pneumonia the reader may consult Camerarius de Pleuritide Maligna, in the 2d vol. of Haller's Disput. ad Morb. Hist. et Curat. Pertinent. De Preval, on Vomiting in Putrid Pneumonia, in the same volume. Quarin de Febribus, Huxham's Treatise on Peripneumonia, Schroeder's Treatise De Pleuritidum Partitione, in his Opusc. Med. and a Treatise, De Pneumonia Typhode, by Ludov. Christoph. Guil. Cappel.

†Historia Hepatica of Bianchus.

pleuritis biliosa, which Dr. Cullen seems to have overlooked. It will also be necessary to make a few remarks on bastard pleurisy.

Any thing which greatly deranges the stomach and bowels, often occasions a pain in some part of the side, accompanied with more or less dyspnœa; which has sometimes been mistaken for pneumonia. The difference is apparent, however, on examining the pulse, which is natural, or nearly so; not to mention that here there is not necessarily any cough. But it appears from many observations that a certain degree of irritation of the stomach and bowels is capable of producing all the symptoms of pneumonia.

In the 43d, 44th, and 45th, sections of Morgagni's 21st Epistle, the reader will find the pleuritis verminosa treated of at some length. He mentions one case, in which all the symptoms of pleurisy were well marked, that terminated by a bloody vomiting which brought up a lumbricus. We might in this instance attribute the relief obtained rather to the loss of blood than the expulsion of the worm; but he refers to a paper of Pedratto on the pleuritis verminosa, where the relief obtained by the expulsion of worms from the stomach and intestines, particularly from the former, is unequivocally proved.

It there appears, that all who vomited worms or passed them by stool recovered, while those who did not died. All the common modes of treatment in pneumonia failed, anthelmintics alone were successful. The cases related by Pedratto are the more remarkable, that they did not appear in solitary instances, but as an epidemic attacking the inhabitants of a whole town and neighbourhood.

While the expulsion of worms from the primæ viæ immediately removes the disease, it is impossible for us to believe that inflammation seem difficult to explain how they may occasion pain in the side and has existed. Fever frequently attends worms, and it does not dyspnœa. If it be asked, says De Haen,* in what manner worms occasion the symptoms of pleurisy without the actual presence of inflammation in any of the thoracic viscera, it is not difficult to answer the question. Some parts of the intestines, he observes rise as high as the 9th, 8th, 7th, and even the 6th, rib. Now if lumbrici, he continues, adhere to these parts, biting and tearing them, must they not occasion a pain resembling that of pleurisy? Will not the wounded intestine be pained more acutely when it is pressed by the diaphragm in a full inspiration, and if the respiration

*Method Medendi.

be thus hurt, can we suppose that there will not be some degree of cough? This explanation is very intelligible. There is one circumstance, however, overlooked by De Haen, which tends to involve the nature of the pleuritis verminosa in much obscurity. In those who die of this disease, the same traces of inflammation are found in the thoracic viscera as in those who die of other forms of pneumonia.

Pedratto found, on examining the thorax of one of his patients, the whole lungs swelled on the left side, which had been the seat of the pain; they were inflamed and of a dark colour, and in the interior part there was a collection of white ichorous matter. The pleura was every where inflamed, livid, and marked with red points. The intercostal muscles partaking of the disease. Thus it appears that the false pleurisy, arising from affection of the primæ viæ, for we have no reason to believe that there is any thoracic inflammation at the commencement of such cases, is in the progress of the disease changed into a true pleurisy. If the presence of worms in the intestines is capable of exciting pneumonia, it is not surprising that they aggravate its symptoms, and therefore that all who labour under this disease die if the offending cause is not removed.

The bilious pleurisy seems only to differ from the pleuritis verminosa in the difference of the irritating cause. Here the presence of bile in the intestines produces nearly the same effects which that of worms in the former case does. It has been observed, that the pains in the bilious pleurisy are wandering, the cough dry and troublesome, with little and difficult expectoration, the beat of the pulse quick and frequent, the watching constant, the anxiety great. In this case, Burserius observes, blood-letting hurries on the fatal termination, which often happens on the fifth day when it has been employed, but is otherwise generally delayed to the 7th, 9th, or 11th. The less useful blood-letting is in pneumonia, Schroeder observes, the more reason there is to suspect an accumulation of bile in the stomach and intestines.

The accounts we have of this species of pneumonia are less distinct than those of the pleuritis verminosa. This arises from diseases of different kinds having gone by the name of bilious pleurisy, for some authors have termed every case of pleurisy bilious in which the spitting is thin and yellow. The bilious pleurisy is best characterised by the various symptoms indicating the presence of bile in the primæ viæ; the patient having on former occasions been subject to bilious affections, and their causes having been applied, assist the diagnosis.

The chief symptoms denoting the presence of bile in the stomach and intestines are a sense of oppression, nausea, and a bitter taste, with giddiness and pain in the head, and an unusual fœtor of the fæces, which are often of a very dark colour. These symptoms sometimes do not appear till after one or two blood-lettings.

We must have recourse to emetics and cooling and mercurial cathartics. When the cause of irritation is removed, the pneumonia often ceases; even nature, Schroeder observes, frequently relieves this disorder by spontaneous vomiting and purging.

“ In this month of February, a pleurisy which had something uncommon in it was very frequent in Fife, and at first proved fatal to many. It began with shivering, head-ache, trembling, and bilious vomiting, which after two days were succeeded by a pungent pain among the short ribs, difficult breathing, and a short cough. The thirst of the sick was moderate if they were not blooded, but when as much blood was taken as the degree of pain seemed to require, the thirst increased, as likewise the sickness of the stomach, till they fainted. The pulse quickly sunk on drawing blood, which was brownish, yellowish, or greenish, and hardly coagulated. The sick slept none through the whole course of the disease, which continued for twenty-five or thirty-two days. When blood-letting was omitted or used very sparingly, and vomits were given early and afterwards repeated with refrigerents, laxatives, and expectorants, as far as the stomach would bear, the patient generally recovered. Very strong emetics did not answer.”*

The reader, however, will find some difference of opinion respecting the employment of blood-letting in the bilious pleurisy. Bianchus, regards it as pernicious only at the commencement. From what was said concerning the pleuritis verminosa, which is applicable to the case before us, it is more than probable that the lungs in bilious pleurisy are not inflamed at an early period, which may account for blood-letting being less successful then, than when the disease is farther advanced. It is asserted by Cleghorn, respecting bilious pleurisy, that much blood-letting was necessary, and that, after trying many remedies, this, with proper means to clear the stomach and bowels, was found the only successful mode of treatment. The only way in which we can account for such opposite opinions is by supposing something different in the nature of the different epidemics. And, indeed, it must happen, that in

* Edinburgh Medical Essays, Vol. 5.

different epidemics the tendency to inflammation of the lungs, from the season of the year, state of the weather, or some less evident cause, will be different; and the greater this tendency, it is evident the sooner will the inflammatory symptoms succeed the bilious, and the more early, we have reason to believe, may blood-letting be employed with advantage. It has been observed, that the blood in this form of pneumonia, does not shew the buffy coat, but it is more than probable that this observation does not universally apply.

It is remarkable that bilious pleurisies sometimes obey the tertian type.* When this happens we can hardly suppose that real inflammation exists. Cappel observes, that real pneumonia never, as some have supposed, assumes a regular intermitting form.

It is observed above, that we frequently meet with schirrus of the liver, pancreas, or spleen, in those who die of pneumonia, and more frequently, we have reason to believe, than can be ascribed to chance. May not schirrus of these parts, particularly that of the liver, by an irritation similar to that which produces the pleuritis verminosa and biliosa, sometimes excite pneumonia? In a large proportion of the dissections of those who died of pneumonia, given by Morgagni, the liver or spleen was found indurated or otherwise unhealthy, or some of the other abdominal viscera, particularly the pancreas and ovaria were diseased. Pneumonia is comparatively rare in young children. Dr. Beardsley, in the Memoirs of the Newhaven Society, however, mentions an instance of an infant dying of this disease, in whom the liver was found to be schirrus. I have several times, indeed, seen pneumonia evidently induced by this cause; and in one of my patients who died of schirrus liver, the lungs adhered to the parities of the chest throughout their whole extent.

The other cases of symptomatic pneumonia requires little or no comment. The pleuritis arthritica I shall have occasion to mention when I speak of gout. The pleuritis morbillosa was noticed in the Chapter on Measles; there is nothing particular either in its symptoms or mode of treatment. The pleuritis hydrothoracica appears in general with little pain but much dyspnœa, and it is best relieved by repeated blisters applied to the chest, and small doses of calomel, digitalis, and other diuretics. The pneumonia phthisica, that inflammation of the lungs which forms the first stage of phthisis, has, though with little propriety, been ranked among

* Bianchus, Historia Hepatica.

the symptomatic pneumonia. We shall soon have occasion to consider it at length.

The disease which has been termed the bastard pleurisy, is nothing more than an inflammatory affection of the intercostal muscles, producing an acute pain of the side, increased on inspiration. It is generally attended with little or no fever, and scarcely with any cough. An inflammation of the intercostal muscles often spreads, as I have myself repeatedly witnessed, to the pleura and lungs, producing a true pleurisy. Thus we find a case related by Huxham, in which some of the muscles of the thorax were wounded, from which, the inflammation spreading to the viscera, the patient soon laboured under all the symptoms of pneumonia.

But whether bastard pleurisy be the sole disease, or combined with pneumonia, its presence may always be detected by the increase of pain which takes place on the contraction of the inflamed muscles. The patient generally complains of soreness on pressure in the seat of the pain.

The bastard pleurisy, for the most part, yields to local means, or these combined with sudorifics.

SECT. IV.

Of the Causes of Pneumonia.

THE strong and plethoric, who use much exercise, and readily digest their food, are most subject to pneumonia. The least subject to it are those of a relaxed and weakly habit, bad digestion, and indolent disposition. It has been an observation from the infancy of medicine, that those who complain of acidity of the stomach are little subject to this disease. It is most common in middle life or rather later; Dr. Cullen says between 45 and 60, and in winter and spring, particularly the latter. It is generally the more frequent, the colder, moister, and more changeable the weather. Huxham says he has seen the same epidemic in low warm situations near the sea prove only a catarrhal fever, in more exposed situations a true pneumonia. According to the observations of army physicians, however, all extremes of weather, whether very cold, very warm, very dry, or very moist, predispose to this disease,* As in other phlegmasiæ every thing which conduces to

* See the observations of Dr. D. Monro, Sir John Pringle, &c.

plethora, full living, indolence, repelled eruptions, suppressed excretions, even drying up an issue, or healing an old sore, may have the same effect.

Of the exciting causes of pneumonia the sudden or partial application of cold, especially when the skin is damp, is the chief. I have seen a fatal case of pneumonia from going into a cold bed while the skin was damp from exercise. Many of the predisposing causes applied suddenly and to a great degree act as exciting causes.

Such are the causes which pneumonia has in common with the other phlegmasiæ. Those which are peculiar to it act immediately on the lungs; violent exercise forcing the blood too rapidly through them, violent coughing, receiving acrid vapours with the breath, other diseases of the thoracic viscera, asthma, hydrothorax, callosity of the pleura, &c. to which we may add, as we have just seen, certain diseases of the abdominal viscera.

Adhesions of the pleura are generally ranked among the causes of pneumonia. It is only, however, when very extensive that they seem capable of exciting this disease.

No phlegmasiæ is more easily renewed in those who have formerly laboured under it. Hoffman says he has seen the same person attacked with pneumonia four or five times within a year.

It is frequently epidemic, but never it is observed by Morgagni and others who have been most conversant with it, contagious, as some have supposed. This observation, however, as appears from what was said of the pneumonia putrida, only applies to the common form of the disease.

SECT. V.

Of the Treatment of Pneumonia.

THE treatment of pneumonia, like that of the other phlegmasiæ, may be divided into general and local.

It differs but little from that of the phlegmasiæ which have been considered; the chief difference arising from the nature and importance of the organ affected. The first remedy employed is general blood-letting, which should be carried far enough either to relieve the symptoms while the blood flows, or occasion a tendency to syncope.

It is supposed by many, that bleeding from the arm of the side affected is most beneficial. Dr. Cullen does not seem to think

this opinion groundless. It may be safely asserted, however, that letting blood from the side affected is not of such importance as to make it necessary, when it is more convenient to let it from the other.

Our view in letting blood from the arm is to diminish the vis a tergo, and this is done equally well from whatever vein the blood is taken, provided it is of the same capacity and equally near the heart.

Werlhoff has even gone so far as to assert, that in one instance he had seen the blood drawn from the side not affected natural, while at the same time blood drawn from the side affected shewed the buffy coat. Other physicians, however, have maintained, that the side not affected is that from which blood should be taken in pneumonia. The reader will find an account of the disputes on this subject in Van Swieten's Commentary on Boerhaave's 890th Aphorism. In many places they were conducted with great acrimony, and in Portugal an edict was issued by government prohibiting any physician from letting blood in pleurisy from the side affected!

It was a custom among some of the old practitioners, to open the arteries of the hand in this disease; that which lies between the thumb and forefinger was generally chosen. Dr. Friend* observes, that Galen was the first who recommended this mode of blood-letting in pneumonia. Gesnerus, in his Epistle to Cratto, and some other writers, have maintained, that there is no part of the arm from which it is proper to let blood, and that the patient can only be saved by drawing it from the foot. On such observations any comment is unnecessary. When the jugular vein can be readily struck, it is of advantage to take the blood from a vein which pours its contents into the thorax. Boerhaave considers it of so much consequence that the blood should be drawn off as suddenly as possible in this disease, that he not only advises it to be taken from a large orifice, but that the patient should endeavour to quicken its flow by breathing quickly and coughing. The propriety of which may be questioned.

There are few cases of pneumonia which yield to the first blood-letting. For even where it gives most relief the symptoms generally soon return, and demand a repetition of the remedy.

If it be found, says Boerhaave, on repeating the blood-letting that the buffy coat has disappeared, we are warranted to dissuade

* History of medicine, from the days of Galen to the beginning of the sixteenth century.

from the further use of the lancet. And the reader will find similar observations made by others. But Dr. M^cBride has justly observed, that this is only true when the symptoms at the same time abate, for in many cases the buffy coat is never seen, and in many, he might have added, it disappears long before the inflammation yields.

The appearance of the blood, however, is not to be overlooked, the diminution of the buffy coat is always a favourable sign, and it often happens that there is no occasion to repeat the blood-letting after it disappears.

Triller,* and some other respectable writers have advised, in repeating the blood-letting in this disease, to take the blood from different parts of the body. The arm of the side affected he recommends as the best place for the first blood-letting, for the second, he considers the foot of the same side the proper place, and for the third, the other foot. Little need be said of this conceit; the reasons which determine our choice of the vein in the first blood-letting are of equal force in repeating the remedy.

It has been said, that blood-letting in pneumonia is improper after the fourth day. It is now very generally admitted that although it is most effectual when employed within the first three or four days; it must be employed, if the symptoms are well marked, and the strength will bear it, at any period of the disease. When the symptoms have occasionally remitted, I have known blood-letting in the second or third week attended with the best effects. We must be careful not to repeat it after suppuration has commenced, which is known by the symptoms above pointed out.

The reader will find many stating the quantity of blood which must upon the whole be lost in the cure of pleurisy. In adults, says Sydenham, pleurisy is seldom cured with the loss of less than forty ounces of blood. It is evident, however, that no general rule can be laid down. The repetition of the blood-letting, as well as the quantity to be drawn at each blood-letting, must be determined by the state of the symptoms and the strength of the patient.

It is a favourite opinion, that as soon as spontaneous evacuations, which may prove critical, take place, all artificial evacuations should be discontinued, as tending, it is said, to disturb the salutary efforts of nature.†

* Trilleri Opusc. Med. et Med. Philol.

† See the 889th Aphorism of Boerhaave, Dr. Millar's Account of the Diseases of Great-Britain, &c.

When a spontaneous evacuation relieves the symptoms, there is no occasion for blood-letting, and it is proper at all times as much as possible to save the patient's strength; but when such evacuations bring no relief, or when they do to a certain degree bring relief, but the symptoms are still such as warrant blood-letting, their presence must not defer us from it; nor does blood-letting, cautiously employed, tend to interrupt a free expectoration or other salutary discharges, but frequently promotes them.

There is no disease, however, in which an unguarded use of the lancet is not attended with danger; and during spontaneous evacuations, which relieve the symptoms, in proportion as there is less occasion for profuse blood-letting, it is the more injudicious. If too much blood is taken away in pleurisy, says Hoffman, the expectoration will be impeded, the obstruction confirmed, and sphacelus may ensue. It was observed above, that when the disease has been tedious, and the strength much reduced, the matter poured into the bronchiæ sometimes accumulates in such quantity as to occasion suffocation. But although the debility induced by blood-letting produces neither suffocation nor gangrene, it may prove the cause of death by giving rise to other diseases. In pneumonia it is frequently followed by hydrothorax, sometimes by asthma, phthisis, or any other disease of debility to which the patient is predisposed.

When a tendency to hemorrhagy appears in pneumonia, it is by many judged better to promote the hemorrhagy than to draw blood from other parts. If bleeding from the nose, or hæmorrhoids occurs, we are advised to increase the flow of blood by fomentations, and applying leeches, and in the former case, by irritating the nares. If, however, the hemorrhagy thus increased does not soon relieve the symptoms, we must have recourse to blood-letting in the usual way. In severe cases the hemorrhagy is rarely such as to induce us even to delay venesection.

Some difference of opinion has arisen concerning the employment of cathartics in pneumonia; some use them for the purpose of increasing the effects of blood-letting. There is the same objection, however, to this practice in pneumonia as in the cases which have been considered, with this in addition, that a spontaneous diarrhœa is generally hurtful in this disease. It is true, indeed, that in the case of spontaneous diarrhœa, the injury may proceed rather from the irritating matter which occasions it, than from the diarrhœa itself. Experience, however, seems not to warrant a freer employment of cathartics in pneumonia, than is necessary to support a due action of the bowels.

Except in cases immediately connected with the state of the stomach, emetics are very generally regarded as hurtful in pneumonia; but nauseating doses, particularly antimonials, are the most valuable of all medicines in this disease, tending more than any other to promote expectoration and relax the skin.

The advantage derived from spontaneous sweating has induced many to recommend more powerful sudorifics, but these have not answered the expectations formed of them. I have already had occasion to observe, that the effects of spontaneous sweating seldom attends that produced by art. It sometimes happens that even spontaneous sweating, particularly when it is partial and clammy, serves no other purpose but that of reducing the strength. It must then be cautiously checked, by diminishing the allowance of fluid and removing part of the bed-clothes.

In like manner the advantage derived from a free expectoration has led to the use of the various medicines termed expectorants. Few of them, however, are well adapted to this disease. The gums, and even squills, by their irritation increase the febrile symptoms, and render the cough tighter. When the inflammation is nearly subdued, however, and the bronchiæ are clogged with a viscid secretion, they are often, particularly squills, of great service, promoting expectoration, and relieving both the cough and sense of oppression. The ammonia also is sometimes serviceable in promoting expectoration towards the decline of the disease. But while the inflammation lasts, if we except nauseating doses of emetics, we find no expectorants so useful as mucilaginous mixtures, and watery vapour received into the lungs.

It was once a prevalent opinion, that the advantage derived from mucilaginous medicines arises from their being received into the mass of blood and conveyed to the lungs, where, it was supposed they render the matter about to be expectorated of a proper consistence. This hypothesis led to forcing the patient to take large quantities of them, which, by oppressing the stomach, often did more harm than good. It is now pretty generally admitted, that a principal effect of these medicines is that of besmearing the fauces, thus allaying the irritation which keeps up the cough, and prevents the matter poured into the lungs from remaining there till it has acquired a due consistence,* without which it cannot be freely ex-

* It seems to be a law of the animal œconomy, that while secreted fluids remain in any of the cavities, the absorbents are constantly employed in taking up the thinner parts.

pectorated. To answer this purpose they should be given frequently. They seem also to be of service in lining the stomach and bowels, and thus preventing irritation. As might be expected from this view of them, they are found most serviceable when the expectoration is too thin. When this is the case, opiates, if the state of the inflammatory symptoms admits of their use, are the most powerful expectorants. Their operation is similar to that of the foregoing, but as they act by lessening the sensibility, their effects are more certain.

There is some difference of opinion respecting their employment in pneumonia, whether for the purpose just mentioned, or that of allaying pain. It appears from the observations of foreign writers, that on the Continent they are frequently employed with the latter intention. In young people, says Hoffman, small doses of opium combined with nitre and diaphoretics may be given for the purpose of allaying pain, but in advanced life, where the juices are thick, they render the expectoration more difficult.

The practitioners of this country almost wholly confine the use of opium to the latter stages. When the difficulty of breathing and fever have abated, the cough remaining, with more or less pain and watchfulness, gentle opiates are employed with safety and often with great advantage.

Watery vapour is chiefly useful when the expectorated matter is viscid and tenacious. The vapour has been impregnated with a variety of articles, onions, which are among the best, a variety of herbs, honey, &c. Vinegar has been particularly recommended. Dr. M'Bride advises a large sponge dipt in vinegar to be held close to the mouth and nostrils.

It is needless here to repeat what has been said of the use of saline medicines, particularly the saline draughts and nitrate of potash, which are always useful when the heat is much increased.

All agree respecting the best regimen in pneumonia; it should be strictly anti-inflammatory. All kinds of animal food and heating fluids must be avoided, and the diet should consist of light vegetables with much dilution. The temperature of the patient's room should neither be so high as to increase the rapidity of the circulation, nor so low as to run the risk of increasing the inflammatory affection of the lungs, which a very cold air is found to do. A temperature of about 60 degrees is the best, and it is of consequence that it should be kept as uniform as possible. It is hardly necessary to observe that all kinds of exercise should be avoided. Some, in-

leed, have advised the patient to be as much out of bed as he can easily bear. In this practice, however, there is much risk, and little advantage to be expected from it.

The reader will perceive that, if we except the means for allaying the cough, increasing the expectoration, and clearing the primæ viæ, there is but one view in the general means employed in pneumonia, namely, to diminish the vis a tergo. It appears from what was said above, that certain medicines possess this power independently of any evacuation. The digitalis is the only one of this class which has obtained much attention. In the trials I have made with it in the phlegmasiæ, I have generally been disappointed in its effects. Although we succeed by it in lessening the force of the circulation, we often find the inflammatory symptoms but little relieved. This may be readily accounted for by what has been said of the nature of inflammation, for if inflammation arises from the power of the capillaries bearing too small a proportion to the vis a tergo, it is evident that a means which equally impairs the action of all the vessels, will not succeed in restoring the due ballance between them. We have reason to believe that the digitalis is a means of this kind, that it does not act by impairing the vigour of the heart and larger vessels alone, but equally of every part of the sanguiferous system.

It is more than probable that lessening the proportion of oxygen in the air would be a powerful means of relief in pneumonia.

The most important of the local remedies employed in pneumonia are local blood-letting and blisters. The former is the chief resource when the patient's strength is so far reduced that he can no longer bear general blood-letting, and it is chiefly under such circumstances that it has been employed. But it would appear, from the observations made on the treatment of the phlegmasiæ, that the purposes served by general and local blood-letting are not the same; that the one is better calculated to relieve the local congestion, the other to diminish the vis a tergo; from which it is evident, that wherever the symptoms are, considerable advantage will arise, from combining these modes of blood-letting. Relief will be more speedily obtained, and the extent to which it will be necessary to carry the general blood-letting will be lessened.

In all the phlegmasiæ, we have seen, when the fever is considerable the use of blisters must be delayed till the symptoms are mitigated by proper evacuations. This precaution is most necessary in those phlegmasiæ in which the pulse, as in pneumonia, is most

uniformly strong and hard. The period proper for the application of blisters must vary therefore according to the effects of blood-letting. It is proper before their application that the hardness of the pulse should be considerably lessened.

The blister should be pretty large and applied immediately over the seat of the pain, or if there is no pain on the anterior part of the thorax. If the symptoms do not readily yield, it is proper to support the discharge from the blistered part, or to apply a succession of blisters, which is preferable. It is necessary to apply them to some part of the thorax, little or no advantage arising from their application to more distant parts.

Fomentation of the pained side is a very ancient practice, and was recommended by Hippocrates before blood-letting. At present, however, it is little relied on, the benefit derived from it seldom compensating for the trouble it occasions. It is still recommended by some foreign writers. In bastard pleurisy, which is nothing more, we have seen, than an inflammatory affection of the intercostal muscles, the relief derived from fomentations is very considerable, and this has probably contributed to their being employed in pneumonia.

As the pain in pneumonia is often aggravated by the motion of the ribs, it is recommended by Boerhaave and others to wrap a roller round the thorax, by which considerable relief is sometimes obtained.

A very few observations respecting the means to be employed when any of the unfavourable terminations of pneumonia have taken place, will be sufficient, for little can be done. If the patient recovers after an abscess is formed in any part of the lungs, he owes his safety more to the accidental seat and size of the abscess, and the favourable state of the habit, than to any means we possess.

If the abscess evidently points outwards, I have already had occasion to mention the propriety of opening it. When it burst into the substance of the lungs, if it is not large enough to occasion suffocation, it sometimes, in very favourable habits, takes on the healing process, the purulent expectoration ceases, and the patient is soon restored to health. In by far the majority of cases, however, the abscess continues to form matter and hectic fever comes on, it then constitutes the last stage of phthisis pulmonalis, a disease we shall have occasion to consider at length; and medicine is of little avail. Nor can it do more where the abscess has burst into the cavity of the thorax forming the empyema; in this case, indeed, it

has been proposed, that the matter should be evacuated,* as in the case of abscess pointing externally, but here the operation promises but little, nor, as far as I know, has it ever been successful.

It sometimes happens, we have seen, that closed abscesses of the lungs remain for a long time without materially impairing the health. It is only necessary in such cases that the patient should avoid with care all causes which may renew the inflammation.

Gangrene of the lungs is uniformly hopeless. It is probable, indeed, that although we had means of checking the gangrene, the hemorrhagy which constantly attends it in this organ would always prove fatal. Plans of cure, however, have been proposed. Boerhaave, in his 902d and 903d Aphorisms, lays down what appears to him the most probable. They are evidently dictated by hypothesis, and their being generally abandoned is a sufficient proof of their inefficacy. Neither Boerhaave, nor his commentator indeed, give a single case in which they were put in practice. Can it be supposed that the application of the actual cautery to the side can be of any avail when gangrene of the lungs has taken place? And Van Swieten, in adducing the authority of Aretæus in favour of the practice, seems to have fallen into an error, for it does not appear that it was recommended by him as a means of checking gangrene, but lessening the inflammation, with which view it might certainly be of use; nor is the suggestion of Dr. Millar at all more likely to be of service. "When in pneumonia, gangrene has taken place," he observes, "little can be expected from medicine. If any thing can save the patient it is a liberal use of the peruvian bark." He forgets that there is not even time for the trial.

It is observed above, that pneumonia has sometimes, though rarely, terminated in a callus or schirrus of the lungs. This termination is less unfavourable than the foregoing. It is, however, extremely obstinate, and generally continues to harass the patient for the remainder of life. Medicine seems to have little effect; by a mild diet and regular exercise the symptoms may often be mitigated.

When pneumonia terminates in hemorrhagy of the lungs, if there is time for the use of medicine, the mode of treatment is the same as in other cases of hæmoptysis.

It sometimes happens that pneumonia leaves the patient so much debilitated that he has not sufficient strength to cough up the phlegm which attends the resolution of the inflammation, and even

* Boerhaav. Aphor. Aph. 896.

suffocation has ensued. Here we must have recourse to blisters and the more stimulating expectorants, the fetid gums, squills, and ammonia.

CHAP. XI.

Of PERIPNEUMONIA NOTHA.

DR. CULLEN in his System of Nosology, regards this disease merely as a variety of pneumonia, and it cannot be doubted that it often is nothing more than inflammation of the lungs considerably modified by peculiarity of habit. Sometimes, however, it has much less of the appearance of pneumonia, and upon the whole, differs from it so materially that notwithstanding what Dr. Cullen says of it in the above work, he found it necessary in his First Lines to treat of it separately.

In laying before the reader the symptoms of peripneumonia notha, I shall give a view of the disease as it appears when it differs most from pneumonia, and then point out in what manner it insensibly assumes more of the appearance of this disease, till it is difficult to say by which name it should be called.

SECT. I.

Of the symptoms of Peripneumonia Notha.

THE peripneumonia notha often makes its attack with symptoms so similar to those of a common catarrh, that it is hardly to be distinguished from it. In other cases it comes on with languor, restlessness, some degree of cold shivering, or chills alternating with fits of heat, without being accompanied with catarrhal symptoms.

As the disease advances, which is generally without much fever the patient complains of dyspnœa, much anxiety, and a sense of oppression and tightness about the precordia. A cough generally comes on at an early period, attended with an expectoration of a white viscid frothy matter, which is rarely tinged with blood.

The cough often becomes very violent, attended by head-ach, in many cases very severe, and generally much aggravated during coughing, giving a sensation, to use Sydenham's expression, as if the head were torn to pieces. This symptom is peculiarly characteristic of the disease.

Vomiting is frequent at an early period, especially when the cough is violent, by which it is often excited. The matter thrown up, as in simple fever, generally consists of a viscid insipid mucus. Sometimes there is no cough. In this circumstance, and the occasional violence of the cough as well as the head-ach, and vomiting, it differs essentially from the true pneumonia. It chiefly differs from it, however, in the febrile symptoms, being generally mild and often wholly absent, the pulse at no period being more frequent than natural, except when hurried by the cough, the tongue remaining moist, and the functions in general seeming but little deranged. The urine, however, is generally high-coloured and turbid, and even where there is no fever, the blood frequently shews the buffy coat.

The functions of the mind are in general but little disturbed. A considerable degree of vertigo, however, frequently attends, accompanied with much flushing of the face, and sometimes drowsiness approaching to coma. There is often no pain in the thorax, or it is so trifling that the patient never complains of it; he sometimes describes it as, an obscure dull pain which is rather troublesome than severe.

There are few diseases in which the prognosis is more difficult than in the peripneumonia notha, for when we see little appearance of danger a sudden exacerbation often takes place and proves fatal.* And this now and then happens at the very time when a considerable abatement of the symptoms has afforded hopes of recovery.

In most cases, however, death is preceded by a more severe train of symptoms. The dyspnœa increases, a degree of coma supervenes, the face becomes hippocratic, the nails livid, and the voice hoarse and inarticulate, the patient complaining of great anxiety and sense of oppression; the limbs at length become cold and the vital powers gradually sink.

When the peripneumonia notha terminates favourably, it is still more generally attended, than the true pneumonia, by a copious and free expectoration; and if there be any thing which affords a just prognosis, it is the state of this symptom. The greater the debility, the more oppressed the lungs, and the less free and copious the expectoration, the worse is the prognosis.

* See the observations of Boerhaave, Cullen, and Lieutaud, and the 11th and other sections of the 21st Epistle of Morgagni de Causis et Sedibus Morborum.

On reviewing the foregoing account of the peripneumonia notha, the reader will readily perceive how easily it may assume the form of the true pneumonia. If a cough attend the peripneumonia notha, which is neither violent nor attended with vomiting, and the febrile symptoms run higher than usual, it is not possible to distinguish it from this disease, or rather it must be regarded as a case of true pneumonia, and on dissection it will be found that the lungs are actually inflamed. Dissection, indeed, has very frequently detected inflammation when the symptoms were those of well-formed peripneumonia notha, as appears from cases related by Morgagni and others. In many instances, however, no traces of inflammation can be found, and the disease seems almost as much allied to catarrh as to pneumonia, and runs into it by degrees equally imperceptible. The ancients, indeed, seem to have confounded it with catarrh.*

SECT. II.

Of the Causes of Peripneumonia Notha.

THIS is one of the diseases which has been accurately described only in later times. "A disease under this name," Dr. Cullen observes, "is mentioned in some medical writings of the sixteenth century, but it is very doubtful if the name was then applied to the same disease to which we now apply it. It appears to me, that unless some of the cases described under the title of catarrhus suffocativus be supposed to be of the kind that I am now to treat of, there was no description of this disease given before that by Sydenham, under the title I have employed here." In the following paragraphs, he observes, that, after Sydenham, Boerhaave is the first author who in a system noticed it as a distinct disease, and that, notwithstanding the remarks of Lieutaud, who with confidence affirms that the diseases described by Sydenham and Boerhaave under the title of peripneumonia notha are different, he is of opinion, that not only the disease described by Sydenham and that described by Boerhaave are the same, but that, that described by Lieutaud himself is not essentially different from them. And nobody, I think, who compares the accounts of this disease given by the foregoing writers, and distinguishes the accidental from the essential symptoms, can hesitate to agree with Dr. Cullen.

* Eller de Cog. et Cur. Morb.

The peripneumonia notha is most apt to attack those advanced in life. Women, and others of a delicate habit are less subject to it than the robust. It is common in the full and phlegmatic, especially those who have indulged much in the use of fermented liquors, particularly distilled spirits, or have fallen into a bad habit of body from other causes. Those who have been subject to catarrhal affections, who are indolent, Quarin observes, and whose diet is too nutritious, are particularly subject to peripneumonia notha, and may be attacked with it at an earlier time of life than that at which it usually appears. Like the true pneumonia, it seems often connected with the state of the liver, which is probably one reason why those addicted to the use of fermented liquors are subject to it.

The exciting causes of peripneumonia notha are similar to those of the phlegmasiæ. It is most prevalent in marshy countries, especially when the air is cold or liable to sudden changes of temperature; hence spring and autumn are the seasons at which it chiefly prevails, and it is equally occasioned by a change from heat to cold, or the contrary.

It is frequent, during the prevalence of contagious catarrhs, which in the predisposed frequently terminate in peripneumonia notha; and may be excited by the various irritations of the lungs, which were mentioned as occasional causes of pneumonia.

Some remarks on the nature of peripneumonia notha, which, from what has just been said, seems to differ so essentially from the phlegmasiæ, may be judged proper. Its nature, however, seems at present but ill ascertained. We appear, indeed, to class under this name diseases of very different natures; or I would rather say, that the disease, which goes by this name, comprehends all the various gradations, by which pneumonia and catarrh insensibly run into each other.

It is not difficult to conceive that secretion into the bronchiæ may take place capable of impeding or even interrupting the office of the lungs, without inflammation. But such cases should be distinguished from the effects of inflammation? Dr. Cullen, and some others, indeed, maintain, that a degree of inflammation constantly attends this disease, while others run into the opposite opinion, and deny that it ever is of an inflammatory nature. When the peripneumonia notha is exquisitely formed, the inflammation is certainly of a very languid kind.

The chief difference between the true pneumonia and the peripneumonia notha arises, perhaps, from the greater laxity of fibre in

those who are subject to the latter, in consequence of which the effusion being copious either wholly removes the incipient inflammation or prevents its becoming considerable. If such be the case, it would appear from what was said in the Introduction to the Second Part respecting the nature of the profluvia, that the peripneumonia notha belongs rather to this order of diseases, than to the phlegmasiæ.

SECT. III.

Of the Treatment of Peripneumonia Notha.

THE treatment of this disease varies in different cases according as the symptoms approach more or less to those of the true pneumonia. When the inflammatory symptoms are considerable, the treatment of the two diseases differs chiefly in degree.

From the tendency to effusion, however, in all cases of peripneumonia notha, and the peculiar habit of body in which it appears, blood-letting must be employed with great caution. It is sometimes proper, indeed, to begin with a moderate blood-letting, but after the inflammatory symptoms have to a certain degree yielded, it is advisable to attempt the cure by an attention to diet, proper expectorants, and local evacuations alone. There are few diseases whose treatment is more perplexing, the inflammatory symptoms often indicating one set of means, while the tendency to effusion points out another of very opposite effects. We must study with care the nature of the symptoms and the habit of body, and obviate that tendency which seems most to threaten danger, but in such a way as shall tend as little as possible to increase the opposite train of symptoms.

Boerhaave, in one passage recommends blood-letting, and in another dissuades from it, as, even while it brings immediate relief, eventually increasing the disease; and Sydenham, who in most cases made so liberal a use of the lancet, acknowledges the bad effects of the repetition of blood-letting in peripneumonia notha.

Catharsis is a safer evacuation. Dr. Cullen thinks the little advantage derived from it in the true pneumonia a strong argument against it here. Sydenham, on the other hand, assures us that, contrary to what happens in the former disease, the free employment of cathartics is useful in peripneumonia notha. The result of general experience, however, seems to be, that mild cathartics,

not too frequently repeated, and clysters* only, are proper ; for although it is of great consequence to prevent irritation of the primæ viæ, much evacuation by the bowels seems to be hurtful.

Reasoning from the practice in true pneumonia, we should be led to very erroneous conclusions respecting the propriety of emetics in this disease. In peripneumonia notha, says Lieutaud, especially if it be accompanied with nausea, an emetic often brings immediate relief. "Full vomiting," Dr. Cullen observes, "may often be repeated, and nauseating doses ought to be constantly employed." The benefit derived from emetics and nauseating doses seems chiefly to consist in their increasing the expectoration, on the state of which, we have seen, the event of the disease generally depends. Nor is their tendency to promote sweat, which, if general and not profuse nor brought out by heating measures, is for the most part favourable, to be overlooked.

The more stimulating expectorants are better adapted to this disease than to the true pneumonia. Opiates must be employed with great caution. They act, we have seen, by interrupting for a time the efforts to expectorate, which, when the secretion is copious and the strength much reduced, has often proved fatal.

Little is to be expected from the medicines termed pectoralia, which were once much recommended in peripneumonia notha, ground ivy, hyssop, &c. When the urine is scanty, diuretics are often serviceable. They are much recommended by Lieutaud and other writers of authority ; and some of the milder kinds should always, perhaps, form part of the treatment, when the effusion is such as to oppress the lungs.

With regard to the means of obviating debility, wine is found to increase the inflammatory tendency less than the bark, and it is often the more necessary in this disease, as the subjects of it are frequently such as have been accustomed to the free use of fermented liquors. Sydenham has justly observed, that the sudden abstraction of the habitual stimulus is often in this disease attended with the worst effects. When the inflammatory tendency is great, however, both fermented liquors and tonic medicines are inadmissible. As the fever then runs higher and the disease is more rapid, the change of diet is less felt in the more chronic cases. Irritating articles of food, and such as are of difficult digestion, are improper in all cases.

* Eller De Cog. et Cur. Morb.

Such are the general means employed in peripneumonia notha. The local remedies hold a higher place than in the treatment of true pneumonia.

In the more inflammatory cases, as we dread the effects of general, we endeavour to supply their place by a more assiduous use of local evacuants. Of these, local blood-letting and blisters are still the chief. The latter are useful in all cases. As in true pneumonia, they should be confined to the thorax. Blistering the legs, recommended by Eller and others, appears to be of comparatively little use. Fomentations of the chest are still less useful here than in pneumonia.*

* There can be no reasonable doubt, but the disease described by Dr. Cullen, and other European authors, under the name, Peripneumonia Notha, is the same which has prevailed in this country within the last five years, under the name Pneumonia Typhoidea; and there is reason to believe, that the same disease appeared in Athens, long before Sydenham's time, though it had not then received the name of Peripneumonia Notha.

Adams, in his Book on morbid poisons, quotes one of the ancients, who mentions a disease, which appeared in Athens, of which he says, that the disease was ushered in by a catarrhal fever; and that it resembled pleurisy, being attended with violent pain in the side, extremely mortal, and yielding to no remedies. As Adam's Book on Morbid Poisons, is not now within my reach, I cannot quote him more particularly, but when I read it, my impression was, that it was the same disease which we now call pneumonia typhodea. So far as I know, this disease made its first appearance in New-England, in the winter of 1812. In the winter of 1813, it prevailed to a great extent throughout all the New-England states, in the state of New-York, and in Canada. Since that time, it has continued more or less, in various parts of the eastern states, and has extended even to some of the southern states.

The greatest number of cases here, occurred in the Winter and spring months; but it has occasionally appeared in the summer and autumn.

What the author has said respecting those who are most liable to be attacked by this disease, corresponds precisely with our own experience of the pneumonia typhoidea.—But as to local situation, I have not learnt, that the disease has been influenced by it, either as to number attacked, or its violence. The disease has been equally prevalent on the plains, and on the mountains; on the banks of rivers, and in the neighbourhood of standing waters: It has also appeared with all its violence in the immediate vicinity of the sea.

Respecting the exciting causes of pneumonia typhoidea, and the circumstances of persons tending to fix it on them. During the winter in which this disease was most prevalent, there was a catarrhal affection which prevailed very generally, and those persons who had the disease, often complained of a catarrhal affection for some time previous to the attack; and the immediately exciting causes of the disease, was frequently some great bodily exertion, and exposure to cold. But this disease within the last five years, has been too general, and too similar in all the cases of it, to admit of the supposition, that it depended on

CHAP. XII.

Of CARDITIS and PERICARDITIS.

ENOUGH has already been said of carditis and pericarditis to convince the reader that any particular consideration of them is unnecessary. Were we possessed of a diagnosis between them and inflammation of the lungs, it would prove of little use, the treatment in all being the same.

accidental causes, or that its differing from common pneumonick affection, depended on the difference in the habits, and constitutions of patients.

Pneumonia typhoidea must be considered as a true epidemic, shewing as little variety in different cases, as epidemics generally do, and as to its peculiar cause, it is enveloped in darkness, like the causes of all other epidemics.

The parts of the body affected by pneumonia typhoidea, are chiefly the mucous and serous membranes. It was not confined to the membranes and viscera of the thorax, but occasionally it attacked the throat and fauces, preventing deglutition for a time. Sometimes it attacked both the throat and thoracick viscera; and in others it was confined to the thorax. The viscera of the abdomen were evidently more affected in this disease, than in common pneumonick inflammation; and in some instances, the serous membranes of the abdomen were affected in a similar manner to that of the thorax, that is, on dissection they were found coated with a membranous substance.

I have said that in the pneumonia typhoidea, the mucous and serous membranes were the principal seat of the disease. This affection could be called nothing else, but inflammation; yet it was very different from phlegmonick inflammation, as it seldom, if ever suppurated, and always produced an exudation of coagulable lymph, and serous fluid on the serous membranes, when they were affected, and they were always found affected in those cases, where the bodies of those who died of the disease were inspected.

The disease also attacked the mucous membrane of the bronchial vessels, producing a secretion of a dark chocolate colour.

In the pneumonia typhoidea, the parts of the body principally affected, were the mucous membrane of the throat and bronchial vessels, the serous membrane covering the viscera of the thorax, and abdomen. This affection of the serous and mucous membranes was inflammations, bearing more resemblance to erysipelas, than to phlegmonick inflammations; seldom, if ever, suppurating, but always producing an exudation on the surface of those membranes. The membranes affected, were found coated with a membranous substance, and a quantity of serous fluid was found in the cavity. The mucous membranes of the bronchial vessels, secreted a fluid of a dark chocolate colour; in some cases, entire blood was discharged from the bronchial vessels on the first attack; and in a few cases, the mucous expectorated was not discoloured.

The difficulty of breathing was generally very great; this arose from two causes, viz. from the morbid secretion of viscid matter in the bronchial vessels,

It is remarkable, that inflammation of the heart and pericardium sometimes exists without betraying itself by any symptom: Abscesses and ulcerations of these parts have been found after death where none of the usual symptoms of inflammation* had appeared. Why inflammation sometimes exists in these organs, unaccompanied by its usual symptoms, it is impossible to say.—

* See the Dissections of Bonnetus Morgagni, and others.

which excluded the air from the vesicles, and from the severe pain in the side, owing probably to the affection of the serous membranes of the thorax, which rendered it difficult to enlarge the thorax in inspiration.

The heat of the system was not very great, and the capillary vessels on the other parts of the body, did not seem to sympathize with those of the lungs, so much as they do in other inflammatory affections. The pulse also was less affected, than I had ever seen it in acute diseases of that danger and magnitude. In many cases the pulse continued soft, full and not very frequent, till nearly the close of life; and in a few cases it was preternaturally slow; in one case, it was below forty strokes in a minute, the patient was comatose, and almost insensible, and yet he recovered.

The skin was generally moist, and it was not difficult to make the patients sweat; some sweat profusely through the whole course of the disease. The tongue was coated, but the mouth was not very dry, nor the thirst great. The appetite for solids was lost. The mental faculties generally remained unimpaired, till the close of life, except in a few cases, where the patient was comatose.

Death happened from the third to the fourteenth day, but more died on the fifth day of the disease, than any other; in a few cases, life was protracted to a much longer period, even to five or six weeks, but in those cases, the lungs seemed to have suffered an irreparable injury in the violence of the disease, but were left in such a state, as to enable them to sustain life for a time. In one instance the paracentesis was performed on the thorax five weeks after the attack, and a quantity of serous fluid was discharged which gave some temporary relief; but the patient finally sunk under the disease.

The proper mode of treating this formidable disease, has not yet been settled among the physicians of this country. While some insist on bleeding, considering it, as the most important remedy, others consider it as fatal.

In the commencement of this affection, there were some circumstances which seemed strongly to indicate venesection, such as pain in the side, which was often very severe; and the countenance was frequently flushed, and in all cases where I saw blood drawn, it shewed the buff on the surface, after standing some time, in as great degree, as I had ever seen.

A patient over seventy years of age, a strong and robust man, was bled five times. I saw the blood that was taken at the fifth bleeding, which was about twelve hours before his death; the blood on standing separated and showed much of the coagulable lymph on the surface.

The circumstances, and symptoms, that contra-vindicated bleeding, were a soft, and oftentimes a weak pulse, not much accelerated, and though it was

In considering the other phlegmasiæ, we shall find similar cases in which the inflammation existed in organs of greater sensibility than the heart and pericardium.

Having considered all the phlegmasiæ in which the inflammation is seated in the head, neck, and thoracic viscera; we are now to consider those in which it attacks the abdominal viscera.

sometimes pretty full, yet it had not that hardness, nor did it meet the finger with that force, which we generally find in cases of pneumonic inflammations.

The first bleeding where it was practiced, did not bring that relief, which was expected by the physician; for though it sometimes mitigated the pain in the side, and rendered respiration less laborious, and difficult for a time, yet those symptoms soon returned with their former violence, and when the bleeding was repeated again and again, even to the fifth time, or until the patient died—this was the course of it.

This account, however, must be considered as true, only in a general point of view, for there were exceptions, in a few cases, the symptoms appeared like those, which we have been accustomed to meet with, in common cases of pneumonia, and the patient was recovered by repeated bleeding. I was engaged in attending patients sick with the pneumonia typhoidea, the greater part of the winter, and spring of 1813; during that period, I bled about ten patients, and every patient which I bled except one recovered. In one case I advised to repeat the bleeding to the third time, and it terminated favourably.

This account without further explanation, appears greatly in favour of bleeding, but it remains to be told, that the greater part of the patients, whom I saw had been visited by other physicians before I was called, and many of them had been bled, and on some it had been repeated, before I was consulted. This was particularly the case, when the disease first appeared; as it did not prevail much in my neighbourhood, I had a pretty fair opportunity of seeing the effects of bleeding without practicing it myself. I have mentioned that I bled about ten patients during the prevalence of the disease; it should however, be known that those cases were not of the worst kind, and that I attended more than ten where bleeding was not indicated, and cases of apparently more danger than those where bleeding was practised.

Upon the whole if I were to give an opinion respecting the propriety of bleeding in the pneumonia typhoidea, it would be, that in a majority of cases, it was not indicated by the state of the pulse, and when practised in such cases, it was not successful; and on the other hand, there were cases in which, it was indicated, and practised to advantage; even in those cases where blood-letting was ineffectual, the death of the patient was not always to be attributed to the loss of blood, but to the peculiar nature, and violence of the disease, which often in a few hours wrought such a change in the organ of respiration, as put the patient beyond the reach of any remedies, with which we are acquainted.

Emeticks were useful in almost every case, and so far as I am capable of judging, Ipecacuanha had better effect than Tartar Emetic. The use of tartar emetic in cases where venesection was not indicated, seemed to prostrate the strength, and gave no sensible relief.

The inflammation sometimes seizes on the whole of the peritoneum ; the phlegmasia is then termed peritonitis.

It is defined by Dr. Cullen,

Fever, with pain of the abdomen, increased, by the erect posture, and unaccompanied by the symptoms peculiar to the other abdominal phlegmasiæ.

The peritonitis, however, seldom exists without the inflammation's spreading in a greater or less degree to the stomach and intestines, nor does inflammation of the latter often exist without extending to the peritoneum. There is hardly room, therefore, for regarding the peritonitis as a distinct disease. When it does appear as such, it may easily be known by comparing the symptoms just enumerated with what is about to be said of those of the other abdominal phlegmasiæ, and the mode of treatment is the same as in inflammation of the stomach and bowels.

As the abdominal viscera were more affected in pneumonia typhoidea, than in ordinary cases of pneumonic inflammation, so cathartic medicines were more useful ; but I did not find the drastic cathartics so safe as those of a milder class. Calomel by itself, or combined with Rheubarb was perhaps the best. This, it was necessary to repeat often, in such doses as to keep up a moderate catharsis. When Calomel could be used so as to affect the mouth, it was salutary ; but in many cases the progress of the disease was so rapid, that before the mercurial action could be excited, the case was decided.

The violence of the pain in the thorax, and extreme difficulty of breathing called loudly for opium ; and when opium was combined with such medicines as determine to the surface and administered in moderate and repeated doses, it was evidently useful.

One of the best forms of opiates was the Dover's powder with a small quantity of Calomel.

Blistering on the thorax was very important. The blister to be effectual, must be large and repeated through the whole course of the disease.

Some of these medicines, which have been called expectorants, were evidently useful, such as Squills, Polygala Senega, or Seneca, Aristolochia Serpentaria, or Virginian snake rook, small doses of Ipecacuanha &c. ; but the demulcent and balsamic medicines were not so far as I could judge of any use.

Some medicines which have been considered as diaphoreticks, I used with good effect, (viz.) the old and neglected medicine called Contrayerva, given in substance by itself in large doses, or combined with Camphor.

I saw but few cases, where the powerful and diffusible stimulants, as wine, alcohol and external heat, were required, and those were cases in which the patient became comatose with slow pulse, and cold extremities ; in such cases I have seen ardent spirits combined with water, and given hot, with the addition of Laudanum, have the happiest effect and apparantly rescue the patient from death.

CHAP. XIII.

Of GASTRITIS.

INFLAMMATION of the stomach is defined by Dr. Cullen, "Pyrexia typhodes ; anxietas ; in epigastrio ardor et dolor, ingestis quibuslibet auctus ; vomendi cupiditas, et ingesta protinus rejecta ; singultus."

There may be some objection to the first part of this definition, the fever in gastritis bearing little resemblance to typhus, except in the general debility which attends it, for even the pulse, if we except its feebleness, is very different from that of typhus, and the more marked symptoms of typhus hardly ever shew themselves. This objection is obviated by the change above proposed in the definition of the phlegmasiæ.*

Dr. Cullen divides gastritis into two varieties, the gastritis phlegmonodea and gastritis erythematica. Of this division I shall presently have occasion to speak more particularly.

SECT. I.

Of the Symptoms of Gastritis.

THE symptoms of gastritis, like those of most other phlegmasiæ, are far from being complicated, the definition just given comprehending the chief part of them. The pain of the stomach is extremely acute, and accompanied with a sense of burning heat. It is not always confined exactly to the region of this organ, but extends as low as the false ribs, and often shoots to the back. It is generally much increased by receiving any thing into the stomach, and always by even the slightest external pressure. The vomiting is a more constant symptom than the hiccup.

The pulse is frequent, small, contracted, more or less hard, and sometimes intermitting. Bursarius observes, that it is sometimes rather strong ; but this is rare. The thirst is urgent, and on receiving a mild fluid into the stomach the pain often seems for a few moments to abate. The fluid however, is soon rejected and the patient finds any relief obtained by drinking deceitful and transitory.

The depression of strength in gastritis is more sudden and general than in any other of the phlegmasiæ. Actual syncope sometimes occurs, and the patient complains of anxiety and anguish referred to the præcordia.

* General Introduction. vol. 1. & seq.

The bowels are costive, though not obstinately so unless the inflammation has spread to them ; but the constant vomiting often opposes an obstacle to moving them.

Gastritis cannot easily be mistaken for other pains of the stomach. In spasms and flatulent pains, the pulse is generally natural or nearly so, nor are they accompanied with the sudden sinking of strength which attends gastritis. In them there is often no vomiting, and it is very rarely so constant, or so constantly excited by ingesta. Hiccup also is a less constant symptom. The increase of pain on receiving any thing into the stomach is much less remarkable ; nor is there any increase of pain on pressure, one of the best diagnostics of gastritis.

In spasm of the stomach, the case most liable to be mistaken for gastritis, there is such a sense of contraction and suffocation that the voice is often suppressed, while in the latter it is more free, and the cries of the patient are often piercing.

According to Sauvages, (and Quarin seems to agree with him) it is almost impossible to distinguish gastritis from an inflammation of the epigastric muscles, in which, it is said, all the symptoms of the former are present in a less degree. The pain, as in gastritis, indeed, is increased on pressure ; but it is also increased, and in a greater degree, by the motions in which the epigastric muscles are called into action, which is not the case in gastritis. The state of the pulse in the former also is very different.* If affected at all, instead of being small and feeble, as in gastritis, it is strong, as in most other phlegmasiæ. Besides, there is little or no tendency to vomiting in this case, and some degree of swelling of the muscles may frequently be observed ; this symptom, however, is not constant, and there is often some fullness about the stomach in gastritis.

Quarin observes, of the inflammation of the epigastric muscles, that a diagnosis between it and gastritis is of little consequence, since the practice in them is the same. This remark, however, is far from being well founded. The greater importance of the organ affected in gastritis renders the most powerful means necessary. In the other we trust more to local means and such as promote perspiration. Both in its nature and treatment it resembles the false pleurisy.

Such are the usual symptoms of gastritis, and the means of distinguishing it from other diseases. There are instances on record, in which it appeared on dissection, that inflammation of the

* See the chapter on Rheumatism.

stomach had existed where few or none of the foregoing symptoms had appeared. De Haen, in his *Ratio Medendi*, relates several cases of this kind ; in one of which there was no vomiting, and the patient retained his appetite to the last ; in another, not only the vomiting, but the pain itself was absent. In certain epidemic fevers, the stomach has often been found inflamed without the usual symptoms. I have had occasion to allude to several epidemics of this kind ; and I have myself seen cases (ascertained by dissection) of symptomatic inflammation, both of the stomach and bowels without any of the usual symptoms.

Sometimes gastritis is attended with more than the usual symptoms. The patient now and then complains of a difficulty of breathing, which does not arise from the inflammation having spread to the lungs, (when this happens, the other symptoms of pneumonia at the same time attend) but from the inflammatory state of the stomach rendering the descent of the diaphragm painful. It is evident the degree of dyspnœa attending gastritis must in a great measure depend on the part of the stomach occupied by the inflammation. The nearer its seat is to the diaphragm, the more, it is evident, will the descent of the latter affect it.

Another symptom, less readily accounted for, has, though rarely, attended gastritis, the hydrophobia. The reader will find a case of gastritis attended by this symptom in the first volume of the *Medical Essays*. He may also consult Van Swieten's *Commentary* on the 1130th, and 1139th Aphorisms of Boerhaave. Hydrophobia, indeed, occasionally supervenes in various acute diseases. General convulsions are also enumerated by Quarin, Burserius, and others, among the symptoms of gastritis. These probably arise more frequently from the irritations of the primæ viæ which sometimes produce gastritis, than from the disease itself.

I have already observed, that Dr. Cullen divides gastritis into two species, the phlegmonic and erythematic. He is far, however, from defining accurately these terms, or pointing out the means by which his species may be distinguished. He seems to suppose that two kinds of inflammation, analogous to the pustule and erythema of the skin, may exist in the stomach. The one superficial, the other deep-seated. This supposition, we have reason to believe, is well-founded, although more accurate knowledge than we possess is necessary for distinguishing them. It is the gastritis erythematica, which, according to Dr. Cullen, may exist without the symptoms which characterise gastritis. Erythematic inflammations of the stomach, he observes, are more frequent than the

phlegmonic. Wherever this inflammation affects the mouth and fauces, and there is at the same time in the stomach an unusual sensibility to acrid substances, with frequent vomiting, there can be little doubt, he thinks, that the inflammation has spread to this organ. And these symptoms, thirst, with less appetite, and a frequent pulse, although there is no affection of the mouth and fauces, often indicate an erythematic inflammation of this organ, which after such symptoms sometimes shews itself in the fauces.

But even where the inflammation is of the erythematic kind, the symptoms are often such as characterise phlegmonic inflammation of the stomach; for I have seen the erythema spread from the mouth to the stomach, and there occasion all the usual symptoms of phlegmonic gastritis. They were, however I think, less violent; but it is evident that a greater or less degree of the same symptoms cannot serve the purposes of a diagnosis. On the other hand, I have seen in the intestines not that uniform and diffuse redness which indicates the presence of erythematic inflammation, but the usual appearance of phlegmonic inflammation, where none of the symptoms had indicated its presence. Such cases, however, are very rare, and must not be allowed to influence our practice. Any cases of this kind which have come under my observation have been symptomatic.

The erythematic inflammation in internal parts as well as on the surface, shews a tendency to spread, leaving those which it first occupied, when it affects neighbouring parts; in this way it often extends along the whole alimentary canal. In the intestines, contrary to the effects of phlegmonic inflammation, it occasions diarrhœa, and the vomiting frequently ceases as the diarrhœa comes on.

Resolution, a tendency to which, as in other phlegmasiæ, is known by the general mildness of the symptoms, and particularly by their yielding to the proper remedies, is the only favourable termination of gastritis. If the symptoms are severe and do not suffer remissions, the period of resolution is generally past within twenty-four hours. In less violent cases, and when considerable remissions take place, it may happen after the disease has lasted for many days.

A tendency to suppuration, which is a rare termination of gastritis, is known by the symptoms continuing without any considerable remission, and at the same time with no great degree of violence for one or two weeks longer. When an abscess is formed there is a remission of the pain, generally preceded by rigours,

But a sense of weight about the precordia and much anxiety harass the patient, a change of symptoms analogous to that above described indicating suppuration in pneumonia. The febrile symptoms which attend all internal suppurations are the same. They are at first considerably milder than those which accompany the inflammatory stage ; in a short time, however, if they do not subside, they begin to suffer regular exacerbations, and by degrees, assume the form of hectic fever, of which I shall soon have occasion to speak at greater length.

The danger of an abscess in the stomach is evident. It generally proves fatal unless it opens into the stomach, in which case the matter is discharged by vomiting and stool, and the ulcer sometimes heals.* In the Memoirs of the Academy of Paris, for the year 1704, the reader will find a case, in which, although the abscess burst into the stomach, the patient died in consequence of the ulcer left by it. Eller† relates a similar case in which the patient lived several years after the formation of the ulcer. Such cases sometimes terminate suddenly by a fatal hemorrhagy.— There are instances on record in which the inflammation having caused an adhesion between the stomach and parietes of the abdomen, the abscess broke externally. Van Swieten mentions more than one case of this kind. One from the Journal des Scavans, in which the contents of the stomach were discharged through the opening, so that it was necessary to keep it closed by compresses and bandages. The patient lived under these circumstances for no less than twenty-three years, and enjoyed so good a state of health that she was able to undergo considerable labour. When the abscess bursts into the cavity of the abdomen, it occasions purulent ascites, which always proves fatal.

The tendency to gangrene in gastritis is known as in similar cases by the unusual violence of the symptoms, and by their not yielding to the proper remedies. When gangrene actually takes place its presence is indicated by the remission of the pain, the pulse at the same time becoming more frequent and feeble, and the anxiety and debility increasing, with cold, clammy, and partial sweats. I have already had occasion to observe, that in visceral inflammations, where the gangrene occupies but a small portion of the inflamed part, the pain often continues to the last. In these

* I have seen abscesses of the liver burst into the stomach and into the intestines, the wound in both cases soon healed.

† Obs. de Cog. et Cur. Morb.

circumstances it is more difficult to ascertain its presence. This may generally be done, however, by an attention to the other symptoms. It is almost needless to say that gangrene of the stomach is uniformly and quickly fatal.

Boerhaave ranks schirrus and cancer of the stomach among the terminations of gastritis. But most writers agree that they arise from other causes.

Gastritis appears sometimes to prove fatal, merely from the sympathy which exists between the stomach and other vital organs. "From the sensibility of the stomach, and its communication with the rest of the system," Dr. Cullen observes, "it would seem that the inflammation of this organ, by whatever causes produced, may be attended with fatal consequences; in particular, by the great debility which such inflammation suddenly produces, it may quickly prove fatal without running the common course of inflammations." And Boerhaave,* after enumerating other terminations of gastritis, observes, that it sometimes induces sudden death with convulsions, before any of these terminations can take place.

SECT. II.

Of the Causes of Gastritis.

GASTRITIS, fortunately is one of the most rare of the phlegmasiæ.

The same state of body predisposes to it as to other inflammatory diseases. I have already had occasion to point out the habit and mode of life which gives this predisposition.

Among the occasional causes, cold applied in various ways still holds a principal place. There is no cause of this disease so common as checking sweat by drinking cold fluids.

Acrid substances received into the stomach, especially when its mucus has been abraded or so changed as not properly to perform its office, may excite gastritis. It is to be recollected that the substances most acrid to the taste are not those which occasion most irritation in the stomach. The strongest spices are often received into the stomach without inconvenience, and the most insipid substances frequently affect it most powerfully. All substances, however, which strongly affect the taste, to a certain degree irritate the stomach, and if used very freely by those who are strongly predis-

* Aph. 953.

posed to gastritis, particularly those who have lately laboured under it, tend to excite it. Cathartics, and emetics, possess a peculiar power of irritating the stomach. There are few cathartics which, if given in very large doses, do not prove emetic. It is not surprising, therefore, that we find the use of drastic emetics and cathartics ranked amongst the causes of gastritis. To this head also belong a certain class of poisons.

The more irritating articles of diet may be ranked among the exciting causes of this disease. Animal food and fermented liquors often renew it in those who have lately laboured under it, and the excessive use of the latter may excite it in the least pre-disposed.

It may arise from acrid matter generated within the body, as sometimes happens in various ulcerous affections of the fauces and œsophagus. Dr. Cullen thinks that gastritis occasioned by the application of acrid substances is generally of the erythematous kind.

Few things apply a more hurtful irritation to the stomach than over-distention. When food is taken in too great quantity, and is at the same time of difficult digestion, so that the distention is kept up for a considerable length of time, it may occasion gastritis. The reader will find some good observations on this cause of gastritis, and cases illustrating them, in Eller's *Treatise de Cog. et Cur. Morb.*

A blow on the region of the stomach, or wounds in the stomach or neighbouring parts, the pressure of the ensiform cartilage when it is dislocated or broken, so that it presses on the stomach, may excite this disease.

Like the other phlegmasiæ, it may arise from the various causes of sudden plethora, particularly the suppression of hemorrhagies or other habitual evacuations.

It is not uncommon for the inflammations of some neighbouring part to spread to the stomach, particularly that of the œsophagus and duodenum.

Such are the chief occasional causes of gastritis. There are some whose operation seems wholly involved in obscurity. I have more than once had occasion to observe, that certain pestilential fevers are very generally accompanied with inflammation of the stomach and bowels, and this combination is so frequent, that Van Swieten and others have supposed that the contagion often makes its first attack on the stomach, occasioning inflammation of this organ.

In eruptive fevers it sometimes supervenes on the sudden disappearance of the eruption;* and, probably from the great debility which attends such cases, generally soon runs to gangrene.

The gout has been ranked among the exciting causes of gastritis. When we come to consider this disease, however, we shall find reason to doubt whether it ever excites visceral inflammation.

SECT. III.

Of the Treatment of Gastritis.

THE treatment of gastritis is so similar to that of several diseases we have been considering, that it will not be necessary to speak of it at great length. There are some circumstances peculiar to it which deserve attention.

As in the other phlegmasiæ, blood-letting is the remedy on which we chiefly depend, and there is no case in which it is carried to a greater extent than in gastritis. As soon as the symptoms shew themselves we have recourse to this remedy, and if they do not yield, it must be carried as far as the habit will bear. And so far from only letting blood when the pulse is full and strong, the smaller and weaker it is, provided the disease is idiopathic, copious and early blood-letting becomes the more necessary. As in the cases in which we have hitherto found blood-letting necessary, we employ it with a view to diminish the strength of the pulse, in this instance it is employed with a view to increase it, and it is only as it has this effect that it gives relief. We are to distinguish, however, between a strong and a hard pulse. The relief obtained from blood-letting is, in all the phlegmasiæ, in proportion to the diminution of the hardness of the pulse. The feebleness of the circulation in gastritis increases the danger of delaying blood-letting, for it sometimes, even in the space of a few hours, becomes so languid, as I have myself seen, that it is impossible to procure the proper quantity of blood.

It is not unusual for the symptoms of gastritis immediately to disappear on a large quantity of blood being suddenly taken away. But we must be prepared for a recurrence of the disease, which to a greater or less extent almost always happens.

The repetition of the blood-letting is regulated in the same manner as in the other phlegmasiæ. The less remission the symp-

* Dr. M'Bride's Practice of Medicine.

toms suffer after the first blood-letting, it must be repeated the sooner, and to the greater extent.

With regard to the evacuations by the bowels, it must be solicited by cathartic clysters, as the state of the stomach prevents our giving medicines by the mouth, which serve only to increase the disease. To this, however, there are exceptions. Gastritis, it has been observed, is sometimes induced by over-distention of the stomach. Nothing tends more than over-distention to impair the power of the muscular fibre. If the urine, for example, be retained till the quantity accumulated has greatly distended the bladder, it often has no longer power to expel it. The same happens to the stomach, when it is over-distended it loses its power to expel its contents by vomiting; for although the stomach is assisted in vomiting by the abdominal muscles and diaphragm, yet it would appear that the action of the muscular fibres of the stomach itself are necessary in this operation. Hence it is, that in gastritis occasioned by over-distention, the patient is often tormented by ineffectual efforts to vomit. Little, it is plain, is to be expected from any remedy while the cause which produces the disease is still applied. In such cases, therefore, at the same time that we employ the usual remedies of gastritis, it is necessary to have recourse to some means of lessening the contents of the stomach. Glisters certainly tend to this effect, but not very powerfully. Emetics and cathartics taken by the mouth are the only effectual means. Nothing, it is evident, could occasion a more hurtful irritation of the stomach than an emetic, when it is so loaded that the ordinary efforts of vomiting are ineffectual. We here, therefore, endeavour to relieve the stomach by the exhibition of cathartics by the mouth, which are often successful;* and farther to solicit the due action of the stomach, the intestines should, at the same time, be excited by glisters. By these means, part of the contents of the stomach passing into the intestines, the remaining part will be rejected by vomiting.

We must also give medicine by the mouth in this disease, when acrid or poisonous substances have been received into the stomach. It is then necessary to promote the vomiting and defend the stomach by the use of mild mucilaginous and oily fluids, till there is reason to believe that the offending cause is removed.—Cathartics are particularly indicated if the poison has been long enough in the body to give reason to believe that it has passed into the intestines. They should be given in small compass, and

* See the observations of Eller just alluded to,

in the form of pills, that they may, if possible, be retained. In these circumstances it is evident, that the frequent repetition of cathartic clysters is proper; which, while they expel the contents of the lower bowels, tend by sympathy to increase the peristaltic motion of the whole alimentary canal. If we are acquainted with any substance which corrects the noxious quality of the poison, immediate recourse must be had to it.

Even where diarrhoea attends, mild, mucilaginous and oily clysters are serviceable, both by promoting the evacuation of any irritating matter which the intestines may contain, and by allaying irritation.

The urgent thirst, and duration of the disease, (for gastritis when it suffers remissions, sometimes lasts, as we have seen, for many days,) render an attention to diet necessary. The patient ought not to be tormented by constant thirst, but at the same time he must be restricted both in the quantity and quality of what he drinks. Mild acidulous fluids should be chosen, and given frequently and in small quantity, so that they may as little as possible increase the vomiting, which with all the care that can be taken they seldom fail to do.

The food must be regulated on the same principle. For the first days, indeed, a total abstinence from food is best; but when the disease continues longer, it is necessary to support the strength by small quantities of the mildest kinds. Any solid food irritates too much. Mucilaginous decoctions are the best.

We are cautioned against endeavouring to stop the vomiting in gastritis by any preparation of opium. The impropriety of giving opium at the commencement is apparent. In the advanced stages, however, after the force of the disease has been broken by proper evacuations, anodyne clysters, and even mild opiates given by the mouth, (proper means being used to support the action of the bowels) sometimes allay the vomiting, and tend to shorten the disease.

It seems to have been overlooked by many writers, that the bad effects of opium in the phlegmasiæ appear to proceed not from any local action of the opium on the inflamed part, but from its increasing the vis a tergo. When this has been sufficiently reduced, and there is consequently little or no hardness remaining in the pulse, the chief objection to opiates is removed.

The temperature of the patient's chamber, as in the other plegmasiæ, should be moderate, and as uniform as possible.

Such are the general remedies employed in gastritis. When it supervenes on the retrocession of eruptions, the means of recalling them, as far as the inflammatory nature of the disease admits of it, must make part of the treatment. It remains to make some observations on the local means employed in this disease.

Local blood-letting is seldom recommended in gastritis; although the same good effects are to be expected from it as in the other phlegmasiæ. It is peculiarly well adapted to those symptomatic cases in which general blood-letting to any extent is inadmissible, or at least an ambiguous practice. But in all severe cases, it should, for reasons I have already stated, be combined with general blood-letting, unless, as I have more than once witnessed, the disease immediately yields to the latter.

Blisters are more generally employed, and ought never to be omitted after the hardness of the pulse is reduced by blood-letting.

Fomentations are more useful in abdominal inflammations, than in those of the thoracic viscera. They are, however, but feeble remedies, and the constant motion of the body, from the severity of the pain, (which often makes it difficult to retain even blisters in the proper place,) generally renders them very troublesome; and they seem often to increase the anxiety, one of the most distressing symptoms. The warm bath is both more grateful and more efficacious, and may be used in aid of more powerful means.

When the symptoms of suppuration make their appearance, medicine can be of little further use; and if the patient is saved, it is by the accidental seat of the abscess. If it bursts into the stomach, irritating articles of diet should be avoided till the ulcer is healed. When its bursting forms an external ulcer, the treatment must be left to the surgeon. In this case, indeed, nearly all that can be done is to prevent the contents of the stomach from escaping by the wound. Neither are there any means of cure when the matter is discharged into the cavity of the abdomen.—This termination though certainly, is not immediately, fatal.—Gangrene of the stomach always is so.

It has been said that gastritis sometimes assumes a remitting form. In such cases the bark has been recommended. Its effects however, have not been ascertained.

Dr. Cullen does not treat of the inflammation of the spleen, pancreas, or omentum. From their situation and office, it is impossible for us to distinguish inflammation of them from that of neighbouring parts. Their functions are so obscure, that lesion of

them produces no immediate sensible effect. The spleen has even been cut out in brutes, or the vessels going to and coming from it secured by ligature, without materially affecting the health of the animal.* And there are many cases on record, where parts of the omentum have been lost in consequence of wounds, and the patient has afterwards enjoyed good health. Nay, the omentum has been found almost wholly wanting in people who died suddenly at a time when they appeared in perfect health.† Hence it often happens, that inflammation of the spleen, pancreas, or omentum, are mistaken for inflammation of neighbouring parts. Thus Van Swieten gives a case, sent to him by De Haen, in which inflammation of the spleen was mistaken for pleurisy. Inflammation of the pancreas is often mistaken for gastritis; and inflammation of the omentum may be readily mistaken for enteritis.—It seldom happens that any of these parts are affected with inflammation without some of the neighbouring parts partaking of it, which still adds to the difficulty of the diagnosis. It fortunately happens, however, that an accurate diagnosis in such cases is of no consequence; the mode of practice being the same in inflammation of the spleen and of the lungs, of the pancreas and stomach, of the omentum and intestines. All that is necessary is to suit the practice to the severity of the symptoms.

The phlegmasia which next demands attention is the Enteritis, or Inflammation of the Intestines; which we shall find very similar to gastritis, both in its symptoms and treatment.

CHAP. XIV.

Of ENTERITIS.

ENTERITIS is defined by Dr. Cullen,

“Pyrexia typhodes; dolor abdominis pungens, tendens, circa umbilicum torquens; vomitus; alvus pertinaciter adstricta.” He divides this disease in the same manner as gastritis, into the enteritis phlegmonodæa, and enteritis erythematica; but finds the same difficulty as in the case of gastritis in distinguishing these species.

The first part of the definition of enteritis, pyrexia typhodes, is objectionable, for the same reason that it was objected to in the definition of gastritis.

* Malpig. de Liene, Brunner de Pancreate.

† The Thesaurus Anatomicus of Ruysch.

SECT. I.

Of the Symptoms of Enteritis.

THE patient complains of an acute burning pain in the abdomen, sometimes confined to a particular part, at other times felt more generally, and particularly about the umbilicus. Although it does not intermit, it becomes more severe at intervals, which has, with much probability, been attributed to the contents of the intestines now and then passing over the inflamed part. It is one of the best diagnostics of the pain attending enteritis, that it is greatly increased on pressure. Other pains of the abdomen are increased on pressure but are distinguished by other attending symptoms.

As enteritis advances, the abdomen becomes more or less tumid; and in by far the majority of cases, obstinate costiveness attends throughout the disease. We have seen diarrhœa enumerated among the symptoms of erythematic enteritis, in which all the symptoms are milder than in the phlegmonic. Even in the worst forms of enteritis, a thin matter is sometimes past by stool. There is generally a considerable degree of nausea, and often vomiting. The inverted motion of the stomach is sometimes communicated to the intestines, and extends so far along their course that feculent matter is rejected by vomiting.

The pulse is frequent, small, and hard, as in gastritis. Some writers assert, that the pulse is sometimes full in this disease as well as in gastritis. It is rarely so frequent in either as it usually is in typhus, seldom much exceeding a hundred. I have seen so severe a case of gastritis and enteritis combined, that it terminated fatally in about twenty-four hours, in which the pulse, at the height of the disease, did not exceed ninety-two.

The heat is seldom very great, the thirst is urgent, and the urine high coloured.

The remarkable depression of strength observed in gastritis, also attends enteritis, but in general it is neither so sudden nor excessive.

It is not always easy, we have seen to distinguish enteritis from other visceral inflammations; and if the inflammation spreads to neighbouring parts, it often becomes impossible to ascertain its chief seat. When the upper part of the colon is affected, the symptoms sometimes resemble those of the pleurisy or hepatitis. When it is confined to the rectum, it produces tenesmus, constrict-

tion of the anus, and other symptoms of piles, for which it is frequently mistaken. Even in this case, however, the difficulty of the diagnosis will seldom lead to any material error in practice, for when piles are attended with considerable pain and fever, the practice in the two cases is the same, and indeed, they are then generally attended with more or less inflammation of the rectum.

The prognosis is collected as in other cases from the severity of the symptoms, and the effects of the means employed. But there are also some other circumstances which demand attention. The inflammation is more dangerous when it occupies the small than the large intestines; and upon the whole, the nearer its seat approaches to the stomach, the greater is the danger. There is some difficulty in ascertaining what part of the intestine is inflamed. This is to be attempted by attending to the seat and degree of the pain, the degree of nausea and vomiting, and the sinking of the strength; for all these symptoms are more violent when the disease is seated in the small than in the large intestines, and in the former, in proportion as it is nearer the stomach.

When it is in the rectum, we are further assisted by the symptoms just mentioned. When the inflammation is in the higher parts of the colon, it is very difficult to ascertain its seat, for the pain is then in the region of the stomach, and the nausea and vomiting are often considerable.* We shall not err in the treatment, however, if, without endeavouring to ascertain the precise seat of the inflammation, we proportion the means to the violence of the symptoms.

I have already had occasion to observe, that the symptoms are milder in the cases attended with diarrhœa, than where obstinate costiveness attends. In the former, consequently, the prognosis is better. As in other visceral inflammations, the prognosis depends as much on the habit of the patient as on the severity of the disease. From the nature of the means of cure, the danger is always great when these diseases supervene in debilitated states of body. When enteritis supervenes on the worst forms of typhus, which is not unusual, it generally proves fatal. It is particularly dangerous, Quarin observes, in pregnant women, from the probability of its occasioning abortion; besides the constipation, and vomiting, are generally obstinate in them, and the situation of the abdominal viscera compressed by the distended uterus, is unfavourable.

* See the 22d Section of the 43d Epistle of Morgagni de Causis et Sedibus Morborum.

Resolution may be regarded as the only favourable termination of enteritis. It is frequently preceded by a moderate diarrhoea, the most favourable symptom in this disease. When the rectum is the seat of the inflammation, it is often relieved by the hæmorrhoids.

The tendency to suppuration and gangrene is known by the same symptoms as in gastritis. Suppuration is even more rare than in the latter disease. When the symptoms, however, have continued moderate for many days, without yielding to the employment of proper remedies, it is to be feared, and if irregular shiverings come on, and the patient complains of a sense of weight, and an obtuse, instead of acute pain, which accompanies the inflammatory stage, little doubt will remain that an abscess is formed. Its consequences are similar to those of an abscess of the stomach, except that the former seldom or never bursts externally. If it bursts into the cavity of the intestines, it produces a purulent diarrhoea; the ulcer is rarely cured. The coats of the intestines frequently slough off and are discharged by stool; and the patient wasted by hectic fever, suffers a lingering and painful death. When the abscess bursts into the cavity of the abdomen, it forms, as in the case of gastritis, the purulent ascites.

There is no inflammation, perhaps, so prone to gangrene as enteritis. The tendency to gangrene is known here, as in the other phlegmasiæ, by the unusual violence and obstinacy of the symptoms. The presence of gangrene is known by the ceasing of the pain; by the pulse becoming extremely feeble and frequent, sometimes intermitting; the body being covered with a cold sweat; thin ichorous, often livid or black, stools passing involuntarily; hiccup, loss of sight, fainting, &c. under which symptoms the patient soon expires.

It was observed of gastritis, that it often proves fatal without the inflammation terminating in any of the usual ways. The same is true of enteritis; the sensibility and importance of the stomach and intestines being such that the mere irritation and lesion of function, occasioned by the inflammation, are often sufficient to destroy life.

Gangrene, we have seen above, sometimes supervenes in external parts, without previous inflammation. Many have thought that this now and then happens also internally, particularly in the intestines. I am not acquainted with any cases which sanction this opinion, except those cases of extreme debility in which the

vis a tergo is too feeble to produce the symptoms of inflammation.

Enteritis sometimes produces an intussusceptio. It is probable, that this has taken place when part of the gut sloughs off. The patient may survive the sloughing of the internal coat, although no intussusceptio has taken place.

SECT. II.

Of the Causes of Enteritis.

ENTERITIS is a much more frequent disease than gastritis, all the causes of the latter, above enumerated, may excite it. It is more readily produced by cold applied either to the extremities or to the abdomen than gastritis, but less readily by acrid ingesta. The small intestines are more subject to inflammation than the large, which has been ascribed to their greater delicacy.

There are some causes which more particularly belong to enteritis, accumulation of the fæces, spasmodic colic, certain states of the bile, concretions forming in various parts of the intestines, herniæ, and intussusceptio. A deficiency of the omentum is also ranked among the causes of this disease.*

SECT. III.

Of the Treatment of Enteritis.

AS IN other visceral inflammations, we chiefly rely on blood-letting. The observations made respecting the extent and repetition of blood-letting in gastritis, are applicable here.

Catharsis is of still greater importance in enteritis than gastritis, and as the nausea and vomiting are often less urgent, we have an opportunity in most cases of exhibiting cathartics by the mouth, which should never be neglected, but we must proceed cautiously, and use such cathartics as are least apt to offend the stomach. I have found none superiour to calomel and the sulphate of magnesia dissolved in a large proportion of water. The employment of cathartics by the mouth should not prevent the use of mild clysters, which both soothe the pain and tend to secure the operation of the cathartics. Blood-letting should precede the cathartic, that time may not be lost, and because it is not only the more powerful re-

* *Quarin de Febribus.*

medy, but disposes the bowels to be acted upon by the cathartic. As in gastritis, we are often prevented by the nausea and vomiting from giving any thing by the mouth; clysters must then be used more frequently and composed of more cathartic materials. They should not be so bulky as greatly to distend, which irritates the intestines, and should be given slowly, that they may be retained for the proper time.

The observations made respecting the use of opium in gastritis, might be repeated here. Some practitioners speak of the employment of opiates even at an early period of enteritis as a safe practice. "I have often seen antispasmodics," Dr. Gibson observes, "and particularly opiates, successful in removing this disease."* There is every reason to believe, that those who make such observations have confounded other pains of the bowels with enteritis. Sir John Pringle recommends opium to be given with cathartics, for the purpose of enabling the stomach to retain them. This, particularly at an early period, appears to be a very questionable practice; and on comparing the character of this disease, which Sir John Pringle, following the Ancients, seems to adopt, in which there is no mention of fever, with some parts of his practice, it would appear probable, that even he is not wholly free from the above charge. It is an observation of Van Swieten and others well acquainted with the disease, that when opiates are given at an early period, it frequently terminates in gangrene.

It may be asked, why opium is hurtful in gastritis and enteritis, while in many external inflammations, its application is highly beneficial. This seems to arise, as may be inferred from what was said above, not from the local action of the opium on the stomach and intestines, but from its being received into the mass of blood, and increasing the vis a tergo; a similar observation applies to fermented liquors and other stimulants.

On the local remedies there is little to be added to what was said in speaking of other phlegmasiæ. It sometimes happens when the inflammation is seated in the rectum, that piles appear, inflame, and swell. Leeches applied in the neighbourhood, or to the piles themselves, are then proper.

Rubefacients are serviceable. Flannel dipt in brandy and sprinkled with pepper applied over the abdomen generally affords some relief; but all applications of this kind are inferior to blisters. When they are applied to the abdomen, the pain sometimes

* Dr. Gibson's Treatise on Fevers.

abates as soon as the burning of the skin is perceived; and what deserves particular notice, the same cathartics and clysters, as in the case of blood-letting, often succeed, which before their application, had failed.

Fomentations are more frequently employed in enteritis, than in any other phlegmasiæ, and various disagreeable applications has been recommended for this purpose. Boerhaave and others advise young animals cut up and applied warm, the skin of sheep newly killed, &c. But there is no reason to believe that such applications are superior or indeed equal to flannel dipt in warm water, and wrung so that little more than the vapour is applied. This is not only more cleanly and can be applied of any temperature, but lighter also and more manageable. Eller, who is a great advocate for the use of fomentations in this disease, particularly insists on their being such as shall not give uneasiness by their pressure.

The warm bath is a more powerful means. It tends to allay the pain and disposes the bowels to act.

The diet is the same as in other visceral inflammations. To prevent a relapse, it should be mild and the body kept gently open for some time after the disease.

When the abscess bursts into the cavity of the intestines, various medicines are recommended by the older writers for healing the ulcer, but little or nothing is to be expected from them. When the patient is much reduced by the discharge, an infusion of the bark and some chalybeate waters have been found useful.

CHAP. XV.

Of HEPATITIS.

HEPATITIS has been divided into two species, the acute and chronic. For owing probably to the natural insensibility of the liver, dissection has more frequently in it than in any of the other viscera, discovered traces of inflammation, where they had neither been indicated by fever, nor the other symptoms of hepatitis, properly so called. The chronic hepatitis does not of course belong to the diseases which form the subject of this treatise. For the most part the acute hepatitis only is treated of by authors who practiced in Europe; Pringle, Boerhaave, Van Swieten, Lieutaud,

M'Bride, Eller, Quarin, Sims, Burserius, Bianchus, Cullen,* &c. Those who practised within the tropics, Lind, Clark, Bontius, Rollo, Ried, Girdlestone, &c. treat of the chronic. Dr. Cullen, in his *First Lines* considers the chronic hepatitis as a disease only to be known by its consequences. "As this chronic inflammation" he observes, "is seldom to be certainly known, and, therefore, does not lead to any determined practice, we omit treating of it here, and shall only treat of what relates to the acute species of hepatitis."

The chronic hepatitis seems to be a more frequent disease in Europe than practitioners have been aware of, which may be accounted for by the obscurity of its symptoms. It has even been epidemic in this part of the world. The reader will find an epidemic of this kind described by Fisher, in the fifth volume of Hallet's *Disp. ad Morb. Hist. et Cur. Pert.* He may also consult two papers in the second volume of the *Acta. Soc. Med. Hafn.* I have often found the application of leeches to the hepatic region of great use in the obstinate bilious affections of this country, where there was none of the symptoms of hepatitis, if we except some pain, often very slight, from pressure on this region. The chronic hepatitis of Europe seldom runs to suppuration.

Acute hepatitis is defined by Dr. Cullen,

"Pyrexia; hypogastrii dextri tensio et dolor, sæpe pungens pleuritici instar, sæpius obtusus; dolor ad claviculam et summum humeri dextri; decubitus in sinistrum latus difficilis; dyspnœa; tussis sicca; vomitus; singultus."

All these symptoms are rarely met with in the same case. When the dyspnœa and cough are considerable, for instance, there is generally no vomiting; and when this symptom attends, the patient is seldom much troubled with dyspnœa and cough. It is necessary, however, to mention in the definition, symptoms which only occasionally attend, because the constant symptoms of this disease are not sufficient to distinguish it. On this account both Sauvages and Sagar rank among the diagnostic symptoms of hepatitis those of jaundice, but they are not sufficiently frequent to materially assist the diagnosis.

* Lysons, Millar, Saunders, and some others are exceptions.

SECT. I.

Of the Symptoms of Acute Hepatitis.

LIKE other inflammations, hepatitis makes its attack more or less suddenly the patient sometimes complaining of a tightness about the precordia, accompanied with a degree of anxiety and fever, for some time before the symptoms peculiar to the disease shew themselves ; at other times, pain in the region of the liver is among the first symptoms. In either case the accession is generally attended with irregular chills,

The pain is sometimes shooting, accompanied with a sense of tension in the part ; in other cases, more constant ; sometimes acute ; at other times, obtuse and deep-seated.

It is not confined to the region of the liver, but extends to the breast, clavicle, and shoulder, particularly of the right side ; and in the last it is often more acute, than in the seat of the disease. There are sometimes acute wandering pains of the back and limbs, resembling those which attend fever. The hypochondrium is tender on pressure, especially when the position of the body is such as to relax the abdominal muscles.

The pain is sometimes in both scapulæ, and frequently felt in the left side under the lower false ribs.* It is frequently most severe when the patient lies on the left side ; sometimes the contrary. He is generally easiest on the back.

Practitioners have been at some pains to determine what part of the liver is affected in different cases of hepatitis. In this we are assisted by the seat of the pain. When it extends to the clavicle and chest, the convex part is most frequently affected ; when it is more confined, and much increased on pressure, the anterior part of the liver is the principal seat of the disease. When it extends chiefly to the region of the stomach, and is not much increased on pressure, there is reason to believe that the concave part is most affected.

In this, as in other visceral inflammations, the kind of pain has been supposed to point out whether the membrane or the paranchima is principally affected ; in the former case the pain being acute, in the latter obtuse. The observations made on this subject, in speaking of pneumonia, however, are applicable here.

* See a paper on Hepatitis, by Dr. Chisholm, in the 11th vol. of the Medical Commentaries.

Dr. Girdlestone observes, that when the pain of the shoulder attends hepatitis, its seat generally corresponds with the part of the liver most affected, being anterior or posterior, according as the anterior or posterior parts of the liver are the seat of the disease, and when the inflammation attacks the left lobe, the pain is often in the left shoulder.

The pain of the shoulder, as well as the side is often increased during inspiration, which is impeded by it. It is most so, as might be supposed, when the parts lying nearest the diaphragm are inflamed.

But in determining the part of the liver affected, we trust more to other symptoms than to the seat of the pain. In the last case the cough is most severe, and hiccup most frequently attends.

The cough is generally short, dry, and frequent, and the hiccup, which is never a favourable symptom, is sometimes so violent as almost to interrupt respiration.

When hepatitis is attended with cough and difficulty of breathing, the reader will perceive how readily it may be mistaken for pneumonia, and he will find from the dissections of Morgagni and others, that this has frequently happened. When the convex surface of the liver is much inflamed, the inflammation indeed, now and then, spreads to the diaphragm, and even to the lungs. There is often also considerable external swelling, and the inflammation sometimes spreads to the abdominal muscles, but rarely to the skin.

When the concave part of the liver is affected, the stomach partakes of the disorder as much as the lungs do in the former case, the nausea and vomiting being more urgent than in other forms of hepatitis, and here the cough and dyspnœa are either wanting or present in a much less degree.

In most instances the secretion of the bile is increased, and it sometimes happens, that its flow into the intestines is impeded, generally, perhaps, by a constriction of the ducts. The skin, white of the eyes, and urine, are then tinged with yellow, as in jaundice. These symptoms as we should suppose, a priori, most frequently attend when the inflammation is seated in the concave part of the liver.* Inflammation of this part also is generally attended with the same anxiety and debility, though in a less degree, which attend gastritis, from which it is often difficult to distinguish it. The truth is, that although there are many cases of pneumonia, gas-

* See the observations of Burserius, Quarin, and others.

tritis, and hepatitis, in which the characteristic symptoms of each being distinct, there can be no doubt respecting the seat of the inflammation; yet, from the vicinity of the lungs, liver, and stomach, the sympathy of these parts, the difficulty with which the precise seat of internal pains is ascertained, and above all, the tendency of inflammation to spread to neighbouring parts; the symptoms of these diseases, and even the diseases themselves, are sometimes so combined, that it is impossible to say where the chief seat of the inflammation lies.

The pulse, when the concave part of the liver is affected, is often small and feeble; in other cases it is strong; in all hard. The urine, whether tinged with bile or not, is generally high coloured, the heat and thirst considerable, the mouth dry, and the tongue covered with a white yellowish crust, which in the progress of the disease, often assumes a dark or even black colour. The strength is reduced by constant watching; and delirium is more frequent than in any other phlegmasia except phrenitis.

In most cases the bowels are constipated, in others a diarrhœa comes on, with griping and bilious stools, or more rarely the purging is dysenteric, the effect of irritation from a redundancy of bile, often in a vitiated state.* The bilious and slightly bloody stools, which frequently attend hepatitis, have been mistaken for dysentery; which has given rise to the opinion of these diseases being more frequently combined than they really are.

The tendency of hepatitis to resolution, as in similar cases, is known by the general mildness of the symptoms, and their yielding to the proper remedies, particularly, by there being little dyspnoea, cough, hiccup, vomiting, oppression, or debility.

This disease is often relieved by hemorrhagy, particularly from the nose and hemorrhoids, sometimes by sweat, or an increased secretion of mucus from the lungs. There have been instances in which this secretion has been so copious towards the termination of hepatitis as to occasion suffocation. A copious flow of high coloured urine, depositing a red or whitish sediment, is a favourable symptom, particularly if it appears before the fourth day.

When acute hepatitis terminates by resolution, Lieutaud observes, it is generally in three or four days; if it last to the seventh suppuration is to be expected. The period of suppuration, however is very various, according to the violence of the symptoms, the habit of the patient, and the plan of treatment which is pursu-

* See the observations of Van Swieten, Com. in Aph. Boerh.

ed. Of all the viscera, next to the lungs, the liver is most liable to suppuration.*

When hepatitis terminates by metastasis, the inflammation is frequently translated to the spleen or the skin, appearing on the latter in the form of erysipelas.

Resolution is the only termination of hepatitis which we can consider as favourable, although suppuration is upon the whole less fatal here, than in most other visceral inflammations.

We judge of the tendency to this termination by the violence and obstinacy of the symptoms. In most phlegmasiæ unusual violence of the symptoms indicates a tendency to gangrene. Here, however, gangrene rarely occurs.

As soon as suppuration takes place, the pain remits, and there is generally a sense of weight and pulsation in the region of the liver, the former being increased by lying on the left side. These symptoms are attended with frequent and irregular shiverings, and at length with hectic fever.

In many cases there is an evident tumor, and the fluctuation may be readily felt. Lieutaud and Burserius caution us against mistaking the distended gall bladder for abscess of the liver; from the situation of the gall bladder, however, this mistake cannot easily be made.

The danger from suppuration in hepatitis depends much on the seat of the abscess. When it evidently points outwards, there is almost always an adhesion of the liver to the parietes of the abdomen, the matter is readily discharged by an incision, and the patient frequently recovers. Dr. Clark of Dominico,† says, that of those in whom the matter was discharged in this way, two in three were saved.

When the abscess is seated in the more internal parts of the liver, there is no external swelling, and the fluctuation can rarely be perceived. In such cases, adhesions are sometimes formed with the stomach or intestines, the abscess bursting into them, the matter is discharged by vomiting or stool, and the patient sometimes recovers. I have seen instances of a favourable termination in both these ways. Dr. Cullen, Dr. Saunders, and others, think it prob-

* Sir J. Pringle on the Diseases of the Army.

† Medical Commentaries, vol. xiv. The wound formed by opening the abscess seldom heals readily, but the health frequently improves rapidly after the operation.

able, that the matter sometimes passes along the biliary ducts into the intestines.

An adhesion is sometimes formed with the diaphragm, and the abscess bursts into the cavity of the thorax, forming empyema. This is a fatal accident. The patient gradually sinks under hectic fever and symptoms of hydrothorax. In other instances the lungs are involved in the adhesion, and the abscess bursts into their substance, either occasioning suffocation, or when the quantity of matter is small, purulent expectoration, and, if the wound does not soon close, (for even this termination is sometimes favourable) hectic fever and the other symptoms of phthisis.

Purulent expectoration may occur in hepatitis without any direct communication between the liver and lungs, in consequence of the inflammation spreading to the latter, and there either occasioning abscess or a purulent secretion from the surface of the bronchiæ.*

Sometimes, though more rarely, suppuration takes place in the liver without any adhesions being formed, and the matter is discharged into the cavity of the abdomen, occasioning the purulent ascites.

Hepatitis, though very rarely, sometimes terminates in gangrene. The tendency to gangrene is known by an unusual violence of the symptoms, rapidly increasing, and not yielding in any measure to the proper remedies. When gangrene has actually supervened, the inflammatory symptoms subside suddenly, cold sweats supervening, and the pulse becoming weak and fluttering, with constant hiccup and cold extremities. There is generally a black matter rejected by vomiting, the stools being unusually offensive and of a dark colour; fits of syncope frequently precede death. Gangrene is here as hopeless as in other cases of visceral inflammation.

Dr. Cullen does not enumerate schirrus of the liver among the terminations of hepatitis, although it has generally been ranked among them.† It has however been regarded rather as a consequence of chronic than acute hepatitis, and the symptoms of the former are so equivocal, that its presence has not always been ascertained with much accuracy. I have not been able to trace one of many cases of schirrus liver, which I have met with, to acute hepatitis, and the chronic inflammation which sometimes attends it is probably oftener the consequence than the cause of the schirrus. Those who maintain that it arises from chronic hepatitis, have

* See a Paper, by Aaskow, in the Act. Soc. Med. Haf. vol. ii.

† See the observations of Dr. Saunders, and others.

not adduced facts sufficient to establish their opinion. It is to be recollected, that more or less languid inflammation generally accompanies and seems to be occasioned by a schirrus state of the viscera.

I have already had occasion to observe that there is no other of the visceral phlegmasiæ which so frequently exists without its characteristic symptoms. It frequently indeed assumes forms so different from hepatitis, that independently of their consequences, the inspection of bodies after death, and the means of cure which have proved most effectual, there is nothing to lead us even to a suspicion of their real nature. In some instances we find it appearing as an irregular remittent, in others as chronic dysentery,* &c.

SECT. II.

Of the Causes of Hepatitis.

HEPATITIS is more frequent in warm, than in cold or temperate climates,

It is most apt to attack people of what is called a choleric and melancholic temperament. Adults are more subject to it than those under puberty. Dr. Girdlestone remarks, that while the other soldiers were seized with it, the drummers and others under age, although equally exposed to fatigue, the heat of the climate, &c. generally escaped.

The small lobe of the liver is most subject to inflammation, and the outer and convex surfaces more than the concave.

The occasional causes of hepatitis are very numerous. Many of those mentioned by authors have been assigned, Dr. Cullen thinks, on a very uncertain foundation. He however, seems inclined too much to abridge their number. It must be granted, indeed, that many, particularly certain supposed states of the bile and of the circulation in the vena portarum, seem quite hypothetical.

Hepatitis may be excited by all the usual causes of the phlegmasiæ. Exposure to the damps of the night in sultry climates is one of its most frequent causes.

Among the more peculiar causes of hepatitis, may be ranked, various causes affecting the head. Many phenomena point out a peculiar sympathy between the liver and brain. I have already had occasion to observe, that there is no other phlegmasia affecting the trunk so frequently attended with delirium. It is often

* See the observations of Dr. Girdlestone, and others who practiced in tropical climates.

the consequence of accidents in which the cranium is injured, and where these do not produce hepatitis they often occasion an unusual secretion of bile and other symptoms denoting derangement in the function of the liver. In the same way, violent passions of the mind, particularly rage and the depressing passions, and all other irritations of the brain, such as the rays of a vertical sun falling on the head,* are to be ranked among the causes of this disease. It is also in this way, perhaps, that excessive fatigue frequently produces it. It seems to be from the two last causes that it is so apt to affect soldiers in long and fatiguing marches in warm climates.

Various fevers have been ranked among the causes of hepatitis, particularly intermitting and remitting fevers, probably from these being the most frequent in the climates most liable to affections of the liver. There is often an unusual enlargement of the liver, in those who die of the plague.† The same observation has been made respecting the scurvy. How far these appearances are connected with inflammation has not been ascertained.

Among the causes of hepatitis may be mentioned the concretions so frequently formed in the gall bladder and ducts, and a schirrus of any part of the liver, or neighbouring part pressing on the liver. Does hepatitis ever arise from a vitiated state of the bile? There is reason to believe that any cause obstructing the course of the bile into the intestines, whether it be a biliary calculus sticking in the ducts, a spasmodic contraction of them, an inflammation communicated to them from the intestines or other neighbouring parts, tumors of the liver, or other parts pressing on them, worms lodged in them, &c. may occasion hepatitis. In various animals, oxen, calves, and sheep, small worms have been found in the biliary ducts.‡ And it would appear, from some dissections, that this has now and then happened in the human body.§ But the opinion of Van Swieten, that worms may sometimes find their way to the liver through the mesenteric artery, seems quite hypothetical. The same may be observed of the opinions which have prevailed respecting the manner in which the foregoing causes affect the circulation in the liver, concerning which much has been said. If it

* See the observations of Dr. Girdlestone, and others.

† *Traite de la Peste.*

‡ Van Swieten's comment. in *Aph. Boerhaavii.*

§ See a dissection, by Nebelius, in *Nova Acta Physico Medica*, vol. v.

he admitted that inflammation depends on a debility of the extreme vessels, the modus operandi of these causes will be evident.

Dr. Cullen ranks the chronic hepatitis among the occasional causes of the acute, the two forms of the disease frequently passing into each other.

Hypochondriasis, cholera, and other diseases of the alimentary canal, are ranked among the causes of hepatitis. A sudden suppression of the hæmorrhoids often occasions it. There is no other of the phlegmasiæ, perhaps, so frequently excited by the use of spirituous liquors. Its frequency in India is ascribed, by Bontius and others, to the general use of arrack.

Dr. Girdlestone mentions bad water among its causes; and Dr. Cleghorn remarks, that in a certain part of Minorca, where the water is bad, tumified spleens and livers are frequent both in men and brutes. Various other circumstances in diet are ranked among the causes of this disease in warm climates. The want of vegetables, great repletion after fasting, long continued thirst, and bad diet in general. Boerhaave remarks, that it is most apt to supervene in fevers when the patient has fasted for a long time and endured much thirst.

Is the frequency of this disease in warm climates to be all attributed to the very free use of peppers?

Dr. Girdlestone and others mention the abuse of mercury among the causes of hepatitis.

In a paper, above referred to, Dr. Chisholm maintains that it is contagious. This, however, is not confirmed by the observations of others.

SECT. III.

Of the Treatment of Hepatitis.

THE treatment of hepatitis so nearly resembles that of the phlegmasiæ we have been considering, that it will not be necessary to speak of it at length.

When the inflammatory symptoms are considerable, general blood-letting is necessary, and, on account of the great tendency of hepatitis to suppuration, it should be employed early. Lieutaud observes, that we should seldom let blood in this disease after the fourth day. We shall, however, be better guided by the state of the symptoms, than by any rule of this kind. When the pulse is hard and the pain urgent, blood-letting is proper at any

period. It is the opinion of Quarin and others, that less blood-letting is necessary in hepatitis, on account of the peculiarity of the circulation in the liver. It is true that blood-letting ought not to be carried to the same extent in this disease, as in gastritis and some other phlegmasiæ, not, it would appear, for the reason here assigned, but because in hepatitis the inflammatory symptoms seldom run so high, and the organ affected is less immediately essential to life.

Cathartics are employed with great advantage in hepatitis.—The mercurial and saline cathartics, with much dilution, are particularly recommended. Dr. Girdlestone remarks, that by small doses of the neutral salts, given at intervals, so as to keep up a constant catharsis, the acute hepatitis is sometimes changed into the chronic, a form of the disease less dangerous, provided we are aware of its presence.

The exhibition of cathartics should not supercede the use of copious mild glisters, which are serviceable, as a fomentation, and by removing irritation, and supporting the discharge from the intestines.

It is chiefly in the chronic hepatitis that mercury has been employed to a considerable extent.* Dr. Girdlestone, Dr. Chisholm, Dr. Clark, of Newcastle, and others, however, speak of it as the remedy on which, next to blood-letting, they relied in the acute hepatitis. Nor did they trust to its cathartic powers, but endeavoured to excite salivation even where the fever was most considerable. According to my experience, the more acute the disease the less is to be expected from the constitutional, and the more from the cathartic effects of mercury.

The diet in hepatitis should be the same as in the other phlegmasiæ.

The local remedies, and the mode of employing them, are also the same.

Fomentations are very generally employed in hepatitis, and are often attended with considerable advantage. A large quantity of any mild warm fluid received into the stomach, seems often to give relief on the same principle.

The appearance of any of those symptoms which prove critical demands attention; when a bilious diarrhœa, comes on it should be encouraged by mild mucilaginous decoctions. If any erysipelatous inflammation appears externally and brings relief,

* See the observations of Dr. Saunders, and others.

we must be careful not to repel it. A tendency to hæmorrhoids should be encouraged by fomentations, and we are advised to increase the flow of blood by leeches. In all cases where there is much cough it is serviceable to promote expectoration by the antimonium tartarisatum, and when a moisture appears on the skin, we should encourage it by diluting fluids and mild diaphoretics. When the urine appears turbid, many recommend diuretics, a practice which seems chiefly to rest on hypothesis. Saline diuretics are often serviceable at all periods.

I have already had occasion to observe that the acute hepatitis sometimes terminates in the chronic. When this happens, a careless observer may believe the patient restored to health.—After the inflammatory symptoms have disappeared, therefore it is necessary to examine him with care. We must feel whether there be any hardness, swelling, or tenderness on pressure, remaining in the hepatic region; enquire whether there be pain or itching in the right shoulder, or anxiety, oppression, and a sense of fulness after eating; and observe if the skin, eyes, fæces, and urine, have assumed their natural colour.

There are few diseases for sometime after which, it is more necessary to avoid the exciting causes.

CHAP. XVI.

Of SPLENITIS, NEPHRITIS, CYSTITIS, and HYSTERITIS.

I SHALL not enter into any particular consideration of the four genera which succeed Hepatitis in Dr. Cullen's Nosology, the Splenitis or inflammation of the spleen, Nephritis or inflammation of the kidney, Cystitis or inflammation of the urinary bladder, and Hysteritis or inflammation of the womb. A few words will be sufficient to make the reader acquainted with the symptoms which characterise these diseases, and their causes and treatment are so similar to those of the diseases we have just been considering, that nothing need be said of them.

The first, Splenitis, is defined by Dr. Cullen,

“ Pyrexia; hypochondrii sinistri tensio, calor, tumor, et dolor
“ pressu auctus; absque signis nephritidis.

It was observed above, that this disease has sometimes been mistaken for pleurisy. In the exquisitely formed splenitis, the

pain is dull and the febrile symptoms are not very urgent. When these circumstances, with the symptoms just mentioned, are well marked, it may easily be distinguished. The difficulty of the diagnosis arises from the obscurity of the office of the spleen; in consequence of which an inflammation of this organ is only attended with apparent derangement in the functions of neighbouring parts.

There is a chronic splenitis analogous to the chronic hepatitis, collections of matter having been found in the spleen where no inflammatory symptoms had appeared.

Dr. Cullen defines Nephritis,

“ Pyrexia; dolor in regione renis, sæpe ureteris iter sequens & mictio frequens urinæ, vel tenuis decoloris, vel ruberrimæ; vomitus; cruris stupor; testiculi ejusdem lateris retractio aut dolor.”

He makes two species of nephritis, the idiopathic and symptomatic, the former arising from the causes of inflammation in general, the latter generally from calculi lodged in the kidney or ureter. The disease with which acute nephritis is most liable to be confounded, is the lumbago, especially when the muscles lodged within the pelvis partake of the affection. In general however, they may be readily distinguished by the change in the appearance of the urine, and by the nausea and vomiting which frequently attend nephritis; by there being very rarely any stupor of the leg, and little or no affection of the testicle in lumbago, by there being either no fever in the latter, or less in proportion to the severity of the local symptoms; but chiefly by the pain in nephritis being much less increased by muscular exertion than in lumbago. Nephritis is distinguished from the symptoms occasioned by a stone in the pelvis of the kidney or in the ureter, which has not produced inflammation, by their being unattended by fever.

Clysters are particularly serviceable in nephritis. The application of blisters, Dr. Cullen observes, is hardly admissible. If they are used, great care must be taken, as much as possible to prevent the absorption of the cantharides.

Nephritis frequently terminates in suppuration, and ulceration sometimes takes place in the kidney without rapidly affecting the health, which Dr. M'Bride, with great probability, attributes to the urine constantly washing out the matter.

The Cystitis, or inflammation of the bladder, is defined by Dr. Cullen.

“ Pyrexia ; hypogastrii tumor et dolor ; mictio frequens dolorifica ; vel ischuria ; tenesmus.”

The idiopathic cystitis is a very rare disease. It is rarely idiopathic, very frequently symptomatic of calculi lodged in the bladder.

Dr. Cullen defines Hysteritis,

“ Pyrexia ; hypogastrii calor, tensio, tumor, et dolor ; os uteri tactu dolens ; vomitus.”

It is common for writers to treat of the inflammation of the pancreas and omentum as distinct diseases. When, however, the reader reflects on the situation of these parts, and how readily the organs in the neighbourhood of those affected with inflammation partake of it, or sympathise with the diseased part even where they do not partake of it, he will easily believe that inflammation of the pancreas or omentum is not to be distinguished from some of the foregoing phlegmasiæ.

The various enticular and visceral phlegmasiæ have now been treated of. The articular only remain to be considered.

CHAP. XVII.

Of the RHEUMATISM.

RHEUMATISM, like hepatitis, is either acute or chronic. It is of the former only I am to speak here.

It is defined by Dr. Cullen,

“ Morbus ab externa ; et plerumque evidente causa ; pyrexia ; dolor circa articulos, musculorum tractum sequens, genua et reliquos majores, potius quam pedum vel manuum articulos, infestans, calore externo auctus.”

SECT. I.

Of the Symptoms of Acute Rheumatism.

THE seat of the pain is various, sometimes it is confined to one joint, more frequently it attacks several at the same time. For the most part it is not confined to the joints, but shoots along the muscles, so that we talk of the rheumatism in the leg, or thigh, as well as in the hip or knee. The muscles of the head, neck, and trunk are also liable to it. It generally, as mentioned in the definition, at-

tacks the larger joints; the shoulder, elbow, hip, and knee; the wrists are frequently much affected. It has received various names according to the different parts affected; in the muscles of the neck, it has been called torticollis; in those of the chest, bastard pleurisy, which I have had occasion to notice; in the muscles of the loins, it has been termed lumbago; in those of the hip, ischias or sciatica. When the rheumatism is confined to any one of these parts, it is generally unaccompanied with fever, so that the foregoing terms express species of the chronic, not acute, rheumatism. Vogel observes, that in young people the rheumatism most frequently attacks the head, breast, scapulæ, shoulders, and hands; in adults and old people, the back, hips, and thighs.

Rheumatic pains are much increased on the slightest motion requiring the action of the muscles affected, which is, perhaps, their best diagnostic, and should form part of the definition of acute as well as chronic rheumatism, to which Dr. Cullen confines it. It is not uncommon for acute rheumatism to seize at the same time on almost every joint of both the upper and lower extremities; the patient then lies on the back with the limbs extended, enduring extreme pain, and unable to perform the least motion.

When the pain remains fixed in particular joints, we expect a more obstinate disease than when it moves from one to another, which is usually the case, sometimes repeatedly attacking the same joint.

The pains are most severe and most apt to shift their place in the night time. Sometimes they regularly abate in the morning with a gentle sweat, and suffer a considerable exacerbation towards evening, the patient remaining tolerably easy during the day. At other times the remissions are very imperfect, and the pains in some cases are as severe in the day as in the night.

After the pains have continued for some time, a degree of swelling appears in the parts most affected, and sometimes the whole body becomes swelled and tense.* With the swelling there is generally some degree of redness and the part is painful to the slightest touch. Sometimes even the weight of the bed-clothes is intolerable, so that it is necessary to support them over the patient's body.

The redness and swelling generally bring some relief to the pain. They seldom, however, remove it, or prevent its returning to the part with as great violence as before. The pains, for the most

* *Anni Medici of Stork.*

part, are the last symptoms which leaves the patient. They often begin to abate about the eighth or tenth day, but generally continue with more or less severity to the thirtieth or fortieth. Sometimes they continue for months or even years. It is very uncommon for the pain to disappear before the twentieth day.

The foregoing symptoms are, from their commencement, attended with fever, the pulse being frequent, full, and hard. Sometimes the fever, sometimes the pain, is the first symptom, but the one never continues long without being accompanied by the other. The former generally begins with chills, succeeded by much heat and thirst. It is proportioned to the violence of the local symptoms. When the pain is not very severe, and confined to a few parts, the fever is slight. When it is severe, and felt in many parts, the fever is more considerable, and it is most so when the pains extend over the whole body. Like the pain, it generally suffers an exacerbation in the evening, and a remission towards morning, especially when a degree of sweat comes on at this time.

The face, particularly during the exacerbations, is red and somewhat swelled, the urine high coloured, sometimes without sediment, and at other times, particularly in the morning, and when there is much sweating, it deposits a sediment of a white or reddish colour, and the patient complains of *ardor urinæ*.

Nausea and vomiting rarely occur. The same may be said of delirium; there is sometimes a degree of coma. The pain and fever generally prevent sleep during the first days.

I have already had occasion to observe, that the febrile symptoms abate sooner than the local; they are rarely protracted beyond a fortnight or three weeks. While the fever abates, the pains generally become less violent, and are less apt to change their place.

Rheumatism differs from the *phlegmasiæ* we have been considering, in very rarely terminating in any other way than by resolution. Some authors, indeed, mention cases in which abscesses were formed. It does not appear, however, whether or not in these cases the rheumatism was complicated with other diseases. Nor does it frequently happen that collections of effused fluid take place in the pained part. Stork, indeed, influenced probably by his hypothesis, observes, that if the rheumatic fever cease, and the swelling of the limbs subside suddenly, the matter formerly dispersed over the whole body is collected in one place, and forms large lymphatic tumors, which generally occupy the knees, hips, groins, or shoulders. This must be rare; for Dr. Cullen remarks,

“ if we may be allowed to suppose that such effusions are frequent,
 “ it must also happen that the effused fluid is commonly re-absorb-
 “ ed, for it has seldom happened, and never indeed to my observa-
 “ tion, that considerable or permanent tumors have been produced,
 “ or such as required to be opened, or have the contained fluid
 “ evacuated.”

Acute rheumatism seldom terminates by a critical evacuation. It is not uncommon for a sweat to break out, continue for a day or two, and occasionally to re-appear ; but it is often partial, seldom flows freely, and still more rarely brings permanent relief. The reader, indeed, will find a sweat mentioned by Lieutaud and others as critical in this disease ; and, upon the whole, perhaps, although rarely, it is more frequently so than any other symptom. Unless it exhausts the strength without bringing relief, it is always to be regarded as a favourable symptom.

The pains have sometimes remitted on the appearance of an eruption on the skin. Various hemorrhagies, the epistaxis hemorrhoids and others, and the menstrual discharge, have sometimes brought relief. “ A diarrhœa,” Dr. Millar observes, “ is an un-
 “ usual symptom in acute rheumatism ; when it happens, the pain
 “ generally abates, and the fever sometimes degenerates into one
 “ of the putrid malignant kind.”

The acute rheumatism often terminates in the chronic.

The prognosis is generally good. Danger is only to be apprehended when the excitement is very violent, and does not yield to the proper remedies.

As the disease is usually protracted for a considerable length of time, and anti-inflammatory measures make the chief part of the treatment, it often leaves the strength much exhausted. Irregular pains, attended with a dry cough and night sweats, are sometimes the consequence. For the most part, however, they are readily removed.

With regard to the diagnosis, the disease which has been most frequently confounded with rheumatism, is that we are next to consider, the gout. The ancients, indeed, seem to have made no distinction between them, describing them both under the common name of arthritis. So little did they attempt any diagnosis, that Aritæus says of the arthritis, it is a general pain in all the joints ; in the feet, called podagra ; in the hips, ischias ; in the hands, chiragra. Trallis affirms, that the term rheumatism was wholly unknown to them. It is used by Celius Aurelianus, and some others ; who do not apply it however in the same way in which we do.

Even to this day, in many parts of Europe, the diagnosis between rheumatism and gout is but ill understood. The rheumatism has also been confounded with bilious pains, and the pains of scurvy and lues venerea, from which, however, it may for the most part be readily distinguished, by the accompanying symptoms of the latter diseases, and the diagnostic symptoms of rheumatism above pointed out; bilious, are generally less fixed than rheumatic, pains, and venereal pains are generally most felt about the middle of the long bones. I have already had occasion to observe, that rheumatism is sometimes confounded with nephritis, and to notice the symptoms by which they are distinguished.

It is so difficult to distinguish the symptoms occasioned by a calculus in the kidney without inflammation, and the chronic rheumatism seated in the muscles of the loins, that even Boerhaave was deceived in his own case. They are chiefly to be distinguished by the vomiting, frequent and painful micturition, and stupor of the inferior extremities, which generally attend the former, and the great increase of pain which attends the action of the muscles of the loins in the latter.

Fevers of various kinds, we have seen, are accompanied with severe pains of the back and limbs which are often with difficulty distinguished from acute rheumatism, particularly when the excitement runs high. Neither Hippocrates nor Celsus Aurelianus, Dr. Millar observes, have distinguished rheumatism from remitting fevers. The diagnosis in this case is to be collected from the relative violence of the symptoms, and the seat and kind of the pain. In fever, the general symptoms are more considerable compared with the pain, which is not particularly fixed in the joints, and the former do not seem to increase and abate with the latter, which is usually the case in acute rheumatism; in which, as in the other phlegmasiæ, the general appears to arise from the local affection. The pains which attend fever are seldom much increased on motion, and never as much as rheumatic pains are.

Ballonius, in his *Treatise de Rheumatismo et Pleuritide Dorsali*, is the first author who has accurately distinguished rheumatism.

Both Sir John Pringle and Dr. Millar say they have been able to find no earlier account which is at all accurate.

SECT. II.

Of the Causes of Acute Rheumatism.

ALL except the very young or very old are subject to acute rheumatism. Those between the age of puberty and thirty-five, Dr. Cullen observes are most subject to it.

The same habit predisposes to rheumatism as to other inflammatory diseases. The plethoric are frequent subjects of it; but I have already had occasion to observe, that the tendency to inflammation, is not confined to the plethoric, and to describe the other states of the habit which seem to predispose to it. It has been remarked of rheumatism, indeed, that the cachectic, and according to Ballonius, those who have laboured under putrid fevers, are peculiarly its subjects. These observations, however, apply only to chronic rheumatism.

Rheumatism is more a disease of cold than of warm countries, and in the former it is most common in the colder seasons. Sir John Pringle ranks it among the winter diseases. It was seldom common in the army till the commencement of this season. It is in the beginning and towards the end of winter, however, that it is most frequent, for, like the other phlegmasiæ, it is rather excited by vicissitudes of temperature, than the uniform application of cold. All partial application of cold is particularly apt to excite it, especially if attended with damp, and applied to the extremities, where the circulation is most languid.

The various causes of sudden plethora above enumerated, often prove exciting causes of rheumatism.

It is remarkable that Sydenham ranks the use of the bark among the causes of this disease. This appears to be only one of the many prejudices which at one time prevailed respecting this medicine.

SECT. III.

Of the Treatment of Acute Rheumatism.

THIS disease, we have seen, differs from most of the other phlegmasiæ, in not being apt to terminate in suppuration or gangrene, on which, and the seat of the inflammation, what is peculiar in its treatment depends.

The general treatment in acute rheumatism resembles that of no disease which has been considered, so much as the synocha.

In most of the phlegmasiæ, particularly those last treated of, the danger of suppuration and gangrene is such, that to prevent these terminations we are often obliged to risk a greater degree of debility than there is any good reason for risking in the case before us. It is not so much our object here by general evacuations to remove the local symptoms as to allay the general excitement. The presence of the inflammatory affection, however, both by keeping up the excitement and assuring us that the disease will not terminate in typhus, properly so called, indicates a freer use of antiphlogistic measures than is proper in simple synocha. The general excitement for the first days is often such as warrants even repeated blood-letting.

But if the general excitement does not warrant it, we are not to employ it for the purpose of relieving the pain. Sydenham in his early practice seems to have employed blood-letting with this view, but he confesses that experience taught him that he had used it too freely in this disease. And although Dr. Cullen recommends more copious blood-letting in acute rheumatism than seems fully warranted by the experience of others, he observes, "that attempting a cure by large and repeated blood-letting is attended with many inconveniences." Upon the whole, general blood-letting is seldom proper after the fifth or sixth day, and at no time when the fever is abating, although the pains should become worse. Besides the usual bad effects of much blood-letting it seems often to render the disease more obstinate, and sometimes to change it into the chronic form. Sydenham thought it of consequence in rheumatism to let blood from the side most affected, which ought surely to be preferred.

Catharsis is much recommended in acute rheumatism, and, as in almost all febrile diseases, is to a certain extent highly beneficial.

As it tends less to debilitate than blood-letting, it may be used more freely. Great excitement, however, is to be reduced rather by blood-letting, than cathartics. They are less powerful in diminishing excitement, and when many joints are affected, the frequent action of the bowels is attended with great pain and inconvenience. The mild saline or mercurial cathartics are the best.

Emetics are seldom employed in rheumatism; some writers think that they are used with advantage after the excitement is

moderated by blood-letting, but nauseating doses appear to be preferable.

The great advantage obtained from sweating in chronic rheumatism, has induced practitioners to rely upon it in the acute form of the disease. But here we must avoid heating medicines and external warmth, means employed with great advantage in the former case. There are few diaphoretics more powerful than nauseating doses of emetics; and as these at the same time tend otherwise to allay the febrile symptoms, they are well adapted to the case before us. They likewise frequently answer the purpose of cathartics.

Many other medicines have been recommended with a view to promote perspiration, and all are said to have proved beneficial. Among the chief of these is nitre, which by some practitioners has been given in very large doses. Dr. Brocklesby* seems to have trusted chiefly to this medicine; he gave it in very large quantity. Dr. Brocklesby's observations deserve the attention of those who practice in similar circumstances. In smaller doses, it is useful in all cases, when the excitement is considerable.

Camphor has been very generally employed as a diaphoretic in acute rheumatism. Sir John Pringle gave it in combination with the carbonate of ammonia. He sometimes gave the latter without the camphor. Guaiacum and opium have also been recommended with the same view. The excellent effects of guaiacum in the chronic rheumatism seems to have led to its use here. Camphor is a feeble medicine, although it seems by its anodyne quality sometimes to add to the good effects of others. Ammonia and guaiacum are too heating while there is much fever.

Respecting the use of opium in this disease, there is much difference of opinion. It was observed, that opium appears to be more beneficial in the phlegmasiæ, the less proportion the general, bear to the local, symptoms. As in rheumatism, the inflammation is more external, the general bear a less proportion to the local symptoms, than in the visceral phlegmasiæ; and in many cases we find the pains very severe when the general affection of the system is by no means so. As far as I can judge from my own experience, it is in these cases that opium is most beneficial. The tendency to perspiration in rheumatism seems also often to obviate the bad effects it is apt to produce in the phlegmasiæ. On this account it is generally found adviseable to use it in com-

* His Account of the Diseases of the Army.

ination with those medicines which direct its operation to the skin, particularly antimony and ipecacuanha. These, especially the combination of opium and ipecacuanha, appear to be of all the means we possess the most powerful in allaying the pain, when the febrile symptoms are moderate.

In many cases of chronic rheumatism it almost uniformly succeeds, if it be given in such doses as to render the perspiration general and profuse for several days ; great care being taken that the sweating shall abate gradually, and that the patient shall not soon after it be exposed to cold. I have found the compound tincture of guaiacum an excellent means of supporting the insensible perspiration, and defending the patient against the effects of cold after such sweats.

It is not to be overlooked, that when sweating does not soon relieve the symptoms, it often fails altogether, and persevering, under these circumstances, in exciting it often, like other profuse evacuations, occasions the acute, to degenerate into the chronic, form of the disease.

Opium given alone and at an early period of the acute rheumatism, especially when the fever is considerable, often does harm. Sydenham observes, that more blood-letting was necessary in those cases where opium was used ; and Stork remarks, that when we attempt to procure sleep by paregorics, the patient becomes restless and giddy, troubled with distressing dreams and starting during sleep, which, instead of refreshing, seems to fatigue him, the pulse becoming frequent, unequal, and contracted. Van Swieten, Dr. M'Bride, Dr. Brocklesby, and others, make similar observations.

By some practitioners, opium has been given after evacuations, with a view to restore the impaired strength. Sydenham gave it after the operation of cathartics. The Peruvian bark has been found eminently serviceable towards the decline of the disease, especially when the fever returns at intervals, assuming more or less of the form of an intermittent.* Some have recommended the Peruvian bark, Dr. Cullen observes, at an earlier period, but it is proper in those cases only, in which the phlogistic diathesis is much abated, and where at the same time the exacerbations of the disease are manifestly periodical.†

* Van Swieten's Comment. Dr. Millar's Diseases of Great Britain, &c.

† It has been lately recommended at the very commencement of the disease, and even in cases where the pulse is strong and hard. From the trials I have

Mercury has been recommended in acute rheumatism, but, except as a cathartic, it seems of little use in this form of the disease. In the chronic rheumatism it is sometimes of service, but I believe much less frequently than has been supposed, the pains in many cases supposed rheumatic, being bilious or venereal.

The diet in acute rheumatism should be the same as in other inflammatory diseases, mild and diluting.

The temperature of the patient's room should be as uniform as possible and rather cool. Some think that he should be laid in blankets in order to promote perspiration and prevent taking cold. This is often very necessary in chronic rheumatism, where profuse sweating is more frequently employed, and the patient is more susceptible of cold.

Among the local remedies blood-letting holds the chief place. While the pains are general, we cannot employ local blood-letting. It is impossible by bleeding from one joint to relieve the rest. It is after the fever remits, when the pains still continue severe, and fix themselves chiefly in a few of the joints, attended with some degree of redness and swelling, that it is of most service.

Although blisters are less proper while the inflammation is considerable, after it has been to a certain degree reduced, their effects will often be found more permanent.

The same observation applies to them as to local blood-letting. It is when the pains are chiefly confined to a few joints that they are to be employed; at an early period indeed, when the pains are general and the pulse hard, they do more harm than good.

Rubefacients often relieve the pains, but when thus driven from one joint, they are apt to attack another. Fomentations are also of service after the fever has abated. The actual cautery has been employed, and is still in certain cases of chronic rheumatism recommended by some practitioners on the Continent. It is said to be a very effectual remedy, when the disease is obstinately fixed in particular joints.

What has been said on former occasions respecting the encouragement of the symptoms found critical in the phlegmasiæ, is applicable here. If a tendency to sweating shews itself, it should be encouraged by every means that does not tend to increase the febrile symptoms. We are also to favour any tendency to hemorrhagy. If an eruption brings considerable relief, we may for a day

made I am inclined to subscribe to Dr. Cullen's opinion, that its exhibition ought not to be attempted under these circumstances.

or two discontinue the evacuating plan ; but if the eruption appears without bringing relief, it should occasion no change in the mode of treatment. When rheumatism terminates in any kind of ulceration, we must not attempt to heal it too suddenly.*

* Though in acute rheumatism the symptoms of active inflammation both local and general, are unequivocal, yet the disease is not so much under the control of blood-letting, as many others which belong to the same class. In some cases when venesection and other depleting remedies have been carried to their full extent, the morbid excitement in the capillaries and the corresponding action in the great arteries will still remain ; and in fact, the morbid action seems not to be diminished in any greater degree by this practice, than the natural healthy action of the system.

In a case of acute rheumatism, the patient being a vigorous young man, blood-letting was carried to great length, calomel, and nauseating doses of tartar emetic were persisted in for a long time, together with sudorifics, and blisters were applied to several of the affected joints, without gaining much relief.

Notwithstanding the use of these remedies, the disease remained unsubdued ; and the pain in the large joints was severe, and the heat intense. The patient was taken out of bed, laid on a straw matress, and a bucket of cold water was thrown on him, so as to fall on every part of the body and limbs ; he was then returned to his bed, and clothes wet with cold water were applied to the affected joints, and the clothes were wet with cold water as they became dry. The symptoms of inflammation both local and general, soon abated under this treatment, and the patient was perfectly cured.

In this case it was observed, as the disease abated, that those joints which had been blistered recovered more slowly than the others. This patient is a pretty good sample of a bad case of acute rheumatism, and the effects of the remedies were such as they often are in that disease, except the application of cold water, which in this case did more than all the rest ; but whether it would have had the same happy effect, if it had been applied in the beginning of the disease, or not, is a question which I am not able to solve. The remedy was then new to me, nor have I tried it since. I was driven into the use of it at that time by the sufferings of the patient, and the failure of all other medicines.

Since the time that I attended this patient, I have found a remedy which has done more in cases of acute rheumatism than all other internal remedies which I have seen used in that disease. This is the *Sanguinaria Canadensis* or blood-root. I have given it in infusion and tincture with laudanum. The dose of blood-root should be as large as can be borne on the stomach without proving an emetic, combined with a dose of laudanum adapted to the circumstances of the patient. This dose should be repeated twice or thrice in a day. When the tincture of blood-root is used, the dose may be a tea spoonful to begin with, which must be increased till the patient feels the effects sensibly. When the infusion is used, half a table spoonful will be sufficient for the first dose. The best tincture of blood-root is made with the fresh root bruised, and steeped in spirit, and in such proportion as to make what is called a proof tincture. The infusion is best when made of the dried root.

N. S.

CHAP. XVIII.

Of the Gout.

THERE are few diseases on which more has been written, than the gout. A thousand treatises have promised an easy explanation of its phenomena, and certain means of cure; yet it still defies our reasonings and our art. It is true indeed, that since the revival of literature, more careful observation has greatly improved both its history and treatment; but the latter is still extremely defective, and all our ideas respecting its nature, are as unsatisfactory as the neglected hypotheses of the ancients.

Dr. Cullen defines the Gout,

“ Morbus hæreditarius, oriens sine causa externa evidente, sed præeunte plerumque ventriculi affectione insolita; pyrexia; dolor ad articulum, et plerumque pedis polici, certe pedum et manuum juncturus, potissimum infestus; per intervalla revertens, et sæpe cum ventriculi, vel aliarum internarum partium, affectionibus alternans.”

It might be objected to this definition, that it does not very accurately include all the varieties of gout; it would be difficult, however, to give a better definition of so varied a disease. It points out its most striking features.

Dr. Cullen divides the gout into four species, the regular, atonic, retrograde, and misplaced, which seem with sufficient accuracy to include its different forms. Other writers have divided it into more or fewer varieties.

He defines his first species,

“ Podagra cum inflammatione artuum satis vehementi, per aliquot dies perstante, et paulatim cum tumore, pruritu, et desquamatione partis, recedente.”

The atonic gout is defined,

“ Podagra cum ventriculi vel alius partis internæ atonia, et vel sine expectata aut solita artuum inflammatione, vel cum doloribus artuum lenibus tantum et fugacibus, et cum dyspepsia vel aliis atoniæ symptomatibus subito sæpe alternantibus.”

The retrograde gout he defines,

“ Podagra cum inflammatione artuum subito recedente, et ventriculi vel alius partis internæ atonia mox insecuta.”

His fourth species, the misplaced gout, he defines,
 “Podagra cum partis internæ inflammatione, vel non prægressa,
 “vel prægressa et subito recedente, inflammatione artuum.”

It will be proper to consider the symptoms of each of these species separately.

SECT. I.

Of the Symptoms of Regular Gout.

SYDENHAM has given so full and accurate an account of the regular gout, that it is impossible to make any considerable additions to it. Later writers indeed have generally given a literal translation of it; and those who profess to detail the symptoms of gout from their own observation, have added little or nothing to Sydenham's account of this disease, and often use his very expressions. This observation applies even to Dr. Cullen's account of it. The following account of the regular gout, therefore, is to be regarded as Sydenham's, interspersed with the few additions furnished by later observation.

The gout sometimes comes on very suddenly, particularly in its first attacks. In general, however, the inflammation of the joint is preceded by various symptoms, indicating a want of vigour in different parts of the system. The patient is incapable of his usual exertions either of mind or body; becomes languid, listless, and subject to slight feverish attacks, especially in the evening, in which shivering often alternates with flushings of heat. He frequently complains of pains in the head, and coldness of the extremities. The appetite is impaired, with the usual symptoms of dyspepsia. The patient complains of heaviness after meals, which often becomes a disturbed kind of sleep, to which he is more or less subject at other times, particularly when the mind is slightly engaged while the body is at rest. He is never refreshed by this sleep, but remains languid and uneasy; he becomes subject to flatulence, acid eructations, heart-burn, spasms of the stomach, thirst, vitiated taste, nausea, and vomiting. The bowels are seldom regular, being either constipated, or too much relaxed. The mind, at this period, is generally irritable, anxious, and alarmed at the least appearance of danger.

These symptoms are often accompanied by others which more particularly presage the approaching fit, a deficiency of perspiration in the feet, and their veins appearing more distended than

usual, cramps of the feet and legs, numbness, and a sense of pricking in them, or a sensation as if cold water were poured upon them, which is sometimes felt in other parts of the body, particularly in the back, and is described as different from the shivering which attends febrile attacks.

The duration of these symptoms previous to the fit, is various ; sometimes only a day or two ; at other times many weeks. It is a very general observation, that the day preceding the fit, the appetite is greater than usual.

The fit sometimes makes its attack in the evening, more commonly about two or three o'clock in the morning. The patient goes to bed free from pain, and is awakened about this time by a very acute pain, generally in the first joint of the great toe. Sydenham, who was much afflicted with the gout, observes, that the pain often resembles that of a dislocated bone, with a sensation as if tepid water were poured on the membranes of the part. It sometimes extends itself over all the bones of the tarsus and metatarsus, resembling the pain occasioned by the tension or laceration of a membrane ; at other times it occasions a sense of weight, and constriction of the part, which at length becomes so sensible, that the patient cannot endure the weight of the bed-clothes upon it, or the shaking of the room from a person walking across it.

At the commencement of the pain, a cold fit is more or less perfectly formed ; which, as the pain increases, is succeeded by heat and other symptoms of fever. The pain and fever increase, with much restlessness, till about the middle of the succeeding night ; after which they gradually abate, and in the most favourable cases there is little either of the pain or fever twenty-four hours after their first appearance.

The patient, as soon as he obtains some relief from pain, generally falls asleep, a gentle sweat comes on before he awakes, and the part which the pain occupied, becomes red and swelled.

In most cases, however, the fit is not over, for the pain and fever return in the succeeding night with less violence, and continue to do so for several nights, becoming less severe till they cease.

Such is a simple fit of the gout. But it often happens that after the pain has abated in one foot, it attacks the other, where it runs the same course, and in those who have laboured under repeated attacks of the disease, the foot first attacked is often seized a second time, as the pain in the other subsides, which is again attacked in its turn, and they are thus alternately affected for a con-

siderable length of time. In other cases it seizes on both feet at the same time.

In strong people, Sydenham observes, the whole fit, even although it attacks both feet, is generally finished in about fourteen days. In the aged, and those who have been long subject to the gout, it generally lasts about two months; and in those who are much debilitated, either by age or the long continuance of the disease, till the summer heats set in.

During the fit the bowels are generally costive, the urine is scanty and high-coloured, and deposits a copious red sediment, particularly during the first days. Through the whole fit there is a want of appetite and sense of oppression, with rigours in the evening. While it is going off, the patient often complains of an intolerable itching in the parts which the pain occupied, particularly between the toes, from which, and frequently from the whole foot, there is a desquamation of the cuticle.

A fit of the gout for the time, improves the health. It leaves the appetite, digestion, and spirits unusually good, so that many declare, that they willingly endure the pain for the good health and spirits which succeed it.

The first attacks of the gout are generally at long intervals, for the most part three or four years; at length they occur annually; in those who have long been subject to it, twice a year, and at last several times during the autumn, winter, and spring. Upon the whole it may be remarked, that the more tedious the fits of the gout, the less severe the pain, the more urgent are the dyspeptic and other atonic symptoms, the longer is the duration of the fit, and the sooner it returns.

The foregoing is the only form of gout which Sydenham admitted to be regular. When it left the feet, or attacked other parts at the same time, he believed the natural course of the disease to be disturbed by debility or some less evident cause. Dr. Cullen, and other later writers, however, have ranked, as varieties of regular gout, all cases which run the course here described, whether the pain be situated in the feet or other parts of the extremities.

After frequent returns of the gout, it begins to seize upon the joints of the hand, and at length the larger joints; and when it attacks the knee and elbow it sometimes occasions considerable swelling without any change of colour in the skin. As in the smaller joints, however, the skin often becomes inflamed. The pain sometimes attacks some of these joints and the feet alternately, and

sometimes, though not so often, some of the joints of both the upper and lower extremities at the same time. When the gouty tendency is very great, almost every joint of the body suffers; the pain when it leaves one, immediately fixing in another. The patient is then free from the disease only for a short time in the summer, so that the usual fit may be said to last for eight or ten months.

In the first attacks, the joints soon recover their strength and suppleness, but after the disease has recurred frequently, and the fits are long protracted, the joints remain weak and stiff, and at length lose all motion. These effects are increased by the formation of concretions, which are often thrown out by suppuration, occasioning ulcers that sometimes prove obstinate. The concretions, however, are not formed in the joint, but for the most part immediately under the skin.

I have already had occasion to observe, that as the paroxysms are protracted, the dyspeptic and other symptoms of debility increase, while the pains become less severe. When the fits are protracted for the greater part of the year, the patient is hardly ever free from such symptoms, which, when there is no pain, or only very slight and wandering pains, form the species of gout we are next to consider.

Most people who have suffered long from gout are more or less troubled with calculous complaints, and the nephritic often alternate with the gouty, paroxysms.

SECT. II.

Of the Symptoms of Irregular Gout.

THE term irregular has been employed to express every form of gout except that we have just been considering, so that under it are comprehended Dr. Cullen's three remaining species. Of these the atonic is the most important.

We were not supplied so early with an accurate account of these species of gout, as of the regular form of the disease. Sydenham describes them with much less precision. The different forms of irregular gout are so various and deceitful, that an accurate account of them could only be expected from the united efforts of many.* To save repetition, I shall, along with the symptoms of

* The reader will find an excellent account of irregular gout, in two treatises published by Dr. Musgrave, *De Arthritide Symptomata* and *Arthritide Anomala*.

the irregular forms of gout, notice the causes which dispose it to assume these forms.

To enter fully on a detail of the symptoms which appear in what is called atonic gout, would be to give those of a large proportion of all the diseases we are subject to, for there are hardly any which appear in a gouty habit that do not shew some connection with the habitual disease. It will be sufficient to enumerate its more striking features.

The subjects of atonic gout are generally such as have for a considerable time laboured under regular attacks of the disease; this, however, is not universally the case. In some constitutions the gout soon begins to assume the atonic form. When this form appears in those who have never suffered from regular attacks, it is very difficult to determine its nature, unless the affection of the internal part alternate with pains of the joints.

The most common forms of atonic gout may be divided into three classes, as it attacks the abdominal or thoracic viscera, or the encephalon.

The morbid affections of the stomach, which have been mentioned as often preceding regular gout, are the most common symptoms of the atonic. But in this form of the disease they rise to a greater height, and are often attended with immediate danger. The patient is distressed with flatulence, nausea, vomiting, severe pains in the region of the stomach, &c. which often very suddenly prove fatal. He is sometimes harrassed with cramps in various parts of the body, particularly the trunk and arms, which are generally relieved by a discharge of wind from the stomach. The debility is often extreme, the pulse sometimes intermitting, the mind anxious, irascible, and timid.

There are few diseases more deceitful than what has been termed the gout in the stomach. Sometimes, indeed, the pain is excruciating, and the patient dies in extreme agony. But in many instances he expires when the symptoms are not different from those which in ordinary dyspeptics might be pronounced free from danger. It is not uncommon for those labouring under this form of the gout, suddenly to die while conversing, and with so much ease, that death is sometimes announced by no other symptom than the head falling on the breast.

All causes of debility dispose the gout to attack the stomach, particularly the causes which act more immediately on the stomach itself, excess in eating or drinking, a diet of difficult digestion,

&c. It is observable, says Musgrave, that such as have an hereditary gout are more liable to attacks in the stomach, than those in whom the gout is accidental; those who are born of old parents, than those born of young; those who have a bad appetite and labour under a cold languid gout, than such as have a better appetite and whose gout is more painful and attended with a greater degree of fever. The melancholic temperament, it is said also disposes to the atonic gout. How far all of these observations are just it is difficult to say; all that we certainly know is, that the debilitated are most subject to this form of the disease.

After the dyspeptic symptoms have continued for some time, or indeed from their first appearance, they are sometimes accompanied by those denoting derangement in the whole intestinal canal. The patient complains of a pain in some part of the belly, generally about the umbilicus, which gradually extends, increasing in severity and accompanied with obstinate costiveness. It has been called the arthritic colic, and is attended with great danger. Sometimes, though more rarely, a diarrhœa comes on, accompanied with much griping, and sometimes with severe tenesmus and bloody and dysenteric stools. The patient at the same time is often troubled with dyspnœa and cough, and with a sense of oppression and heaviness in the chest.

The arthritic colic and diarrhœa frequently make their attack in autumn, and continue to harass the patient during the winter, who, emaciated and exhausted, at length sinks under them.

Both the diarrhœa and dysentery are apt to supervene on the colic; and when the diarrhœa is moderate, it often proves salutary; when profuse and obstinate it is attended with great danger.

It is not difficult to conceive how dreadful a disease dysentery supervening on gouty colic must frequently be. It often proves fatal by hemorrhagy, from some part of the intestines, ulcers and abscesses, as dissection has demonstrated, frequently takes place.

The most frequent causes of affections of the bowels in gouty habits are the unguarded application of cold, and the presence of much bile and other irritating matter in the alimentary canal.

These as well as the affections of the stomach, are for the most part accompanied with slight and irregular gouty pains in some of the joints, which when they become more fixed and severe often bring very sudden relief to the internal disease; so that the latter frequently alternates with the affection of the joints, protracting the fit for many months, the prognosis being more or less favourable according as the one or the other predominates.

Atonic gout less frequently attacks the thorax, but its effects here are equally distressing and dangerous. After the sudden application of cold, or any cause which deranges digestion, a gouty patient sometimes becomes restless and uneasy, cold sweats breaking out, the countenance becoming pale, and the pulse weak and intermitting; these symptoms being often succeeded by a fit of palpitation, or syncope. As such affections come on, the pains of the joints, if there are any, abate, and without speedy assistance death often ensues.

The gout sometimes appears in the form of asthma, particularly in those who from a bad conformation of the chest or from being of asthmatic parents are disposed to it. The asthma from gout, like common asthma, is either dry or moist, the latter is regarded as most dangerous. They both speedily disappear when gouty pains come on.

There is a disease of the chest, termed a gouty defluxion, which resembles peripneumonia notha, frequent in old people who have long been subject to the gout. It arises from the causes of pneumonia, combined with those which dispose the gout to assume the atonic form. The expectoration at first is thin and scanty, becoming thicker and more copious, oppressing the lungs, and sometimes occasioning suffocation. It frequently returns at intervals, beginning with a troublesome cough. Cough, indeed, is a frequent symptom of atonic gout, even where the lungs are not the chief seat of the disease; and often precedes the other symptoms.

These, like almost all other affections of the chest, sometimes terminate in phthisis pulmonalis.*

When the gout attacks the encephalon, it produces head-ach, giddiness, loss of memory, palsy, and apoplexy and even mania. It is not uncommon for head-ach and giddiness, accompanied with a florid countenance, noise in the ears, a large pulse, and more or less dyspnœa, for sometime to precede palsy and apoplexy, and in a gouty habit, unless these symptoms are removed by the appearance of some other form of the disease, they often end in this way, sometimes after continuing for weeks or even months.

An indulgence in full living and indolence, especially after the meridian of life, and where the habit is inclined to corpulence and plethora, particularly disposes to this form of gout. In common with other cases of atonic gout, it may be occasioned by all causes of debility.

* See Musgrave's Treatises.

Atonic gout sometimes appear in other forms, besides those it assumes in the three cavities. The arthritic quinsey often seizes the patient while he is labouring under pains of the joints, and sometimes makes its appearance a short time after a regular fit. This form of the disease approaches more nearly in its nature to the regular gout. It sometimes supplies the place of a regular fit, and is succeeded by the same health and cheerfulness, and it more frequently than other forms of atonic gout, if it deserves the name, terminates in a regular fit.

If, says Dr. Musgrave, nausea and sickness, heaviness, numbness, and wandering pains, have preceded the quinsey, there is reason to believe that it proceeds from the presence of gout in the habit, especially if the patient has laboured under regular fits of the disease.* People with short necks and relaxed and debilitated habits are most subject to gouty quinsey. It attacks men about middle life, and women after the menstrual discharge ceases. More fever precedes the quinsey than any other forms of irregular gout.

There is a gouty ophthalmia as well as quinsey, which is known in the same way and terminates in a similar manner.

Erysipelatous inflammation of the surface and impostume seem also occasionally to serve the purpose of a regular fit of the gout.†

The pains in the back, loins, shoulders, and external parts of the head, in gouty habits, resembling rheumatism, and which certainly partake much of a rheumatic nature, Dr. Musgrave considers as symptoms of atonic gout. The gouty affection sometimes fixes itself in the back, resembling a fit of the gravel. This form seldom appears except in those exhausted by old age and the long continuance of the disease.

In short, there is no disease to which gouty people are subject that does not shew some connection with gout. The gouty humour, says Dr. Musgrave, sometimes falls on the glands within the orbits of the eyes, causing a discharge of sharp serum. Sometimes it attacks the gums and membranes surrounding the roots of the teeth. The nose, the lips, the tongue, and every part of the body, he observes, are subject to attacks of the arthritic matter. Dr. Whytt‡ of Edinburg remarks, that he has seen the atonic

* See the Rev. Mr. Warner's account of his own case of gouty quinsey, in his Treatise on the Gout.

† Dr. Musgrave's Treatises, Dr. Gardener on the Gout and Gravel.

‡ See 3d. vol. of the Essays and Obs. Phys. and Literary.

gout in form of diabetes, hemiplegia, mania, itching of the scrotum, dysuria, discharge from the urethra, and pain in the testicles. Every physician has met with similar affections connected with gout, the connexion appearing by their suffering a considerable abatement, or wholly disappearing, as soon as the gout shews itself in the extremities.

The more inflammatory of the foregoing affections may be thought more properly to belong to the misplaced gout, but this is a point of little importance.*

It is the opinion of many, that the gout never shews itself for the first time in the atonic form. The best observations I have met with in opposition to this opinion, are those of Dr. Clark, in a paper on Anomalous Gout, in the third volume of the *Essays and Observations Physical and Literary*. The atonic gout, he maintains, will often remain for many years without any appearance of regular gout having preceded it. If so, it is of consequence to determine its presence, because the treatment is in some respect different from that of the disease which it resembles.

Although Dr. Musgrave notices the appearance of atonic gout without any previous attack in the extremities, he does not attempt any diagnostic of such cases, but seems to think that their nature can only be ascertained by the appearance of regular gout.

Dr. John Clark, father to the author of the above paper, regarded white ropy semi-transparent filaments floating in the urine as a diagnostic symptom of atonic gout, when it appears without having been preceded by an attack in the joints. To this symptom the author of the paper adds strangury, which he met with in a large majority of such cases, and he thinks it a peculiarity of this strangury that it is generally relieved by blistering the ancles; but Dr. Whytt observes, that the same means relieve the slight strangury which frequently attends fevers. The former remarks, that the matter thrown up from the stomach in cases of atonic gout, is generally a whitish gelatinous pituitous matter, which he regards as a diagnostic of this affection. Gonorrhœa in men, and the fluor albus in women, he thinks are frequent appearances in this form of gout, and may assist in distinguishing it. Sauvages mentions the gonorrhœa podagrica among the species of gout.

* See Dr. Cullen's *Observations on the Gouty Affection of the Bladder and Rectum*.

Both Dr. Clark and Dr. Whytt think the atonic gout more common, especially, among young people, than is generally supposed*.

After all that has been said on the subject, however, as the symptoms of atonic gout seem to be merely those of debility, which may proceed from a variety of causes, it is probable we shall never detect any diagnostic sufficient to distinguish such cases with certainty, where the gout has not previously appeared in a less equivocal form. Besides if we except disorders of the stomach, an organ which so eminently sympathises with every part of the system, all the symptoms of atonic gout, those of asthma, palsy, apoplexy, &c. are generally produced by the same causes which occasion these diseases in ordinary cases; the only difference being, that in gouty habits a less powerful application of them is sufficient, and even the dyspepsia of gouty patients is always observed to be most severe in those, who are exposed to the peculiar causes of this disease.

It seems, therefore, that we are to adapt our language to the real state of our knowledge, instead of talking of the translation of gouty matter to the stomach, thorax, head, &c. in the various cases of atonic gout, we should only say, that the gout gives a predisposition to certain diseases, which being excited may occasion the gout itself, in the same way that almost any cause of derangement occasionally excites habitual diseases. Nor need it surprise us, that the appearance of regular gout relieves the atonic symptoms. How frequently do we observe one disease subside on the appearance of another, where gout is in no way concerned; and particularly a disease of debility when a painful disease supervenes. We often relieve apoplexy and syncope by pain artificially excited. I have seen the symptoms of dyspepsia suddenly relieved by a severe fit of tooth ach.

On the symptoms of the remaining forms of gout, the retrocedent and misplaced, a very few words will be sufficient.

The retrocedent gout only differs from the atonic by being preceded by part of a regular fit.

The propriety of regarding what is termed the misplaced gout as a species of this disease, is doubtful. It is unnoticed by Sydenham and many other writers. If the inflammation of the internal part come on without being preceded by any affection of the joints,

*The reader may consult the case of Mr. Alexander Small, surgeon to the ordnance in Minorca, related by himself, in the sixth volume of the Medical Observations and Inquiries.

how are we to determine that it is at all connected with gout. If it supervenes on the inflammatory affection of the joints suddenly receding, it may still proceed from other causes, for many of those most apt to occasion a retrocession, are also such as frequently excite visceral inflammation; so that it would not seem surprising if, in a few instances, such inflammation supervenes on a sudden retrocession of the gout, although there be no connection between the diseases. Besides, if during a fit of the gout a visceral inflammation should by any cause be excited, we must suppose, from what we see in other cases, that it would relieve or wholly remove the affection of the joint. Instances of misplaced gout seem rarer than from these circumstances we should expect to find them even on the supposition that the gout has no share in producing them. It would appear upon the whole, therefore, that all we are to understand by misplaced gout is a visceral inflammation supervening in a gouty habit, to which, however, gout seems little, if at all, to predispose.

Although Dr. Cullen admits this species of gout, he confesses that he never met with any instance of it in his own practice, nor found any case distinctly marked by practical writers, except that of pneumonic inflammation. I am inclined to think, that in this exception Dr. Cullen alludes to the pneumonia mentioned by Dr. Musgrave as a symptom of irregular gout. But what he says of it is not very favourable to the supposition of misplaced gout; for it would appear from his observations, that arthritics subject to pneumonia are such as must, independently of gout, have been predisposed to this disease.

When the gout does not shew itself till late in life, it seldom rises to the same degree as when it appears more early, and it is less frequently accompanied with nephritic and other symptoms of irregular gout; as indeed might, a priori, be supposed, since the system is generally subject to gout for sometime before these symptoms shew themselves,* most of them being nothing more than symptoms of other diseases to which the continuance of gout predisposes. There is no rule, however, without exceptions. The gout we have seen, is sometimes, almost from the first, accompanied with the more alarming atonic symptoms.

* See a paper, entitled a New Pathology of the Gout, by Stahl, in the sixth volume of Haller's Disp. ad Morb. Hist. et Cur. Pert. The reader will find some good observations on the gout in this and another paper by Hahn, in the same volume.

SECT. III.

Of the Remote Causes of Gout.

THE gout is a disease of cold and temperate climates. It frequently makes its attack in autumn on the sitting in of the cold; more frequently in the spring, when the temperature begins to increase, especially when the vicissitudes of heat and cold are considerable.

Those most subject to gout are men of a robust and rather clumsy make, with large joints and head, a rough skin, rather corpulent habit, and, it has been said, of quick parts; such as have led an indolent and luxurious life, used a large proportion of animal and high-seasoned food, and indulged freely in the use of fermented liquors. The causes of general debility also, excessive venery, much application to study or business, vexation of mind, night watching, &c. predispose to this disease. In short, whatever tends to produce plethora, hurt the digestive organs, and impair the vigour of the system, may be ranked among its causes.

The gout more rarely attacks women and eunuchs. When it appears in them, it is generally in such as are of the habit just described, and have been accustomed to indolence and full living.

It has been a common opinion, that the ceasing of the menstrual discharge disposes to gout, and as a cause of plethora it probably has more or less of this effect. But as it happens about the time of life at which the gout is most apt to shew itself in both sexes, and many women have been attacked by gout before menstruation ceased, it is probable that it has little share in producing it. Dr. Cullen observes, that he has known several women subject to gout in whom this discharge was more profuse than usual.

Among the people of a country where the gout is prevalent, we find some subject to it from very slight irregularities, while others are exposed to the same or more powerful causes, and yet escape it; and, on enquiry, it is generally found, that the fathers or other progenitors of the former had laboured under this disease. The observation has been so often made by the vulgar, as well as physicians, that there is no point in medicine better ascertained. Notwithstanding this, by some it has been called in question, and has even been made the subject of serious discussion. When we read Dr. Cadogan's fallacious arguments against the opinion of an hereditary gout, and the refutation of them by Dr. Berkenhout and

Dr. Falconer, we are less surprised at the hypothesis of the first writer, than at seeing the others set about gravely to refute it.

There are a few in whom the hereditary disposition is so strong that it is capable of exciting the disease without the concurrence of some other of its causes, so that those sprung even from the most arthritic parents, may escape it by temperance and exercise ; and, on the other hand, there are few in those countries where gout has been long known, so free from the predisposition that it may not be excited in them.

That indolence predisposes to gout appears from it's rarely attacking those who have followed laborious occupations. It has often been observed, that although common soldiers are far from leading a temperate life, they are seldom subject to the gout ; while, on the other hand, those who lead a sedentary life, often find the strictest attention to temperance insufficient to prevent its attack. It is the indolence of literary men, Dr. Gardener observes, which has given rise to the opinion of abilities indicating a predisposition to gout. There may be some truth in this observation ; at the same time long and intense application of the mind seems to deserve a place among its predisposing causes. The bad effects of nightly study, indeed are partly to be ascribed to its encroaching on the hours allotted to sleep.

With regard to the kind of diet which predisposes to gout, although it is granted on all hands that fermented liquors, as well as much animal food, have this tendency, there is great difference of opinion concerning the kinds of fermented liquors which have most of it, and the observations of writers are in direct contradiction to each other. In this country we accuse wine of giving the strongest predisposition to gout, because the lower ranks are little subject to it. In them, however, the tendency may be counteracted by other causes. But Van Swieten observes, that when the people of Holland drank malt liquor the gout was hardly known there, but has become very common since the introduction of wine. " I will not take upon me to determine," says Dr. Cheyne, in his *Observations on the Mode of Treatment in Gout*, " but I believe " the fact is, both in the stone and acquired gouts, that those who " only drink malt liquors, without wine or spirits, are seldom vio- " lently afflicted with either. Liger, professor of physic in the University of Paris, on the other hand, observes, that in Champaign and Burgundy, where the people drink nothing but wine, the gout is hardly known ; and Hoffman agrees with this writer, that beer is more apt to produce gout than wine. Liger admits, that sweet

wines predispose to gout ; and it is a very general opinion, that the most acescent wines have most of this tendency. This, however, appears doubtful, for although acescent wines, and every thing else which occasions much acidity in the primæ viæ, tend to excite fits of the gout in those who are subject to the disease, it seems, from a great variety of observations, that the stronger wines are more apt to give the predisposition. Liger makes the same observation respecting beer and cider, the strongest he found most to predispose to gout.

Whatever be the comparative effects of wine and malt liquor, it seems to be pretty generally admitted that cider and perry tend more than either to give this predisposition ; but here perhaps authors still confound the causes most apt to excite the fit in those who are subject to gout, with those which predispose to it.

It seems in general to require a combination of the two last mentioned causes, indolence and intemperance, to produce gout where there is little hereditary predisposition. Where this is strong, very slight circumstances are capable of exciting it, nor can the strictest attention to temperance always prevent its appearance. Proofs of this we see in our own country ; and we are told of people who use almost solely a vegetable diet, generally drink water, and attain an old age, and notwithstanding are greatly afflicted with gout.*

Of the exciting causes of gout, Dr. Cullen justly observes, that although physicians have pointed them out with confidence, in a disease depending so much on predisposition they must be uncertain ; in the predisposed the occasional causes are not always evident, and in those who are not predisposed the most powerful are often applied without effect.

Many of the causes just enumerated, if applied suddenly and to a considerable degree, act as exciting causes. A single fit of intoxication, or any other cause which greatly deranges the digestive organs, may excite the gout in the predisposed, exposure to a moist cold air without exercise, acescent food and food of difficult digestion, unusual repletion of the stomach, obstinate vomiting, acids, either vegetable or mineral, taken in considerable quantity, and bile or any other irritating matter in the stomach and bowels.

Many of the occasional causes of gout less immediately affect the stomach, excessive evacuations of any kind, or a want of habitual evacuations particularly costiveness or obstructed perspiration. It

* See Prosper Alpinus de Med. Egyp.

is chiefly to the last cause, perhaps, that the returns of gout in spring and autumn are to be attributed. External injuries, especially done to any of the joints liable to gout, often excites it in the predisposed. In short every cause which suddenly affects to a considerable degree either the general health or the part which the gout occupies, may excite a fit. The passions and even the imagination may have this effect. A piece of bad news has often excited the gout. A late eminent professor, it is said, often began to cripple as soon as he began to lecture on this disease.

Some of the first writers believe the gout to be contagious. Both Boerhaave and his commentator are of this opinion. But the disease being so common, the opinion if it were well-founded must have been more general.

SECT. IV.

Of the Nature of Gout.

So much has been written, and so many opinions advanced respecting the nature of gout, that I should not, perhaps, be excused for wholly passing it over in silence.

No opinion has prevailed so generally as that which supposes this disease to arise from the presence of some morbid matter in the blood. What this matter is has long been a source of dispute. Some assert that it is the natural fluids of the body changed by putrefaction or become too viscid; others, that it is a bilious humour; some, that it is a mucilage; others, that it is atartarous or urinous salt; by some it is supposed to be the superfluous part of the chyle; by others, an æther; some maintain that it is an earth; others, an alkali; and others, an acid. This last opinion has been long prevalent, and many regarded it as confirmed by the experiments of Scheele on urinary calculi; for at one time it was very generally supposed, that urinary calculi and gouty concretions were of the same nature.* With regard to all these opinions,

* It appears from the experiments of Dr. Wollaston (*Observations on Gouty and Urinary Concretions*, by W. H. Wollaston, M. D. *Phil. Trans.* p. 386, part ii. 1797) that the gouty calculus is the lithiat of Soda, which never forms the urinary calculus, nor indeed seems ever to enter into its composition.

According to the experiments of Furcroy and Vauquelin, (*Sur l'Analyse des Calculs Urinaires Humains*, par les Cit. Fourcroy et Vauquelin, *Annales de Chimie*, No. 95, p 213) the various urinary calculi are found to be composed of one or more of the following substances, lithic or uric acid, urat of ammonia, phosphat of lime, phosphat of ammoniaco-magnesia, oxalat of lime, silex, and animal matter.

it is only necessary to shew that we have no proof of the gout arising from morbid matter of any kind. This the reader will find done in the 529th paragraph of Dr. Cullen's First Lines.

Dr. Cullen gives his own opinion in the following words. "In some persons there is a certain vigorous and plethoric state of the system, which at a certain period of life is liable to a loss of tone in the extremities. This is in some measure communicated to the whole system, but appears more especially in the functions of the stomach. When this loss of tone occurs, while the energy of the brain still retains its vigour, the *vis medicatrix naturæ* is excited to restore the tone of the parts, and accomplishes it by exciting an inflammatory affection in some part of the extremities." By the operations of the *vis medicatrix naturæ* we only mean certain unknown changes in the animal system, which are so termed, because they seem to conduce to the restoration of health. If we substitute the meaning of the term, operation of the *vis medicatrix naturæ*, for the term itself, in Dr. Cullen's account of the proximate cause of gout, we shall find it changed into a concise detail of the progress of the regular form of the disease,

The same observation applies to what he says of the nature of irregular gout.

Various other hypotheses have been advanced. The gout has been said to arise from a vitiated state of the nerves; to be an attempt of nature to recover the infantile permeability of arteries closed up by exercise; to be a spasm of the alimentary canal, communicated to the extremities, &c. All that we are taught by the volumes which have been written on the nature of this disease, is the great obscurity of a subject which has wholly eluded the researches of so many.

SECT. V.

Of the Treatment of Gout.

THE gout is very generally regarded as an incurable disease, so that the views in regular practice are to correct the predisposition before the disease has made its appearance, and when it has appeared, rather to palliate than remove it; for notwithstanding all that has been said of the effects of diet and exercise, if we except a few cases where the predisposition is inconsiderable, we shall find, that however much they mitigate, they almost always fail to prevent the returns of gout. It is true that we possess medicines

capable of preventing its returns, but they often produce worse diseases.

We shall consider the treatment of gout in the same order in which the symptoms were detailed.

1. Of the Treatment of the Regular Gout.

Gout, we have seen, differs in some very essential particulars from the foregoing diseases, especially in its constantly returning, however carefully the exciting causes are avoided, and in the great tendency it occasions to other diseases. The same circumstances influencing the principles on which its treatment is founded, render them very different from those which regulate our practice in the other phlegmasiæ. In a paroxysm of the gout it is not our chief aim to remove the inflammation; this indication, indeed, is often almost wholly overlooked. The objects we have chiefly in view are, so to remove the paroxysm that the succeeding interval may be as long as possible, and that any tendency to atonic gout may be obviated; the danger in gout proceeding neither from the local affection nor the general excitement, but from the paroxysms becoming frequent and irregular.

At the same time the debility left by a severe fit seems itself to dispose to irregularity, and the distress occasioned by it is so great that we are called upon to alleviate the patient's sufferings as far as it can be done with safety. Some, indeed, have asserted, that the various means of diminishing the pain are not only safe, but, by rendering the paroxysms less debilitating, tend to prevent the atonic forms of the disease. This maxim, however, is to be admitted with caution; it is only in certain cases and to a certain extent that it can be reduced to practice.

The constant tendency of gout to recur, renders the advice of the physician as necessary after, as during the paroxysm. Our aim is still the same, that of prolonging the interval, and rendering the succeeding fit mild and regular.

Such are the principles on which the treatment of gout is founded. It appears from what has been said, that during the paroxysm two indications present themselves, which in some measure stand in opposition to each other. If we use vigorous means for the relief of present suffering, we endanger the future health; if we attend to the latter only, we often have it but little in our power to mitigate the former.

1. Of the general means employed during a paroxysm of regular gout.

A physician, who had been accustomed to practice in the phlegmasiæ and had never seen a gouty patient, would not hesitate in a regular paroxysm to recommend a free use of the lancet. He would soon, however, perceive his error. The inflammatory symptoms, indeed, would be relieved, perhaps wholly removed; but if he persisted in this practice, they would soon be succeeded by a more alarming train of symptoms. “Sin autem, in paroxysmic subsequentibus phlebotomia jugiter utatur, podagra quam citissime etiam in juvene inveterascet, et intra paucos, latius imperium, seu potius tyranidem propagabit, quam alias in multis extendere valuisset.”*

Most European physicians give nearly the same opinion of blood-letting in gout which Sydenham gave above a hundred years ago. It is neither, he observes, to be employed for preventing or alleviating the paroxysm of gout, at least in those who are advanced in age. For although the blood drawn during a paroxysm, like that drawn in inflammation of the lungs, shews the buffy coat, blood-letting is as pernicious in the one, as it is beneficial in the other. If blood be drawn in the interval, he continues, there will be much danger of another paroxysm making its appearance, which will last longer, and be accompanied with worse symptoms, than the preceding. Yet he admits, that if the patient be young, and heated by the immoderate use of wine, blood-letting may be employed at the commencement of the paroxysm.

Many late writers,† although they keep these maxims of Sydenham in view, have ventured to extend blood-letting at the beginning of the paroxysm to those cases where the habit is full, the excitement great, and the local affection very considerable. “Sydenham,” says Dr. Cullen, “has given it as his opinion, that the more violent the inflammation and pain, the paroxysms will be the shorter, as well as the interval between the present and next paroxysm longer; and if this opinion be admitted as just, it will forbid the use of any remedies which might moderate the inflammation, which is to a certain degree undoubtedly necessary for the health of the body. On the other hand, acute pain presses for relief, and although a certain degree of inflammation may seem absolutely necessary, it is not certain but that a moderate degree of it may answer the purpose. And it is even probable that in many cases the violence of inflammation may weaken the

* Sydenham De Podagra.

† Boerhaave, Van Swieten, M^rBride, Liger, Cullen, Cadogan, &c.

“ tone of the parts, and thereby invite a return of the paroxysms.” Dr. Cullen, therefore, concludes, that in the first paroxysms in the young and vigorous, general blood-letting may be practised with advantage, although it cannot with safety be frequently repeated.

Most of the authors just alluded to appear to have recommended blood-letting too freely, and it seems, indeed, to be daily more and more going into disuse; so that, even in the cases mentioned by Dr. Cullen, many object to it; and as we can generally by local means afford all the relief which is consistent with the patient's safety, there seems very rarely, any good reason for having recourse to it.

Most of the best writers on this disease have condemned the use of cathartics in it. Some, Cheyne, Hoffman, M'Bride, Cadogan, &c. recommend mild cathartics, but Sydenham declares that even the mildest employed during the paroxysm tend to render it irregular. Boerhaave and Lieutaud make similar observations. Dr. Cullen makes no mention of them at this period, and the Rev. Mr. Warner, and others, who speak of their own cases, say they have experienced the worst effects from them, so that catharsis, it would seem, is even more pernicious in the paroxysm, than blood-letting.

I shall presently have occasion to make some observations on the use of cathartics during the interval, at which period they have been chiefly recommended. In the mean time it may be observed, that it has been common to exhibit a cathartic immediately after the paroxysm. This practice has chiefly arisen from a belief that catharsis at this period carries off the remains of the disease; but so far from having this effect, it often renews the paroxysm. Sydenham confesses, that this opinion induced him to take a cathartic immediately after a paroxysm, the consequence of which was, that he immediately fell into another. “ Purg-
“ ing,” Dr. Cullen observes, “ immediately after a paroxysm,
“ will be always employed with the hazard of bringing it on
“ again.”

Irritating matter sometimes accumulates in the alimentary canal during the paroxysm, now and then occasioning griping and diarrhœa; towards its decline the discharge of this matter is only to be promoted by mucilaginous and diluting fluids, and when it seems to be evacuated the diarrhœa must be restrained by gentle anodynes and astringents; the œdematous swelling of the feet, which sometimes succeeds the paroxysm, and for which it

has been usual to give cathartics, generally goes off without any remedy.

It often happens, that the bowels are costive during the paroxysm, which, we have seen, is sometimes protracted for a considerable length of time ; mild laxatives then become necessary, for we cannot long trust the excitement of the bowels to clysters only.

There is some difference of opinion concerning the employment of emetics in the gout. Some think they are serviceable at the commencement of the paroxysm. Dr. M'Bride recommends one of the mildest, to be given with wine, if the patient is languid. Upon the whole, however, it seems to be the general opinion, that unless the stomach is loaded, they are at least unnecessary.

Diaphoretics have been esteemed more useful as alteratives in the intervals than during the paroxysm. The benefit derived from a gentle spontaneous sweat coming on towards morning, however, has induced many to recommend them at this period. Dr. Cheyne observes, that after the fit is distinctly formed, particularly in complicated and tedious cases, and when the patient is advanced in life, they are serviceable. Boerhaave, VanSwieten, Liger, Dr. Caverhill, and others, are advocates for them, especially when the paroxysm has arisen from any cause tending to check perspiration. But it may upon the whole be observed, that much benefit has not attended this practice, and it is very generally laid aside. Sydenham even apprehended danger from it, although he considers an increase of perspiration safer than most other evacuations during the fit.

Sydenham and Quincy are among the authors who have given opiates most freely in this disease. They were still given however, as a dangerous remedy. If the pain, says the former, is severe, the patient ought to keep his bed, and be contented with this remedy. If, however, it greatly exceed his patience, he may take a small dose of opium in the evening.

No other writer has bestowed such unlimited praise on opium in the gout, as the Rev. Mr. Warner. This author, not belonging to the profession, and, indeed, betraying his ignorance of the present state of medicine in every part of his treatise, would deserve little notice, were it not that he suffered so much from gout in his own person, and gave opium so fair a trial. Dr. Falconer justly censures him for the confidence with which he speaks of its effects from a single case. I must refer the reader to his treatise for the facts on which his opinion is founded, and the manner, according

to him the only proper one, of preparing the anodyne. A safe medicine, capable of relieving the torments and shortening the paroxysm of gout, is a great desideratum. Should Mr. Warner's anodyne prove innocent, it will be an invaluable addition to the remedies at present employed in this disease. The chance, however, is much against it, whether we regard the observations of various writers or the well-known effects of opium in other cases. It is an argument against it, that Mr. Warner's practice, though generally known, has not been followed. Nor is it to be overlooked, that Mr. Warner died very soon after the publication of his treatise.

The bad effects ascribed to opium, exhibited during the paroxysm, are its occasioning it, after a few hours of relief, to return with great violence, and by the debility it induces in the organs of digestion, giving a tendency to the atonic forms of the disease.

From the tendency of opiates to induce the atonic forms of gout, they have been generally judged safer in the young and those who have been lately attacked by the disease, than in old people and those who have been long subject to it. On the other hand, it is chiefly in the young that opium is apt to renew the paroxysm.

Dr. Cullen seems to have overlooked the former tendency of opium, whence he pronounces its exhibition safest in the aged and those who have been long subject to gout. In young arthritics he recommends an anodyne after the force of the fit is broken, when the pain only returns during the night and prevents sleep; and most writers admit of this use of opium. Liger, and some others of less note, Dr. Bennet, Dr. Williams, &c. forbid it, but their objections do not appear to be the result of observation.

Sydenham long ago pronounced the *dieta tenuis* the proper diet in a fit of the gout. When the patient is strong and full of blood, has not suffered much by former attacks of the disease, nor been in the habit of using much wine or other fermented liquors, and the inflammatory symptoms run high, this diet is necessary. When, on the other hand, he has lived freely; when he has long been subject to attacks of the gout, especially when these have shewn a tendency to become irregular, when the system has fallen into a state of debility, or when the inflammatory symptoms do not run high, a low diet is improper. A certain quantity of wine must be allowed proportioned to the patient's habits, and he should use animal food; if the stomach will not receive it in the solid form, in that of broths.

In such cases, aromatics and strong peppers have been much recommended, and to a certain extent appear sometimes to do good. The stimulating regimen, however, has doubtless often been carried too far.* Disputes naturally lead to extremes, and there have been so many disputes respecting the treatment of the gout, that few writers can be wholly relied on.

The temperature of the patient's room should be cool and uniform.

Concerning the local means employed during the paroxysm, there has also been much difference of opinion, and we shall find upon the whole, that like the means we have been considering, few of them can be employed with safety.

There was a very early prejudice against local blood-letting in the paroxysm. Whether this prejudice in its full extent is well founded, has not been positively determined. It would seem that blood may sometimes be taken with advantage from the inflamed joint in the young and vigorous.

Dr. Cullen observes, that when the pain is very acute, he believes that bleeding by leeches in the foot and inflamed part may be repeated. "I have known instances, he adds, of its having been practised with safety;" but he confesses that he cannot determine to what extent it may be carried. Hoffman recommends it freely, and Dr. Gardener and others follow him. But they talk of it in so general a way, that it is evident their observations are not the result of experience.

From analogy it would seem, that local blood-letting, indiscriminately employed, must often prove a dangerous remedy in the gout; and its being very generally abandoned, notwithstanding the almost uniform relief it brings, is a sufficient proof of its having been found hurtful. Its frequent repetition is particularly to be avoided, and it must not be attempted in the aged and those whose constitutions are already broken by the disease.

Many applications to the inflamed joint, for the purpose of mitigating pain, have been proposed. They have, however, been so often productive of bad effects, that they are very generally laid aside. It will be necessary, however, to notice those which have been most generally recommended, and particularly such as are still in use.

"Blistering," Dr. Cullen observes, "is a very effectual means of relieving and discussing a paroxysm of the gout, but has also

* See Dr. Cadogan's Treatise on the Gout.

“ frequently had the effect of rendering it retrocedent.” What is true of blisters, is, with little change, true of synapisms. The relief obtained by them in regular fits is always at the risk of producing worse forms of the disease. The same observations apply to the practice of stinging the part with nettles; applying to it various aromatic oils, mixed with different kinds of soap; various preparations of opium; euphorbium, boiled with wax and oil; various balsams; spirituous liquors alone, or with camphor, &c. The reader will find an instance, related by Hoffman, in which the external application of spirituous liquors repeatedly relieved the pain, but proved fatal. Every thing of a highly stimulating nature tends to relieve the pain, and seemingly, in proportion as it has this effect, to render the gout irregular. Quick-lime and even arsenic have been recommended, the last is the basis of Dr. Pitcairn’s recipe for the inflamed joints. Sometime ago an application, which was said to relieve the pain and shorten the fit, made much noise at Paris. This has since been found to be diluted muriatic acid. For the mode of using it the reader may consult Dr. Rowley’s Treatise. Dr. Stukely, in a letter to Sir Hans Sloan, recommends rubbing the joints affected with warm oil, prepared in a particular manner. Various other substances have been used in the same way, but as they are all now laid aside, they must have been found either useless or hurtful.

Oiled silk has lately been much celebrated as an application to gouty joints. The reader will find it recommended by several writers, particularly by Dr. Caverhill, who is in some degree whimsical in the effects he ascribes to it. The oiled silk is said to increase the pain, although it shortens the paroxysm, when the inflammation is superficial; it is when the pain is deep-seated, we are told, that it brings most relief. It is sometimes applied alone, at other times over the flannels, and generally occasions a profuse perspiration in the part. Some, who are afraid of most other applications, think this may be employed with safety. Analogy, however, is much against it; and it is very generally laid aside in this country. By some it has been thought useful to increase the perspiration of the sound as well as the gouty foot.

No external application in gout has attracted so much attention as one used in the East termed Moxa. It is the down of the artemisia. Sir William Temple, who used it in his own case, gives us an account of the manner of applying it. It is formed into a small cone, which is placed with its base on the inflamed part. The

apex is then set on fire, and the cone continues to burn till the whole, or nearly the whole, is consumed.

“Upon the first burning,” Sir William Temple observes, “I found the skin shrink all round the place, and whether the greater pain of the fire had taken away the sense of the smaller or no I could not tell, but I thought it less than it was. I burned it a second time, and observed the skin about it to shrink and the swelling to flat yet more than at first. I began to move my toe, which had I not done before, but I found some remains of pain. I burned it the third time, and observed still the same effects without, but much greater within, for I stirred the joint several times with ease, and growing bolder I set my foot to the ground without any pain at all. After that, I had a bruised clove of garlic laid to the part that was burned, and covered with a large piece of diapalma to keep it fixed there.” He then walked with ease. “For the pain of the burning itself,” he observes, “for the first time it is sharp, so that a man may be permitted to complain.”* He counted, he observes, six score and four as fast as he could during the burning of the moxa. The second burning was not so painful as the first, and the third much less painful than the second. The wound was not raw, but appeared scorched and black. In a short time a blister arose, which left a small sore that soon healed.

Sir William Temple afterwards repeated the application of the moxa, with similar success. Van Swieten gives an account of the same operation, also performed with success.†

Some have attributed the effects of the moxa to a peculiar quality possessed by this substance, others with more probability to the burning. Sydenham does not speak much in favour of the operation, but thinks it may succeed as well as dry lint. But the effect he observes, must be temporary and fleeting. Were we sure that even this character of the operation was just, it would be a valuable addition to the treatment in the paroxysm; but it has not been often enough employed in this country to ascertain its safety; and we have every reason to dread the same bad effects from it as from other local applications. Dr. Cullen observes, that he considers the burning with the moxa, or other substances, a remedy of the same kind as blistering. “I have, indeed,” he adds, “no evidence of its proving hurtful, but neither have I had any proper evidence of its having proved a radical cure.” Upon the whole,

* Sir William Temple's Miscellanies.

† Van Swieten's Commentaries on the 1278th aphorism.

it may be observed, it will require a very long experience to establish the safety of any remedy of this kind, for even the most pernicious have been repeatedly employed before their bad effects appeared.

Cold is one of the most effectual applications to the inflamed joint. By it we may to almost any degree diminish both the severity and duration of the pain. But many cases are on record in which it seemed to produce the same bad effects experienced from other local remedies, and many alledge, that in proportion as it is more effectual, it is more pernicious than most others. It has still however, many advocates, and Dr. Kinglake's Treatise has particularly directed the attention of the public to it. The result of our experience on the subject, as far as I can judge, is, that in the young and vigorous, when the inflammation runs very high, the cautious application of cold is often beneficial, but neither the extent to which it may be carried, nor the frequency with which it may be repeated with safety, have been ascertained. From what has been said on this subject, however, I think it appears pretty certain, that the great accumulation of heat occasioned by wrapping the inflamed joint in many folds of thick flannel or in combed wool, or applying hot bricks to it as some recommend, often unnecessarily aggravates the severity of the paroxysm; and is only proper where we have reason to believe that the degree of inflammation in the joint will not be sufficient to relieve the internal parts; keeping the inflamed joint very warm often eventually relieves the pain by occasioning sensible perspiration of the part, but this is generally at the expence of much previous increase of suffering.

Various means have been proposed to strengthen the joint, which remains swelled, stiff, and weak after the paroxysm has subsided. Bathing the part with cold water, rubbing with flannel and the flesh brush, and endeavouring to use the joints, are the best. Some have re-commended a variety of stimulating substances to be used in rubbing the joints, they do not, however, seem to add much to the effects of the friction. Van Swieten observes, that although he orders the woollen cloths with which the friction is performed to be charged with the fumes of aromatics, yet he has found the same benefit from simple friction, which should be used for an hour or longer, morning and evening. The only good effects of impregnating the cloths seems to be that of inducing the patient to employ the friction.

Motion of the joint, has been recommended at the beginning of the paroxysm, with a view to stop the fit. However successful

this practice may be, the extreme pain it occasions will prevent its becoming general. The reader will find some observations on it in Dr. Caverhill's Treatise. I may also refer him to what Sydenham says of exercise during the fit. Few, however, have resolution to go into a carriage, as he advises, or use even gentler modes of exercise at this period.

Certain applications have been supposed to possess a power of restoring strength to the joints without friction. Hoffman recommends the volatile sulphuric acid and some of the balsams with Hungary water. The reader will find Dr. James's and other prescriptions of this kind in Mr. Warner's Treatise. Little or nothing is to be expected from them.

Nearly the same may be said of the applications recommended to prevent or remove gouty concretions. These have generally been either of an acid or alkaline nature. The diluted muriatic acid, the fixed alkalis, and quicklime, have been employed. Van Swieten speaks of the benefit derived from a weak solution of a caustic fixed alkali in very strong terms, both in gouty and other tumors. The reader will find similar applications recommended in Hoffman's Section on Gout. Upon the whole, however, we generally find reason to agree with Sydenham, that exercise is the best means for this purpose. He observes, that he has even seen gouty concretions of long standing resolved by exercise alone. When they make their way through the skin, if the habit is tolerably good, the wound generally heals readily with simple poultices.

When the patient is much reduced by the violence of the fit, and recovers his strength slowly, chalybeates and the bark are often serviceable.

Although the spirits and digestion generally become very good towards the end of a fit, it sometimes happens, that as the pain abates, some atonic symptoms similar to those which precede it make their appearance. They are often relieved by absorbents and stomachic medicines.

We are now to consider the most important part of the treatment of gout, the means employed during the intervals with a view to prolong them, and to render the succeeding fit mild and regular. Sometimes, indeed, when the predisposition to gout is not strong, when the patient is young and the disease has only shewn itself in a mild paroxysm, we have it in view entirely to prevent its return. In both cases the means employed are the same, but differ considerably in degree.

I have already had occasion to hint that certain medicines have been employed for the purpose of preventing the return of gouty paroxysms even in the most inveterate cases. But a fatal and very extensive experience has convinced most physicians of the danger of having recourse to them. After considering the regular treatment, it will be proper to make a few observations on the nature and effects of some of these.

Although there are some medicines which have both proved safe and useful during the interval, our chief dependence is on a proper regimen; for much is not to be expected from any medicine we can venture to employ.

What was said of the causes of gout may point out the proper diet. The symptoms of the disease, indeed, naturally lead us to that which experience has proved the best. We see the fit preceded by symptoms of debility, which points out the propriety of a nourishing diet. At the same time we observe that the regular gout consists in a violent inflammatory affection of the joints, by which we are led to avoid the diet which most disposes to inflammation. If the diet be too low, the fits will not only become more frequent, but will partake more of the atonic forms of the disease. If the diet be too full and stimulating, they will also become more frequent and the inflammation will be more severe. It is true, indeed, that in this case they will for sometime retain the regular form; but nothing is better ascertained than that the frequent repetition of regular paroxysms, especially if severe, soon impairs the vigour of the system, and induces the symptoms of irregular gout.

A proper diet has so long been regarded as among the most essential parts of the treatment of gout, that there are few writers on this disease who do not speak of it at considerable length. There is, however, much difference of opinion respecting it. By some the use of animal food is forbidden. By others it is particularly recommended, and bread and vegetables are condemned as hurtful by producing acidity. Some have wholly condemned the use of wine, even in those who have been accustomed to it. Others recommend it to all arthritics without exception.

It is impossible to lay down any regulations respecting diet in the interval, as in the paroxysm, which shall be universally applicable. It must be still regulated by the age of the patient, his habits of life, the length of time he has been subject to the gout, the frequency and severity of the paroxysms, and the tendency which they have shewn to become irregular.

When the patient is young and has lived temperately, when he has only suffered a few paroxysms and these have shewn no tendency to become irregular, he is in the most favourable state for attempting a radical cure. His constitution is not yet habituated to the disease, and he can with safety use that kind of diet which has been found best suited to prevent its return, which, as appears from various observations consists chiefly, if not wholly, of milk, and the more farinaceous vegetables; an assertion which has been denied, but chiefly, it would seem, from this diet having been prescribed in improper cases and not with sufficient caution; for it is so different from that in general use, that even the young have not sufficient strength of constitution to bear the change if made too suddenly. It is only by degrees, and in the space of some months at least, that perhaps any arthritic should be permitted wholly to abandon the use of animal food or wine.

Some have thought it sufficient to persist in a vegetable diet for a certain time, during which, if the gout has not made its appearance, they judge it safe for the patient to return to his former mode of life. But Hoffman and others alledge that if this is done, the gout is always renewed, and sometimes in a worse form. We rarely have an opportunity of ascertaining which of these opinions is correct; but we have reason to believe, that after a certain time has elapsed, the patient may often return to the moderate use of animal food, without renewing the disease. I have known young people who had had several attacks of gout from a strong hereditary predisposition, having always lived temperately, remain free from it without any material change of diet; but such cases, although affording an argument in favour of this opinion, are not, it is evident, exactly in point.

It is seldom, however, that a milk and vegetable diet can be resorted to with safety. In those advanced in life, or accustomed to intemperance, or in whom the vigour of the constitution is at all impaired, or even the regular gout has frequently returned, it is not to be attempted. But there is no case in which some change may not be made. If the patient has been intemperate, he must be allowed full living, but warned against excess. If he has only been a full liver, he should be desired to eat and drink more sparingly, particularly to give up the use of animal food in the evening, and, according to Sydenham's rule, to confine himself to one dish at dinner. He should take only a few glasses of wine, which, if it does not cause acidity, is better than distilled spirits in any

shape. We have even reason to believe, I think, that he should prefer the weak wines to the strong, or if he drinks the latter, dilute them with water. If, with this mode of life, his strength, as frequently happens, is rather increased than diminished, he may gradually accustom himself to drink less wine, till at length, perhaps, he will find that he can lay it aside altogether.

It should, perhaps, be the view of every arthritic, whose constitution is still vigorous, to bring himself to use water only, (Sydenham particularly recommends whey,) at least for his common drink. But there is not a more dangerous maxim than Dr. Cadogan's, that the change should be made as speedily as possible. There are few physicians who have not seen its fatal effects.

Dr. Falconer has censured Dr. Cadogan for advising, that the diet of gouty patients should be composed rather of solid than liquid food, and quotes Haller in support of the opposite opinion. Most dyspeptics, however, will agree with Dr. Cadogan. It would seem, that the gastric fluid having its powers diminished in the dyspeptic, will not admit of any dilution.

This writer has been more justly censured for regarding bread as pernicious. Many arthritics, however, who have been long accustomed (as a large majority have) to consume great quantities of animal food with very little bread, complain of its oppressing the stomach and running into the acetous fermentation. But this proceeds not from the indigestible quality in the bread, but from the stomach not being accustomed to it. If the quantity be gradually increased, the arthritic will experience no inconvenience from it. And as it is very nutritious, without tending to produce the fullness occasioned by animal food, when the stomach can digest it perfectly it should form the principal part of the diet of gouty patients. Such is the power of habit in this respect, that even carnivorous animals may, by degrees, be brought to live wholly on vegetable matter; and granivorous, on animal food. Whereas if the change were made suddenly, the death of the animal would probably, in both cases, be the consequence.

Particular objections have been made to much salt, pepper, mustard, vinegar, and all kinds of pickles, and not without reason, for these, if we except the first, are not only in themselves hurtful to the stomach, but induce the patient to eat more than is necessary.

No attention to diet is capable of prolonging the intervals, and preserving the paroxysms mild and regular if exercise be neglected.

When the patient is able to walk for a sufficient length of time without fatigue, this mode of exercise as most uniformly employing the muscles, is preferable to any other. Some have recommended more violent exercise ; but to be most beneficial, it must be such as can be continued for a considerable time without fatigue. It is true, indeed, we have heard of people of strong constitutions, wholly cured of the gout by being subjected to much labour and abstinence. There is not a few instances, says Hoffman, of people having lost the gout with their fortunes. Van Swieten tells us of a priest, who was taken by pirates and condemned to the oar for two years, which wholly cured him of the gout he had been long subject to. In such cases, however, other circumstances concur with the exercise. The power of strong affections of the mind, and a total change of habits, every body is aware of. With regard to those who cannot walk, or cannot walk enough, they must ride on horseback, or if this is too much, in a carriage. If even this is not to be borne without fatigue, they should morning and evening, undergo friction of the whole body, continued till they begin to feel some degree of weariness. Friction of the joints, indeed, while they remain stiff should in no case be neglected. By these means the weakest arthritic will often be brought by degrees to bear the rougher exercises. It is to be observed, however that much walking when the fit is expected, may bring it on, especially if the feet are at all cramped or otherwise injured.

The exercise of the mind is also a matter of some importance in the intervals of gout. Nearly the same may be said of it as of bodily exercise. Any study which fatigues is injurious, and the constant languor of a mind wholly unoccupied, as I have already had occasion to observe, is no less so.

The early part of the day is the proper time for the exercise both of mind and body. Repose towards evening is particularly necessary to invalids. The observations made on this subject during the intermission of agues are applicable here.

Some attention to the proper regulation of sleep is also necessary. Boerhaave recommends a great deal of sleep to his gouty patients ; and within certain limits a large proportion of sleep is one of the best means of restoring strength. For this part of the subject I may also refer the reader to the chapter on intermitting fever.

Sydenham is among the very few writers who have taken notice of a choice of air in the treatment of arthritic patients. While the patient is using exercise, he observes, a wholesome air is to be preferred. Exercise in the country is better than exercise in the

town, where the air is loaded with vapours, and rendered still worse by the closeness of the buildings. Many from their own experience can affirm the truth of these observations; and I have known instances in which dyspeptic patients could not with twice the exercise in London, preserve the same degree of health which they enjoyed in the country. It was supposed by many, till the experiments of several chemists demonstrated the contrary, that the air of great cities was less wholesome than that of the country, in consequence of its containing a less proportion of oxygen.

From many circumstances it would appear, I think, that the unwholesomeness of the air in great cities arises chiefly from its greater dampness; for a damp air, from whatever cause, occasions, in the debilitated, the same want of appetite, depression of spirits, and other nervous symptoms.* Its bad effects cannot be attributed to its abstracting the heat with greater rapidity, as the same effects are not occasioned by a dry air, however cold. Nor can a damp air be supposed to affect the lungs materially which are always moist. Its injurious effect seems to arise from that of moisture on the skin, which so remarkably sympathises with every part of the system, and particularly with the stomach. All the symptoms occasioned by a damp air are such as indicate a want of vigour in the skin, and consequently of free perspiration, chilliness, loss of appetite, languor, &c. The effects of damp linen, even in strong habits, shew the pernicious tendency of moisture applied to the skin. This is generally explained by the cold occasioned by the evaporation, but a much greater degree of cold is borne without inconvenience. The sensations produced by a damp air are similar, though less in degree, to those produced by damp linen.

* The cause of the greater dampness of the air of large cities appears from the experiments on which Dr. Hutton has founded his theory of rain. Every cool breeze much charged with moisture must, by mixing with the heated air of the city, occasion a deposition of water, since it is found that the mean temperature will not enable the air to hold the same quantity in solution which they do before they are mixed. There is no part of this country in which fogs are so common or so great as in London. I have myself observed, from an eminence, that when a sea breeze was passing over the country, wherever it met with the heated air of a village, a considerable deposition of moisture took place. So that from each village, a train of fog, proportioned to its size, extended itself along the country, in other parts of which the air remained perfectly transparent. But the mixture of airs of different temperatures, without going so far as to occasion fog, is often attended with a considerable degree of dampness, to which the delicate are extremely sensible, and which in common language has obtained the name of rawness.

Physicians, I have already had occasion to observe, have not trusted to diet and exercise alone during the intervals of the gout. The remedies which have been found useful at this period, like those recommended during the paroxysms, may be divided into general and local. In the first place, of the general remedies.

The impropriety of employing general blood-letting at this period is so evident, that very few have recommended it. It would rarely have much effect in rendering the succeeding paroxysm milder, but would either by weakening the patient, tend to bring on atonic forms of the disease, or by increasing plethora, particularly in the young, to increase the violence and frequency of the inflammatory paroxysms.

Physicians have been more divided in their opinions concerning the use of cathartics at this period. Hoffman thought that they might be employed a little before the accession, for the purpose of preventing the fit, and even observes, that general blood-letting has been successfully recommended with the same intention. Some recommend mild cathartics throughout the whole of the interval; Boerhaave and others, even those of a drastic nature; but Sydenham has declared against them all at this period as well as during the paroxysm. There are similar, though not so strong objections to catharsis during the interval as to general blood-letting; with this in addition, that the frequent use of cathartics tends to weaken the stomach and bowels. In modern practice they are only recommended for the purpose of keeping the bowels regular, and those are preferred which occasion least evacuation, aloes, rhubarb, magnesia, &c. The first, for reasons which will afterwards appear, is objectionable in gouty cases, where the constant use of a cathartic is necessary.

Many have endeavoured to support the strength by the Peruvian bark and other tonic medicines. These at first view appear well adapted to the intervals of gout, but, notwithstanding what some have said of their effects, they bear too near a resemblance to the specifics which have done so much mischief in this disease, to be generally employed. The best physicians either do not mention them among the remedies of gout or speak of them as very doubtful means.

Among the tonics which have been recommended in the interval, the cold bath holds a principal place; even this is a doubtful remedy except in the young and vigorous, or at least in those who enjoy long intervals. Employed near the time of accession, it has, by preventing the regular paroxysm, induced atonic symptoms,

The opinions of physicians respecting the warm bath during the intervals, are various. Sydenham and some other of the best writers take no notice of it. The tepid bath, however, it is now ascertained has not the debilitating tendency formerly ascribed to it, and in those who have become cripples from the gout, it is often used with great advantage. No remedy has been so much celebrated in this country as the Bath waters, used both externally and internally, for the purpose of fixing the gout when it shews a tendency to become irregular, and for restoring the strength and the use of the limbs after severe fits. It is not easy to ascertain with accuracy how far their reputation is well-founded. That they are often of use in such cases is certain. The hot waters of Bourbon,* the waters of Aix-la-Chapelle, the Piermont and Seltzer, and many other mineral waters, have been celebrated in the gout, but do not seem equal to those of Bath. Drinking water impregnated with carbonic acid gas has been warmly recommended. It appears to be a good and innocent stomachic.

Various medicines have been employed with a view to correct or expel the morbid matter to which we have seen the gout has been attributed. Many of them, sulphur, ammonia, &c.† seem more safe than effectual. They have indeed been so seldom attended with success, that their employment has not been sufficiently general, perhaps, to ascertain their safety. There are some of them, however, particularly antimonial and mercurial medicines, whose effects we have more reason to dread.

The accounts which Cheyne and others give us of the effects of mercury in gouty cases, speak but little in its favour. “The fact is,” says he, “that by a free and full salivation gouty people have been freed from all the symptoms of the complaint for several years; but it is also a matter of fact and experience, that a full and free salivation does so break, rend, and tear, all the smallest, tenderest, and finest vessels and fibres, that the body becomes in a worse state, in respect to the future fits, than it would have been in several years time under the common symptoms.”

* See a Treatise, entitled *Bains de Bourbon*, by Dr. Aubery.

† There is some account of the alledged success of sulphur water in gouty cases, and the mode of preparing it, in the eleventh volume of the *Medical Commentaries*. For medicines employed with a view to prevent a return of the paroxysm, see the first volume of the *Acta Reg. Soc. Med. Haf.* A paper above referred to, by Dr. Clark, and one by Dr. Guthrie, in the fifth volume of the *Medical Comment.*

In the *Observations interessans fur la Cure de la Goute*, and other works, mercurials are much recommended during the paroxysm. But I have not taken notice of them among the remedies of that period, as by the practitioners of this country at least they are very generally laid aside.

The reader will find antimonial medicines recommended by Dr. Cadogan, Dr. Jeans, and others. But it is justly observed by Dr. Falconer, that they have been used without advantage, and that their continued use is to be feared, as they tend to hurt the stomach.

With respect to the local remedies at this period, there are only two which deserve notice ; local blood-letting and issues. It was common, formerly, to apply leeches to, or scarify the feet when a fit of the gout was expected, especially if the habit was plethoric, or any accustomed discharge had been checked. How far this practice, blistering, or other such means, might prove successful in preventing the recurrence of gout, it is difficult to say, for the hazard of all means of this kind has banished them from modern practice. We have every reason to believe that in proportion as they prevented the regular they would tend to induce the atonic forms of the disease.

It is observed that when from the breaking of gouty tumors or other accidents, ulcers are formed and continue to discharge, the intervals of the gout are prolonged and the paroxysms rendered milder without any disposition being given to irregular gout. This circumstance suggested to physicians the propriety of making artificial ulcers in the legs, which are sometimes productive of the same good effects. It is necessary, however, for a gouty patient who has once submitted to this remedy, to keep up the discharge for life. The worst consequences often follow the closing of issues, or even of spontaneous sores, which have continued for a considerable time. In the latter case, indeed, issues should be substituted for the sore, if this precaution is neglected, the fits often become as frequent as they were, or more so, and generally shew a greater tendency to become irregular. It seems to be an observation, with few exceptions, that if gouty paroxysms be interrupted for some time, or rendered less frequent, by whatever cause, and in consequence of its removal or other means, they recur with their usual frequency, they generally assume a more dangerous form.

Some ascribe the effects of issues to the irritation they occasion, and recommend frequently shifting their place. Their effects,

however, seem, in a great measure at least, to depend on the evacuation, and frequently shifting them is very troublesome.

It is hardly necessary to add to what has been said of the treatment during the interval, that carefully avoiding the various occasional causes forms an essential part of it.

Such is the treatment of regular gout. Every age has tended to simplify it; and most of the numerous list of medicines, once so generally recommended in this disease, are now regarded either as useless or hurtful.

Before leaving the treatment of regular gout, it will be useful to make a few observations on some of the specifics which have been recommended for its radical cure. Most of these are composed of ingredients which some physicians still venture to prescribe to a certain extent, and many of them are medicines on which the older physicians placed their chief reliance.

The composition of the powder termed Portland powder, from the supposed cure of the duke of Portland, is now known.* It was used in gouty cases as early as the days of Galen, since whose time it has often been in high repute, and as often fallen into disuse.†

Its effects are now very well ascertained; those who have used it according to the directions have been freed from their gouty pains, but there is hardly an instance in which the patient survived its use above a few years.‡

* It is composed of equal parts of the root of that species of bithwort termed *aristolochia rotunda*, of gentian root, of the tops and leaves of germander, ground pine, and centaury, dried, reduced to powder, and sifted. A dram of this powder is taken every morning for three months, three fourths of a dram, or according to some, two scruples, for three months longer, and for the ensuing six months, half a dram.

† The reader may consult a paper, intitled an Inquiry into the Origin of the Gout Powder, by Dr. Clephane, in the 1st vol. of the *Med. Obs. and Inquiries*.

‡ "I myself," says Dr. Cadogan, "observed between fifty and sixty of the advocates of the Portland powder, some my patients, some my acquaintance or neighbours, who were apparently cured by it for a little while, but in less than six years' time they all died to a man." And Dr. Cullen observes, "in every instance which I have known of the exhibition of the Portland powder for the length of time prescribed, the persons who had taken it were indeed afterwards free from any inflammatory affections of the joints, but they were affected with many symptoms of the atonic gout, and all, soon after finishing their course of the medicine, have been attacked with apoplexy, asthma, or dropsy, which proved fatal."

Although most physicians have wholly discarded a medicine so generally productive of the worst effects, yet some, Dr. Jeans, Dr. Gardner and others, have ventured to recommend it in smaller doses, especially to young arthritics. This is at least a precarious practice, though perhaps, not more so than the daily use of other bitters and aromatics. The older physicians laid it down as a rule, that this medicine should not be administered to those who had been subject to gout above six or seven years.

Some believe that such medicines are safer in infusion than in substance. This is probably true, as the former is less powerful; but there is reason to believe that it is only as it is so, that it is less pernicious. It does not seem to be the medicine, but the circumstance of checking the gout, that occasions the fatal effects, and it is more than probable, that the use of any means capable of preventing the return of the regular fits would be attended with the same consequences. We have every reason to believe, that a person free from the gout might take the Portland powder, not for one year only, but for many years without fatal effects.

It was observed above, that mercury has been recommended in the gout. It has formed the basis of some specifics. The famous pills of Belloste are a mercurial preparation. The reader will find many cures by this specific related in the second volume of Belloste's Hospital Surgeon. There is every reason to believe, that mercury is no safer a specific in gout than the preceding. We have seen Dr. Cheyne's account of its effects. In the incautious hands of the empiric it is still more to be feared. Hoffman relates the fatal effects of a mercurial specific for the gout.

The alkalis have been much celebrated as specifics in this disease. From the frequent concurrence of gout and gravel, since alkaline medicines have been so much used in the latter disease, they have often been employed in gouty habits. It is very generally admitted that they tend to prolong the interval, whether with safety or not seems still undecided. We have reason from analogy to dread every medicine having this tendency. If they act merely by correcting acidity, which we know frequently excites the gouty paroxysm, they may be less pernicious than those that make a more direct impression on the system. Many alkaline specifics have at different times appeared; but it is rather in calculous, than in gouty cases, that they have been celebrated. Lieutaud, M'Bride, and other writers, however, speak with confidence of their effects in the latter disease. Liger in particular recommends them in the strongest terms. Dr. Cullen, who wrote

since these authors, although he thinks favourably of them, speaks with less confidence both of their success and safety. The long continued use of the alkalis has induced a bad habit of body, emaciation and debility. The pure alkalis combined with oil, the form in which Liger used them, are said to be more effectual, but at the same time more pernicious, than the alkaline carbonates.

It would be spending time to little purpose to enquire into the merits of any other medicines of this kind. The effects of all of them are similar. We may therefore permit the spirituous infusion of guaiacum, the Swiss tincture, Dr. Hill's elixir of Bardana, the Liege medicine,* Mr. Drake's specific &c. to remain in the silence into which they are now sunk. A specific which has lately come into general use in this country, termed the *Eau Medicinale* of Husson, differs from the preceding in being chiefly recommended during the paroxysm. For an account of this medicine, I must refer the reader to the various publications on it. Respecting its efficacy in lessening the severity and duration of the paroxysm there is no doubt, but there must long be much doubt respecting its safety. Those who are acquainted with the history of the gout will not be very sanguine in their expectations from it. Its immediate effects are often very violent. I have known several instances in which its use was succeeded by symptoms of atonic gout. In one instance related to me by the patient's brother, it appeared to prove fatal.

2. Of the Treatment of Irregular Gout.

It is evident that this part of the subject cannot be here considered at length, for that would lead to the treatment of almost all the diseases to which an arthritic is subject. All that can be attempted, therefore, is to lay down the general principles on which the treatment of the chief varieties of irregular gout is founded.

In detailing the symptoms, I adopted Dr. Cullen's division of irregular gout, into atonic, retrocedent, and misplaced. I shall follow the same order in considering the treatment.

Of the Treatment of Atonic Gout.

By far the most common form of atonic gout is that of dyspepsia. In laying down the principles of the treatment of atonic gout,

* This medicine was proposed by Dr. Le Fever, and at one time made much noise. See a pamphlet respecting it by the Rev. Mr. Marshall, and another by Mr. Drake, who was also a proprietor of a gouty specific.

therefore, I shall keep this form of it in view, and afterwards make a few observations peculiarly applicable to its other forms. This method is more distinct than endeavouring at the same time to lay down the treatment of affections so dissimilar.

Even those who have not been long afflicted with the gout generally complain of flatulence and other dyspeptic symptoms during the interval. While these symptoms are moderate, alleviated by a proper attention to diet and exercise, and do not interfere with the return of the regular paroxysms, they do not deserve the name of atonic gout. But, however slight, as soon as they have this effect, they are to be regarded as a disease of importance.

It seems at first view surprising that the dyspepsia of gouty patients should be attended with so much greater danger than dyspepsia under any other circumstances. We see it in people of all ages and temperaments, occasioning pain, sickness, and even syncope, yet attended with little or no danger. This seems to be explained by other tendencies of gouty habits. When we consider the debility which generally precedes death in gouty dyspepsia, the manner of the death, and the diseases to which the habit is disposed, there is reason to believe that the immediate cause of death, in such cases, is that affection of the brain, which has been termed nervous apoplexy. Were we to enter at large on the subject of apoplexy, we should find additional reasons for this opinion.

We have two things in view in treating the atonic gout: to remove the symptoms of debility, and to restore the regular fits. If we succeed in either of these indications, the other for the most part is answered at the same time.

Of removing the Symptoms of Debility in Atonic Gout.

For this purpose Sydenham relies more on regimen than medicines, and justly observes, that all the means we can employ will be of little avail if the patient neglects exercise. A proper attention to diet is no less necessary. What I said of these in speaking of regular gout is applicable here.

Cold bathing has been recommended. There are two circumstances, however, which render it a doubtful practice. It is apt to overpower a debilitated habit; and to prevent the accession of regular fits, if employed when they are about to appear. It is never to be recommended, if, from pains of the limbs or other circumstances, there is reason to expect a fit. Some, indeed, have been so much afraid of this tendency of the cold bath, that they have wholly condemned its use in every form and period of the disease.

The patient ought to avoid all kinds of fatigue before going into the water, to remain in a very short time, and as soon as he comes out to have the whole body rubbed with dry cloths. If by these means he feels no glow of heat, or, although he feels this in some degree, if his appetite and spirits are not improved by the bath, there can be no doubt of the impropriety of continuing it.

The action of the bowels, which are often languid, should be promoted by cathartics of the gentlest kind, and of a warm invigorating nature. The body should be moderately open, but purging is hurtful.

Emetics are only proper when the stomach is much loaded and should seldom be repeated. If the strength is much reduced, Dr. Musgrave recommends wine instead of water to promote the vomiting.

But the medicines which hold the chief place in the treatment of atonic gout, are those termed stomachic, which consist of cordials, bitters, aromatics, and astringents. When the dyspeptic symptoms amount to atonic gout, it is necessary to increase the quantity of wine. Sydenham observes, that after trying many things to remove the languor and debility of the stomach, he found nothing answer so well as a small draught of Canary wine.

But in cases which threaten immediate danger, wine is often insufficient. In that extreme pain of the stomach, under which gouty patients frequently expire, a glass of strong brandy or usquebaugh, or even more, swallowed speedily, is the best medicine. If these fail to relieve the pain, we must have recourse to opium, taking care to counteract its effects on the bowels.

It is in that form of atonic gout which appears chiefly in debility of the stomach, that the occasional use of bitters is still recommended by many; but they approach too nearly to the nature of some of the specifics above mentioned to be used with freedom. "For strengthening the stomach," Dr. Cullen observes, "bitters and the Peruvian bark have been employed, but care must be taken that they be not constantly employed for any great length of time." Simple astringents are safer. There is none so much celebrated as iron. Musgrave used the rust, which he regarded as a powerful means of strengthening the stomach in gouty habits. Dr. Cullen also prefers the rust, others the tincture. With respect to aromatics, they generally enter into the composition of cordials, and do not appear more hurtful than the other ingredients of such medicines.

Issues, as appears from what I have already had occasion to say, are often serviceable in atonic gout.

I may here refer to what was said of the Bath and other mineral waters in cases of gouty debility. "After all this management," says Dr. Cheyne, "should the gout still continue in the stomach and become habitual, nothing but a long course of the Bath waters, with steel bitters and gentle stomachic purges, a regular diet, and proper exercise, can effectually remove it."

In obstinate cases, if there is any means of relief, it is the change to a warm climate.

Of the means which tend to excite inflammation in the extremities.

I have had occasion to mention emetics, as recommended for another purpose; they have also been found serviceable in this way; the gout after their operation sometimes appearing in the extremities. It is remarkable, that the very means which are most apt to drive the gout from the joints when it has already fixed itself there, and consequently occasion the atonic forms of the disease, are in those forms, among the most powerful in inducing the regular paroxysm.

The chief of these is the application of large blisters to the extremities. If the gout does not appear within a day or two after their application, the discharge should be kept up from some of the blistered parts, which, Dr. Musgrave observes, will either bring the gout to the joints, or otherwise relieve the urgent symptoms.

With the same view a variety of rubefacients have been recommended, mustard poultices, bathing the lower extremities with hot wine or distilled spirits in which acrid substances have been dissolved, &c. Some recommend applying rubefacients previous to blisters. The reader will perceive that the use of these remedies requires some caution. If they are applied after any pains have been felt in the joints, which generally indicate a tendency in the gout to fix there they may do harm.

Exercise, particularly walking, is also a means of bringing the gout to the extremities. When the patient is unable to walk, he may ride on horseback, or go in a carriage; when no exercise can be borne, Boerhaave advises, that he should be kept warm in bed and drink diaphoretic and aromatic liquors.

With these means, those of invigorating the system are to be combined. Drinking a bottle of wine has been known to bring the gout to the feet, when every thing the physician could think of had failed.*

* See Van Swieten's Commentary on Boerhaave's Aphorism on the Gout.

Such is the manner of treating atonic gout when it assumes the form of dyspepsia ; and almost every thing, that has been said, will be found applicable to its other varieties. A very few observations on these will be sufficient.

The gouty, we have seen, are subject to diseases of the intestines as well as stomach, particularly colic and diarrhœa. In arthritic colic all the means just mentioned are proper, but cathartics more necessary. Fomentations of the belly,* and other measures recommended in ordinary cases of colic are to be employed in conjunction with those which tend to fix the gout in the joints.

A similar observation applies to gouty diarrhœa, whether bilious or not. The means we have been considering are to be combined with those employed in ordinary cases of diarrhœa. If the diarrhœa evidently arises from an accumulation of acrid matter in the intestines, it is necessary to promote its discharge by warm cathartics and copious draughts of thin broth, before we endeavour to check the action of the bowels. If the stomach is much loaded, an emetic will be of service, both by preventing the further introduction of irritating matter into the intestines, and by tending to allay their motion. But when the diarrhœa is bilious, emetics should be avoided. When the intestines are sufficiently cleared, it may be allayed by astringents and opiates. Musgrave and Sydenham did not hesitate to recommend the latter, though some express fears of them, not however, as far as I can judge, on sufficient grounds.

Exercise of various kinds tends at once to check the diarrhœa and bring the gout to the extremities. If exercise and laudanum fail, says Sydenham, the only remedy I know of is to bring out a sweat, both by external and internal means ; if this be done morning and night for two or three days together, and for two or three hours each time, the diarrhœa is generally checked, and the gout often fixed in the joints.

When the stools assume a dysenteric appearance, strong cordials and meats are pernicious. The diet must then be mild, and the use of astringents avoided. In such cases the best plan seems to be, to procure a discharge of the irritating matter, from which the dysenteric purging generally arises, by mild cathartics, particularly ipecacuanha in small doses, and then allay the pain and irritation by small and repeated doses of opium with mucilage.†

* In colic I have seen much relief obtained from flannel, dipt in brandy and sprinkled with black pepper, applied to the belly.

† See the Treatment of Dysentery in the last section of this volume.

The treatment of gouty asthma differs from that of the common asthma only in the addition of means for bringing the gout to the extremities.

The same may be said of the treatment of syncope in gouty habits, except that the cordials should be of the most powerful kind; they should be given by clyster during the fit, and drank freely during the intervals. There is much danger in attempting to throw any thing into the stomach while syncope lasts; when the patient does not make the effort to swallow, it may fall into the trachea. I have twice seen patients in a state of insensibility suffocated by this accident.

In gouty palsy and apoplexy the treatment differs still less from that of other cases of these diseases; for in palsy and apoplexy the means employed for bringing the gout to the extremities are necessary, although there be no gout in the habit, and consequently where there is, serve a double purpose. In many cases of these diseases it is difficult to ascertain the propriety of having recourse to evacuations. To point out the various circumstances which here influence our judgment, would lead us into too long a digression, indeed to a review of almost the whole treatment of idiopathic apoplexy; but it may upon the whole be observed, that evacuations should be used more sparingly in gouty, than in other habits.

When the patient is afflicted with flying pains in various parts of the body, or quinsy, inflamed eyes, tooth-ach, &c. while the common means are employed, as in the preceding cases, we hope for a cure chiefly by bringing the gout to the joints. The reader will infer from what has been said, that issues are often serviceable in such cases, in which I have myself seen the best effects from them.

The retrocedent gout is even more dangerous than the atonic, because the means of relief are generally more confined. It would appear at first sight, that as the danger arises from the gout leaving the extremities and affecting some internal part, we should constantly have recourse to the means above pointed out, for bringing it back to the former. But I have already had occasion to observe, that although these remedies often succeed in bringing the gout to the joints when they are wholly free from pain, yet if there be any remains of pain in them, which frequently happens in retrocedent gout, they will generally render the retrocession more complete, so that it is only when the pain is wholly removed that they can be employed.

When the stomach is affected, recourse must immediately be had to the strongest cordials, strong wines, or distilled spirits, with aromatics, given warm. The medicines termed antispasmodics have been much employed in this form of the disease. Many give asafoetida, musk, and ammonia, but the medicines of this class, most to be depended on, are ether, and opium. If vomiting comes on, it should be encouraged by draughts of warm wine till the stomach is cleared, and then allayed by a dose of opium and camphor. When the pains of the joints suddenly receded, and were followed by oppression, sickness, and vomiting, Sydenham used to drink some diluting liquor to promote the vomiting, and afterwards take eighteen drops of laudanum in Canary wine; he then went to bed and endeavoured to compose himself to rest. By these means, he assures us, he has often been almost snatched from death.

Musgrave recommends blood-letting in the asthma of retrocedent gout when the patient is plethoric. But this which has often done so much harm in ordinary cases of asthma, is still more to be dreaded here. In short, the usual means employed in asthma must be had recourse to, with this caution, that in proportion as the habit is gouty it is of the greater consequence to save the strength. Similar observations apply to all the other forms of retrocedent, as well as atonic, gout, diarrhœa, colic, apoplexy, palsy, &c.

From what has been said of the third species of irregular gout, the misplaced, it appears, that the diseases which have been known by this name are nothing more than some of the phlegmasiæ we have been considering, supervening in a gouty habit; and the only thing, peculiar in their mode of treatment, is, that evacuations must be employed with more caution than in other cases of phlegmasiæ.

The gout is frequently complicated with other diseases. Its fits then often become frequent and irregular, and resist attention to diet and other means, in ordinary cases found to relieve them. All that can then be done is, as far as the case admits of it, to combine the modes of treatment suited to both diseases. When this cannot in any degree be done, the most urgent demands our first attention. The presence of each will generally modify the treatment of the other, and much must be left to the discernment of the physician after he is made acquainted with all that can be said of such cases.*

* For a very peculiar kind of irregular gout, which I do not find mentioned by any author but Liger, and those who mention it from his treatise, the reader is referred to the 369th page of his work. I have not quoted any part of his account, as it is very vague. Liger, indeed, has scarcely treated any part of the subject with precision.

BOOK II.

OF THE HÆMORRHAGIÆ FEBRILES.

WE are now to consider the second order of symptomatic fevers, which have been defined,

Symptomatic fever, in which the local disease is a flow of blood not arising from external injury.

In this order the diseases are so simple, and, both in their symptoms and mode of cure, so much resemble each other, that it is unnecessary to consider them separately. There is one disease, indeed, arranged by Dr. Cullen in this order, as a sequela of hæmoptysis, (the phthisis pulmonalis) which it will be necessary particularly to consider, as it is one of greater consequence and more complicated, both in its symptoms and mode of treatment, than those with which it is arranged, and indeed has very little in common with them.

In treating of hemorrhagy in general, I shall point out the peculiarities of its principal genera.

Dr. Cullen arranges under this order only four genera; the epistaxis, or bleeding from the nose; the hæmoptysis, or coughing of blood from the lungs; the hæmorrhoids, or discharge of blood from small tumors about the anus; and the menorrhagia, or discharge of blood from the uterus. To these, most authors add the hæmatemesis, or vomiting of blood, and the hæmaturia, or bloody urine, which Dr. Cullen regards as seldom, if ever primary diseases. Some authors have still added other genera, hemorrhagy from the gums for instance, but this is endless; we might with equal reason regard hemorrhagy from the fauces, the skin, &c. as distinct genera. These rarely occur, and are generally symptomatic. The hemorrhagies I shall chiefly have in view in the following observations are the four genera of Dr. Cullen, and the hæmatemesis and hæmaturia.

CHAP. I.

Of the Symptoms of the Hæmorrhagiæ Febriles.

THE symptoms of the hæmorrhagiæ febriles may be divided into those which precede the flow of blood, and those which accompany it.

The symptoms which precede considerable hæmorrhagy, resemble those which appear at the commencement of the phlegmasiæ.

A cold fit comes on, the skin being constricted and the extremities cold, with weariness of the limbs, pains of the back and head, costiveness, and other febrile symptoms; and the hot fit, in which the pulse is frequent and full, and in many cases hard, is often formed before the blood appears. These symptoms are most remarkable before internal hæmorrhagy. They are generally attended with a train of local symptoms, affecting the part from which the blood is about to flow.

The patient often complains of a sense of heat, fulness, and tension, sometimes of weight and pains of different kinds in it and the parts about it; and when it is external we can often observe some degree of redness and swelling in it. But the local symptoms preceding hæmorrhagies, are various, and differ according to the situation, nature, and office of the diseased part.

Before the appearance of epistaxis, we often observe all the symptoms occasioned by an unusual determination of blood to the head, strong beating of the arteries of the head and neck, flushing and swelling of the face, &c. The whole head, Hoffman observes, is sometimes much swelled, the nostrils being hot and dry.

Hæmoptysis is preceded by affections of the thorax. The patient often complains of a sense of weight, anxiety, and pains about the breast, with some degree of dyspnœa, often of a sense of heat, sometimes under the sternum, sometimes moving from place to place, and a little before the blood appears, there is frequently a saltish taste in the mouth. At length a tickling at the top of the larynx, now and then extending itself along the trachea, occasions hawking, which brings up a little blood of a florid colour and more or less frothy. As the quantity of blood increases, there is a rattling noise in the trachea, before it is brought up, and then it comes

less by hawking than by coughing, which is sometimes the case from the first.

It now and then requires attention to determine whether the blood comes from the lungs, stomach, or fauces. The manner in which it comes generally indicates from what part. If from the stomach, it is vomited, not coughed; if from the fauces or nose, it is often brought up without either hawking or coughing; or if from its falling upon, and irritating the glottis, some degree of these take place, the history of the case and other symptoms will generally point out its source; which may often be discovered by inspecting the fauces. The blood from the lungs is generally florid and frothy, from the stomach and fauces of a dark colour, and un-mixed with air.*

Blood is seldom, perhaps never, discharged from the lower part of the rectum till small tumors are formed about the anus, either externally or on the inner coats of the intestine a short way above the anus. These tumors are more or less distinct. Sometimes there is a general tumefaction of the anus. The tumors are termed hemorrhoides, (piles); they sometimes continue to tease the patient without discharging blood and are then termed the blind piles, hemorrhoides cæcæ. They often subside, and in a short time again make their appearance, sometimes continuing to return at nearly equal periods. When they have frequently returned they generally become permanent, but only occasionally discharge blood.

The appearance of piles is often preceded by a considerable degree of fever. The mouth and fauces in particular are dry, the skin constricted, and the urine at once pale and in small quantity.

The local symptoms are more numerous and varied than those which precede other hemorrhagies. Vertigo, head-ach, stupor, sickness, and other symptoms of dyspepsia, occasionally appear, particularly flatulence, and griping pains of the bowels, and not unfrequently there is a fulness of the chest, with some degree of dyspnœa. There is often also pain or a sense of weight and oppression in the back and loins, and the limbs are sometimes affected with numbness. With these symptoms there is generally pain about the anus, with heat and itching, and often a sense of weight extending to the perineum, accompanied with a frequent desire to empty the rectum and bladder. The stools are sometimes bilious, sometimes mucous, and many particularly old people, are subject

* See the 341st and following paragraphs of Dr. Cullen's First Lines.

to prolapsus ani; but these last symptoms are often rather the causes, than merely preceding symptoms, of piles.

The degree of the foregoing symptoms is very various in different cases, and a slight attack of piles very frequently comes on with no other uneasiness than some irritation about the anus.

A serous discharge from the anus, accompanied with some degree of swelling, now and then precedes the piles, and sometimes comes in place of them and the bleeding, relieving the foregoing symptoms, though not so quickly. The disease has then been called the hæmorrhœis alba.

The symptoms preceding the menorrhagia are similar to those which precede the hæmorrhœis, but the pains of the back, loins and belly are often much more severe. I have often seen them such as to occasion syncope. As the menstrual discharge is frequently preceded by considerable pain, and is more or less irregular, that is, flows in greater quantity and longer at one time than another in most women, who notwithstanding enjoy a good state of health, every little excess is not to be regarded as a case of menorrhagia. It is always, however, to be regarded as such, when coagula are formed.

The hæmatemesis, or vomiting of blood, is preceded by affections of the stomach and parts in its neighbourhood. There is often pain and tension of the left hypochondrium with much anxiety, and a sense of tightness in the chest.

Bloody urine, when independent of calculous affections, is often preceded by no remarkable symptom. Sometimes pains of the back and considerable uneasiness in the region of the kidney, with nausea, denote its approach.

All hemorrhagies, indeed, especially when inconsiderable, occasionally make their appearance without any preceding symptom. They are more uniformly preceded by the local than the general symptoms.

There is a species of hemorrhagy termed by nosologists, passive, which is never preceded by symptoms of fever, that is, by any, symptomatic of the hemorrhagy. This species Dr. Cullen has properly arranged among the Locales. It either originates from external violence, which according to the nature of the part affected and the injury done to it, may either produce active or passive hemorrhagy, or is a symptom of diseases of debility, scurvy, typhus, &c. It has few attendant symptoms, and its mode of treatment will sufficiently appear from what will be said of active he-

morrhagy. This, indeed, when the flow of blood induces a great degree of debility, may be said to be changed into the former.

On the symptoms which attend the flow of blood in active hemorrhagy, a few words will be sufficient. When the fever has been considerable, it generally continues till the blood ceases, or nearly ceases to flow. The same may be said of the local symptoms, although in general there is an abatement of both soon after the blood appears, especially if it flows freely. There is no hemorrhagy, perhaps, which so quickly relieves the symptoms which precede it, as the epistaxis.

When the loss of blood is great, the patient complains of giddiness and other symptoms of approaching syncope; every part of the body, particularly the face, becomes pale, and the pulse weak and unsteady. If the hemorrhagy is obstinate and profuse, the pulse ceases altogether, complete syncope supervening. Previous to death, however, the patient generally falls into convulsions, which may be regarded as the last stage of fatal hemorrhagies. The tendency to convulsions is often indicated by subsultus tendinum and other spasmodic affections.

The quantity of blood lost is various, sometimes amounting to many quarts; nor is the duration of the disease less so, from a few minutes to weeks or even months. The quantity of blood which may upon the whole be lost, it is evident must depend as much on the duration of the hemorrhagy as the size and vigour of the patient. The blood assumes different appearances, according to the part from which it flows, the time which it has remained in any of the cavities, the degree of inflammatory diathesis, and the age and habit of the patient. Blood from the lungs I have already had occasion to observe, is more florid than from other parts, and mixed with air. If blood has lain for some time in any of the cavities, the bladder, rectum, uterus, &c. it assumes a dark colour, and often forms clots, sometimes of so firm a consistence as to resemble flesh. When there is much of the inflammatory diathesis, on cooling it shews the buffy coat. If the patient be young, it appears of a loose consistence and full of red globules. In middle age, the globules are less numerous and the blood of a more adhesive consistence. In old age it is more thin and watery; and still more so in dropsical habits. In those labouring under diseases of great debility, it is thin and sanious. In all cases it becomes thinner as it continues to flow.

The diagnosis of hemorrhagies is sufficiently evident; on the prognosis it will be necessary to make a few observations. In

habits much reduced by previous disease or other causes, particularly in those inclined to dropsy, and in advanced age, even a moderate loss of blood may prove dangerous. But whatever be the habit or age of the patient, if the blood flows profusely, if the lips, nails, and other parts become pale, the extremities cold, and syncope supervene, the danger is very great. It is not to be overlooked, however, that syncope is often a means of checking hemorrhagy, for as the *vis a tergo* is nearly interrupted in syncope, the hemorrhagy generally ceases, and in the mean time the bleeding vessels are often closed, partly by their own contraction and partly by the blood coagulating in them, so that, the feeble *vis a tergo* on recovery from the syncope being often insufficient to overcome these obstacles, for the present the hemorrhagy is removed.

The appearance of the blood assists the prognosis. The firmer its consistence, the greater the proportion of red globules, and the less considerable the buffy coat, the less is the danger. The danger is great when the blood becomes watery, and still greater if it assumes a sanious appearance.

The danger in hemorrhagies is not always proportioned to the loss of blood, as they often indicate the approach or presence of other diseases. Few diseases are less to be dreaded than epistaxis in children; but old people subject to it are in danger of apoplexy. Although the loss of blood by hæmoptysis be very inconsiderable, it is an alarming disease, because it may indicate a tendency to ulceration of the lungs, or its actual presence.

Some attention to the causes of hemorrhagy, we shall find, is necessary in collecting the prognosis.

I have had occasion to observe, that hemorrhagies are apt to return periodically, the prognosis therefore is collected from the state of the patient during the interval, as well as while the blood flows. If he enjoys his usual health, has a good appetite, and does not lose flesh, there is little to be apprehended. But if he is low spirited and indolent, if the appetite fails, and the countenance becomes pale and emaciated, particularly if dropsical symptoms appear, the danger is very great, unless the return of the hemorrhagy can be prevented.

CHAP. II.

Of the CAUSES of the HÆMORRHAGIÆ FEBRILES.

THE remote causes of hemorrhagy, like those of the phlegmasiæ are very simple. Those of a sanguine habit, slender make, and delicate constitution, are most subject to hemorrhagy. The parts from which hemorrhagies most frequently happen, are those as might *a priori* have been supposed, in which the blood vessels, are most numerous and delicate, the internal membrane of the nose, the lungs, &c.

Why different ages predispose to different hemorrhagies, it is more difficult to explain. Epistaxis is most common in children; hæmoptysis from puberty to between thirty and forty; hæmorrhoids from this period to about sixty; and hemorrhagy from the kidneys and the head in advanced old age. There is no period of life, however, at which any hemorrhagy may not occur.*

Like the phlegmasiæ, hemorrhagies are most frequent in spring and autumn.

If we except periodical diseases, we shall find none which leave behind them so strong a predisposition to future attacks, as hemorrhagies, which seems partly to arise from the ruptured vessels and those in the neighbourhood, in consequence of the distension they have suffered, being left in a state of debility, and consequently subject to future distension; and partly from loss of blood, as I have more than once had occasion to observe,† disposing to plethora, the powers of assimilation seeming constantly to prepare a quantity of blood proportioned to the demand for it.

Of the predisposing causes of hemorrhagy, plethora is the most frequent; all the causes of which may be regarded as predisposing causes of this disease.

It is a common observation, that those hemorrhagies which arise from mere plethora, although they are very liable to return, are of all hemorrhagies, proceeding from internal causes, most easily re-

* Various hypotheses have been proposed for the purpose of explaining this tendency to different hemorrhagies at the different periods of life. But as none of them are satisfactory, I shall not detain the reader with an account of them.

† Vol. i. p. 90, 91.

moved, and most frequently cease spontaneously; as might have been supposed, since here the disease for the time removes its cause.

In active hemorrhagy there seems always to be a rupture of one or more small vessels. It has been supposed, indeed, that an increased force of circulation may so dilate the excreting vessels as to occasion an effusion of blood independently of rupture. This, however, appears extremely improbable. The phenomena of active hemorrhagy, indeed, are generally such as could not arise from this cause, the effusion of blood being sudden and profuse. Its remote causes are such as tend to occasion rupture of the vessels. They all occasion distension in the part from which the blood is about to flow.* Besides it seems often to flow only from one vessel, the rupture of which relieves the rest. Thus in epistaxis, the preceding fullness and redness are often equal in both nostrils. It rarely happens, however, that an hemorrhagy from both takes place at the same time; the first vessel which gives way in either nostril relieves both. Passive hemorrhagy, properly so called, that for example which appears in diseases of extreme debility, seems often to be the consequence partly of relaxation and consequent dilatation of the vessels; and partly of tenuity of blood.

Dr. Cullen enumerates seven occasional causes of hemorrhagy; namely, external heat; a considerable and sudden diminution of the weight of the atmosphere; whatever increases the force of the circulation; violent exercise of particular parts of the body; certain postures of the body or ligatures; a particular state of certain vessels from the frequent repetition of hemorrhagy; and lastly, cold externally applied.

On comparing these causes of hemorrhagy with what has been said, the manner in which they act will be sufficiently obvious, with the exception of cold, whose *modus operandi* it is more difficult to trace. It seems to be chiefly by exciting some degree of synocha, that cold occasions hemorrhagy, that is, by increasing the *vis a tergo*.

Such are the causes of hemorrhagy in general. Certain hemorrhagies proceed from causes, particularly affecting the part from which the blood flows. An ulcer in the kidneys, ureters, bladder, stomach, intestines, &c. is not an uncommon cause of hemorrhagy. The contents of these cavities acquiring an irritating quality, or occasioning too great distension, has often had the same effect.

* Introduction to the Second Part

The last cause, often renews hemorrhagy of the stomach and intestines. Sudden repletion of the stomach probably acts also by compressing the liver, thus tending to obstruct the circulation through it, and consequently oppose an obstacle to the free return of the blood from the intestines. I know a person in whom a copious draught will at any time induce hemorrhagy from the intestines. A malconfirmation of the thorax very frequently proves a predisposing cause of hæmoptysis, and when to a considerable degree may excite it. The same may be said of pressure from affections of neighbouring viscera, &c. as in hæmoptysis from schirrous liver, &c. Similar observations apply to other internal hemorrhagies.

CHAP. III.

Of the TREATMENT of the HÆMORRHAGIÆ FEBRILES.

MANY seem to have regarded all spontaneous hemorrhagies as proceeding from a plethoric state of the system, and have maintained that no means should be employed to check them, unless they are so profuse as to be attended with danger. In these positions, however, many important circumstances are overlooked, and it is generally better to correct the plethora by other means, than by permitting the hemorrhagy either to go on or to recur.*

The means of moderating or checking hemorrhagy, either act on the system in general, or on the part from which the blood flows. From what has been said of active hemorrhagy, the reader will perceive that the flow of blood is often supported by the febrile state which attends it. A principal indication in active hemorrhagy, therefore, is to diminish excitement, and all the various means above pointed out for this purpose must occasionally be employed. Those which constitute what has been called the anti-phlogistic regimen, are, with the exception of dilution, in all cases essential. All muscular exertion in particular must be avoided. Every exertion of mind is hurtful. The patient must be kept quiet, and in the horizontal position, with the exception that the part, from which the blood flows, should be raised as high as can conveniently be done; and the temperature should be as low as can be borne without inconvenience. The regular excretion of the feces is particularly to be attended to, and the means employed for this purpose must be such as occasion least irritation.

* See Dr. Cullen's Observations on this subject in his First Lines.

In all cases of active hemorrhagy the diet should be scanty, and all kinds of animal food and fermented liquors forbidden. The patient in particular should drink very little. Whatever he takes should be cold. The use of acidulous fruit, cream of tartar, nitre, vegetable acids, and other refrigerents is beneficial.

It is often proper to employ more powerful means to lessen the excitement. "I am ready to allow," Dr. Cullen observes, "that the practice of blood-letting in hemorrhagies has been often superfluous, and sometimes hurtful, by making a greater evacuation than was necessary or safe. At the same time I apprehend it is not for the mere purpose of evacuating, that blood-letting is to be practised in the cure of hemorrhagy, but that it is farther necessary for taking off the inflammatory diathesis which prevails, and the febrile spasm that has been formed. Accordingly, in the case of hemorrhagy, when the pulse is not only frequent, but hard and full, and does not become softer or slower on the flowing of the blood, and when the effusion is profuse, or threatens to become so, it appears to me that blood-letting may be necessary, and I have often found it useful. It seems probable also, that the particular circumstances of venesection may render it more powerful for taking off the tension and inflammatory irritation, than any gradual flow from an artery." Blood-letting may often be employed with advantage, even where the hemorrhagy is considerable, if the pulse is still hard, and it is of great importance from the nature of the part affected that the wound should close as quickly as possible.

Burserius and others have recommended blood to be taken during hemorrhagy from the parts in the neighbourhood of that from which the blood flows. We shall presently have occasion to consider the effects of local blood-letting.

Authors differ in opinion respecting the employment of cathartics in hemorrhagy. With regard to the employment of drastic or irritating cathartics, there cannot be two opinions; but many practitioners have maintained, that the exhibition of mild cathartics, so as to keep up a degree of diarrhœa, is useful, on the supposition that hemorrhagy often proceeds from tenuity of blood which they endeavour to obviate by drawing off the serous part. As far as respects active hemorrhagies, this opinion seems to be false, as must appear from what has been said of their causes, and on the other hand, in very exhausted habits, where the hemorrhagy is more of the passive kind, and may, in part at least, arise from morbid tenuity of the blood, to endeavour to relieve it, by inducing

another evacuation, is at least a very precarious practice. The same observation applies to cases in which active hemorrhagy continues till it exhausts the strength, and renders the blood thinner than it ought to be. Upon the whole it would seem, if we except hemorrhagy from the head, that, to prevent any accumulation of fæces is the chief, if not the only, purpose, for which cathartics should be employed in these diseases.

The same ideas which led to the use of cathartics, induced physicians to prescribe diaphoretics in these diseases. They had still in view to carry off the thinner parts of the blood. These, particularly such as are of a refrigerent quality, although the theory which first led to their use has fallen into neglect, are employed with advantage for the purpose of relieving the febrile state, which precedes and supports active hemorrhagy.

The older practitioners recommend a great variety of medicines for this purpose; acids, anodynes, diascordium, milfoil, veronica, nitre, camphor, &c. Antimony and saline preparations seem to be best suited to active hemorrhagy, and the nausea occasioned by the first is often useful here as in inflammation, by diminishing the vis a tergo.

Every means which has this effect tends to check the flow of blood. I have had occasion to observe above, that the use of the digitalis is attended with less advantage in the phlegmasiæ than might have been expected, and to state the circumstances from which this appears to arise. What was there said, however, it will be evident, does not apply to hemorrhagy, in which all who have tried the effects of digitalis, will, I believe, confess, that it is a most valuable medicine. In all serious hemorrhagies it should be given in sufficient quantity considerably to lessen the force and frequency of the pulse.

Most of the means employed for lessening the vis a tergo in hemorrhagy, may often be employed for removing the symptoms which precede, and thus preventing, the hemorrhagy. In this way we not only prevent the loss of blood and consequences to be apprehended from a rupture of vessels, but at the same time break the habit of the hemorrhagy, and thus lessen the tendency to its recurrence. These observations, it is evident, from what was said in speaking of the phlegmasiæ, do not apply with equal force to the digitalis as to the other means we have been considering. Their effects, it is evident, will be increased by the local means which relieve distension in the part.

The reader will find opiates very generally recommended in hemorrhagy. He will readily perceive, from what has been said, that an indiscriminate use of them is inadmissible. They are improper while much of the inflammatory diathesis remains, and the pulse continues full and strong. When this state has been overcome by proper remedies, or the continuance of the disease, opiates by allaying irritation, tend to check the flow of blood. When the vis a tergo is not much increased they may sometimes be used with advantage at an earlier period, combined with those medicines which obviate their stimulating quality, particularly antimonials. They are indicated with musk and castor when subsultus tendinum and other spasmodic affections supervene.

A variety of astringent medicines are given internally, for the purpose of constricting the vessels, and thus checking the hemorrhagy. The vitriolic acid, is very generally used; allum is more powerful, and in hemorrhagy, is perhaps, upon the whole, the most valuable astringent we possess, particularly in menorrhagia and hemorrhagy from the stomach and bowels. It is not found of equal efficacy in hæmoptysis. Oak galls, bark, iron, lead, &c. have also been much employed. If any of these is more powerful than allum, it is lead, the acetate of which has been greatly praised. It is almost unnecessary to caution against the long continued use of this medicine, even in small doses. Where it is of great importance to check the hemorrhagy, it may occasionally be exhibited with advantage. It should be given in combination with mucilage, or, some tenacious extract, as far as possible to obviate its effects on the stomach and bowels.

The bark and steel are chiefly indicated when the strength, from the continuance of the disease or other causes, being greatly exhausted, the disease partakes more of the passive than active hemorrhagy, and then certain stimulants, although possessed of no astringency, will often succeed. I have seen oil of turpentine stop menorrhagia which had resisted the most powerful astringents for many weeks.

The older practitioners employed various means with a view to occasion congestion in parts at a distance from the seat of the hemorrhagy; warm clysters, fomentations, baths, (which were often composed of warm wine and other stimulating ingredients) frictions, ligatures thrown round the limbs, &c.; at the same time making refrigerant applications to the parts from which the blood flowed, or those in their immediate neighbourhood. It is evident that most of the former set of remedies (all the most powerful of them)

are of doubtful effect while much of the inflammatory diathesis prevails.

I have already had occasion to observe, that syncope is often serviceable in checking hemorrhagy; it is improper, therefore, where the hemorrhagy is considerable, to use means to prevent it. All kinds of cordials are on this account to be avoided. Strong odours, and every other means of rousing the patient, are improper; and if, from the situation of the part, some degree of the erect posture has been judged proper, the patient should not be laid in the horizontal posture with a view to prevent syncope. These observations, however, do not apply when the hemorrhagy has become passive. Syncope is then attended with great danger, and must be prevented by the usual means.

Many superstitious remedies have been employed, and by the impression on the mind have sometimes been serviceable; awe and dread being powerful means of lessening the force of the circulation.

We are now to consider the means which are applied to the seat of the disease, many of which seem to act by exciting the bleeding vessels to contract.

The various astringents just mentioned are employed for this purpose, particularly alum and the acetate of lead. The sulphate of zink is among the most powerful of this class of medicines. The reader will find a great variety of astringent applications enumerated by authors. Dr. Cullen observes, that the most powerful of all astringents in hemorrhagy, appears to him to be cold. It is useful, we have seen, applied generally by an atmosphere of a low temperature. A greater degree of it ought always to be applied as near as possible to the part affected, and when it can be done, to the part itself.

Pressure is a powerful means of checking hemorrhagy, when it can be applied to the bleeding vessels. In obstinate hemorrhagy, where it can be done, the larger vessels of the part may be secured by ligature.

Taking blood from, dry cupping, and blistering, the parts in the neighbourhood of those from which the blood flows, is often attended with advantage in internal hemorrhagies, especially when there is reason, from the symptoms, to believe that the distension of the vessels which precedes the hemorrhagy is not relieved.

Respecting the means by which the disposition to hemorrhagy is counteracted, a few observations, in addition to what has been said of its causes, will be sufficient.

A plethoric state of the system, we have seen, is one of the most common of these causes ; and when the hemorrhagy has frequently returned, this state has almost always either been the original cause of the disease, or has been induced by it. To correct plethora, therefore, is our chief object during the intervals.

The means answering this purpose I have already had occasion to point out. They are either such as diminish the ingesta, increase the excreta, or give tone to the vessels.

It is difficult to resist the appetite for food, so that it is generally proper to recommend such as contains a comparatively small quantity of nutritious matter. It is always necessary, however, to pay attention to the patient's habits. The quantity of animal food he has been accustomed to must only be lessened by degrees, and when a great degree of debility has been induced, a nourishing diet is often necessary, which, however, must be regarded only as a means of obviating present danger, and employed with caution. The same observation applies to the substitution of water for more nourishing and stimulating fluids.

The best and most effectual way of increasing the excreta, is exercise.

Cold bathing and tonic medicines, by increasing the power of the vessels, tend to prevent plethora, and are doubly indicated when the loss of blood has induced debility.*

* The causes of hemorrhage here assigned are not very satisfactory.

The *vis a tergo*, Plethora and rupture of vessels, are too mechanical.

There are few phenomena of animal life, either in health, or disease, that are governed by mechanical principles, or admit of explanation on that ground.

To bring the subject of hemorrhage fairly before the reader, it will be necessary to take notice of the physiology of the vascular system, comprising the heart and arteries arising from it, with their subordinate trunks. The capillary arteries, the capillary veins, and the veinous trunks, which convey the blood to the heart. The combined action of all these parts of the circulating system, is necessary to the support of animal life ; yet each part acts for itself. The heart propels the blood into the arteries, and the arteries act like living conduits to convey the blood to the capillaries, where all the great functions of the circulating system, are performed ; such as the growth, and nourishments of the body, the secretions, and the evolution of animal heat.

From this view of the subject, it appears, that the capillary vessels have an office of their own, distinct from that of the heart, and great arteries, which only serve to convey the blood to them, to be applied to the purposes of life. As the capillary vessels are the most efficient part of the circulating system, so they are more frequently thrown into diseased action. All febrile diseases have their origin in the diseased action of this system of blood vessels, and those changes which take place in the action of the heart, and great arteries in

CHAP. IV.

Of PHTHISIS PULMONALIS.

DR. Cullen arranges Phthisis Pulmonalis, as a sequela of hæmoptysis. He defines it,

“Corporis emaciatio et debilitas, cum tussi, febre hectica, et
“plerumque expectoratione purulenta.”*

* See the nosological observations on phthisis, in the appendix to this volume, under the genus pneumonia.

these diseases, are the effects of the diseased actions in the capillaries ; and in case of spontaneous hæmorrhage, it is more than probable, that the disease depends entirely on the condition of this system of vessels.

Hæmorrhage is acknowledged to take place in persons under every variety of circumstances, in the young and the old, the plethoric and the exhausted, which would lead us to believe, that the proximate cause must be the same in all ; for if it depended on the vis a tergo, it should not take place in the feeble and the old ; and if it depended on plethora, the exhausted should be exempted. As to rupture of vessels, it would be difficult to prove, that this does not take place ; but such lesion has never been demonstrated to my knowledge in this kind of hæmorrhage, and it is more probable that in cases of spontaneous bleeding, the blood exudes from the surface of membranous parts, than that it proceeds from ruptured vessels. Warm water when injected into the trunks of arteries in dead subjects, exudes through the skin and membranes lining the cavities.

From the foregoing considerations, I am induced to attribute hæmorrhage, or the spontaneous flow of blood from the different parts of the body, to some obstacle in the transmission of the blood from the capillary arteries to the capillary veins, at that point in which the blood changes its course and becomes venous blood.

This obstruction to the passage of the blood from the arteries to the veins I apprehend depends on a torpor, or inaction of the origin of the veins, which renders them incapable of taking up the blood from the extreme arteries ; for it is not to be supposed that the veins are passive tubes especially their capillaries, or origins, or that the blood would pass into them from the arteries without their own peculiar actions.

This inaction of the capillary veins in certain cases, is confined to particular parts, as the membranes of the nose, the lungs, the uterus, &c. when the blood flows only from those parts ;—in other instances it becomes general, and the blood issues from various parts of the body, and escaping from the vessels, appears in form of vibices and petechiæ, under the cuticle.

He divides this disease into two varieties, the phthisis incipiens without purulent expectoration, and phthisis confirmata with purulent expectoration. Purulent expectoration, however, we shall find, sometimes attends from the beginning, and in some cases never ap-

That this obstruction in the passage of the blood from the arteries to the veins, should, in certain cases, produce an accumulation of blood, and a preternatural excitement in the capillary arteries of the part, is what would be expected in cases of obstruction in one part of the vascular system, while every other part acted with its usual energy.

That this is the true theory of spontaneous hemorrhagy, the phenomena of the disease, and the effects of remedies render probable.

That this disease should take place in persons whose general appearance indicates health and vigour, is analogous to other cases of local disease. We often meet with those, whose general health is good, while they are affected with a disease in some particular parts, depending on loss of action, or morbid excitement; and that opposite remedies should be necessary in different cases of hemorrhage, is similar to what occurs in fever: a particular type.

In some cases of typhus fever cold water applied externally is the best remedy; in other cases, or in a different stage of the same disease, it would be fatal. With respect to the effects of remedies in cases of spontaneous bleeding, cold, blood-letting and other sedative remedies, which are admissible only in cases of considerable arterial excitement, produce their good effects by equalising the action between the capillary arteries and veins.

But in cases of hemorrhagy unattended by any sensible increase of arterial excitement, sedative remedies are manifestly injurious and cold is often an exciting cause of the disease. While those kinds of stimulants that act particularly on the capillary vessels, are the only remedies to be depended on. Opium, and external warmth, are the two most powerful of this class of remedies.

The following cases of hemorrhage, will serve to illustrate the principles above advanced.

A gentleman about middle age, of a good constitution, and rather full habit, had been affected with an intermitting fever of the tertian type about five weeks, riding on a cool morning in the month of October, and on the day he should have no fit, a hemorrhage commenced from the nose, and continued sometime: at length medical assistance was obtained; cold water was first applied to the head, this proving ineffectual, the semi cupium in cold water was tried, but the bleeding increased under this treatment. The patient was next placed in a warm bed, & received a full dose of opium, this stopped the bleeding in less than twenty minutes.

A child about six years old without any previous disease, was affected with vibices and petechiæ, which appeared on every part of the body, and with livid spots on the mucous membrane of the fauces. Peruvian bark and sulphuric acid were given; but on the next day a profuse hemorrhage from the nose took place, and continued till a full dose of opium was given, which stopped it for that time. The bark with a solution of common alum was continued; but on the second day the hemorrhage returned and continued till it was checked by a dose of opium, the bark and alum were given in larger doses;—but on the third day the bleeding returned, and continued many hours, and at length was

pears at all, the reason of which will be evident when we consider the causes of phthisis. I shall not, therefore, follow Dr. Cullen in this division, nor indeed, does it seem to serve any purpose.

SECT. I.

Of the Symptoms of Phthisis Pulmonalis.

PHTHISIS often makes its attack with very deceitful appearances, so that the patient is scarcely aware of his danger before the case is desperate. The first symptom is frequently a slight cough, occasioned, the patient supposes, not by any affection of the lungs, where he feels no uneasiness, but an uneasy sensation about the larynx, which is readily ascribed to cold. At an early period there is either no fever or it is slight, and very different from hectic fever. The cough is either dry, or a little mucus is expectorated, as in common catarrh. These symptoms give little trouble, and are expected to go off, as they have frequently done before, without any remedy. Notwithstanding their mildness, however, they prove obstinate, and gradually become more troublesome. They are sometimes from the first accompanied with pains of the chest, either wandering like stitches, or more obtuse, and fixed under the sternum, or in the sides of the thorax.

In many cases the disease comes on in a less equivocal form, with considerable difficulty of breathing, especially on motion, and a more severe cough. Hæmoptysis frequently attends from the be-

again suspended by opium, which was from that time given thrice in twenty four hours.

The patient recovered without any return of the disease.

A man over seventy years of age perceived an unusual sensation on his tongue, upon examination he found a livid spot, the size of a cent, with a little elevation of the mucous membrane. Livid spots, or petechiæ soon appeared on other parts of the body. The pulse became extremely irregular, and blood flowed from the nose—he complained of great distress.

Opium, Tincture of Blood Root, and Volatile tincture of Gum Guaiacum were administered freely, and the patient recovered under the use of them.

Opium is an old remedy for hemorrhage; and while the humoral pathology prevailed, it was supposed to work some change in the blood, diminishing its tenuity, and thereby rendering it less liable to exude; but at the present day I presume it will not be contended, that opium checks spontaneous bleeding by thickening the blood, or by closing ruptured vessels. The fair construction is, that opium cures hemorrhagy by its effects on the capillary vessels, especially by increasing venous absorptions.

ginning, and is often the first symptom which attracts notice. It is not uncommon, indeed, for hemoptysis to recur several times before it is accompanied with the symptoms of phthisis. By degrees the expectorated matter begins to assume the appearance of pus, and the febrile symptoms, that of hectic.

Hectic fever is a quotidian remittent, the chief, and sometimes the only, exacerbation of which commences about five o'clock in the afternoon, often with slight chills, which generally continue for some time after the skin, to the feeling of another person, is warmer than natural. This exacerbation goes on increasing till after midnight, the pulse being seldom under 110, and often above it. About two o'clock in the morning a sweat appears, chiefly on the breast, neck, and head, which relieves the febrile symptoms; and as the morning advances, the remission becomes more distinct, affording the patient, who is scarcely ever persuaded that his case is desperate, an ill-founded hope. This remission in some cases continues till about five o'clock in the afternoon, when the exacerbation again commences. In other cases there is another exacerbation about noon.*

The urine is high-coloured, and deposits a copious light branny sediment. The bowels are generally constipated. The thirst, however, is not considerable, and the appetite generally continues good. The countenance is pale, with a circumscribed redness on the cheeks, which is most remarkable during the exacerbations, and the body generally wastes rapidly.

Various marks of debility gradually shew themselves. The hair falls off, the nails are incurvated, the feet become œdematous; in women the menstrual discharge ceases, and at length a colliquative diarrhœa comes on, which may be regarded as the forerunner of death.

* "It has commonly been given as a part of the character of hectic fever," Dr. Cullen observes, "that an exacerbation of it commonly appears after the taking food; and it is true that dinner, which is taken at noon or after it, does seem to occasion an exacerbation. But this must not make us judge the mid-day exacerbation to be the effect of eating only, for I have often observed it to come on an hour before noon, and often some hours before dinner, which in this country at present is not taken till sometime after noon. It is, indeed, to be observed, that in almost every person the taking food occasions some degree of fever; but I am persuaded this would not appear so considerable in hectic, were it not that an exacerbation of fever is present from another cause, and accordingly the taking food in a morning has hardly any sensible effect."

There is seldom much head-ach at any period of the disease, and delirium, except towards the fatal termination, hardly ever appears; for the most part, indeed, the senses are retained to the last, and, what is more surprising, the spirits and even the appetite. It has been observed, indeed, that the appetite is often better than usual a few days before death.

Such is the general course of the disease; it will be necessary to consider its symptoms more particularly.

The cough at the commencement, I have just had occasion to observe, is generally dry, or nearly so, unless blood be expectorated, and sometimes it continues so during the whole course of the disease. In most cases, however, it becomes moist, and the matter expectorated is various. In the beginning it is generally mucus, and as the disease advances gradually assumes a purulent appearance, and then there is generally some, often a very slight, admixture of blood; although hæmoptysis had not occurred at an early period.

Much has been said of the means of distinguishing an expectoration of pus from that of mucus, which cannot with certainty be done by the eye. For this part of the subject I may refer to what was said in the introduction to this volume, where it is considered at length.

When the cough is violent, particularly in the advanced stage of the disease and after meals, it is often accompanied with reaching and vomiting, which has been regarded by Morton and others as a diagnostic of the phthisical cough. This, however, is far from being constant, and vomiting frequently accompanies violent coughing from whatever cause. Exposure to cold, drinking cold fluids, the horizontal posture, and every thing which tends to hurry the breathing, are apt to excite the cough. It is generally worst in the evening, during the night, and on awaking from a sleep of some continuance. Sometimes it is short and hard, at other times full and soft, and often comes on by fits, which either cease spontaneously, or are relieved by a more or less free expectoration.

Some have thought that they can distinguish a consumptive from a catarrhal cough by the sound, and in the advanced stages it frequently has a particularly hoarse sound, which is very remarkable, though not altogether peculiar to phthisis. At early periods the sound of the cough but little assists the diagnosis. The short hollow cough, supposed characteristic of phthisis, is not always very distinctly marked, and often attends other diseases. A cough can only with certainty be pronounced phthisical, by attending to the

symptoms which accompany it, particularly to the state of the febrile symptoms and the nature of the matter expectorated.

There has been some difference of opinion concerning the inference to be drawn from purulent expectoration. It has till lately been generally supposed that it always indicates ulceration of the lungs. "In every instance of an expectoration of pus," Dr. Cullen observes, "I presume there is an ulceration of the lungs. The late Mr. De Haen is the only author that I know of who has advanced another opinion, and has supposed that pus may be formed in the blood-vessels, and be from thence poured into the bronchiæ." The reader will readily perceive the fallacy of this explanation, but the fact that pus is sometimes expectorated without ulceration of the lungs, has been confirmed by other writers, whom Dr. Cullen overlooked. In the 28th section of the 22d Ep. of Morgagni de Sedibus et Causis Morborum, there is a case related, which seems to be of the same kind with that mentioned by De Haen. To this Burserius refers, and also to Bennet's *Tabidorum Theatrum*, Lieutaud's *Historia Anatomica Medica*, and the first volume of the *Collectio Obs. Med. Pract.* by Fred. Casimirus, for similar cases. The reader may also consult a Treatise, in Schroeder's works, on the production of Pus without Ulceration.

It is true, indeed, that a charge brought against De Haen, that he did not with sufficient accuracy determine the matter to be purulent, may be urged against the inferences of all these writers. When we compare them, however, with later observations, there can be little doubt of their accuracy. Dr. Hunter relates a case of empyema, where there was no ulceration. Pus is often discharged in gonorrhœa without ulceration. I have seen it discharged from the nose, where there was no reason to suspect any; even in common catarrh the expectoration often becomes purulent. The matter is placed beyond a doubt, and the great facility with which inflamed secreting surfaces form pus, is ascertained by the experiments of Mr. Home above related.*

It would be of considerable importance to be able with certainty to distinguish the cases in which purulent expectoration takes place without ulceration. The diagnosis offered by the late Dr. White, published in 1792 by Dr. Hunter, of York, will not, I fear be found sufficient for this purpose. He terms the pus produced by inflammation without ulceration, inflammatory exudation. This, he observes, does not ferment or become putrid per se. A

* See the 25th and following page of this volume.

quantity of it, kept by way of experiment, after some time became dry and tough, smelling sour and faintish. This species of matter, he observes in another place, in its natural state, appears to be a homogeneous, smooth, yellowish fluid, resembling good cream, without smell, and rather sweetish to the taste, it swims in water, and when burnt smells like burnt cheese. The matter of ulceration, he thinks, is a compound, consisting of inflammatory exudation and a portion of putrid blood and solids, varying in its appearance according to the predominance of the one or other of its component parts. The greater the proportion of the latter, the more fetid, brown and sanious, it is. The contrary condition makes it more like laudable pus, yellower or whiter, more unctuous and homogeneous, and less putrid. This kind of sputa, like the other, according to Dr. White, swims in water, but has an offensive smell, except when the proportion of putrid matter is very small, even then if it be burnt its putrescency becomes manifest.

Dr. Stark* also proposes an experiment for determining whether or not the matter expectorated in phthisis comes from an ulcer. As the spitting, he observes, is perhaps the most certain criterion of vomica, it will be proper to enquire into its peculiar character, that it may be distinguished from pus and mucus, two substances which it greatly resembles. All of them, when free from air bubbles, sink in water.† Pus is easily diffusible in it, by gentle agitation, but in a few hours falls to the bottom. Mucus cannot be diffused in water without strong agitation, but when diffused, forms with it a permanent ropy fluid. The spitting of consumptive patients is more easily diffusible in water than mucus, and, like that, forms with it a ropy fluid, which although it deposits a sediment like pus, still continues ropy, resembling mucus and water. This experiment only tends to prove that the matter expectorated in phthisis contains both pus and mucus, which may be the case whether it comes from an ulcer or not.

Baglivi says, that an excretion of small granules by coughing, which, squeezed between the fingers, have much fetor, certainly indicates a latent vomica. Dr. Stark also observes, that when the matter expectorated is yellowish and in small round masses, it probably comes from small vomicae. Dr. White, however, remarks, that he has seen an expectoration of this kind without any

* Observations on Pulmonary Consumption.

† When the thinner parts of mucus have been absorbed, it readily sinks in water.

bad consequences, an observation I have myself seen confirmed, so that it is probable a purulent or some other secretion may assume this appearance without the presence of vomicae.

In the purulent stage of phthisis the expectorated matter is frequently more or less mixed with the blood or sanies discharged from ill-conditioned sores, which removes all doubt respecting its source.

In different cases the colour and consistence of the matter expectorated is very different. It is often ash-coloured, yellow, or greenish, and very frequently of all these colours. It is generally more or less viscid, and charged with air bubbles, and the blood mixed with it, is of different shades. Calcarious matter is sometimes expectorated in phthisis. Sometimes a white, tough, ramified matter, which has the appearance of small branches of the bronchiæ, is coughed up. It consists of inflammatory exudation, which becomes dry and tough, assuming the form of the cavities in which it is deposited and appears to be of the same nature with the membrane formed in croup. The same matter is sometimes observed in the stools of phthisical patients, from their swallowing the sputa.

The quantity of matter expectorated is various. In most cases it gradually increases as the disease advances; and after it assumes the purulent appearance, often amounts to ten or twelve ounces, a pound or even more, in twenty-four hours. It is common for it to decrease towards the fatal termination, especially when the sweats become very profuse, and more frequently after the colliquative diarrhœa comes on. When this happens, it has been observed, that very little matter is found in the vomicae after death.

It is chiefly after the expectoration of pus commences, that phthisis has been regarded as contagious. I shall presently have occasion to make some observations on this opinion, and likewise on the question, whether hectic arises from the absorption of pus.

The breathing, particularly in the more advanced stages, during the exacerbations, is quick, and laborious. It is not uncommon for it to be attended with a rattling or wheezing, sometimes very remarkable, at other times only to be perceived when the ear is placed near the thorax of the patient. In the advanced stages the breath is often offensive.

The dyspnœa is generally attended with a sense of weight or tightness in the chest; and walking, and every other exertion which accelerates the circulation, increase it. Sometimes the

breathing is easier when the patient lies on one side than on the other, and sometimes it is easiest when he lies on the back.

Sometimes there is no pain at any period of the disease. In many cases, there is sooner or later a fixed pain in some part of the thorax, seldom acute and sometimes only to be felt when the patient makes a deep inspiration or coughs. The cough and pain are sometimes troublesome for a considerable time before the fever appears.

It is of much consequence to attend to the state of the pulse at the commencement of phthisis, for when it is uniformly more frequent, and particularly when it is harder than natural, without the characteristic symptoms of hectic, there is reason to believe that the languid inflammation which precedes the purulent stage of phthisis, is going on but that matter is not yet formed. In this state the tongue and skin are dry, and the appetite not so good as it usually is in hectic.

Whatever be the form of the fever at an early period, it almost always assumes that of hectic. This generally happens about the time that the matter expectorated begins to assume a purulent appearance, sometimes before this period, seldom long after it.* The face then becomes pale, and the redness of the cheeks more circumscribed. In some the lips are remarkably pale; in others, both these and the internal canthus of the eye, very florid while the adnata appears of a dead white colour.

The fever has generally been observed to run highest in the most robust, and consequently higher in men than in women; but it never rises to an alarming height, hardly ever being attended with delirium, and rarely with head-ach.

The skin in the progress of the paroxysm is hot and dry, sometimes hard and painful to the touch, the patient generally complaining of much heat in the hands and feet.

The pulse, which during the remission is seldom under 90, is generally, during the exacerbation, (particularly in those of an irritable habit,) near 120, and often above 130. It is generally small, and at an early period, more or less hard.

The thirst is not considerable, the tongue moist, and, particularly in the advanced stages of the disease, remarkably clean and in

* There are cases of well-marked phthisis on record, in which the fever never assumed the form of hectic. I have known many die of this disease, in which the leading characteristics of hectic, the evening chills and morning sweats, were never such as particularly attracted the patient's notice.

some degree inflamed. In some cases it grows dry and painful, and towards the termination is often covered with apthæ.

The appetite is generally good, and almost always better than we should expect from the degree of fever. In some cases towards the fatal termination it becomes voracious. The bowels at the commencement, and during the progress of the disease, are for the most part costive.

The menses often cease at an early period more frequently when the sweats become profuse, and sometimes not till the diarrhœa comes on.

The eyes sink, the nails shrivel and become incurvated. There is now much anxiety, particularly during the exacerbations, and the breathing is more short, hurried, and laborious. As the debility increases, the sweats become more profuse; and there is hardly any disease in which emaciation goes to so great a length. The joints seem swelled, and almost every furrow in the bones becomes evident.

It is after the disease has arrived at this stage that the sweating seems to check every other secretion. The mouth becomes dry, the bowels more costive, the hair falls off. The urine, which from the beginning of the hectic fever is scanty and high coloured, now becomes more so, still continuing to deposite a copious furfuraeous sediment. Even the expectoration, as I have already had occasion to observe, whether of pus or not, is generally diminished. It sometimes happens, indeed, towards the fatal termination, that it is increased by a considerable admixture of blood, the increasing ulceration destroying many of the smaller vessels, or by the frequent bursting of small vomicae.

The sediment from the urine in phthisis has been improperly termed lateritious, from its generally appearing redish, but it seldom falls to the bottom of the vessel, or assumes the appearance of red sand. It does not arise from the absorption of pus, as has been supposed, but merely from the increase of perspiration. It is of the same nature with that which may at any time be produced by exciting the action of the skin.*

The last stage commences with the diarrhœa, which has been termed colliquative. When it comes on, the sweats generally become less profuse, sometimes cease altogether, and the two affections now and then alternate for some time before death. It is very remarkable, that not only the purulent expectoration sometimes

* See the observations on the crises of fevers, vol. 1. & seq.

ceases at this period, but even the fever itself, the pulse falling to 70 or 80, but these changes do not improve the prognosis. The diarrhœa is sometimes purulent. Does the occasional absence of fever at this period ever arise from the pus being discharged in this way?

After the appearance of the diarrhœa, which no means are capable of stopping for any considerable length of time, all the symptoms grow rapidly worse. The breath becomes extremely fetid, the matter expectorated is often so much so, that even the patient himself can hardly bear it. A sense of anxiety and often nausea harass him; the pulse is small and extremely frequent; the voice becomes hoarse, or fails altogether; the hands, legs, and feet swell; the emaciation, which has been increasing during the whole course of the disease, is now extreme; the eyes are dim and sunk; the temples fallen in; and the nose is sharpened. We rarely observe these symptoms in the same degree in other diseases. Hence, the popular name, consumption.

The urine is now often pale, muddy, and sometimes in considerable quantity.

Sometimes the patient complains of head-ach, now and then followed by some degree of delirium. In other cases, vertigo and fits of syncope come on.

In the mean time, the discharge from the bowels becomes more fetid and profuse. The pulse flutters, the extremities become cold, and the patient, at length exhausted, imperceptibly expires, for death in this disease is almost always tranquil.

It is not uncommon for the cough to cease as the fatal termination draws on, while the anxiety and dyspnœa increase.

Strange as it may appear, amidst the horrors of this situation, the patient's hopes seldom abandon him, and sometimes seem ever to increase as death approaches. "Nor is this illusion," says Desault, "confined to those who are ignorant of medicine. I have even seen physicians just expiring with this disease, who would not admit that they were phthisical. Tant il est vrai que l'amour de la vie nous seduit et nous persuade aisement, ce que nous difrons avec ardeur." But in the nature of the disease itself, which increases by so imperceptible degrees, and to the last leaves the mental faculties so little impaired, we are in part at least to look for the cause of this deception.

The last stage of phthisis is sometimes prevented by the bursting of a large vomica, or by hemorrhagy from the lungs, occasioning suffocation.

Such is the usual course of phthisis, certain deviations from it are frequently observed. Sometimes there is no purulent expectoration at any period; in some cases there is no colliquative diarrhœa, more rarely there is little or no tendency to sweat.

In some rare instances the course of the disease deviates from that which has been described in much more essential respects. There is not only no sweating, nor purulent expectoration, but neither fever, nor emaciation; so that it is only from the appearances on dissection that the disease deserves the name of phthisis. In one case of this kind, in which I examined the lungs after death, they were found almost wholly converted into a cluster of tubercles, and life was extinguished by no other cause but the lungs being rendered unfit to perform their functions. The strength was by no means exhausted, and the surgeon who opened the body said he had seldom seen so much fat about the heart. There was pus in some of the tubercles, but it is probable that absorption had been prevented by the callosity of their sides. The disease, which was protracted for many months, had very much the appearance of one continued fit of asthma, not very severe during the greater part of its course, but gradually becoming more so, till the breathing was wholly interrupted.

The duration of phthisis is various; it sometimes terminates in a few weeks; sometimes it lasts for years, the symptoms becoming worse in spring and autumn. It is not uncommon for it to last for two or three years, and it is said to have lasted for twenty or thirty.* It is probable that in such cases there have been considerable intermissions, so that they are rather to be regarded as instances of repeated attacks, than of the continuance, of the disease. It is thought by some, that its duration is most apt to be protracted in those advanced in life. The usual duration of phthisis is from two months to two years.

When the local symptoms of phthisis are less distinctly marked than usual, and particularly when there is no purulent expectoration, it is sometimes confounded with quotidian remittents, especially as these are frequently attended with some affection of the chest. If, however, we attend to the history and causes of these diseases, we shall seldom be at a loss to distinguish them. It will often appear that the remittent has formerly been an intermittent, or that it has been gradually assuming more of the continued form. The fevers prevalent in the neighbourhood, or the presence

* See the observations of Licoutaud and others on this disease.

of marsh miasma, will often point out its nature. Besides, in remitting fever, the sweats are more general and less profuse, and the duration of the paroxysm longer, than in hectic. The great emaciation and the peculiar habit which disposes to phthisis, assist the diagnosis in doubtful cases, which are very rare.

When phthisis runs its course very rapidly, it greatly resembles pneumonia, and, indeed, imperceptibly runs into this disease; so that the only differences are, that the inflammatory symptoms in phthisis are for the most part less severe, the purulent stage better marked, and the emaciation more rapid; circumstances which depend on the languid nature of the inflammation in phthisis, and the peculiar habit of those who are subject to it.

Purulent collections about the fauces, when the matter is gradually discharged, so as to be thrown out by coughing, have sometimes been mistaken for phthisis, and have even deceived the most experienced; cases of which the reader will find related by Rau-
lín and others. The patient should therefore be questioned whether he feels any of the uneasiness about the face or throat, which generally attends abscesses of these parts, and forms the best diagnosis; and if this proves to be the case, the internal fauces should be carefully examined. The breathing of course is then either not affected, or affected in consequence of some tumor or other disease about the larynx. Upon the whole, it may be affirmed, that in ninety-nine cases of a hundred, where the expectoration is purulent, and the fever assumes the form of hectic, the patient labours under phthisis.

SECT. II.

Of the Morbid Appearances on Dissection.

In some cases the lungs exhibit nearly the same appearances as in pneumonia. For, as I had occasion to observe in treating of that disease, the formation of any abscess in the lungs, which neither occasions suffocation, nor has its sides so callous as to prevent absorption, soon produces hectic fever, and the other symptoms of phthisis, with or without purulent expectoration, according as the abscess has or has not formed a communication with the bronchiæ; unless, as sometimes happens in very favourable habits, the matter is expectorated and the wound almost immediately heals.

It appears, we have seen, from a variety of observations, that there have been cases of phthisis without either abscess or ulcer.

In such cases, the only morbid appearances in the lungs are traces of inflammation, and a quantity of pus in the bronchiæ and air cells.

But the most constant of all the morbid appearances in the lungs of those who die of phthisis, are tubercles. These are hard tumors, from the smallest sensible size to about half an inch or an inch in diameter, situated Dr. Stark* observes, in the cellular substance of the lungs. They are of a light colour, and if they are not suppurated, generally solid throughout. In the same subject they are found of various sizes and frequently appear in clusters. No vesicles, cells, or vessels are to be seen in the solid tubercles, even on examination with a microscope, and after the pulmonary artery and vein have been injected. They adhere to the substance of the lungs, Dr. Baillie observes, without any peculiar covering or capsule.

On the cut surface of some are observed small holes, as if made by the pricking of a pin, and at the bottom of the cavities containing pus, several small holes are frequently to be seen, from which, on pressure, purulent matter issues; but in neither case do they seem to communicate with any vessels.

The purulent cavities of tubercles are of different sizes, from the most minute to half an inch or three quarters of an inch in diameter, and when cut through and emptied, have, if the suppuration has been completed, the appearance of small white cups nothing remaining of the substance of the tubercle, except a thin covering or capsule. The cavities of less than half an inch diameter are generally shut, those which are larger open into the bronchiæ by one or more holes. The largest cavities, which are generally of an oval shape, are lined partially or wholly with a smooth, thin, tender slough or membrane. The matter found in these cavities or vomicæ, as they are called, is similar to that expectorated, and has seldom any admixture of blood, except where there are ulcerations. They often communicate with each other by ragged openings.

The larger vomicæ, which have numerous bronchial openings, are found to contain scarcely more matter than is sufficient to besmear their surface. The largest are generally situated towards the back part of the lungs. Several small apertures on the surface of the lungs often lead to the vomicæ; and sometimes, though

* Observations on pulmonary consumption by Dr. Stark, to whose labours we are indebted for most of the following observations on the appearance and structure of tubercles.

not often, a vomica is a hemispherical cavity in the external part of the lungs.

Wherever there is a vomica, there is a broad and firm adhesion of the pleura, so as to preclude all communication between the cavity of the vomica and that of the chest; even tubercles, indeed, are seldom found without adhesions.

Those parts of the lungs which are contiguous to tubercles, are red, sometimes soft, but more frequently firm and hard.* And while the sound parts of the lungs are artificially distended, the parts in the neighbourhood of the tubercles and vomicæ remain depressed and impervious, whether the air be blown through the trachea, or into incisions made in the surface of the lungs. So that the function of the lungs in those parts is wholly lost.

The pulmonary arterics and veins, as they approach the larger vomicæ, are suddenly contracted; when outwardly, the vessel appears nearly of the proper size, the cavity is often found to be much lessened, being almost filled up by a fibrous substance and the vessels passing along the tubercles are often found detached from the neighbouring parts for about an inch of their course. When the lungs are injected, the injection seldom enters the middle-sized vomicæ, and still more rarely the larger or smaller ones.

The bronchiæ themselves are never found contracted. But the internal surface of those which open into the larger vomicæ is often of a deep red colour, its vessels appearing enlarged, and the internal surface of the trachea is sometimes partially red.

“In cutting into the lungs,” Dr. Baillie observes, “a considerable portion of their structure sometimes appears to be changed into a whitish soft matter, somewhat intermediate between a solid and a fluid, like a scrofulous gland just beginning to suppurate. This appearance I believe is produced by scrofulous matter being deposited in the cellular substance of a certain portion of the lungs, and advancing towards suppuration. It seems to be the same matter with that of the tubercle, but only diffused uniformly over a considerable portion of the lungs, while the tubercle is circumscribed.

“I have seen another sort of tubercle in the lungs, which I believe to be very rare. It consists of a soft tumor, formed of a light brown, smooth substance. This is not contained in any proper capsule, but adheres immediately to the common structure of the lungs. In cutting through several of these tumors I

* Dr. Baillie's Morbid Anatomy.

did not find any of them in a state of suppuration. They were commonly as large as a gooseberry, and were chiefly placed upon the surface of the lungs; some, however, were scattered through their substance, of a smaller size. These are very different in their appearance from the common tubercle last described, and are the effect of a diseased process, which probably is very imperfectly known.

The lymphatic glands of the chest are of a dark colour, and sometimes contain a matter like moistened cheese.* When calcareous matter has been expectorated, it is generally found in the lungs in considerable quantity. The pleura costalis and the pleura of the lungs sometimes adhere almost throughout their whole extent. Ulcers are often found in the branches of the bronchiæ, and sometimes in the trachea itself.† In some cases of phthisis, where ulcers have been found in the trachea, there has been reason to suppose that they first attacked this part and afterwards spread to the lungs.

It is not uncommon to see a whole lobe, or even a larger portion of the lungs, almost consumed by suppuration. We even read of cases where half or more of the lungs was consumed, so that it was surprising that life could go on so long.

From a rude calculation, made on the lungs of many who died of phthisis, the part which remains fit for the admission of air may, at a medium, be estimated at one-fourth of the whole. The higher and posterior parts are most frequently affected and to the greatest degree, and the lungs on the left side, it is said, more frequently than those on the right.

The abdominal viscera are often much affected. Dr. Stark says that there is seldom any morbid appearance in them, except slight erosions of the villous coat of the intestines. But other writers mention induration, enlargement, ulceration, and abscess of the liver, spleen, and other abdominal viscera.

With regard to the ratio symptomatum of phthisis, it may be observed of this, as of most other diseases, that the symptoms are either such as we can at once account for, or involved in such obscurity, that it is in vain to attempt any explanation of them. It is unnecessary to inform the reader, that the irritation, occasioned by the matter in the bronchiæ, causes coughing, or that the inflam-

* Dr. Stark's Treatise.

† For an account of the phthisis trachealis, see the Institut. Med. Prac. of Burserius.

mation, abscess, and ulceration are the causes of the pain. It is impossible to be acquainted with the appearances on dissection, without making these inferences. But who can explain why the cheeks become florid, in proportion as the adnata becomes pale ; or why the discharge by the skin is at a certain period exchanged for that by the bowels ? I should, therefore, have passed over in silence the ratio symptomatum of this, as of most of the foregoing diseases, were it not that the disputes respecting the cause of hectic fever has rendered it interesting.

Some have maintained that hectic fever always, others, that it never arises, from the absorption of pus. Both sides of this question have been supported by arguments of two kinds ; the one, inferences from matters of fact ; the other, certain reasonings derived from the sensible and other qualities of pus. I shall confine myself to a short review of the former, leaving them for the reader's consideration. None of the latter appear at all satisfactory, nor does the state of our knowledge seem to admit of reasonings of this kind.

The principal arguments tending to prove that hectic fever does not arise from the absorption of pus are, that abscesses, even of considerable size, have existed for years without occasioning hectic fever, for the most part indeed producing fever, but fever of a very different nature ; after the amputation of a considerable limb, a very large surface is constantly covered with pus, and even exposed to the air, a circumstance acknowledged to favour the production of hectic fever, yet this fever rarely appears ; towards the end of dropsy, where there is no abscess, hectic fever often shews itself ; when any acrid matter is absorbed, we generally find tumors in the lymphatic glands through which it passes ; when a purulent ulcer is attended with hectic fever, this is seldom observed ; it has been maintained that hectic fever is often completely formed in consequence of inflamed tubercles in the lungs before suppuration has taken place.* Were we assured that this observation is well founded, it would be sufficient to determine the question ; but this seems far from being the case. There are many instances of incipient phthisis in which debility, emaciation, and fever, which, may be mistaken for hectic, especially as it is frequently attended with some degree of morning sweats, occur, without suppuration having taken place in the lungs ; but it does not appear that ex-

* Dr. Reid's Essay on the Nature and Cure of Phthisis Pulmonalis.

quisitely formed hectic ever supervenes in phthisis till pus has been formed.

Those who maintain that hectic fever always arises from the absorption of pus, admit that abscesses have sometimes been known to continue for a long time without producing hectic fever; but in these cases, they maintain there is little or no absorption of pus, the sides of the abscess having become callous and the abscess itself continuing without either increase or diminution, and giving little or no uneasiness.

Towards the fatal termination of dropsy, it is granted that hectic fever often makes its appearance. But on inspecting the dropical cavities after death, the fluid is frequently found more or less mixed with pus, which is often the case also with what is drawn off by tapping, for some time before death. Besides, towards the fatal termination of ascites, there is sometimes an expectoration of purulent matter.

With regard to pus not occasioning tumors in the lymphatic glands, in its passage to the blood, it may be said, that pus is not of a nature apt to irritate or inflame these glands; in the same manner as the matter of syphilis and cancer, which inflame the glands, is not fitted to excite fever.

That hectic fever does not so frequently succeed large wounds as it ought to do, were it occasioned by the absorption of pus, seems to be the argument of most weight, and to which it is not easy to find a satisfactory answer. It may be observed, that when wounds continue to form a great deal of pus for a considerable length of time, they often do produce hectic fever. The removal of the dressings, and frequent cleaning of the wound, must tend to prevent the absorption of pus. While granulations are going on, the matter secreted is less copious and more bland and thick than when the wound is ill-conditioned, which is generally the case in ulceration of the lungs.

SECT. III.

Of the Causes of Phthisis Pulmonalis.

PHTHISIS pulmonalis is mentioned in the medical writings of every period since the days of Hippocrates. It is a disease of temperate climates, and in no country so frequent as in Great-Britain. In London it is said that 5000 die of it annually. Allowance, however, must be made for other diseases passing under the name

of consumption. Sydenham alledges, that two thirds of those who die of chronic diseases in this island, fall a sacrifice to it.

Those who are of a slender make, with a long neck, delicate smooth skin, and a fair ruddy complexion, with white and transparent teeth, and the albugenea of the eye of a bluish hue, who have a flat or narrow chest, with high shoulders, and stoop when they walk, who possess an habitual and great flow of spirits, with an early acuteness of understanding, are most liable to phthisis.

As the peculiar make and habit of body are hereditary, some account in this way for phthisis being so, and we have every reason to believe that these alone are sufficient to dispose to the disease, but we often see the children of phthisical parents, who inherit very little of this habit, fall a sacrifice to it.

Women, upon the whole, are more liable to phthisis than men, and those between the age of puberty and thirty-five than others. It appears, however, much later than thirty-five, and sometimes, though more rarely, long before puberty. Children have been born labouring under phthisis, and died of it soon after birth.

The exciting causes of this disease are very numerous. They may be divided into three classes. The first comprehending those causes which exist in the lungs themselves and the parietes of the thorax; the second, external causes acting on the lungs; and the last, causes acting on the system in general.

The causes existing in the lungs themselves, and the parietes of the thorax, are tubercles, suppuratation of the lungs in consequence of common pneumonia forming either an open ulcer or a vomica, the presence of calcarious concretion in the lungs, hæmoptysis, catarrh, asthma, metastasis of pus from other parts to the lungs, extensive adhesions of the pleura, tumors and other affections of the abdominal viscera pressing on the diaphragm, fracture or exostosis of the ribs, and mal-conformation of the thorax.

The external causes acting on the lungs are, bad air, dust taken in with the breath, other irritating matter introduced by the trachea from aphthæ or other affections of the mouth, contusions and wounds of the thorax.

The causes of phthisis affecting the system in general are, an inactive sedentary life, indulging much in the use of intoxicating liquors or in venery, the lues venerea, suppressed hemorrhagies, certain eruptive, fevers, any repelled eruption, in short, whatever greatly debilitates or tends to occasion a plethoric state of the system; and many add contagion.

In the following observations on these causes, I shall not follow the order in which they have been mentioned. As most of the causes of phthisis act by producing tubercles, by treating of them in the first place, we shall be better prepared to understand the *modus operandi* of its other causes.

It seems now very generally admitted, that a scrofulous habit is in most cases the predisposing cause of tubercles. They resemble scrofulous swellings in other parts of the body; like these their progress to suppuration is generally slow, and the ulcer formed by them difficult to heal. Those born of scrofulous parents are most subject to them. They are often accompanied with scrofulous affections in other parts of the body, mesenteric obstruction, glandular swellings in the neck, &c. It also often happens in the same family, that some are affected with external marks of scrofula, others with phthisis. I have seen confirmed phthisis relieved by the appearance of scrofulous swellings and sores about the neck. Those who have been much troubled with scrofulous swellings and sores at an earlier period of life, are often attacked with phthisis about the age of puberty or soon after it. Where no scrofulous taint can be observed either in the patient or his relatives, his habit is generally of that kind which accompanies scrofula, and gives reason to believe that the constitution is not free from a tendency to it.

Dr. Cullen and some other writers have enumerated causes as capable of producing tubercles, independently of any scrofulous tendency. On a fair review of the subject, however, the existence of such causes appears very doubtful. It is evident that the idea of exanthematic acrimony being lodged in the lungs, and there producing tubercles,* is merely hypothetical. It is by no means a fair inference, that because phthisis follows a disease produced by a certain morbid matter, that the former, as well as the latter, arises from the presence of this matter. Sometimes in small-pox, and more frequently in measles, there is an evident tendency to pneumonia; and it is where this tendency is most considerable, and in those of a scrofulous habit, that phthisis is most apt to supervene on these fevers, and in such habits tubercles may be excited by whatever tends to irritate and inflame the lungs, as will evidently appear from a consideration of their other causes.

Similar observations are applicable to the other cases of supposed acrimony producing tubercles. In some of these the debility occasioned by tedious disorders seems to be the exciting cause.

* Dr. Cullen's First Lines.

It is well known that, in the predisposed, whatever debilitates may occasion scrofulous affections. Upon the whole we shall not err much, perhaps, by regarding a scrofulous habit as necessary to give the predisposition to tubercles. We can have no doubt, however, that this predisposition may remain through life without producing them, if not called into action by some of the causes above enumerated.

It is not easy to ascertain the presence of tubercles while they remain in an indolent state. In an inflamed state, they occasion the symptoms which have been mentioned as forming the first stage of phthisis.

The following are those which give reason to suspect the presence of indolent tubercles. A slight short cough, not easily alleviated by mucilaginous medicines, increased on lying down, either without expectoration, or with a scanty expectoration of a viscid matter, or as Burserius describes it, of a matter like water in which soap has been dissolved; some pain in the chest, more or less acute; sometimes fixed, more frequently wandering and irregular, with a degree of dyspnœa, uniformly increased on using exercise, or by any other cause which accelerates the circulation. If with these symptoms the patient becomes languid and indolent, and loses his flesh, and some degree of hardness in the pulse, with occasional heat of the skin, is perceived, especially if he be of a phthisical habit, there can be little doubt of the presence of tubercles. They will sometimes continue in an indolent state for many months, or for even years, during which the patient is never long free from cough.

It will appear from the following observations on the other causes of phthisis, which of these seem to act by producing tubercles, and which seem to occasion this disease without their intervention.

It sometimes happens, it was observed above, that suppuration takes place in pneumonia without immediately proving fatal, nor is it always followed by phthisis. Abscesses often remain for a long time, we have seen, without occasioning hectic fever. There have even been instances, in which the pus was absorbed, and the patient restored to health. In general, however, if the bursting of the abscess does not occasion suffocation, hectic fever comes on and gradually exhausts the strength.

When the matter is poured into the cavity of the thorax, it soon produces all the symptoms of phthisis, except the purulent expectoration, and sometimes this symptom also, in consequence of part of the lungs contiguous to the pleura being consumed. When a

small abscess from pneumonia, as appears from what was said of this disease, bursts into the substance of the lungs, the quantity of matter discharged not being sufficient to occasion suffocation, a purulent expectoration is the consequence ; but the chance of recovery is much better than in the case of tubercles. If the constitution is healthy, the expectoration sometimes gradually diminishes, and in a short time disappears.*

Hæmoptysis is regarded as so frequent a cause of phthisis, that Dr. Cullen, we have seen, ranks the latter as a sequela of that disease. It is supposed by some, that it occasions phthisis in consequence of some portion of the extravasated blood which is not expectorated, stagnating and becoming putrid in the cells of the lungs. It is not impossible that hæmoptysis may produce phthisis in this way. In most cases, however, as it is the consequence of repeated hæmoptysis, it seems probable that it arises from the vessels which have been frequently ruptured not healing readily, particularly in lungs inclined to disease.

The commencement of phthisis, from whatever cause, so frequently resembles catarrh, and has so often been mistaken for it, that there is reason to believe this disease less frequently the cause of phthisis, than is generally supposed.

There appear to be four ways in which catarrh may induce phthisis. It may occasion pneumonia or hæmoptysis ; or it may excite a languid inflammation of the internal membrane of the bronchiæ, occasioning a purulent secretion from its surface, which now and then degenerates into phthisis. I have had occasion to remark above, that pus is sometimes expectorated in catarrh. It would seem that this purulent expectoration has sometimes gradually increased, without ulceration, and at length becoming copious, and in some measure habitual, has given rise to hectic fever. Dr. Cullen and others doubt of such cases having existed, but their doubts seem chiefly to arise from a belief that pus is rarely, if ever, formed without ulceration. copious and habitual expectorations of phlegm, says Raulin, sometimes become purulent and degenerate into phthisis, particularly after irregularities of diet, or any thing else which impairs the healthy state of the fluids.

But catarrh most frequently acts by exciting tubercles. This it may do merely by the violent and repeated agitation of the chest, when the cough is severe and long continued ; or in the same way that we see scrofulous tumors occasioned in external parts, by tak-

* Dr. Cullen's First Lines.

ing cold ; and this we have reason to believe is the way in which catarrh generally acts, for its tendency to produce tubercles is by no means proportioned to the severity of the cough. Contagious catarrh, although generally more severe than that from cold, does not appear to be more apt to produce tubercles. I think we have reason to believe that it is less so. We see the most violent coughs continue for a great length of time without producing phthisis. How much more frequently is measles than whooping cough the cause of this disease ?

It has been a common opinion, that syphilis occasions phthisis by producing venereal ulcers in the lungs. There is no direct proof of this, and there are other ways of explaining the concurrence of these diseases.

Ulcers of the mouth of various kinds, indeed, sometimes spread to the trachea and lungs ; and in this way venereal ulcers seem now and then to have occasioned phthisis. Inveterate apthæ of the mouth, (Raulin observes) which proceed from some sorbutic, scrofulous, venereal, or other diseased state of the habit, spread to the pharynx and larynx, and produce ulcers in the œsophagus and trachea, which occasion the symptoms of a confirmed phthisis.

The general opinion is, that the syphilitic matter occasions tubercles ; and Dr. Cullen, we have seen, seems even to suspect that it may have this effect where there is no predisposition. It is very doubtful, however, if this matter ever produces tubercles, even in the predisposed. Syphilis seldom occasions phthisis, except in scrofulous habits, and even in these, for the most part, not till after the constitution has been debilitated by repeated attacks. But in such habits, whatever debilitates may have the same effect. Immoderate indulgence in venery has often occasioned phthisis in those who have never laboured under any venereal disease ;* and indeed such causes produce all the various forms of scrofula. From these circumstances it appears probable, that syphilis, if we except the spreading of the ulceration in the way just pointed out, only tends to produce phthisis as it tends to debilitate ; and we have reason to believe that the very debilitating remedies employed, and often continued for so great a length of time, in syphilis, have no small share in this effect. It appears highly probable, that some other diseases, particularly the scurvy, (which have been supposed to occasion phthisis by the application of some peculiar acrimony to the lungs,) act in the same way.

* The reader will find excessive venery ranked among the causes of phthisis, by Raulin, Lieutaud, and others.

Among the exciting causes of tubercles, a mal-conformation of the thorax is one of the most frequent; nor is it necessary that it should go to the length of deformity to have this effect. It seems equally pernicious whether it arises from the distance between the spine and sternum, or that between the sides of the chest being too small. Binding children with rollers, and the improper use of stays, may be ranked among the causes of mal-conformation. As any mal-conformation of the bones of the chest renders the breathing less free, and slight irritations applied to the lungs, where some irritation already exists, will be sufficient to excite coughing, it is not surprising that it should dispose to tubercles. It is a common observation, that those who are subject to coughs from any cause, are, *cet. par.* most liable to phthisis. An habitual tendency to coughs may proceed from various causes. It often arises, we have just seen, from tubercles themselves in an indolent state, and very often, we have reason to believe, merely from that peculiar state of the lungs which disposes to them.

An inactive sedentary life seems to dispose to tubercles in two ways; by debilitating the system in general, and by the habit of stooping, hurting the lungs in the same way with mal-conformation of the chest. It has been observed, that occupations which confine the body to a bent posture are particularly favourable to the production of this disease.

The free use of intoxicating liquors is a frequent cause of tubercles. All causes of plethora have the same tendency. Suppressed hemorrhagies, the drying up of issues or old wounds, &c. It frequently happens, that where the symptoms of phthisis have been removed by an issue, they return on drying it up. Although suppressed hemorrhagies seem frequently to produce tubercles, they oftener, perhaps, induce phthisis, by occasioning hæmoptysis. Of all the causes of this kind, the suppression of the menstrual discharge most frequently occasions phthisis.

Bad air is mentioned by writers as a cause of phthisis; and it is probable that it operates by producing tubercles, or tending to inflame them. What was said of bad air in speaking of gout is applicable here. Moisture seems still to be the noxious principle. A moist air materially affects the breathing in asthmatic people. It seems likewise to dispose to phthisis by occasioning general relaxation and debility. The frequency of phthisis in Holland has been attributed to this cause. The good effects of sea voyages in this disease might be urged against the probability of a moist air occasioning phthisis. This objection, however, seems to be an-

swered by what was said of the causes of a damp atmosphere in speaking of the treatment of gout ; from which it appears, that the air at sea, from the greater uniformity of its temperature, can hardly ever be so much charged with moisture as it frequently is on land.

Breathing a dusty air seems often to inflame tubercles, if it does not excite them. "I have not," Dr. Cullen observes, "met with many instances of phthisis which could be referred to exposure to dust ; but from Ramazzini, Morgagni, and some other writers, we must conclude such cases to be more frequent in the southern parts of Europe." So powerful is this cause, that the needle-pointers of this neighbourhood seldom escape phthisis above a few years, unless they use means to prevent the dust from entering with the breath ; and with every precaution, the danger is considered so great, that it is only by very high wages that any one is induced to work in this part of the trade ; and those who do, are excluded from the associations, formed by the labouring tradesmen, for the relief of their widows and orphans.

Blows or wounds of the thorax may occasion phthisis in several ways. In producing tubercles they seem to act in the same way with many of the foregoing causes of irritation of the lungs.

Among the causes of tubercles are ranked malignant fevers, to which all other highly debilitating causes may be added.

Obstructions of the abdominal viscera, particularly an enlarged and indurated state of the liver, often prove fatal, by inducing phthisis. In most of these cases, the formation of pus seems at an early period to be unattended with ulceration, for I have seen some supposed to labour under confirmed phthisis restored to health by removing the abdominal disease. If such cases are neglected in the beginning, tubercles and ulceration succeed. An indurated liver may occasion phthisis by pressing on the lungs. But we have every reason to believe that affections of the abdominal viscera, often produce it, by the same kind of sympathy which gives rise to certain species of symptomatic pneumonia.*

If contagion is ever the cause of phthisis, it is probably by producing tubercles. It seems less likely that it should give rise to the other changes which precede phthisis, pneumonia, hæmoptysis, &c. It has not been regarded as contagious till after the purulent stage commences. The reader will find in authors, particularly foreign authors, a variety of cases in which it seems to have arisen from contagion. As in some countries it is very frequent and particularly as it is hereditary, it has probably been often ascribed

* See the 185th and following pages of this volume

to contagion when it arose from other causes. It may often be attributed to the fatigue and anxiety of mind occasioned by attendance on the sick in so tedious and hopeless a disease. It does not seem improbable, however, that inhaling the fetid breath of a person in confirmed phthisis may prove a sufficient cause of irritation to excite tubercles in the predisposed, or inflame them where they exist in an indolent state. Phthisis has been regarded as contagious from very early times. It is certain, however, that it is not of a very contagious nature. There is perhaps no other country in which it is so common as in Britain; yet Dr. Cullen says, that he never knew it evidently to arise from contagion. Upon the whole, there is reason, I think, to believe that contagion may cooperate with the hereditary disposition to render phthisis so fatal as it is in some families. It is prudent, therefore, in those of a phthisical habit to avoid spending much time, and particularly sleeping in the same bed, with patient's labouring under this disease. It appears highly improbable, that the clothes of consumptive patients, as some have maintained, are capable of communicating the disease.

Pus absorbed from other parts of the body, and deposited in the lungs, has been ranked among the causes of phthisis.*

It was observed, that calculi are sometimes expectorated by phthisical patients. Their formation generally precedes the phthisical symptoms, and seems to produce them. They may by their irritation occasion tubercles; but they seem to excite phthisis, where there is no disposition to tubercles, merely by wounding the lungs. In cases of this kind the phthisical symptoms are sometimes never completely formed, and the termination is sometimes favourable, if the causes of inflammation are carefully avoided.

It is a curious circumstance in the history of phthisis, that its progress is often interrupted by pregnancy or mania. The latter has been known to produce a radical cure, but almost always after delivery, and often after the removal of the mania, the disease recurs.

* Many doubt whether phthisis ever proceeds from this cause. Raulin relates a case in which the scrotum was wounded, and a considerable discharge of pus took place. The discharge gradually diminished, and the patient at the same time was seized with a frequent and troublesome cough, and began to expectorate pus, as Raulin calls it, "tres caractere." But on bringing back the purulent discharge, the cough and expectoration ceased. The man died of the wound, and the lungs were found sound, and without the least mark of any suppuration having taken place in them.

Phthisis from tubercles is the most fatal. There is reason to believe, as Dr. Cullen observes, that there have been recoveries after the suppuration of a tubercle, but they are extremely rare.

SECT. IV.

Of the Treatment of Phthisis Pulmonalis.

It has been common with those who have written on the treatment of phthisis, to lay down certain indications of cure, which we have no means of fulfilling; that of correcting the vitiated state of the fluids, of curing the ulcer in the lungs, &c. These tend only to mislead. As far as I can judge, our present knowledge of phthisis admits of no other indications but those of obviating the inflammatory diathesis, and supporting the strength. After the means of fulfilling these are considered, it will be necessary to point out those of alleviating certain symptoms, whose treatment does not fall under the general plan; and I shall in the last place make some observations on the remedies which have been recommended as specifics in this disease.

The means of obviating the inflammatory diathesis are the same as in other inflammatory diseases, but the languid nature of the inflammation and the tendency to debility in phthisis greatly circumscribe their employment.

At one time general blood-letting was very freely employed in the early stages,* and some advised it to be repeated two or three times a week as long as the buffy coat appeared. It is now employed much more sparingly. When the pain is severe, the breathing difficult, and the pulse unusually hard, if less debilitated means have failed, a moderate blood-letting is proper. Local, is preferable to general, blood-letting, and when the inflammatory symptoms are considerable, is often employed with great advantage. I shall soon have occasion to speak of it more particularly. The symptoms just mentioned are such, it is evident, as can only attend an early period. It is almost unnecessary to say, that when the expectoration has become purulent, and the night sweats attend, loss of blood in any way is inadmissible; the motive for it no longer exists.

Sydenham recommends the free use of cathartics at the commencement, and if it ever is proper, it is at this period.

* See the observations of Sir J. Pringle and others.

What has been said of blood-letting is in a great measure true of cathartics, when employed with a view to reduce excitement. Blood-letting, however, is more effectual, and on several accounts preferable for this purpose. Cathartics, therefore, are chiefly used for supporting the regular action of the bowels. In inflammatory affections of the chest in general, we have seen, much purging is seldom beneficial. In the early stages saline cathartics are the best.

Diaphoretics have been much employed when the excitement was considerable. The antimonium tartarisatum has the additional advantage of promoting expectoration. Its debilitating effects, however, make it a doubtful remedy, except in the commencement, and when the excitement is greater than usual. It is only at an early period, indeed, that diaphoretics of any kind are proper. The saline diaphoretics, particularly the acetated ammonia, and nitrate of potash, used in small doses and much diluted, appear best adapted to phthisis. I have often seen great advantage from their cooling effects. If only used when the skin is hot and dry, and the pulse pretty strong, they will rather prevent than occasion an increase of debility, few things debilitating more than a state of increased excitement. Sassafras and sarsaparilla were once much used as diaphoretics in this disease, but are now regarded as insignificant medicines; and guaiacum, which has also been much recommended, is too heating.

Emetics have been employed with a view to reduce the fever and promote expectoration, and at an early period they seem often to be of service in both these ways, but they have been frequently repeated throughout the disease, and have been supposed to possess a specific power in phthisis. I shall soon have occasion to make some observations on this use of them.

Of the acids and neutral salts, those just mentioned, and the saline mixture in a state of effervescence, at an early period, the vitriolic acid when a tendency to sweating has supervened, and at all periods, fresh acidulous fruits are the best. Dr. Percival says, that although the pulse in hectic fever is at first reduced by the use of nitrate of potash, it afterwards rises higher than before. I have not observed the latter effect from a moderate use of it. Muriate of ammonia has been much recommended by some writers, either alone or with nitrate of potash, but seems to be much inferior to the latter. Dr. Cullen thinks the vegetable acids preferable to the mineral, as they are safer and can be taken in larger quantities.

This observation applies only to the early periods of the disease; after the sweats come on, no acid is equal to the vitriolic.

While there are hopes of resolving the inflammation of the tubercles, the diet should so far co-operate with the other means employed, that the patient should avoid both solid animal food and broths. But there is no period of phthisis, perhaps, unless the symptoms approach to those of pneumonia, where the diet should be very spare. A milk diet, therefore, is proper at an early period, and, indeed, almost universally recommended. Fresh subacid fruits, I have just had occasion to mention. They tend to allay excitement, and correct any redundancy of bile. If they occasion diarrhœa, it must be checked by mild astringents and anodynes. Hoffman even declares, that he has seen confirmed phthisis cured by large quantities of strawberries.

Some of the mineral waters impregnated with carbonic gas, and common water combined with a large quantity of this gas, have been recommended for the drink of phthisical patients. The good effects of these waters, if they have any that deserve to be mentioned, probably arise from the effects of the gas on the stomach. It is often a grateful stomachic.

Much attention has been paid to the choice of milk in phthisical cases. Cows and goats milk, if used in considerable quantity, oppress the stomach, so that the lighter kinds of milk, particularly that of asses, have been preferred. Asses milk is supposed by many to possess medicinal powers in phthisis. How far this opinion is well founded it is difficult to say. Women's milk has been still more celebrated in this disease. Van Swieten, Dr. Robinson, and others, relate cases in which they ascribed the cure to it. Mares' milk has also been recommended. In short, the great objects are, that the food should be nourishing, easy of digestion, and afford as little irritation as possible while digestion goes on.

Such are the means of fulfilling the first indication. The reader will perceive, that in this part of the treatment we have it more in view to save and support the patient's strength, than in other inflammatory diseases. The necessity of this seems to arise from the scrofulous nature of tubercular inflammation, which is so immediately connected with a debilitated state of the system, that every cause of debility, as we have seen, may excite it.

We are now to consider the means employed with a view to support the strength. This indication applies chiefly to the more advanced periods of the disease. It is answered by an attention to diet, exercise, and climate, and by the use of tonic medicines.

In the purulent stage of phthisis, the diet should be more nutritious. A certain quantity of the milder kinds of animal food and wine are proper, if they are not found to increase the exacerbations. Some, indeed, maintain, that such a diet is often proper in the early stages, and it is certain that in external scrofulous inflammation, not only the most nutritious diet, but tonic medicines are often used with advantage. Dr. May, in his treatise on pulmonary consumption, and some other writers have related cases in support of this plan; but it does not seem well ascertained in what cases it is proper, and it is certain that in many it is injurious. When during the remissions there is great depression of strength, a little wine, if the inflammatory symptoms are not considerable, is generally allowed at all periods of the disease. It is found much less apt than animal food to increase the exacerbations.

Many of the observations made on sleep and exercise, in the section on the treatment in the intervals of intermitting fever, are applicable to phthisical cases.

With regard to the former, there is little to be added to what was there said. It is sometimes prevented by the cough. While the excitement is considerable, the employment of opiates is in some degree a doubtful practice; although the excitement is seldom such as wholly to exclude their use, especially combined with saline medicines. In the advanced stages they may be given more freely. As the most effectual means of allaying the cough, they doubly dispose to sleep. I shall have occasion to make some farther observations on the use of opiates, in considering the means employed for relieving this symptom.

With respect to exercise, it chiefly demands attention, that it shall be such as may be continued for some length of time without fatigue, and does not much accelerate the circulation. Gestation of various kinds, therefore, is preferable to any kind of exercise, depending wholly on the patient's own exertions.

Some observing the bad effects of fatigue, have proposed that those labouring under phthisis should wholly abstain from exercise, and when the febrile symptoms are considerable, and particularly in the earlier stages, this may sometimes be proper. But it is a disease of such continuance, and depending so much on the state of the general habit, that some attention to exercise is generally indispensable. Many go to the opposite extreme, and maintained that certain kinds of exercise may be regarded as specifics in this disease.

Sydenham's authority has contributed to render riding on horseback in phthisis a general practice, and when the strength is such that it can be continued for a sufficient length of time, it is perhaps preferable to every other, although we have to lament that Sydenham's observation, "Sane haud multo certius cortex Peruvianus feбри intermittenti, quam in hac ætate equitatio phthisi medetur," has not been confirmed by observation. He remarks, that in those who were cured of phthisis in this way, a tumor rose in the neck not very different from scrofulous tumors.

An indiscriminate use of any particular mode of exercise in this disease seems to be improper; the degree and kind must be suited to the patient's strength. It sometimes happens, that riding on horseback increases the dyspnœa, and occasions pain of the chest, or is attended with fatigue. It must then be changed for gentler exercise, and riding in a carriage is often beneficial, and generally well borne by phthisical patients. "All the modes of gestation," Dr. Cullen observes, "that are employed on land may fall short of the effects expected from them, because they cannot be rendered sufficiently constant, and therefore it is that sailing, of all modes of gestation, is the most effectual in pneumonic cases, as being both the smoothest and most constant."

There has been much difference of opinion respecting the circumstances to which the benefit derived from sea voyages ought to be ascribed. Many, with Dr. Cullen, ascribe it to the constant and moderate exercise; others, to the purity of the sea air, and the constant change of air. If the benefit derived from change of air, except it be to a purer air, or one different in temperature or moisture, ought to be ascribed to the occupation of the mind, and the cheerfulness occasioned by a constant change of scene, as seems highly probable; it is not likely that much is to be attributed to change of air in a sea voyage, unless it be to a more southern latitude.

Some have ascribed much of the good effects of sea voyages to the smell of the tar and rosin of the ship, and many to the sea sickness and vomiting. On the cases enumerated by Dr. Gilchrist,* Dr. Reid observes, "The patients were generally sea-sick, and vomited much bile; and in some the good effects ceased when they grew familiar to the ship's motion, and were no longer sea-sick. He relates the case of a consumptive patient who went to sea three times, the distance ten leagues; each time he was sick, vomited bile, and was cured of his disease. In the last,

* Dr. Gilchrist, on the use of sea voyages in medicine.

“ where the patient was at sea only five or six hours, the effects could not proceed from the air or exercise.” Dr. Carmichael Smith, on the other hand, in his treatise on the effects of swinging in pulmonary consumption, remarks, that if the benefit derived from sailing were owing to the sickness and vomiting it occasions, its good effects ought always to be in proportion to these. But this he maintains, is so far from being the case, that he has seen the greatest benefit from sailing where the patients were either little or not at all affected with nausea and vomiting; while, on the other hand, patients have been much affected with both during the whole time they were at sea, and yet neither the cough nor fever relieved.

Dr. Smith attributes the benefit derived from sailing to the motion, and constant change of posture, both to one more or less bent, and from or towards the horizontal posture.

It is probable that the same circumstances in sailing may not be equally beneficial in every case. Their effects, in all probability, in some degree depend on the cause of the disease. In many cases it seems probable that the good effects of sailing are not to be ascribed to any one, but a combination of all its circumstances, particularly to that of the sickness and constant gentle exercise.

Dr. Smith strongly recommends swinging, and says, that the cough is suspended, and the frequency of the pulse generally diminished, after the patient has been in the swing about ten minutes. In fourteen cases, he thinks the disease yielded to this remedy. The patient was generally in the swing from ten minutes to half an hour at a time. Others, however, have not met with the same success from it. “ We are sorry to add,” Dr. Duncan observes, after giving an account of Dr. Smith’s treatise, in his Commentaries for the year 1788, “ that from our own experience we cannot say much in favour of swinging. Since the publication of Dr. Smith’s treatise we have had recourse to it in a considerable number of cases. In some few, where there were symptoms giving a presumption of phthisis, benefit seemed to arise from it; in others, though employed at a period when the symptoms were very slight, it had no influence either in checking the progress of this insidious disease, or in preventing its fatal conclusion. And, indeed, we have not met with any one case where phthisis had decidedly taken place, in which any material benefit arose from its employment. With some patients the sickness it occasioned was so distressing, that they could not be prevailed upon to give it a proper trial; while with others it produced no obvious effect

“whatever, and particularly no change on the state of the pulse.” The experience of others has probably coincided with that of Dr. Duncan, as the remedy has not come into use.

With regard to climate, it has always been observed that phthisical patients are more or less relieved by the summer, their complaints generally increasing as the winter comes on, and gradually becoming worse during the winter and spring, particularly the latter season. This, together with phthisis being rare in warmer climates, suggested the propriety of sending those afflicted with this disease to such climates; and when the change has been made at an early period, it has often been successful. In most instances, it is delayed too long to be of any use.

The exhausting heats of sultry climates have not, for reasons sufficiently evident, been judged proper. Phthisical patients are advised to visit the mild climates of Madeira, Sicily, Italy, Spain, or the southern parts of France. Whatever climate is preferred, as much uniformity of temperature as possible should be studied. Wearing flannel next the skin tends both to support the perspiration in cold weather, and to prevent sudden chills when the weather is warm. Nor are the sweatings in this disease much, if at all, increased by this practice. The patient may be kept cool by having the rest of his clothes light, and (in warm climates) the flannel of a very thin texture. The chill of damp linen is particularly hurtful. To prevent catarrhal affections is of the first importance in the treatment of phthisis. The night air should be carefully avoided.

It is the opinion of many that the chief advantages of a warmer climate may be obtained in this country by confining the patient to apartments kept uniformly of a proper temperature. Although he cannot by this means enjoy the full advantages of fresh air, I can, from my own experience, speak of its excellent effects in the colder seasons.

The tonics which have been chiefly employed in phthisis, are, the bark, iron, cold bath, zink, and vitriolic acid, and certain mineral waters.

It is not surprising in a disease which has been so commonly treated as merely inflammatory, that the use of the bark should have been very generally reprobated, especially as tubercles have by many been regarded as of the same nature with obstruction of the liver, spleen, &c. for the production of which, we have seen, the bark has erroneously been blamed. Many, Raulin, Desault, &c, have for these or similar reasons, condemned the bark without a

trial. Others have condemned it from finding that it increases the exacerbations, anxiety, and dyspnœa. When such are its effects, it ought to be immediately laid aside. The cases where it appears to have been of service are those in which the debility is great, and the remissions well marked, so that the disease has more of the intermitting form than hectic fever generally assumes.

“ In some cases,” Dr. Cullen, who is no advocate for the use of bark in phthisis, observes, “ when the morning remissions of the fever were considerable, and the noon exacerbations well marked, I have observed the Peruvian bark given in large quantities with the effect of stopping these exacerbations, and at the same time of relieving the whole of the phthisical symptoms ; but in the cases in which I observed this, the fever shewed a constant tendency to return, and at length the phthisical symptoms also returned and proved quickly fatal.” In the first volume of the *Medical Communications* the reader will find cases of this kind more successfully treated with bark by Dr. Samuel Chapman. It would appear, however, from some observations, that even where the remissions were less considerable, the bark has occasionally been successful. Burserius speaks of its use in phthisis in the highest terms. Its wonderful virtue, he observes, is most remarkable in those who in their youth laboured under scrofulous swellings. In such habits the excitement is generally moderate. The Peruvian bark has also been much praised where there is considerable admixture of blood in the sputa. Upon the whole, our experience seems to be deficient in this part of the subject ; but from the trials which have been made, as well as from phthisis partaking so much of the nature of scrofula, in which the bark is often of great use, it seems to demand more attention than it has received from the practitioners of this country.

Iron produces some of the effects of the bark, and is, perhaps, less apt to increase the oppression, dyspnœa, and febrile exacerbations. It has been chiefly recommended in incipient phthisis, arising from amenorrhœa, the constitution being relaxed, and the inflammatory symptoms moderate. In these cases, combined with other stimulants, particularly myrrh, by restoring the menstrual discharge, it often at the same time, removes the phthisical symptoms.

Iron has been frequently employed in phthisis, in the different mineral waters. Physicians, says Raulin, who have had most experience of pulmonary consumption, have recommended the use of ferruginous mineral waters in the earlier stages. I have seen these

waters, he adds, have good effects chiefly in the phthisis from tubercles. These cases were probably of the same nature with those in which Burserius recommends the bark. The reader will find, in a variety of authors, different mineral waters recommended in this disease. In this country they seem to have lost their credit. The Bristol water was once celebrated in this disease. Much of the good effects of mineral waters are doubtlessly to be ascribed to the change of scene, often of climate, and the amusements and regular exercise which frequently attend their use. In most phthisical cases, the ferruginous mineral waters are too stimulating, and on this account many practitioners have wholly condemned their use.

The cold bath has been recommended by Dr. Rush and others. If it is ever admissible, it is in the cases in which bark and steel are recommended. In these, however, the debility is often such as to preclude its employment; and upon the whole, most practitioners have been afraid to make a trial of so doubtful a remedy.

Zink has been much praised as a tonic in phthisis, particularly by Dr. Percival; respecting its future experience must determine. Small doses of sulphat of zink seem often to possess a tonic, with little or no heating property, and in larger doses, many think it the best emetic in this disease.

Of mineral acids, I shall have occasion to speak more particularly. It is only necessary to observe here, that they are among the best tonics in phthisis.

Such are the means of fulfilling the general indications in phthisis.

We are now to consider those of alleviating certain symptoms, the treatment of which do not fall under these indications.

The chief of these are coughing, suppressed or difficult expectoration, dyspnœa, pains of the thorax, vomiting, profuse sweats, and diarrhœa.

The most effectual means of relieving the cough, anodynes, I have already had occasion to mention. There are few cases of phthisis in which they may not, to a certain extent, be employed at every period. In advanced stages the excitement is never such as to forbid them, and the relief they afford renders them useful when there are no longer hopes of permanent advantage from any remedy.

I have in treating of another disease, had occasion to make some observations on the manner in which opiates promote expectoration, by at first interrupting it. On this account they must be used with

caution, when the debility is great, as the lungs may be so oppressed by the retention of what should be expectorated, that suffocation may ensue. This, however, is less to be feared in phthisis than in some other affections of the chest.* In the advanced state of the disease, they tend to increase the sweats; but this effect may be counteracted by the use of astringents, and the relief they afford generally more than compensates for it.

Many other medicines have been recommended, with a view to relieve the cough in phthisis. The best of them consist of mucilaginous fluids, either prepared by decoction from vegetables, or by dissolving gum arabic or tragacanth in water. It was at one time customary to give very large quantities of such medicines. In modern practice, they are, perhaps, used too sparingly. They seem to serve a double purpose, besmearing the fauces, and lining, as it were, the stomach and bowels; in both ways often preventing the irritation which excites cough. For the former purpose they should be given in small and repeated doses; for the latter, they must be given in larger quantities. When given in very large quantity, however, they often, particularly the gums, oppress the stomach. Of the decoctions, none seems better than water-gruel or barley-water. The diet in phthisis ought always to be more or less mucilaginous.

To the same head belongs a variety of oily substances which are more apt to oppress the stomach. They are never, perhaps, to be given in large doses, but considerable advantage is sometimes derived from combining small quantities of them, particularly the spermaceti, with the mucilaginous mixtures used for the purpose of allaying the irritation in the fauces.

Such a mixture, with the addition of a certain quantity of opium appears to be the most powerful means of allaying the cough, and about half a tea-spoon full should be slowly swallowed as often as the irritation to cough is troublesome. In some cases, the extract of hemlock will allay it where opium fails. Upon the whole, however, the latter is by far the most effectual. A bit of gum arabic or tragacanth, extract of liquorice, or any other mild substance possessed of a considerable degree of viscosity, kept in the mouth, often, has a considerable effect in allaying this irritation.

The expectoration is often difficult, and sometimes wholly interrupted. At an early period, nauseating doses, particularly of the antimonium tartarisatum, are often the best means of restoring

* See the observations on this subject in the chapter on pneumonia notha.

and rendering it easy. At more advanced periods, especially when the temperature and strength of pulse are reduced, the various preparation of squills and the fetid gums are often employed with advantage.

If the interruption of the expectoration depends on the increasing debility, the means which have been pointed out for restoring the strength will be the most likely to recall it.

If it arises, as sometimes happens, from the viscidness of the morbid secretion, inhaling the vapour of warm water or gruel in which onions have been boiled, is the best remedy. It has been recommended in all cases of difficult or scanty expectoration, to employ vapour impregnated with turpentine, the various balsams, gums, &c. But the irritating quality of vapour, thus impregnated, renders it a doubtful remedy.

Many of the foregoing means often allay the dyspnœa at the same time that they restore the expectoration, and they may occasionally be used for this purpose although the expectoration is not suppressed, particularly the squills and gums when there is not much heat, and especially when the dyspnœa suddenly increases without any evident cause. When there is much heat and dry skin antimonial medicines tend to obviate the irritating effect of the gums.

Many seem to think, that it is only as expectorants and antispasmodics that the gums should ever be employed in phthisis. We have reason to believe, however, that in certain cases, they are otherwise beneficial. For whatever purpose the gums are used, if they increase the heat and oppression, they will do harm. They generally have these effects when there is any considerable degree of hardness in the pulse. I shall have occasion to make some observations on them in speaking of the specifics employed in this disease.

For allaying the pain, cough, and dyspnœa, and rendering the expectoration easy, few means are so powerful as blistering and it is generally proper either to keep up the discharge from the same blister for some time, or, what is often more effectual and less troublesome, to apply a succession of small blisters. They are more generally applicable in phthisis than any of the medicines just mentioned. The excitement, even at the commencement, being seldom such as to counterindicate their use.

When the pulse is hard, local blood-letting is the most effectual of all means for relieving the local symptoms of phthisis, and should precede blistering. It may be occasionally repeated in the

early stages with great advantage, its extent and repetition being regulated by the prevalence of the inflammatory symptoms. When the inflammation is inconsiderable, blistering alone is preferable. The effects of blisters though generally less considerable and not so speedy, are often more permanent, and always less debilitating.

Nothing is more pernicious in diseases of debility, than continued vomiting. I have more than once had occasion to point out the means of allaying this symptom. The saline draughts where the skin is dry, or a mixture of the sulphuric acid, conserve of roses, and peppermint water, when the tendency to sweat is considerable, will often succeed. If these fail, a dose of solid opium, or opium with camphor, may be tried. Blistering the region of the stomach is often of use. But vomiting in phthisis, for the most part, arises from the violence of the cough, and is best allayed by the means which alleviate this symptom.

No symptom more rapidly reduces the strength, than the sweating which so generally attends the advanced stages of phthisis. The various means which tend to restore the strength, tend at the same time to check this symptom. Dr. Percival observes, that a biscuit steeped in wine, a draught of wine, or a dose of the solution of myrrh, often succeed in checking the sweat. Lime water has been much celebrated for this purpose. The reader will find it recommended by Sir John Pringle, Burserius, and others; but there are no medicines of equal efficacy with the mineral acids, particularly the sulphuric. Some maintain that the sweating ought not to be wholly checked; but this injunction is unnecessary, as it is hardly ever in our power to do so. I have never seen any bad effects from checking it as far as we can. The relief it brings is never complete and always transitory, and the harm which it does is certain. Checking the sweat, it has been said, tends to bring on the diarrhœa; and there may be some truth in this observation; but we gain little by preventing the diarrhœa at the expence of the constant recurrence of the sweat. Both are to be checked, as their tendency is equally pernicious.

Van Swieten observes, that opium is almost the only thing which brings effectual relief in the colliquative diarrhœa of phthisis, and when it is accompanied with griping pains, and tenesmus, he directed it to be injected with other medicines by clyster. "Rhubarb," Dr. Cullen observes, "so commonly prescribed in every diarrhœa, and all other purgatives, are extremely dangerous in the colliquative diarrhœa of hectic. Fresh subacid fruits, supposed to be always laxative, are often in the diarrhœa of hec-

“tics, by their antiseptic quality, very useful.” Dr. White recommends the columba, and refers to a treatise of Dr. Percival on this medicine, in which are several cases where it checked obstinate vomiting and purging, when other means had failed.

I have followed those who have trusted chiefly to simple astringents, combined with opium, generally employing either the kino or extract of logwood, and have always found them more or less successful, till at length the powers of life gradually declining, all medicines lose their effect. Whatever other means we employ, some mucilaginous fluid is proper for the purpose of allaying irritation. It may be observed of the diarrhœa, as of the sweating, that all means of strengthening the system, generally tend to check it.

* The menstrual discharge, we have seen, always sooner or later ceases in phthisis. This alarms the patient, and when it happens at an early period, the disease is generally attributed to it. The physician knows that it is merely a symptom of increasing debility, that it is in vain to use any direct means to restore its regular returns, and that could it be restored, its only effects probably would be, that of increasing the debility, and consequently hurrying on the fatal termination.

It is hardly necessary to add, that avoiding all the exciting causes forms an essential part of the treatment of a disease whose causes are so numerous and frequently applied; for it appears, from what was said of the causes of phthisis, that every thing which tends to diminish the strength or irritate the lungs may be ranked among them.

It only remains to make some observations on the medicines which have been employed as specifics in this disease.

I have already remarked that emetics have been employed in this way.* “People at first,” Dr. Reid observes, “are apt to be alarmed, fearing, that by taking vomits every day, the tone of their stomachs will be injured; but I can safely affirm, and I am warranted to do so by the best of all tests, experience, that I never saw any bad effects from a course of this kind continued for weeks with proper precautions; on the contrary, I have scarcely met with one instance where the general health was not essentially improved.” In the earlier periods, he sometimes used the antimonium tartarisatum, at other times ipecacuanha.

* See the observations of Dr. Reid and Dr. Fort Simmons on this disease, a paper by Dr. Senter, in the first volume of the Transactions of the College of Physicians at Philadelphia, &c.

The sulphate of zinc, as the most speedy, has been recommended. Dr. Senter used the sulphate of copper with ipecacuanha.

Emetics seem best adapted to cases attended with considerable excitement, and consequently to the earlier stages of the disease. A sufficient trial has not perhaps been made to enable us to speak positively of the merits of this practice. We know that the relief obtained from emetics in phthisis is generally transitory, and physicians will not easily admit that their frequent repetition in this disease can produce any effect which will compensate for their debilitating tendency.

Since the days of Morton, who recommended a variety of balsams in phthisis, these have generally formed part of its treatment. Dr. Fothergill was among the first who opposed their use, and they are at present falling into neglect in this country. Burserius, and many others, even the latest foreign writers, still place much reliance on them. Van Swieten observes, that as balsams are very efficacious in curing external ulcers, they are recommended in those of the lungs. The best physicians, he continues, use the native balsams; that of Mecca, for instance, Copaiva, and Peru, in preference to the artificial balsams so celebrated by the chemists. Boerhaave also condemns the latter, which have been called balsams of sulphur, and are prepared from sulphur and expressed or distilled oils. Sir John Pringle made a full trial of the balsams of Peru and Copaiva, and seems at first to have been prejudiced in their favour; yet he observes, that he has, since the former editions of his work, been so often disappointed in their effects in phthisis, that he had wholly laid them aside. "The balsams, whether natural or artificial," says Dr. Cullen, "which have been so commonly advised in cases of phthisis, appear to me to have been proposed on no sufficient grounds, and to have proved commonly hurtful. Along with balsams of all kinds may be classed the various resinous gums, which have been recommended in phthisis, generally with the same view, and seldom with better effects." Dr. White, of York, speaks in still stronger terms, reprobating the balsams of Copaiva, Peru, Tulu, and Benjamin, turpentine, opobalsam, gum ammoniac, guaiacum, storax, olibanum, and all their preparations.

The observations of these writers are, perhaps, too indiscriminating. We have reason to believe that in some debilitated and languid habits, medicines of this kind may occasionally be useful; I have myself made a trial of some of them with good effects, myrrh I have already had occasion to mention. I have also oc-

asionally used storax combined with opium, with evident advantage. Dr. Fort Simmons warmly recommends the balsams of Copaiva and Peru; and Dr. Saunders and Dr. Percival speak highly of the effects of myrrh. "I regard this remedy," the latter observes, "as the most useful which modern practice has adopted in consumptions." Others, however, have not met with the same success from it. Dr. Cullen says, that myrrh has not appeared to him to be of any service in phthisis and in some cases to have proved hurtful. There is the same difference of opinion respecting the use of camphor, from which less is to be expected. Tar water has been much celebrated. But the observations respecting it are not sufficiently accurate to enable us to form any certain judgment respecting its effects. I have already had occasion to observe, that all this class of medicines, when they heat and irritate do harm.

Physicians in quest of some specific that shall at all times relieve this disease, appear not to have been sufficiently attentive to adapt the means employed to the circumstances of the case, so that the same means have often done both good and harm.

Mercury has been recommended as a specific in phthisis, but in general with very little success. Dr. Cullen says, that in many trials which he made with it, it proved of no service, and generally appeared to be manifestly hurtful. Dr. Ryan remarks, that although the remedy had never been employed in phthisis, its pernicious effects in other scrofulous cases would have left little hopes of its proving useful in this disease. The justice of this observation may be called in question. Modern practice has pointed out certain cases of scrofula, in which an alterative course of mercury is often employed with advantage.

"If there are any grounds," the author just mentioned observes, "for suspecting that the syphilitic virus is the cause of the disorder, then mercury is to be administered without further hesitation." If what was said in speaking of the causes of phthisis be just, the syphilitic virus never produces phthisis, except in those very rare cases in which a venereal ulcer spreads from the mouth to the trachea and lungs. If syphilis tends to produce phthisis only in proportion as it occasions debility, as appears highly probable, the exhibition of mercury may even be more pernicious in these, than in most other cases. Mercury, indeed, has been chiefly employed in phthisis, where the concurrence of syphilis rendered it necessary: and its effects have generally been such as to deter from the use of it in the former disease.

No means employed in phthisis better illustrate a remark just made on the impropriety of an indiscriminate use of any medicine in this disease. In the generality of cases the only effects of mercury would probably be that of hastening the fatal termination. Yet in one variety, I have found it the best remedy, and have repeatedly seen the patient saved by it, after the purulent expectoration and hectic fever had come on; I allude to the cases occasioned by induration and enlargement of the abdominal viscera. I have already had occasion to observe, that this cause of phthisis has often been overlooked, which is probably the reason that, as far as I know, no writer has pointed out this variety of the disease, as that in which mercury is beneficial.

I have also employed it with advantage in the incipient stage of phthisis, attended with a scrofulous affection of the mesenteric glands. There is reason, I think, to believe, that an alterative course of mercury may tend to resolve indolent tubercles.

Cicuta has with much plausibility been recommended for dissolving tubercles. It has been so seldom employed in phthisis, however, that its effects are not ascertained. Dr. Cullen, in his lectures on the treatment of phthisis, we are informed by Dr. Ryan, used to recommend to his pupils a trial of the cicuta and coltsfoot, when there was reason to suspect the presence of tubercles. But he did not speak from any trials he had made. Coltsfoot has been employed for resolving scrofulous tumors; but upon the whole, with little success.

Among the medicines of this kind may be mentioned the kali, which has not perhaps in phthisis met with all the attention it deserves. Both the fixed and volatile alkalis have lately been proposed as a cure for various forms of scrofula, and the former* to an extent hitherto unknown.

I may refer to the works of Bursarius and other foreign writers for a variety of specifics employed in this disease. Some of them are innocent, and this, perhaps, is the most favourable account that can be given of them.

The lichen islandicus has been much celebrated.† After being steeped in water for some time, it is used as an article of diet in

* See a Treatise by Mr. Brandish on the effects of the fixed alkalis in scrofula.

† See Observations on Pulmonary Consumption, and the Use of the Lichen Islandicus in that Disease, by J. B. Regnault.

phthisis. I have repeatedly made a trial of it without any advantage.

The flesh and broth of vipers have ever since the days of Galen been a favourite remedy, and are even recommended in various cases by Mead, Morgagni, De Haen, and others. In this country their credit has only been established among the vulgar.

Public expectation has lately been much raised by the proposal of the uva ursi, as a cure for phthisis, from so respectable a quarter, that physicians have felt themselves called upon to give it a fair trial. From the trials I have myself made, and which have been made by others with whom I have conversed, it does not appear to answer the expectations, to which the fortunate termination of some cases, in which Dr. Bourne* employed it, naturally gave rise.

The digitalis has been warmly recommended as a specific in this disease. I have met with a few, and but a few, instances in which it seemed to be of service, out of very many in which I have used it. When hæmoptysis attends phthisis its beneficial effects in checking the hemorrhagy are more uniform.

An atmosphere in which the usual proportion of oxygen has, by various means, been diminished, was some years ago recommended as a specific in this disease. In an early stage, and even after the purulent stage has commenced, while the pulse still retains a degree of hardness, any innocent means which obviate the inflammatory tendency are often serviceable. We must suppose that the oxygenous part of the atmosphere tends to support inflammation of the lungs, because it has been found that breathing pure oxygen gas excites it.

It is needless to enter into any detail of certain ingenious opinions respecting the modus operandi of this remedy, and the supposed hyperoxygenation of the blood in phthisis. It is enough to say, that any person, who, without prejudice, reviews the symptoms of the disease, will be satisfied that they are fallacious; and we have reason to lament that many of the modes of practice founded on them appear to be equally so.†

If a lowered atmosphere, as a remedy in phthisis, acts only in the way just pointed out, it is merely to be classed among the means of lessening the inflammatory tendency, many of which are equally certain in their effects, and more easy in their application.

* See Dr. Bourne's Treatise on the use of the uva ursi in Phthisis Pulmonalis.

† See various Publications by Dr. Beddoes on this subject.

It would have the great advantages, however, of being more constantly applied, and impairing the strength less than any other.

May not lessening the proportion of oxygen in the air be of use in certain cases of pneumonia, where the usual means of relief have failed, or the patient's strength is too far reduced to admit of much venesection? Is there not reason to believe that advantage might arise from the application of oxygen gas to external ulcers, in which the inflammation is too languid?

It is hardly worth while to mention among the specifics in phthisis, the earth bath. It may, perhaps, seem strange, Van Swieten observes, that I should ascribe any peculiar efficacy in the cure of phthisis to the effluvia arising from the ground. But I have been informed, by a person highly deserving of credit, that through the whole kingdom of Grenada they attempt the cure of phthisis by the earth bath, and I have since read the same thing in the works of Francisco Solano de Luque, who declares that he used the earth bath with success even in cases deemed incurable. A hole is dug in the earth, and the patient put in, covered with earth up to the neck, and left there till he begins to shiver. As soon as he comes out he undergoes a general friction.*

* The reader may also consult the end of Dr. Simmon's Treatise on Phthisis, where he will find some cases in which this remedy was employed.

BOOK II.

OF THE PROFLUVIA FEBRILIA.

ONLY one order of diseases remains to be considered, the Profluvia, the definition of which was given in the general introduction, namely.

Symptomatic fever, in which the local affection is an increase of some secretion, not naturally of a red colour.

Under this order Dr. Cullen arranges only two diseases, Catarrh and Dysentery. If any others have a title to be classed with them they are the Cholera and Diabetes. But these are so frequently unaccompanied by fever, at least through the greater part of their course, and often through the whole of it when they terminate favourably, that they cannot be regarded as febrile diseases.

CHAP. I.

Of CATARRH.

CATARRH is defined by Dr. Cullen,

“Pyrexia sæpe contagiosa; mucii ex glandulis membranæ narium, faucium vel bronchiorum, excretio aucta; saltem hujus excretionis molimina.”

He divides it into two species, the common catarrh, which always arises from cold, and the epidemic catarrh, commonly termed influenza, which frequently, at least, appears to be contagious. With the symptoms and mode of treatment of the former, almost every body, whether of the medical profession or not, is acquainted; I shall not, therefore, detain the reader with any particular account of it. Both its symptoms and mode of treatment will sufficiently appear from what will be said of the more serious form of the disease.

SECT. I.

Of the Symptoms of Epidemic Catarrh.

THIS disease often comes on like a common cold, but generally with a more considerable chilly fit, and a greater degree of lassitude and dejection; and frequently after continuing without much change for several days, at length gradually declines. In other cases, exposure to cold, fatigue, or some other cause of fever produces a sudden aggravation of the symptoms, or this takes place without any evident cause. Sometimes the disease is more severe from the first, the febrile, as well as catarrhal, symptoms being considerable, and the patient from the commencement complaining of great sinking and debility.

The cough is generally troublesome, and attended with flying pains of the chest, sometimes with a sense of soreness or heat extending downwards under the sternum, or of anxiety, tightness and oppression about the præcordia, which induces the patient to prefer the erect posture. The matter expectorated consists of mucus or phlegm, and is sometimes tinged with blood, although inflammation has not supervened, which in the more severe cases is not uncommon. In some cases little or nothing is expectorated, and sometimes, though much more rarely, there is little or no cough. In many cases the cough continues after the febrile symptoms have abated, with hoarsness, and sometimes loss of voice.

The fauces are frequently affected, often inflamed, as in cynanche tonsillaris; in the most severe cases they are sometimes ulcerated, and sometimes covered with aphthæ. The eyes are often heavy and inflamed, the face florid, sometimes swelled and bloated. There is frequently a discharge, sometimes profuse, from the eyes and nose, with sneezing and swelling of the eye lids. The discharge from the nose, like that from the lungs is sometimes bloody, and in some cases there is a considerable flow of blood from the nose.

The patient generally complains of head-ach, increased by the cough or any jolting motion, which, sometimes in the progress of the disease becomes intense. It is often deep-seated and felt in the course of the frontal sinuses. In some cases the pain is felt chiefly in the face and jaws. A sense of noise in the ears, and deafness, are not uncommon, and the taste and smell are often impaired.

The patient frequently complains of giddiness and pain on moving

the eyes, light and noise being particularly offensive. In some cases there is a degree of drowsiness almost amounting to coma, in others, confusion of head, and even delirium; neither coma nor delirium, however, are frequent.

The alimentary canal is often much disordered. The tongue at an early period is generally covered with thick white mucus, which, in the progress of the disease, often assumes a brown colour, and the thirst is frequently greater than usually attends the same degree of fever. Pains in the stomach and bowels are not uncommon, and nausea, vomiting, and diarrhœa occasionally attend; more frequently the bowels are constipated. It has been remarked, that the cough is most severe when the tendency to constipation is greatest. Biliary symptoms are not unusual, and a degree of cholera supervenes.

The fever is often, but by no means uniformly, proportioned to the catarrhal symptoms. Its most striking characteristic is depression of strength and spirits, which I have already had occasion to observe is often remarkable from the first attack. In the progress of the disease it sometimes goes so far as to produce syncope, which is seldom attended with danger unless it occurs repeatedly. The pains of the head, back, limbs and loins, are also frequently more severe than is usual in the same degree of fever, and there is often a soreness of the whole body. It has been remarked that the cough is frequently least severe when the pains of the limbs are most so. These pains attended with cold shivering alternating with flushings of heat and the sudden prostration of strength, are often the first symptoms.

There is frequently a great tendency to sweating, sometimes even from the commencement; in some cases it is very profuse, the urine being high-coloured and turbid. The sweating is often attended with relief, but seldom with a sudden termination of the disease.

The pulse for the most part is from 90 to 120. At the beginning it is often full and tense, seldom hard. If actual inflammation does not supervene, it generally becomes small and weak in the progress of the disease, and is sometimes in this state from the commencement. In old people, in particular, it sometimes becomes irregular. The depression of strength and spirits is not always accompanied with a sinking of the pulse, which on the whole, is often less effected than the other symptoms would lead us to suppose.

The fever is generally considerable for two or three days. On the fourth, for the most part, it begins to abate, but the loss of appetite, languor, and debility, continue much longer, often attended with great feebleness and stiffness of the joints. The duration of the fever, however is various; it is sometimes protracted even for several weeks, and has, though rarely, assumed the intermitting form. The favourable termination is sometimes attended with a bilious diarrhœa.

Upon the whole although this disease is often severe, it cannot be regarded as dangerous except in the old and infirm, in whom it is most apt to prove tedious and leave bad consequences. The fever generally runs highest in the young and plethoric. It is often very severe in infants. For the most part the danger is best estimated by the degree of cough and dyspnœa. When relapses happen they are often more severe than the first attack. Exposure to cold and fatigue are their most frequent causes. They often prove fatal in old people.

The chief source of danger in epidemic catarrh is its tendency to produce other diseases. In the young and plethoric it sometimes occasions pneumonia; in the old, peripneumonia notha, or apoplexy; in the weak and relaxed, typhus. It often induces asthmatic, bilious, and rheumatic attacks in the predisposed. It is less liable to produce phthisis than we should expect. Sometimes it terminates with purulent expectoration without serious consequences, the pus being merely a secretion from the inflamed surface of the bronchiæ. It is said sometimes to have produced croup. In exhausted habits it seems often to accelerate the appearance of dropsy, or other diseases of debility, and when it supervenes on any of the foregoing diseases, it, for the most part, greatly accelerates their progress. This is particularly the case with respect to phthisis. It is often a severe disease in those who labour under any species of visceral obstruction.

SECT. II.

Of the Causes of Epidemic Catarrh.

ALL ages and constitutions are liable to this disease. Females it is said are more liable to it than males. Many alledge that they are only so in consequence of more frequently attending the sick. Puerperal women are said to be most disposed to it. Adults are more liable to it than children.

Those who live in high, cold, and damp situations, and those exposed to the night air, or to any other cause of taking cold, have been observed to be particularly subject to it. Whatever debilitates, appears to dispose to it, bad clothing, a scanty diet, intemperance, &c.

Much difference of opinion exists respecting the way in which this disease spreads. It would appear at first view, that nothing is more easy than to ascertain whether a disease is contagious, yet so great is the difficulty respecting that we are considering, that many of the best informed confess that they have not been able to ascertain whether it is so or not. "Though I attended to the subject," Dr. Gregory observes, "I am at a loss to decide whether the influenza was contagious or not. If contagious it spreads by laws, peculiar to itself."*

On comparing together the various facts on the subject, we are almost forced to believe that it does not always spread in the same way, but sometimes by contagion, and at other times, merely as an epidemic. Instances occur in which only one of a family is seized with it, notwithstanding the freest intercourse; even those who sleep with the invalid escape it. In some instances a whole family is attacked by it at the same time, and when it spreads from one to another, it appears in some in a few hours, in others in a few days, and in others, not till weeks after those of the same family have been attacked by it; and some escape it while it is in the family, yet have it afterwards. One family has had constant intercourse with another labouring under it, without at all suffering from it. It has been observed that villages in the neighbourhood of, and having constant intercourse with, towns suffering from it, have escaped, while it has appeared in distant towns. And it is not uncommon for it to appear in distant parts of the country at the same time. This observation, however, has been made of other diseases which are certainly contagious, particularly of the plague. Such are the circumstances which would lead us to doubt the contagious nature of influenza. On the other hand there are many well authenticated instances of a family remaining uninfected, till visited by a person labouring under it, and of its then spreading rapidly through the family. It has also been observed in many instances, that those near the sick are most liable to it. And on its first appearance it has often gone through the individuals of a family in which it first appeared before it spread to others, and then first affected those families more imme-

* Dr. Currie's Med. Reports, &c. second edition, vol. 2. p. 78.

diately connected with that in which it first appeared. Such being the facts, it is not surprising that there should be much difference of opinion on the subject. It is natural to form our opinions from what we ourselves see.

It has been generally supposed, that the influenza follows the direction of the wind, but from the most accurate observations, this does not appear to be the case. It has been observed by some that animals are more unhealthy during the general prevalence of influenza, and some have imagined that their diseases resemble it, but in general they do not appear to be subject to any particular diseases at such times.

SECT. III.

Of the Treatment of Epidemic Catarrh.

In the commencement of this disease, the strict employment of antiphlogistic measures is more uniformly proper than in simple fever, but they are not indicated to the same extent as in the phlegmasiæ. In the employment of evacuations in epidemic catarrh, we must always keep in view its tendency to debility; and in the use of tonic means, the inflammatory diathesis, which almost always accompanies it.

It is generally proper to begin the treatment with an emetic, which is often indicated by nausea. If the febrile symptoms are considerable, an antimonial emetic should be preferred, and if they continue with tightness of the chest, but without much depression of strength, the repetition of the emetic is proper.

When unattended by actual inflammation the symptoms are seldom such as to indicate blood-letting. The excitement can for the most part be sufficiently allayed by abstinence, a cooling diet, the use of cathartics, and antimonial and saline medicines.

It sometimes happens that the bowels are particularly languid. Brisk cathartics are then necessary, for it is requisite in all cases, particularly at an early period, to keep up a free action of the bowels; but much catharsis appears often to increase the debility without affording relief, especially if the excitement is not considerable. Evacuations of all kinds, indeed, generally appear to produce more depression of strength than in other similar cases.

From the expectorant power of antimonial medicines, which, when the excitement is considerable, should be continued in small doses, they answer a double purpose. When the excitement is not

much increased, their continued use is apt to induce the sinking and debility so characteristic of this disease.

The bed-room should neither be very cold nor very warm, the former increases the catarrhal, the latter the febrile symptoms. Dr. Currie used the cold affusion in his own case, apparently with good effects. The reader will find his account of it in the 77th and following pages of the second edition of his Reports.

The treatment of influenza is much influenced by the age and habit of the patient, and by its tendency to affect the different cavities. If the patient is threatened with pneumonia or phthisis, the means detailed in treating of these diseases should be resorted to; but our practice must be more cautious in the former case than in simple pneumonia.

When the affection of the chest is merely catarrhal, if there is nothing in the state of the febrile symptoms to counter-indicate the use of anodynes, they are generally of great use in young people, combined with antimonials. Rubbing a solution of opium on the chest sometimes allays irritation, when taking it internally fails. In old people, in whom the influenza often inclines to peripneumonia notha, opiates must be used with caution. When the expectorated matter is tough and viscid, and the patient brings it up with difficulty, provided the fever is not considerable, the more stimulating expectorants, squills, ammonia, asafetida, seneka, &c. are indicated. Even where the fever is considerable, these medicines are sometimes advantageously combined with antimonials, but in general in this case they are too heating, and often render the cough tighter.

Blistering the chest is generally of service, and when the inflammatory tendency prevails, taking blood from it by leeches or cupping, as less debilitating, is often better than bleeding from the arm. It has often been remarked that even when the symptoms seem to demand general blood-letting, it frequently does not produce its usual good effects, although the blood shews the buffy coat. In some cases the buffy coat does not appear in this disease, even when the symptoms are such as would lead us most to expect it. Those who have lost much blood either by venesection or hemorrhagy, generally recover very slowly.

In old people, we have seen, that influenza is sometimes accompanied by a determination to the head, which is often relieved by exciting the bowels, making cold applications to the head, taking a little blood from the temples, and blistering the nape of the neck.

If it goes so far as to produce insensibility, it is to be regarded as apoplexy complicated with influenza, and treated accordingly.

When this disease is accompanied with bilious or other affections of the abdominal viscera, their treatment, in like manner, is to be combined with that of influenza, the debilitating tendency of the latter still being kept in view.

On account of this tendency, it is generally necessary after the increased excitement and inflammatory symptoms have been subdued, to allow the patient a more generous diet, and in debilitated habits the moderate use of wine. The lighter bitters also are frequently used with advantage. At earlier periods, ammonia and musk are employed to relieve the sinking.

When the disease has subsided, leaving a considerable degree of debility without any inflammatory tendency, the bark is often of service.*

* Respecting epidemic catarrh, the efficient cause is still wrapped up in mystery, and the investigation of it does not promise much advantage; but facts, which serve to shew its nature and effects on the human constitution are important.

The author has justly observed that all ages and constitutions are liable to this disease, and I have observed that it affects people in all situations. Those who are confined to the house, and even to a sick room, are quite as liable to it as those who go abroad. It also attacks persons afflicted with all kinds of chronic diseases; and I think I have seen it combined with some acute affections. I have observed that when this disease prevails, persons who have it, are liable to be attacked with the typhus fever, and the symptoms of both diseases are conspicuous in such patients.

In my note on peripneumonia notha, I remarked that the catarrh assumes a great variety of forms, and affected different parts of the body at different times. In the autumn of 1790, an epidemic of this kind prevailed in New England, which affected the mucous membrane of the head causing an acrid discharge from the nose, which inflamed the upper lip, having little or no effect on the mucous membranes of the lungs and attended with little or no cough. I do not know that it proved fatal to any. In the spring of 1791 a catarrhal affection prevailed pretty generally, which affected the lungs severely, and of which many people died, while it produced but little effect on the head.

A judicious physician has observed that the spotted fever is a particular form of catarrh. In the winter of 1813, in that part of the country where the pneumonia typhoidea prevailed, the spotted fever was prevalent at the same time among children. It was common for the adults in families to have the pneumonia; and the children in the same families to have the spotted fever at the same time, which induced me to infer that the two diseases were somehow connected together.

Respecting the treatment of epidemic catarrh, blood-letting is not often useful, but it is occasionally necessary. Emetics, diaphoretics, and opium are

CHAP. II.

Of Dysentery.

DYSENTERY is defined by Dr. Cullen,

“ Pyrexia contagiosa ; dejectiones frequentes, mucosæ, vel sanguinolentæ, retentis plerumque sæcibus alvinis ; tormina ; tenesmus.”

Dr. Cullen agrees with Sir John Pringle in admitting but one species of idiopathic dysentery, considering as merely accidental the circumstances which have been regarded as marking different species of the disease ; such as the presence of worms, the discharge by stool of fleshy or sebacious substances, there being no discharge of blood, the appearance of miliary eruption, &c. There would be no end, it is evident, to species of this kind.

SECT. I.

Of the Symptoms of Dysentery.

DYSENTERY sometimes comes on with the usual symptoms of fever, shivering, and the other marks of a cold stage, which are succeeded by heat and thirst, and soon after by the symptoms peculiar to the disease.

It more frequently happens, however, that an affection of the bowels is the first symptom. In many cases the disease comes on with a common diarrhœa, which gradually assumes the form of dysentery. In other cases there are from the first, severe griping, tenesmus and bloody and mucous stools. The febrile symptoms then soon shew themselves, and there is often a very sudden prostration of strength.

Sometimes the attack is very gradual, wandering pains of the bowels distressing the patient for several days before the dysenteric symptoms shew themselves, and the fever not making its appearance till some time after this happens.

The fever is sometimes a synocha throughout the greater part of its course, more frequently it assumes the form of typhus at an

the best remedies in this disease. When the local affection is considerable ; and when it effects the head or lungs, blisters applied near the part affected, are highly useful.

early period, and in some cases it is a well marked typhus from the first.

In the worst cases this disease sometimes proves fatal in a few days, during which the patient is reduced to the last stage of debility; and if he survives many days, the emaciation is extreme, equal to what we see in phthisis. In more favourable cases the debility comes on less suddenly.

As the disease often begins with diarrhœa, the favourable change is often denoted by the return of this symptom, the griping and tenesmus abating or ceasing altogether. The diarrhœa generally soon leaves the patient, with no other complaint than a degree of languor and debility, proportioned to the severity of the preceding disease.

In other cases, the hardened fæces, which are either wholly retained during the disease, or partially excreted in small hard masses, are at length discharged; and the dysenteric symptoms, without any considerable diarrhœa, gradually abate.

The duration of dysentery is various; the mildest, like the more severe forms, sometimes run their course in a few days, or at most, weeks. Those in which the symptoms are obstinate without being severe, are often protracted for many months.

Such is the general course of the disease. Before proceeding to a more detailed view of the symptoms, I may observe, that as the fever in dysentery is not only sometimes the first part of the disease which shews itself, but even now and then continues for some time before the local symptoms appear, and as the degree of fever often seems proportioned rather to some peculiar virulence of the contagion, than to the local affection, it may seem, that the fever is regarded as symptomatic of the local affection with less propriety in dysentery than in the diseases with which it is classed. But it appears from a variety of facts, that the contagion of dysentery, or the putrid effluvia attending it, may excite a real typhus independently of any local affection; in which the latter frequently does not appear for some time after the commencement of the fever, and in some cases does not appear at all. Where such a fever, therefore, continues for some time before the local affection shews itself, the case is evidently to be regarded as a combination of typhus and dysentery. In the case of simple dysentery we shall find sufficient proof of the general affection depending on the local, the former being constantly influenced both with respect to kind and degree by the state of the local disease, ceasing along with it even when removed merely by

local means ; and again returning, if it be renewed by errors of diet, or any other cause affecting the bowels.

When dysentery makes its attack suddenly, it often comes on with great prostration of strength, attended with nausea and vomiting, and a weak and frequent pulse. More generally after the symptoms common to the commencement of febrile diseases the local affection first shews itself with pain, and mucus and bloody stools. The pain is generally of the griping kind, but varies in different cases, and at different times in the same case.*

In other cases, various symptoms denoting derangement in the stomach and bowels, nausea, flatulence, acid eructations, constipation, &c. precede the more characteristic symptoms of the disease, sometimes for several days.

I have just had occasion to observe, that dysentery is frequently preceded by common diarrhœa. By irritating the intestines and washing off their mucus, diarrhœa seems sometimes to occasion it. The desire to go to stool becomes more frequent ; the griping and tenesmus more severe ; the matter voided gradually changes its appearance, and at length consists wholly of mucus mixed with blood.

The quantity of blood in the stools is various. Sometimes it appears only in streaks, sometimes it forms a considerable part of the stool, and sometimes almost the whole of it ; so that, were it not for the other symptoms, and the darker colour of the blood, the disease might be mistaken for the hæmorrhoids. From the large quantity of blood sometimes discharged, it has been called the bloody flux. When the stools are wholly unmixed with blood, it is termed dysentery alba, or morbus mucosus.

The natural fæces are often retained during almost the whole course of the disease, and when they do appear they are in small separate balls, which seem to have lain long in the cells of the colon, and have obtained the name of scybalæ. The expulsion of these, whether spontaneous or by medicine, is attended with a remission

* "Some," Dr. Cleghorn observes, "are seized with a twisting of the guts, which, as they express it, draws up their bowels into knots, and many, instead of griping pains which shift from place to place and come at intervals, have acute fixed ones in some particular part of the belly, which occasion complaints as various as their seat, some being attended with stitches about the bastard ribs, interrupting their breathing freely, as in the pleurisy ; others with a pain reaching from one hypochondrium to the other, cutting them, as it were, in two ; while others complain only of a pain about the pelvis, with a constant fruitless straining to stool, though the body is for the most part costive, and discharges nothing but bloody slime."

of the symptoms, particularly of the frequency of the stools, griping and tenesmus.

Such are the most common appearances in dysenteric stools. Substances of a fibrous or membranous appearance are often observed in them, which have been regarded as portions of the internal coat of the intestines abraded ; but Zimmerman remarks, that they are very seldom of that nature, and generally consist of inspissated mucus. The internal coat of the bowels, he admits, is sometimes abraded, but so late in the disease, that instead of having a membranous appearance, it is changed into a putrid thin pus, the bowels becoming ulcerated ; or is so mixed with blood and mucus, that it is impossible to distinguish it.

We are not always, however, to infer that the bowels are ulcerated when we observe purulent matter in the stools, which is not uncommon, particularly in protracted dysenteries. We have reason to believe, that in the majority of cases it is secreted from the irritated and inflamed surface of the intestines, without ulceration. Small masses of a substance resembling fat, are sometimes found in the stools, the nature of which does not seem well ascertained.*

The various substances passed by stool are occasionally discharged by vomiting. It is not uncommon in dysentery for worms to be passed in both these ways.† The matter rejected by vomiting

* "As to the white substances," Sir John Pringle observes, which I compare "to suct, I do not know whether they are the same which Hippocrates calls "carunculæ, but they are plainly described by Aretæus and Cælius Aurelianus, "and have since been taken notice of by later writers, under the name of cor- "pora pinguis, and variously accounted for. Although I have frequently seen "them, I had neglected to examine them till the autumn of 1762, when Dr. "Huck and I visited a patient ill of dysentery, who voided such substances. "We preserved one of them, and were both satisfied that the object of our en- "quiry was nothing but a bit of cheese, though the patient assured us after- "wards he had tasted none from the beginning of his illness, which had been of "above a fortnight's standing." Sir John Pringle concludes, that they orig- inated either in bits of cheese which had passed from the stomach before the illness, or were formed from milk, the use of which the patient had continued. It is more than probable that they are not the carunculæ, of Hippocrates, since Degner and other writers mention both these substances and small fleshy bodies which they term carunculæ. Zimmerman thinks that they are both formed from inspissated mucus, but adduces no proof of his opinion.

† In 1743, we are informed by Huxham, that a dreadful dysentery raged, in which worms were passed even by adults and old people. Pringle, Monro, and others, mention worms discharged by vomiting.

is generally more or less bilious, sometimes, though rarely, stercoraceous.*

As the disease advances, the stools often become sanious, and of a dark brown or black colour, with an insupportable cadaverous fetor, affording a very bad prognosis, and often indeed indicating the presence of gangrene. Very frequently at an early period, and sometimes throughout the greater part of the disease, they have little or no fetor, but a faintish disagreeable smell.

Sydenham mentions cases under the name of dysentery, in which there were no stools. They cannot, however, be regarded as deserving this name, and must be referred either to the head of colic, or enteritis.

The various symptoms of derangement in the *primæ viæ* attend throughout the progress of the disease, and the flatulence sometimes increases to such a degree as to occasion a real tympanitis. The mouth is foul, the patient complaining of a bitter taste; the tongue white and covered with tough mucus, or rough and dry, at length becoming black. Aphthæ frequently appear about the root of the tongue, and sometimes spread over the internal fauces.

When we were considering eruptive fevers, I had occasion to observe how much eruptions are influenced by the state of the stomach and bowels. It even appeared that disorders of the alimentary canal are not unfrequently their exciting cause. Hence it is, we have reason to believe, that dysentery is so frequently accompanied by eruptions of different kinds. The miliary eruption, in particular, is a frequent attendant on it.†

By an attention to the local symptoms, we may sometimes determine what part of the intestines is affected. If the small intestines be the seat of the disease, the pain is often very acute; and the patient complains of its twisting round the umbilicus; the sickness and vomiting, and the pain and flatulence of the stomach, are more urgent than when the disease is confined to the large intestines; the fæces are not passed immediately after the griping, and if blood or purulent matter is passed, they are more intimately mixed with the other parts of the stool.

Hiccup sometimes supervenes early without affording a bad prognosis, which it always does when it comes on at a late period,

* See the observations of Degner, (*De Dysenteria Biliosa*) and others.

† Degner describes a singular eruption which appeared in one of his patients, blotches and hard black tubercles, like the true pestilential carbuncles, which terminated in a fatal sphacelus.

and when the other symptoms are unfavourable. When hiccup appears early, and proves obstinate, it may be suspected, that in whatever part of the intestines the disease is seated, it is pretty high in the abdomen.

When the disease has its seat in the large intestines, the pain, according to Burserius, is more obtuse. But Sir John Pringle remarks, that in general the irritation of the stomach and higher intestines is attended with more sickness in proportion to the griping, and that when the griping is very acute without sickness, it is probable that the disease is in the large intestines. The tenesmus is then most urgent, the stool more quickly follows the griping, and the blood and purulent matter is less mixed with the rest of the excrement.

Sometimes both the large and small intestines partake of the disease. This circumstance, together with the intestines constantly changing their place, the sympathy which subsists between different parts of them, and there being in some measure differently situated in different people, often renders it very difficult, with any certainty, to determine the seat of the disease.

There are cases of dysentery unattended by fever. In these, however, the affection of the bowels is slight, and of short duration. In many cases, we have seen, the fever is a synocha. This is particularly the case in the young and robust, and when the disease is produced by the use of fermented liquors, or cold.

When the excitement runs high, the danger is considerable, the debility which succeeds being proportioned to it. But it is greater when debility attends from the beginning. Even in the early stages the debility is often such as to occasion syncope. It sometimes happens, that the pulse is natural for the first days. We cannot, however, confide in this, especially if the strength is much reduced. In such cases, about the third or fourth day the pulse becomes frequent, and often very suddenly begins to intermit.

The state of the various functions is the same as in simple fever, except where it is influenced by the local affection. There is often a painful strangury from the commencement of the disease, and the urine is sometimes wholly suppressed for several days.

The fever in dysentery is not always continued; it sometimes assumes the tertian type, and in many cases remits irregularly. Well marked remissions, and still more intermissions of either the local or general symptoms, are favourable. They can only be depended on, however, when they are of considerable duration.

As the fatal termination approaches, the various symptoms of extreme debility gradually shew themselves. A lienteric purging sometimes comes on, whatever is taken being passed with little change; the pulse becomes extremely frequent, small and irregular; the skin is bedewed with cold, clammy, and partial sweats; the extremities become cold, and the pulse at length ceases. It sometimes happens, that after these symptoms the patient lives for several days, the pulse and natural heat gradually returning. When the pain and tenesmus remit, the anxiety and restlessness increasing, with dark coloured and offensive stools, and a hippocratic countenance, we are assured that gangrene has taken place. It is not uncommon here, as in gangrene of the intestines from other causes, for the patient to retain his senses to the last.

We may look for a favourable termination, when the febrile symptoms are mild, some degree of appetite remains, and the patient is little troubled with nausea; when the pains are not very severe, nor the stools very fetid; when, the emaciation, weakness and anxiety are not considerable; and above all, when the patient enjoys sleep, and the skin is soft and moist. The favourable diarrhœa, in which dysentery often terminates, like that which precedes death, is sometimes lienteric, though seldom in the same degree.

Dysentery rarely terminates in recovery in so short a time as it sometimes proves fatal; seldom in less than twelve or fourteen days. Protracted cases may prove fatal either by the symptoms suddenly increasing, or in consequence of the strength being gradually exhausted. But in these, the symptoms being milder than when the disease is more rapid, the danger is generally less. The bowels seem sometimes to acquire a habit (if the expression may be used) of retaining the fæces, and the disease is protracted even for years, the patient being constantly harrassed with pain, mucous and bloody stools, fever and want of appetite, under which he gradually sinks. In such cases some part of the intestines is often ulcerated. The lower parts of the intestines are generally the last that recover their tone; the tenesmus often remaining a considerable time after all the other symptoms have disappeared. This has been ascribed to the remains of the morbid matter; but Sir John Pringle seems to ascribe it to the true cause, the soreness of a part which has been so much inflamed and excoriated in the course of the disease, and which is still frequently irritated. "That the tenesmus which succeeds dysentery," he adds, "may be sometimes owing to an ulcer, is as-

*serted by Morgagni, but he gives only one instance of it in his "practice."

Various diseases of debility, particularly of the stomach and intestines, follow dysentery, especially when long protracted; obstinate diarrhœa, or limentary, dyspepsia, pains of the bowels, &c. Degner says, that some of his patients after recovering from dysentery had a discharge of chyle with the fæces; and others almost an insatiable hunger. I have seen a case in which permanent stricture of the rectum followed long protracted dysentery, where the irritation from acrid stools had been very great. If the patient has been much reduced, dropsical symptoms often succeed this disease, which may sometimes be removed by tonic medicines and a proper attention to diet and exercise.

SECT. II.

Of the Appearances on Dissection.

WE generally find the intestines inflamed, often more or less sphacelated, and sometimes ulcerated; they are sometimes of a dark or even black colour, for a great part of their course without either ulceration or gangrene.*

The inflammation sometimes extends through almost the whole tract of the intestines, and even spreads to the stomach, which has also been found gangrenous.

The coats of the intestines are often much thickened, and here and there tender as if half putrid.

The villous coat is frequently abraded, though not so often as once supposed; sometimes it seems quite dissolved into a greenish putrid mass. When the villous coat is consumed, the vascular generally appears full of turgid vessels, as if well injected with red wax.

The internal surface of the intestines is often covered with bloody slime of an extremely offensive smell, and sometimes there is no excrementitious matter, even in the form of scybalæ, in any part of them; the digestive powers seeming to have been wholly suspended for some time before death.

The large intestines are most frequently affected with gangrene and ulceration. Blood is often passed in considerable quantity when no appearance of ulceration can be found after death; so

* Dr. Baillie's Morbid Anatomy.

that Sir John Pringle and Zimmerman conclude, that in general the blood flows from the debilitated mouths of the vessels which open on the internal coat of the intestines ; and the gangrenous state of this coat often extending so far along the canal without actual ulceration, favours the opinion.

The intestines are often found enlarged, the effect of repeated distension from air. From this cause, together with the flaccidity occasioned by the tendency to gangrene, the colon in particular has often been so much distended, that the appearance of its cells, and even of the ligaments which form them, has been almost wholly obliterated. The ligaments are sometimes found in a gangrenous state, and adhering loosely to the outer coat of the intestine.

When gangrene has not destroyed the texture of the parts, constrictions are often found, particularly in the large intestines, often of considerable extent. These are supposed by the generality of writers to cause dysentery by retaining the natural fæces, which, by lying in the intestine, are formed into hard masses, occasioning much irritation and an increased secretion of mucus. The relaxation of these constrictions readily accounts for the highly offensive and putrid stools which are so often the forerunner of death.

Sir John Pringle, Dr. Cleghorn, and some others, mention the appearance of small flat tubercles in the large intestines, which look like the confluent small pox.*

Such are the appearances observed in the intestines of those who die of dysentery. Dr. Cleghorn informs us that in some cases, the ulcers were not on their internal but external surface. In a few, he observes, there were small abscesses in the cellular membrane of the peritoneum, contiguous to the colon and rectum ; the convolutions of the intestines frequently adhering to each other, or to parts in their neighbourhood.

With regard to the other abdominal viscera, they are often sound. The mesentery and mesocolon, even when the intestines are gangrenous, are sometimes loaded with fat. The author just mentioned observes, that in two cases which he saw, the omentum was almost entirely wasted, the small remains of it being quite black, and purulent matter was found in the abdomen. The gall

* Linnæus and Zimmerman also mention this appearance. The writers mentioned in the text think it a very common attendant, particularly on contagious dysentery, and that its not having been more generally mentioned by writers, arises from its being concealed by the blood and mucus, which so frequently besmear the intestines in dysentery. It is unnoticed both by Bonetus and Morgagni.

bladder is often much distended with bile, which is generally of a darker colour than usual. The liver, spleen, pancreas, and kidneys have been found flaccid and enlarged, more rarely, diminished in size and indurated. They are sometimes gangrenous or consumed with abscesses.

The following description affords a striking picture of the effects of this disease. "Although the body was opened the next day, the smell was intolerable, the intestines were wholly mortified and the stomach partly so. The coat of the liver was putrid, and in its substance were several abscesses containing a purulent or ichorus matter; the spleen was likewise corrupted."*

There is seldom much change to be observed in the thoracic viscera. Sir John Pringle mentions a case in which the diaphragm, ascended as high as the third rib, probably from the distension of the intestines, yet the lungs were sound. In some cases, however, as in one related in the 31st Epistle of Morgagni, the lungs are found in a very diseased state. The blood is generally of a dark colour, and partly coagulated in the ventricles of the heart.

From the above state of the abdominal viscera, † we have reason to believe, that death is generally occasioned by inflammation of the intestines running to gangrene. When the pulse is frequent and small and the pain severe with nausea and much tenderness of the abdomen, we may be assured that inflammation has super-vened.

SECT. III.

Of the Causes of Dysentery.

THE ancients were acquainted with dysentery, but most of them used the word in a very vague sense; Hippocrates, Galen, and many others, applying it as a general term for all kinds of fluxes or hemorrhagies of the intestines; others confining it to express an ulcer of some part of the alimentary canal. Sydenham and Willis seem to be the first who employed the term in the way we now do.

Dysentery is more a disease of the warm, than the cold and temperate climates, and most frequently appears towards the end of summer and in autumn. Huxham is among the few writers who

* Sir John Pringle's Observations on the Diseases of the Army.

† See Roederer de Morbo Mucoso, p. 155 et seq.

met with an epidemic dysentery in spring. It is most apt to make its appearance when the summer is unusually warm and the autumn moist ; and the cold of winter generally tends to check its progress. It has sometimes, however, made its appearance, and proved very fatal after moderate heats, and sometimes it has continued through a great part of the winter.

Weak and exhausted habits are most liable to it. This observation is most applicable to the worst forms of dysentery, which partake so much of putrid fever, that Dr. Blane considers the disease as a fever of this kind, the affection of the bowels being only symptomatic.

With regard to the occasional causes of dysentery, many maintain that there is but one, contagion ; and that the other occasional causes only favour its operation.

Of contagion in general I have already had occasion to speak at length ; it will only be necessary here to make a few observations, particularly applicable to the disease before us. The contagion of this disease, like that of most others, extends but a short way around the sick. But its chief source is the excrement ; for the mere smell of it, as Zimmerman observes, has often communicated the disease to men in health, and even to beasts. And it would seem, that the more fetid the excrement, the more contagious is the disease. It may be propagated, the author just mentioned thinks, by clothes or furniture which have never been in contact with the sick, provided they have been exposed to the effluvia arising from the patient's body, and still more to those from the excrement ; and as I have had occasion to observe of other diseases, the person who wears the infected clothes may escape, while the disease is communicated to those with whom he associates. It is a remark of Sir John Pringle, however, that dysentery often spreads more slowly, and is of a less infectious nature, than most other contagious fevers ; so that in the milder epidemics, as in that described by Sydenham and Willis, its contagious nature has passed unnoticed. This observation by no means applies to the worst forms of it. Degner and others mention epidemics not less infectious than the plague itself. Like many other contagious diseases, dysentery is sometimes communicated to the fœtus in utero.

The manner in which dysentery is propagated points out some of the means of checking its progress. Public privies are the most certain means of spreading it. It is not even proper to confine many sick to the same privy, as the constant application of the

contagion not only renders the disease more dangerous to the patient himself, but to all that are near him. The excrement should be regularly buried. In camps attention should be particularly directed towards detecting the sick, who use every means to conceal a disorder which excludes them from the comforts of society, and seldom betake themselves to bed till they have infected many of their companions. But for the various means of preventing the spreading of the disease, I must refer to the first volume.*

If the other causes, to which dysentery has been ascribed, are not capable of exciting the disease, independently of contagion, they certainly add to its power; it is therefore of great consequence to avoid them in endeavouring to check the progress of the disease.

A bad diet seems to be a principal cause of the greater virulence of dysentery among the lower ranks. A debilitated habit, however induced, may have the same effect. I have had opportunities of pointing out how much the severity of other contagious diseases is increased by it.

Another cause of its frequency among the lower ranks, is their keeping their persons and houses dirty. Zimmerman even goes so far as to attribute to this cause alone the contagious nature of dysentery. For on its first appearance he remarks, as it attacked many at the same time, it seemed to proceed from a cause which acted more generally than contagion could be supposed to do, and seemed only to become infectious in proportion as cleanliness was disregarded.

Many have been led wholly to ascribe dysentery to certain states of the bile, from the stools being frequently bilious; from an unusual quantity of bile being often found in the intestines and gall bladder of those who die of it, and that generally of a dark colour, implying a vitiated state of this fluid; and from dysentery prevailing most in those countries where bilious affections are most common. No particular state of the bile, however, seems connect-

* A vomit and gentle cathartic, Zimmerman remarks, seem often to prevent the disease in those who are exposed to its contagion. Those, it has been observed, who eat little, drink less, and do not take their drink cold; who keep up the perspiration, especially during the night, by covering themselves all over with bed clothes; either escape the disease, or have it slightly. Fatigue, vexation, and fear dispose to dysentery as well as other contagious diseases. There is every reason to believe, that tonic medicines, by strengthening the alimentary canal, tend to prevent this disease. See Sir G. Baker's *Treatise de Dysenteria*.

ed with the disease ; and in cholera and other diseases we see the bile variously changed in quantity as well as quality without inducing it. By others it has been ascribed to other kinds of acrid matter in the intestines. But there seems in many cases no evidence of any acrid matter till the disease itself has produced it. Irritation of the intestines, however, kept up by bile, worms,* flatulence, acid, &c. may terminate in dysentery ; and that such causes are favourable to the operation of its contagion, and tend to increase its virulence, every day's experience evinces.

Almost every writer on the diseases of the army informs us, that lying in the fields and doing duty in all kinds of weather are peculiarly favourable to the appearance of this disease. Here, as in other instances, cold is most pernicious when it alternates with heat, which is probably one of the causes of the unwholesomeness of warm moist weather, the vapour exhaled during the day being condensed occasions damp and chilliness in the evening. Hence it seems to be, that dysentery often rages at the same time with remitting and intermitting fevers, and that these diseases are frequently combined.†

Whatever share putrid effluvia may have in the first production of the disease, they never fail to increase its violence, and render it more infectious. Dr. Donald Monro, whose experience was very extensive, wholly attributes its production to obstructed perspiration and exposure to putrid effluvia.

It is very doubtful whether (as Zimmerman seems to suppose, and as the great effect of the excrement in propagating the disease has induced many to believe) dysentery, like common typhus may arise from putrid effluvia alone. The constant affection of the bowels must incline us to believe that there is something specific in its contagion. It was observed in treating of contagion, that we have reason to believe that contagious diseases are at first produced by a concurrence of several causes. Thus we find, that a very simple concurrence of causes is sufficient to occasion typhus, which afterwards spreads by its own contagion. It seems probable from many observations, that taking cold, a diet of difficult digestion, irritation from bile, &c. which would in ordinary circumstances occasion diarrhœa, may, when the patient is exposed to putrid effluvia, produce dysentery.

I have had occasion to observe of the plague, typhus, and some other contagious fevers, that few other diseases appear, while they

* See Dr. Huxham's account of the Epidemics of 1743.

† See the observations of Sir John Pringle, Dr. Donald Monro, &c.

are prevalent, and those which do, partake of their nature. The same observations have been made respecting dysentery. While the dysentery raged, Degner observes there was hardly any other disease to be met with except diarrhœa and one or two cases of small pox. I knew very few, he adds, that during this time were confined to bed by any other disease but the dysentery. Most writers on this disease make similar observations. Intermitting and remitting fevers, in particular, are apt to partake of dysentery. Analogous to this observation is that of Sydenham, that the epidemics of the same year bear some resemblance to each other. We find that the worst kinds of dysentery, in which the fever is typhus and the stools very fetid, are often preceded or followed by putrid fevers.

SECT. IV.

Of the Treatment of Dysentery.

THE treatment of dysentery, Dr. Cullen observes, for want of a proper view of the nature of the disease, seems to have been in several respects fluctuating and undetermined. He therefore explains what he conceives its nature to be. Although Dr. Cullen's opinion of its depending wholly on a preternatural constriction of the intestines, is far from being established, it may be regarded as the most probable; and as it serves to connect the different parts of the treatment, it may be useful to keep it in view. It does not, however, lead, a priori, to the whole of the treatment which has been found most successful; and might even suggest an early and free use of opiates and other modes of practice, which are found to be hurtful. We cannot, therefore, agree with Dr. Cullen, in regarding the removal of the supposed constriction of the intestines as the indication on which the whole treatment rests.

Sir John Pringle and many other of the best writers seem to have regarded our knowledge of this disease, as too confined to admit of our laying down indications of cure. But although we are not warranted, perhaps, to lay down any, implying a knowledge of its proximate cause, it does not seem difficult, by attending to the effects of the means found beneficial, to form such as may be very useful in conducting the treatment. A review of these means seems to lead to two indications, which comprehend the whole of the treatment: to procure the evacuation of the natural fœces; and when this indication is answered, to restore tone to the bowels.

The former is answered by preventing or removing irritation and other causes which impede the action of the bowels or render it ineffectual in expelling the *fæces*; and by increasing the action of the stomach and bowels by cathartics. The circumstances which, besides irritation, tend to prevent the relaxation of the bowels, seem reducible to the two heads of increased excitement and debility.

It is of the first importance in this disease, that every thing which tends to irritate the stomach and bowels should be avoided; the diet, therefore, ought, with the exceptions afterwards to be pointed out, to be of the mildest kind; and we must, at the same time, as far as we can, expel the morbid contents of the *primæ viæ*, and allay or prevent the irritation occasioned by those which we cannot remove; for whether irritating matter in the *primæ viæ* has occasioned dysentery or not, it always attends it.

The use of emetics is chiefly confined to the early periods. They are particularly indicated when the stomach is loaded, especially, if, at the same time, the excitement is considerable, with a dry parched skin. At the commencement, the excitement is seldom so low as to counterindicate them. Their effect is not merely that of emptying the stomach and preventing the introduction of irritating matter into the intestines; they determine to the skin, thus tending both to allay the fever and relax the bowels. When the stomach is much loaded, emetics are often employed with advantage as late as the tenth, twelfth, or fourteenth day. As might be inferred, *a priori*, from the purposes which they seem to serve in this disease, their frequent repetition is seldom proper, and often does harm.* The *antimonium tartarisatum* and *ipecacuanha* are the best emetics in this disease. They should be given in small and repeated doses, that they may partly pass the pylorus before exciting vomiting, unless the symptoms of oppressed stomach are urgent. The preparation of antimony, termed the *vitrum antimonii ceratum*, has been celebrated as an emetic in dysentery, but is now, on account of the roughness and uncertainty of its operation, very generally laid aside.

To render cathartics effectual, we must, as far as we can, remove the different causes just mentioned, impeding their operation in this disease.

* For the use of emetics in dysentery the reader may consult the works of the different authors I have had occasion to mention, particularly those of Sir J. Pringle, Dr. Cleghorn, Dr. D. Monro, Dr. Cullen, and Dr. Zimmerman, of whose work a translation from the German is given by Dr. Hopson.

If after the operation of the emetic there is reason to believe that the stomach is still oppressed, we must endeavour to correct the offending cause. When the breath and eructations are sour, anti-acids are necessary; when there is reason to suspect a prevalence of bile, acids, particularly the vegetable acids, must be employed.

The only means we possess, if we except opiates, of defending the stomach and intestines against irritation, are, mucilaginous and oily demulsions. The latter seem to be the most effectual, but they are most apt to oppress the stomach. They are better adapted to clysters. In preparing oily clysters, the oil should be rubbed with a sufficient quantity of mucilage to make it mix readily with the milk, of which the remaining part of the clyster should be composed. These means relieve the pain and tenesmus, and seem to act partly by lining the internal coat of the intestines, and thus defending them against the acrimony of their contents, and partly as a warm bath, by their bulk, warmth, and blandness, softening and relaxing the bowels.

When, notwithstanding these means, the irritation and griping are severe, we must call in the aid of external applications, particularly the warm bath, fomentations, and blisters. The first is strongly recommended by Sir George Baker. When the general warm bath is inconvenient, the semicupium is often used with advantage. Fomentations of the abdomen, and flannel dipped in brandy and sprinkled with pepper applied to it, are also frequently serviceable. A large blister applied over the abdomen is more effectual than any of these means; but in the milder cases, so severe a remedy is unnecessary.

Concerning the exhibition of opiates in this disease, there has been much difference of opinion. But there are few writers on dysentery who do not warn against the early use of them.* After

* I have always looked upon it, says Zimmerman, as dangerous to give opium in dysentery, before the fuel which feeds the disease is burnt out. "Si astringentia et opiata præpropere dantur, (Huxham observes,) mox gravissime accedunt tormina, stomachi ægritudo, singultus, aphthæ, tandemque intestinorum sphacelus, quem cito mors excipit." Lieutaud, Dr. Blane, Sir John Pringle, and many others might be quoted to the same purpose. Even Dr. Cullen, whose opinion of the disease seems to point out opium as the principal remedy, observes, that by occasioning an interruption of the action of the small intestines, it favours the constriction of the colon, and thereby sometimes aggravates the disease, and that if the use of it supersede the employment of purgatives, it commonly does much mischief. I believe, indeed, he adds, that it is only the neglect of purging that renders the use of opiates necessary.

a free evacuation by cathartics, opiates are often of great service, especially in the evening, for the purpose of procuring sleep, and they are the more beneficial at this time, as the pain is generally most severe in the night. It has been observed, indeed, that if opium allays the local symptoms, it occasions a proportional increase of the febrile. But the latter effect is seldom considerable, unless it be exhibited before a proper relaxation of the bowels, or while the excitement is great.

At whatever period of the disease it is given, its tendency to constipate must be carefully obviated. Some have proposed combining a cathartic with the opiate, expecting that while the cathartic obviates the constipating effect of the opium, it may counteract the irritating quality of the cathartic. This plan, however, has not been so successful as might have been expected. It has been found better to give the cathartic alone, and the opiate after its operation. Nauseating doses of emetics, indeed, of which I shall presently have occasion to speak more particularly, are often advantageously combined with opium. By this combination, however, we have it less in view to move the bowels than to take off the tendency to spasm and promote perspiration.*

The hyosciamus has not, as far as I know, been recommended in dysentery, although its anodyne and gently laxative qualities seem eminently to adapt it to this disease. I have employed it with advantage in cholera, in which it is recommended by Dr. Cullen.

Opiates are often given with great advantage, in clysters, in this disease. The intolerable irritation in the rectum naturally suggests them. When the motions were so frequent that mere emollient clysters could not be retained, Sir John Pringle generally added from 20 to 60 drops of laudanum to each, or more if it was necessary, provided it did not affect the head.

Mr. John Hunter, (the author just mentioned, informs us) often used antiseptic anodyne clysters with the best effects. He made the first trial with four ounces of a strong decoction of bark, with some grains of opium dissolved in it. He afterwards used with success a decoction of the tormentil root and of oak bark in the same way. The clysters were repeated if returned without allaying the tenesmus.

Some medicines are warmly recommended as means of allaying the griping, the operation of which it is not so easy to explain, unless we allow that their bulk, warmth, and gently tonic power may

* See the observations of Dr. D. Monro, and Dr. Brocklesby.

have the effect. Among the chief of these are lime water and an infusion of camomile flowers.* Other similar infusions are recommended for the same purpose. We have reason to believe, that the warm water is the chief part of the remedy. It is almost always beneficial, and some have trusted to it alone, and it is said with great success.†

For the purpose of allaying irritation in dysentery, there are few means more powerful than the horizontal posture. I have known cases yield in this posture which had resisted every remedy, while the patient was allowed to sit up.

When the excitement runs high, it is difficult effectually to move the bowels in this disease. The same means which fail during increased excitement, often succeed when it has been reduced. To allay it, therefore, is, both on this account, and because nothing tends more to debilitate, an indication of great importance in the commencement of dysentery.

The means of allaying irritation just considered, form an essential part of those of reducing excitement; but it is often necessary to have recourse to more active measures. It is to be recollected, however, that less is to be feared in this disease from an excess, than from a deficiency of excitement; the more powerful means of reducing it, therefore, must be used with caution.

Emetics and cathartics are employed for other purposes; the same may be said of diaphoretics; blood-letting, therefore, is the only evacuation recommended wholly with a view to lessen excitement.

Many speak of blood-letting as necessary at the commencement of dysentery, as proper if all the remaining strength of the patient will bear it.‡ They seem to expect from it some essential change in the state of the local affection. If inflammation of the bowels always attended the commencement of dysentery, this expectation

* Dr. D. Monro gave the lime water mixed with milk, which proved serviceable to some; in other cases it failed. The infusion of camomile flowers seems preferable to lime water. Sir John Pringle says, that for mitigating the gripes and expelling wind, he has found nothing equal to fomentations and drinking camomile tea. And Zimmerman observes, that next to opium he found the infusion of camomile flowers the best means of alleviating the pains. Dr. Monro and others make similar observations.

† See the observations of Zimmerman, and Sir J. Pringle; also those of Muxham, Degner, Tissot, &c.

‡ Akenside *De Dysenteria Commentarius*, Lieutaud's *Synopsis*, &c.

would be just. But when inflammation does attend dysentery, it is the consequence not the cause of the disease, and seldom supervenes early. Besides, the authors just alluded to mention symptoms as warranting the employment of blood-letting, which do not indicate the presence of inflammation.

Inflammation of the intestines is known here, as in other cases, by the great severity of the pain, and tenderness of the abdomen, and by a frequent, small, feeble pulse, more or less hard.* In the last stage of dysentery, enteritis is often unaccompanied with its usual symptoms, and in many cases the tendency to gangrene is so great, that it supervenes on a degree of inflammation too slight materially to affect the state of the symptoms. I had occasion to explain in the introduction to this volume, why, in very debilitated states of the system, gangrene often supervenes on slight degrees of inflammation, the inflammation then bearing the same analogy to passive hemorrhagy, which inflammation with a strong vis a tergo, bears to active hemorrhagy. In such cases, it is evident, that blood-letting would only add to the evil.

It would seem that when there is no inflammation, the propriety of blood-letting is ascertained in the same way as in simple fever, by the degree of excitement; we must recollect, however, that in proportion as the due action of the bowels is obtained with greater difficulty in dysentery, a less degree of excitement warrants its employment.

It frequently happens in this disease, that the abdomen, or particular parts of it become very tender, the patient complaining on the slightest pressure, without the other symptoms of enteritis. Local blood-letting, as I have often witnessed, is then attended with the best effects.

With regard to the employment of refrigerants as a means of lessening excitement, there is little to be added here to what I have frequently had occasion to say. Nitrate of potash, given in any considerable quantity, is apt to irritate the bowels. Saline draughts in the state of effervescence, and acetate of ammonia, are perhaps the best of this class of medicines in dysentery. Their good effects in this disease are to be ascribed, perhaps, more to their diaphoretic than refrigerant quality.

* "Nor were we discouraged," Dr. D. Monro observes, "from bleeding in the beginning by the low, quick pulse, which often attended the disorder; and we frequently found the pulse rise as the blood flowed from the vein. But when the sick were low and weak, without much pain or fever, and the pulse was soft, we were more sparing of the vital fluid." Why, it may be asked, was blood-letting recommended in the latter case?

When the indication is to lessen excitement, the diet must be such as shall co-operate with the forgoing means, mild and diluent. Independently of increased excitement, indeed, this diet seems particularly indicated by the state of the bowels in dysentery.* The drink should always be tepid.

Such are the means of moderating excitement in dysentery; but the morbid state of the bowels is less frequently supported by increased excitement than by debility, the means of preventing and removing which form an essential part of the treatment of this disease. The debility, we found, is sometimes considerable from the commencement. In general, however, this is only the case in the more advanced stages.

Our view is to support the strength with as little irritation as possible. I have already had occasion to observe, that the diet in dysentery should be mucilaginous and diluent. When debility prevails it must be nutritious. A full diet of animal food is too irritating, and too low a diet may induce a fatal debility. It must be adapted to the state of the symptoms, the patient's habit, the nature of the epidemic, and the duration of the disease.

In all cases, perhaps, which have not been of long duration, the mildest diet is proper. The patient should be confined to gruel, sago, panada, &c. the quantity being regulated by the appetite. Sir George Baker and many others even forbid the use of chicken broth at the commencement.

Where the fever is slight, and there is reason to dread much debility, Dr. Akenside recommends not only different kinds of broths, but the milder kinds of animal food in a solid form. Few practitioners, however, admit of so full a diet. Sir John Pringle says, that he formerly used to permit dysenteric patients to take a little mutton broth, but finding even this hurtful he has since forbidden it. Dr. Cleghorn, Dr. D. Monro, Dr. Zimmerman, &c. make similar observations; were I to speak from my own experience, I should say, that it is only in those cases of dysentery which are so protracted as to assume the chronic form, that any kind of animal food is proper, and in these the mildest only should be used.

Fruit has frequently been regarded as a cause of dysentery, and consequently avoided in this disease, not, however, it would appear on sufficient grounds. Zimmerman observes, that grapes were an excellent remedy in the epidemic dysentery. Sir George Baker says, that those who had taken an unusual quantity of the

* See the observations of Sir J. Pringle, Zimmerman, Huxham, Degner &c.

summer or autumnal fruits either wholly escaped the dysentery, or had it in a very mild form. Dr. Cullen thinks the use of fruits should be chiefly confined to the beginning of the disease. It is only, he observes, in the more advanced stages that the morbid acidity of the stomach seems to prevail, and requires some reserve in the use of accessants. Fruit is particularly indicated when there is much bile in the *primæ viæ*.

Of the use of wine in dysentery, I shall presently have occasion to speak.

With respect to tonic medicines the tendency of this disease to inflammation has deterred many from employing them at any period, and at an early period they are generally hurtful, even where the debility is considerable. When dysentery, however, has been of long standing and has occasioned much debility, or is complicated with typhus or with intermitting fever, the bark seems often to have proved eminently useful. Sir John Pringle recommends it with the serpentaria, when the fever is of a malignant nature.* Lauter, in his *Historia Med. Bien.* observes, that when the fever remitted, the urine depositing a lateritious sediment, however irregularly and however short the remissions, he immediately had recourse to the bark, which he gave in substance. Scarcely, he observes, had the patient taken half an ounce when the stools became less frequent, the griping was allayed, the tenesmus, which formerly baffled all means which could be employed, almost wholly ceased, and the pulse at length lost its unusual frequency. Dr. Cullen, Dr. Cleghorn, and many others, make similar observations.†

* "In 1760," he observes, "Dr. Whytt wrote to me, that in this bad state of the dysentery, when the mouth and alimentary canal were threatened with aphthæ, and even sometimes after they had appeared, he had successfully given the bark, having first made such evacuations as the case required or the patient's strength could bear, by blood-letting, vomiting with ipecacuanha, and purging with rhubarb. That to a pint of a strong decoction of the bark he added three drams or half an ounce of *confectio japonica*, and ordered two spoonfuls every four hours of this medicine without any other, except some laudanum at bed time. That when by the continued use thereof the body became costive he then gave rhubarb, and after that, went on with the decoction of the bark, but with less of the confection or even without it."

† "The great similitude," Dr. Cleghorn observes, "which there is in many respects between tertian fevers and dysenteries, induced me frequently to make use of the bark in the last named disease. When the fever and gripes were regularly exasperated, either every day or every other day, at stated periods, it has often effectually put a stop to both, especially if the exacerba-

Under whatever circumstances the bark is given, if it occasions heat and restlessness, it will generally be found to do harm.

In all the foregoing cases it is frequently necessary to combine it with mucilage and opium, to prevent its irritating effects, especially when in the decline of the disease it renders the diarrhœa profuse.

The *connessi** and *cascarilla* barks† have been celebrated in dysentery. The latter is generally preferred to the Peruvian bark by the physicians of this country, but like other tonics, it seems by no means adapted to the earlier stages, as some have alledged.

When the debility is considerable, particularly in the advanced stages, wine has been strongly recommended. Dr. Brocklesby sometimes allowed his dysenteric patients a pint and a half of Port wine, or even more, every twenty-four hours. He diluted the wine with water, and generally gave aromatics along with it. Dr. Monro says he often found the wine increase the griping; when this happened, he ordered brandy, properly diluted with barley or rice-water.

Some object to the early use of Port wine, on account of its astringency; and Zimmerman and others to the use of all kinds of wine and distilled spirits at every period of the disease. Aromatics and wine, this author observes, excite a dangerous irritation in the bowels, increasing the pain, fever, and strangury.

It is probable, from comparing what Zimmerman says of these remedies with what is said of them by others, that he did not distinguish with sufficient care the cases in which they should be employed. If there be any considerable tendency to inflammation, and still more if the excitement is above the healthy degree, they will do harm. And even where neither the excitement nor tendency to inflammation is great, if the bowels are irritable, wine must be given with a large proportion of mucilage and other substances, which blunt its pungency. It is to be observed, on the other hand,

“tion began with chilliness and terminated with sweats; at other times it removed the fever, the flux continuing without much alteration.” He adds, “In some cases I have given the bark, merely with a view to prevent the mortification of the intestines in the last stage of the distemper, but I am sorry to say it was seldom so successful as I could have wished.”

* See the Observations of Dr. Brocklesby, and the Edinburgh Medical Essays, vol. iii, article 4.

† See the Memoirs de l'Academie des Sciences, a Paris, 1719; and Dr. D. Monro's Observations on the Diseases of the Army.

that the patients of Dr. Brocklesby and Dr. Monro being soldiers, and consequently accustomed to the use of fermented liquors, would require them more and bear them better than others.

The result of general experience seems to be, that when debility has supervened, and no tendency to inflammation appears, the moderate use of wine is proper, that it should be given more or less diluted and with mucilage, to prevent as much as possible its irritating effects on the bowels. With regard to distilled spirits, they seem only admissible when from the state of the stomach wine cannot be used, either being rejected by vomiting, or running into the acetous fermentation.

With regard to aromatics, many have condemned them in all cases. From their tonic, bearing a small proportion to their irritating effect, they seem ill adapted to dysentery.

Few recommend iron in any form of this disease. In chronic cases it is said that zinc has sometimes been useful.

Mercury has been much extolled in dysentery. Of the use of calomel, as a cathartic, I shall presently have occasion to speak. In the dysentery of this country, the constitutional use of mercury is generally found injurious. There is a species of dysentery prevalent in tropical climates, arising from an hepatic affection, in which it is essential.*

The most important part of the means of fulfilling the first indication in dysentery, remains to be considered, the employment of cathartics. These are indicated at all periods of the disease, and all the other means, which have been mentioned, may be regarded as useful only as far as they conduce to their more certain, mild, and safe operation.

There has been much difference of opinion concerning the cathartics best suited to this disease. Dr. Cullen justly observes, that as the cathartics must frequently be repeated, the most gentle are the safest, particularly on account of the tendency to enteritis.

There is no cathartic which has been so generally recommended in dysentery as rhubarb, although in several respects perhaps it is among the most improper. Both Dr. Cullen and Sir George Baker are of this opinion. It operates, the latter observes, slowly and weakly, and almost always with an increase of the griping and inflation of the bowels. Sir John Pringle proposes combining calomel with the rhubarb, by which, he observes, the operation of the latter is rendered easy. Sir George Baker remarks, that this combination will generally be found to answer the worse, the greater

* See the Observations of Dr. Girdlestone and others.

the proportion of rhubarb. Degner recommends the rhubarb in tincture taken in some watery fluid, which seems even more exceptionable than the powder.

Calomel has been much extolled, but it ought never perhaps to be given alone, its operation is always rendered both more certain and more easy by combining it with other cathartics. In many, particularly when taken alone, it occasions tenesmus, and I have repeatedly seen it induce a temporary dysentery. It is when this disease is the consequence of, or at least complicated with, bilious affections, that calomel is most serviceable.

A diluted infusion of sena with manna, in order to diminish as much as possible its griping tendency, or a combination of Glauber or Epsom salt, with manna which has been much celebrated, especially by the army physicians, seem for general use preferable to any of the foregoing cathartics. Some have added oil to the cathartics, for the purpose of allaying irritation. Mucilage is perhaps preferable, as less apt to oppress the stomach. The oil has the advantage of being cathartic, and the greater the number of cathartics we combine, the more certain and easy in general is their operation. Castor oil has had many advocates, but it frequently occasions irritation and griping. The supertartrate of potash has been much used in dysentery. Zimmerman gave it with tamarinds. The latter he considers an admirable medicine in this disease, particularly when the stools are bilious.

But from the tendency to preternatural contraction in the intestines in dysentery, no cathartic occasions a free discharge from them, which does not correct this tendency; hence it appears to be, that of all cathartics ipecacuanha, given in small doses to prevent its emetic effect, is the most successful. Piso was the first who recommended it in dysentery; and it is now by many regarded as a specific in this disease. I have been long in the habit of using it, and it appears to me to deserve all the encomiums bestowed on it. Its good effects probably, in part at least, depend on the relaxation it induces on the skin, which is always accompanied with a tendency to similar relaxation in the alimentary canal. After the excitement is reduced and the fæces begin to be discharged, I have found a combination of ipecacuanha and opium, increasing or lessening the dose of the one or the other, according as the constipation or pain is most urgent, an invaluable medicine in dysentery, particularly in tedious cases.

The antimonium tartarisatum has also been recommended, and is regarded by many as equal to ipecacuanha.* Where the inflammatory tendency and the excitement are considerable, it is an excellent remedy, but seems upon the whole much inferior to the latter in relieving that peculiar state of the bowels, which appears to constitute the disease. The proper dose of these medicines is such as produces some degree of nausea without vomiting, and it should be repeated when the nausea abates.

I have already had occasion to make some observations on the use of clysters; they are useful, by tending to allay the pain and irritation, particularly about the rectum, and promoting the operation of cathartics; we should not, however, by making them of a cathartic nature, endeavour to supercede the necessity of cathartics by the stomach; given with this view they will generally fail, and if their composition is irritating may increase the disease.

Although we have procured an evacuation of the fæces, and consequently a remission, the patient is not to be regarded secure. If the medicines are suddenly laid aside, the dysenteric symptoms generally return, and very frequently prove more obstinate than at first. Their dose, therefore, should be gradually lessened, and the patient should be particularly cautious in abandoning the mild and mucilaginous diet, so peculiarly adapted to this disease.

The means of answering the last indication, to restore tone to the bowels, are more simple than those we have been considering.

Dysentery, we have seen, frequently terminates in diarrhœa, and though this symptom is one of the most favourable, it may go so far as to produce a dangerous degree of debility, particularly after a severe disease. When it is considerable, it must be allayed by gentle anodynes. If these fail, and particularly if at the same time the powers of the stomach are much weakened it is often proper to have recourse to astringent medicines. Small doses of kino or extract of logwood may be employed. From what has been said

* "M. de Saenac added," Sir John Pringle observes, "that after having tried, several other methods without having been satisfied with any of them he had at last fallen upon one which had answered to his wish, and by which he had made numberless cures. This, after evacuations by bleeding and by a vomit of emetic tartar, consisted chiefly of one grain of emetic tartar dissolved in a pint of common whey or chicken water, given every day for all food, drink and medicine, till the patient recovered. His intention was to keep a free passage from the stomach to the rectum by the mildest laxative, which he found was best answered by that minute quantity of the antimouial."

of the nature of dysentery, the reader will readily perceive that these must be used with caution.

I have referred astringents to this place, notwithstanding their having been frequently recommended with a view to remove the dysenteric symptoms, because if we except the tonic medicines above-mentioned, some of which are astringent, given in the cases which have been pointed out, there is hardly any medicine of this kind, which seems to have been beneficial while the dysenteric state of the intestines continued, and they generally, as I have often witnessed, do harm.* There seems to be but one case in which

* If astringents were useful, says Dr Huck, (Sir John Pringle on the Diseases of the Army, p. 266) it was only when a laxity of the bowels remained after the disease. The old Physicians, Zimmerman observes, so far agreed in the cure of the dysentery, that instead of trying to evacuate the matter, they chose rather to retain it, by incrassating and astringent remedies. Such notions, he continues, as are the produce of ignorance and folly, are not easily eradicated. Huxham remarks, that if astringents be given too early, the worst symptoms follow. Dr. Cullen and most of the best modern writers on dysentery might be quoted to the same purpose.

The simaruba, which is a very gentle astringent if it at all deserve the name, has been regarded as a valuable specific in dysentery. It is the bark of an unknown tree brought from Guiana in South America, where it has been long celebrated for the cure of this disease. It was brought into Europe about the middle of the last century, and is said to have cured dysenteries which had resisted every other means. It is given in the dose of from half an ounce to an ounce of the decoction. Degner informs us, that he used this medicine with success after proper evacuations,

It acts mildly, he observes, and almost insensibly, and produces its effects more certainly in the bloody than in the bilious discharges. He thought that its efficacy was increased by the addition of the cascarrilla. Sir John Pringle made a few trials of the simaruba, which were in its favour; but he observes, that he only found it useful towards the decline of the disease. It seems to have been particularly useful when nothing but a diarrhoea remained, and at other times when the quantity of blood passed was very great. "In protracted cases," Dr. Brocklesby observes, "I tried the simaruba, to the quantity of thirteen grains in powder, or a dram in decoction, every six hours; and I really think it justly merits a place in a military materia medica, to be used only second to the bark in the flux, whilst yet a slight feverish indisposition of the remitting kind continues to harass the patient. Nor did I pass over, altogether unnoticed or unessayed in such cases, the celebrated Tilicherry bark, now and then brought to Europe from the coasts of Malabar, and there said to be a sov'reign remedy in slow fevers and fluxes. But I did not find it answer here better than other bitter aromatics, tending, in common with all that class, to strengthen and restore the tone of the solids, especially those of the primæ viæ. But it proved too narcotic to be used as freely as the simaruba, and I found it occasion in one patient the spasmus cynicus when given to the amount of two drams in 24 hours."

mere astringents are proper while this state continues, where there is a copious discharge of blood ; to check which vitriolic acid and alum, and if the hemorrhagy is of the passive kind, the bark are the best.

Absorbents also are chiefly recommended in the decline of the disease, as acidity prevails most at this period. With these, as well as the astringents, opium is often combined with great advantage, when the diarrhœa is considerable and attended with griping.

It is not uncommon for some time, for slight but very troublesome renewals of the griping, tenesmus and even mucous stools, to take place. In these cases small doses of ipecacuanha with opiates, and a saline cathartic once in two or three days, are generally effectual.

For strengthening the stomach and bowels, friction of the abdomen is often of great use. The various stomachic medicines are indicated if the digestion is left impaired. The more heating must be used with caution ; the Bristol waters have been celebrated for the same purpose, but have lost much of their reputation.

For some time after the disease the patient should wear flannel next the skin, pass a good deal of time in the horizontal posture, if he is too weak to walk, ride on horse back or in a carriage, according to his strength, and carefully avoid taking cold.

When there is reason to suspect that the disease has left an ulcer of the intestines, balsams, particularly the balsamum chiæ or copaiivæ, rubbed with oils, have been employed, though seldom with success.* I had occasion to make some observations on ulcers of the intestines in speaking of enteritis.

For removing the tenesmus, which so frequently remains after the other symptoms, small mucilaginous and anodyne clysters, with occasional gentle cathartics to evacuate any irritating matter that may still be lodged in the alimentary canal, are the best means.

* See Dr. Monro's Obs. on the Dis. of the Army, and Dr. Mead's *Monita et Præcept. Med. cum Notis Wintringhami*, vol. i.

DR. N. SMITH'S NOTE ON DYSENTERY.

As the author has not mentioned Dr. Moseley's treatise on dysentery, and as he has not adverted to the mode of treating that disease with sudorifics, I have added for the benefit of those who may not have the book within their reach, the whole of the first part of Dr. Moseley's treatise on dysentery, which contains his theory of that disease, and mode of treating it, and at the end I have added the recipe for making his vitriolic solution.

As Dr. Moseley's book on dysentery has been in the hands of some of the faculty in this country a considerable number of years, they have had opportunities of putting his theory to the test of practice; and several judicious practitioners have declared in its favour.

Since I first read his treatise, the dysentery has been epidemic several times, and I have had frequent opportunities of contrasting his mode of treatment with that of others, and am decidedly of opinion that it is the best I have been acquainted with. N. S.

On the Dysentery.

“The dysentery or bloody flux having been a disease so destructive to soldiers in camps and garrisons, and a constant attendant on all military operations, it is a medical inquiry of the utmost importance to investigate the disease, on every occasion, with the greatest attention, in hopes of finding some method to put a stop to its devastation.

* “When this treatise was first published, separately, in England, it was remarked in a literary journal, that curing the dysentery by sudorific medicines, was not a new doctrine; and since the first edition of this book appeared, the same journal observes, that ‘promoting perspiration after the intestines are well emptied, is the usual mode of treating the disease, and the only effectual way of curing it.’ But that I ‘seem to place too much efficacy in sudorifics.’†

“Another of these literary journals suggests, that the disease, from yielding easily to my sudorific treatment, was ‘a peculiar

* Critical Review for February 1788.

† Monthly Review for June 1788.

' epidemic, and suspects strongly that this plan would not succeed so well in this climate.'*

The authors of these remarks appear candid, but less fortunate than in some others which they have honoured me with. If they had given the subject due consideration, the former would have known that no person before me, ancient or modern, has ever mentioned as a system, treating the dysentery, after the primæ viæ have been cleansed, with sudorifics only; and from enquiry among practitioners in London, or any where else, that it is not 'the usual mode of treating the disease.' The latter gentleman, from my words, had no reason to suppose it was 'a peculiar epidemic,' to which I was applying the doctrine, but to the various epidemics of a long series of years. And though it is not hitherto 'the usual mode of treating the disease;' yet I foretell that it will be so, whenever any severe epidemic shall make its appearance, and will be 'the only effectual way of curing it.' I have the satisfaction to assert from my own experience, that it does succeed well in 'this climate,' and in every other climate of Europe, where the practice has gained and is gaining ground faster than could reasonably be expected, considering what piles of venerable absurdity stand in its way, surrounded by an host of idolaters defending their superstition.

"It is a subject in which the welfare of mankind is deeply interested, and often the glory and honour of a nation. If the cause of humanity was not alone a sufficient motive to induce to this research, we need but turn our eyes on the political field; there we may behold the best concerted measures defeated by its influence. The page of military history weeps less for the slain in battle, than for those who have fallen victims to this calamity.

"We have greatly to lament, that the labours of medical writers have hitherto met with so little success, and that their best endeavours have only shown how little we know, and how much we have to learn in treating this disease.

"Happy shall I be if the following observations may contribute to remove some of the many difficulties which present themselves, and induce a farther prosecution of the subject, until the disease is brought under the command of the most improved and certain practice.

"The word Dysentery, in Latin, Dysenteria, and in Greek Δυσέντερια, is derived from *δυσ*, with difficulty, and *entera*, the in-

*Monthly Review for June, 1788.

festines; importing a difficulty, or a disturbance of the functions of the intestines.

“The Dysentery is termed by the Latin writers, *difficultas intestinorum*; Celsus calls it *tormina*; Galen, *ἔγμωνίς εντερων*; Cælius Aurelianus, *Rheumatismus cum ulcere*; and it is thus described by Hippocrates, in lib. 3. cap. 5. de *Victus Ratione Sanorum*.

Ὅκοταν δὲ θερμαινομένου τοῦ σώματος, καθαρσις δριμεία γένηται, τὸ πρῶτον ζυεταί, καὶ ἔλκονται καὶ διαχωρεῖται αἱματώδεια, τοῦτο δὲ δυσεντερὴ καλεῖται, νοσὸς χαλεπὴ τε, καὶ ἐπικίνδυνος.

“When the body is heated, and there is an acrimonious purging, with corrosion and ulceration of the intestine, and bloody stools, the disease is called a dysentery, and is a severe and dangerous disorder.

“Galen de *Locis Affectis*, Lib. VI. Cap. 2. says, *Ἢρη δὲ ὕμης ἐν τῷ παρόντι λόγω, τὰς κυρίως ὀνομαζόμενας δυσεντερίας ἀκούειν, ὡς σημαίνουσας τῆς προσήγορίας εντερων Ἐλκωσιν*.

“It is necessary to understand properly the meaning of the word *Dysentery*, as the appellation itself signifies an ulcer of the intestines.” And that,—

Ἐν ἀρχῇ μὲν οὖν ἐκκρίσις χολῆς δακνωδὸς ἰπανῶς, ἐν αὐτῷ γίνεται, μετὰ δὲ ταύτην ἀκολουθεῖ ζυσμάτα τῶν εντερων· εἴτα τοῖς ζυσμασι συνεκκρίνεται τι μικρὸν αἵματος, ἢ καὶ ἤδη δυσεντερία τὸ πάθος ἐστίν.

“At first there is a discharge of acrid bile, then abrasions of the intestines follow, afterwards blood is excreted with the abrasions; and thus constitutes a true *Dysentery*.”

He then proceeds, “When abrasions of the bowels only are discharged, it is to be observed, whether any fat substance is voided with them, for then the ulcer is in the large intestines. When blood is voided, it is necessary to observe whether it is mixed universally with the excrements, or whether it is mixed only superficially upon some part of them. If it be mixed with them, it shews that the ulcer is in the superiour intestines. The same observation applies in regard to the abrasions, in some degree, and they will also show by their proper substance, which intestine is affected. *Dysenteries* that arise from the liver, are to be discovered in this manner: in the beginning a thin bloody sanies is discharged, then by the disease increasing, a thick humour, not unlike the fæces of red wine; but no abrasions are voided; and sometimes, during an interval of two or three days, the evacuation is suppressed, then returns again, with discharges, much worse than the former; which is not the case when there is an ulcer in the intestines; in which the patient

has neither large stools, nor long intervals between them. When the ulcer is in the rectum, the disease is called a tenesmus ; it is attended with vehement straining, and a constant desire of going to stool, voiding at the same time but little, which in the beginning is pituitous and pinguious, but in length of time, a species of abrasions is also voided ; but through the whole of the disease, the fæces from the superiour intestines, have nothing of this sort mixed with them."

"Some writers mention, that after a great straining to stool, preceded by a vehement pain, a sort of callous stones have been voided, not unlike those which are generated in the bladder ; but I have never seen them, nor have I ever heard of any person who has."

He says, in his comment on the Epidemics, Lib. iii. Comm. 3. Sect. 70. "that these two sorts of dysenteries, one from an ulceration of the corroded intestines, and the other when a copious discharge of blood from the veins of the intestines is evacuated."

In Lib, iii. Cap. 7. de Symptomatum Causes, he says, "there are four different species of bloody excretions, from four different causes ; one of pure blood, from the loss of a limb, or from foregoing some accustomed exercise. Another, when from the imbecility of the liver, a watery blood is discharged, like the washings of raw flesh. The third, when a black and shining blood is discharged. In these three species of excretions, the discharges are large, but in the fourth, the stools are smaller and more frequent ; sometimes pure blood is voided, and sometimes in a concreted state ; sometimes a small quantity of matter ; also sloughs of ulcers which are called EPHELKIDES, besides membranous substances, which are parts of the intestines themselves ; with these, excrements are often voided, having drops of blood in them. This last is an ex-ulceration of the intestines, and which only, some writers will allow to be properly called a Dysentery."

In Lib. ii. Cap. 5. de Locis affectis, he says, "gripping pains in the intestines are caused by a corroding humour, for which reason the dysentery is always preceded by these pains ; which with an ulceration of the intestines, the modern physicians, and many of the ancients, call a dysentery. Some of the latter, not only term this, but also any bloody excretion a dysentery."

Some of our modern writers have disputed with the ancients respecting the propriety of describing the dysentery, with an ulceration of the bowels, because an ulceration is not a primary symp-

tom, nor necessary to constitute a dysentery; being as Alexander of Tralles observes, rather the effect, than the cause, of the disease.

But these discriminations are as useless as the various divisions into which those moderns have marshalled different sorts of dysenteries, as the acute, chronic, bilious, malignant, putrid, benign, red, white, brown, grey, &c. which distinctions, in fact, are only applicable to the various appearances of the same disease, as influenced by climate, season, or constitution, to different stages, and degrees of it, and to such cases, where some other disorder, or epidemic, is united with it.

Hippocrates himself, it is certain makes use of the epithet *έρυθρα* red, in *Morb. Vulg. Lib. ii.* and in other places; but he uses the word *Δυσεντερία*, every where in a general sense, as well as Galen, distinguishing this disease from the *Διαρροια*, *Alvi Profluvium*, or *Diarrhœa*, and from the *Λειεντερία*, *Levitas Intestinorum*, or *Leintery*.

The *Diarrhœa* is described by Aretæus to be a flux of liquid and unconcocted aliment,* and by Galen, to be a plentiful flux of the belly, without any inflammation, or exulceration of the intestines.† The *Lientery* is a disease according to Hippocrates and Galen, wherein the food passes through the body, unchanged, uncorrupted, liquid, and without pain; and the body is wasted. *De Affectionibus lib. cap. 7.* and *Aphor. Hipp. Comment. VI. Sect. 1.*

Sydenham, in treating of the epidemical dysentery in London of 1669, 1670, 1671, and 1672, uses the word in so general a sense, that he has been attacked by some observers of trifles, for saying, at the sitting-in of the dysentery in the first autumn, several had no stools at all, “*quamplurimi nullis omnino dejectionibus molestabantur.*” P. 182.

Hippocrates speaks of the disease where the patients were not much afflicted with pain; *Lib. III. Text 54. Epidemiorum. δυσεντεριαδες ου δ' ουτοι λιην επιπονως:* and Sydenham says, that the epidemical constitution declining, the gripes were scarcely felt; “*Tormina vix perciperentur.*” P. 182.

Having premised thus much concerning the definition of the disease of which I am treating, and of which farther and ample descriptions may be found, by referring to Aretæus, Aetius, Cælius Aurelianus, and Alexander of Tralles, I shall proceed to the first article of therapeutical consideration.

* *Cap. 7. de Sig. et Caus. Diut. Morb. Lib. II.*

† *Definition Medic.*

The immediate causes of all diseases, well understood and properly considered, point to their cure. It was an observation of the illustrious Sydenham, that possessing this knowledge, and a correct history of the disease, he never was at a loss to prescribe a suitable remedy for it, and that he always proceeded with caution until these circumstances were ascertained.

The disorder in question has been, I believe, more considered from its effects, remote, and concurring causes, than from its immediate cause; hence we may account for the inefficacy of the various attempts to cure it.

The pen of writers has done little more in the dysentery, than record the times and places when and where it proved most fatal; the appearance it put on; its symptoms; its devastation; variety of modes of treatment, that had no certain success; now and then a remarkable case; and the phenomena discovered on dissecting the dead.*

The great author abovementioned, following nature as an unerring guide, never stopped at effects, neither did he bewilder himself in the search of those causes of diseases that are not cognizable by our senses, but proceeded on to such as are immediate, or conjunct, and observed and assisted the means employed by nature to relieve herself, struggling under the oppression of disease; or substituted a safer and better method when hers was dangerous or ineffectual. To this principle the world is indebted for that inestimable work, which can only perish with it: a work, founded on a basis applicable to all climes; that stands as the palladium of physic against the superstitious errors of the middle ages, and the ingenious chimeras of later times.

He discovered the Dysentery to be a fever of the season, or, of its own kind, turned inwards upon the intestines. "*Febrem eum esse sui scilicet generis, in intestina introversam.*" p. 182. And yet his successors have made but little farther use of this excellent aphorism than quoting it, as their rules laid down for treating the disease sufficiently prove.

* The various appearances of the intestines after death from this disease, have been described by a multitude of writers; and many of their descriptions collected together by Bonetus, and may be seen in his admirable work, the *Sepulcretum*, Lib. iii. Sect. 11. But as dissections of this sort lead to nothing towards the cure of the dysentery, and as the appearance of the intestines varies according to the habit of the patient, and the duration of the disease, I have suppressed an account of many dissections I have made, as demonstrative only of its effects, which are sufficiently known to all practitioners.

In the course of my experience in the West Indies, and from every account I have been able to procure in that part of the world I have invariably found the truth of Sydenham's opinion; and have remarked, that as the flux conforms by the number of stools, and by its rapidity, to the degree, so it does to the state of the fever, of the season when it prevails; the stools being more frequent and all symptoms more aggravated, at those hours when the current fevers are in their exacerbations, and the reverse when those fevers are in their remission; besides the alternate succession of one disease to another, I have frequently observed. Nor can it be doubted that this *Fever of the Intestines*, like most others, is caused by obstructed perspiration, not confined to cold, hot, wet, or dry seasons; particular food, liquors, water, or fruit; but chiefly depending on some secret influence in the atmosphere, or on sudden transitions of the air, and such other causes as expose people to have perspiration hastily stopped.

I know that writers have written very learnedly on remote predisposing, and proximate causes; and lay great stress on heat and moisture, putrid ferments, infection, &c. &c. But upon a strict examination, we shall find that there has been too much attention employed on these vague, uncertain, and never-to-be-defined circumstances; while the immediate cause, or primum mobile has escaped unnoticed.

Epidemical disease can have but one general and immediate cause; for what predisposing cause can exist where every diversity of habit of body, and age, is subject to the same symptoms, and cured by the same remedies? It is not to be doubted that a conjunct cause is necessary, by which one part becomes affected and not another; otherwise, obstructed perspiration, the parent of so many, would always produce the same disease.

Though I believe that epidemical dysenteries have but one universal and common cause, and may be removed by one universal and common remedy, yet I do not contend that a particular disease may not be created by a particular cause, and be cured by a particular medicine. Accidental stimuli in the bowels have often caused this disease, and a little rhubarb and laudanum have often cured it.

It is said by Cuspinianus, that the emperor Theophilus died of a dysentery, which was caused by drinking a large draught of very cold water. Fabricius Hildanus mentions a person to whom the eating of mushrooms had almost proved fatal by the same disease,*

* De Dysenter. Cap. 10.

Ælian says, that Tachos, an Egyptian, a remarkably healthy man in his own country, lost his life by a dysentery in Persia, which he brought on by changing from his accustomed diet to that of the luxurious Persians.* Amatus Lusitanus, says, the people in Egypt and India have dysenteries, from eating the flesh of animals that feed on Cassia Fistula.† I have frequently known dysenteries caused by eating immoderately of such fruit as pine-apples and oranges, among people newly arrived in the West Indies; and in Paris from drinking the water of the Seine; and from a change of water in many countries. But the cause of Epidemical diseases is no more to be considered from particular cases, than the natural life of man is to be estimated, by the age those that fall by casualty, or perish by an untimely death.

The consequence of obstructed perspiration, from whatever cause, is either great inflammation, or great debility; and a plethora in the body, of much greater extent than what can be caused by the loss of a limb, or the suppression of the menses, or a bleeding at the nose; and yet Hippocrates and Galen assign these, which many other writers and frequent observation confirm, to be sufficient causes to produce a rupture of vessels in other parts of the body.

By what conjunct cause this plethora, from obstructed perspiration, should be directed to the intestines, and not to the lungs, I do not know. If this conjunct cause be only some latent matter in the bowels, how comes it that in camps, where the officers and men often use a totally different diet, and are in many respects under different circumstances, and in cities where infants, adults, old people, and those of every description, and mode of life, fall indiscriminately in an epidemical season?

The great outlet for perspiration being the skin, it must ever be subject to variation in quantity from the vicissitudes of the air.— In the temperate clime of Italy, it appears by Sanctorius,‡ that perspiration amounts to five eighths of what is taken into the body; we cannot, therefore, be surprised at the violent efforts nature immediately makes, on the sudden suppression of an habit of such extent: and if we attend to the stools of some patients, after the common

* Lib. 5. Cap. 1. Var. Histor. † Cent. II. Curat. 45. in Scholia.

‡ Sanctorius, says, fifty ounces of perspiration is discharged from a man in a day in Italy. Kiel, computes that thirty-three ounces is the mean quantity in England.

contents of the bowels are discharged, before the blood vessels are broken, and at intervals when there is no mixture of blood, or mucus, we shall find they are nothing but a serous, acrid fluid, secreted from the blood.

As I have constantly practised in the opinion that an epidemical dysentery is a fever of the intestines, and that this fever is universally caused by the obstructed perspiration being determined there; so I have universally found it relieved by turning back that discharge to its natural channel; nor have I often found difficulty in removing it speedily, when taken in the beginning of the disease.

The common and fatal practice of attacking the disorder in the bowels, with opiates and astringents, is but aggravating the effect (which at first is irritation, and distention of the mesaraic vessels), while the cause is entirely neglected.

Among the multitude of formulæ proposed, we find snakeroot, *Dover's* powder, and other diaphoretic medicines; but exhibited in such a manner that they must often have produced more harm than good; however, it plainly demonstrates that the skin has not really been looked to for relief, much less has the process of sweating been considered as the only one to be relied on.

Some physicians recommend *Ipecacuanha* in small doses, united with *Philonium*, or opium; others a course of *Ipecacuanha* in stages of the disease, when the inflammatory symptoms are over. The good effects from *Ipecacuanha* are attributed, sometimes to its antispasmodic power, sometimes to its purging, and sometimes to its astringent quality. But with deference to these opinions, which have been numerous, I believe with *Friend*, that *Ipecacuanha* increases the tendency of the humours to the skin; and therein consists its use in fluxes.*

I apprehend that no astringent medicines, simply as such will often be found proper in fluxes; this is daily evinced by gangrenes, obstinate obstructions, abscesses, dropsies, or swellings, which arise when a flux has been injudiciously stopped by them.† A Dysen-

* *Radix Ipecacuanhæ præter vim vomitariam, quam obtinet, uberrimum sudorem excitare solet. Atque in hoc, quantum ego conjectura assequi possum præcipue consistit egregie, illa in Dysentericis affectibus virtus, quam sibi præ aliis vomendi instrumentis vindicat.*

Friend, Comment. de Febr. p. 40.

† *HIPPOCRAT. Prænot. Sect. 2. "Intempestive suppressa Intestinorum Difficultas, abscessum in costis, aut in visceribus, aut articulis inducit." And Galen de Ven, Sect. adversus Erasistrat. cap. 6. says, "Melancholia, Insania, Pleuritis, Dolor Renum, Sanguinis Vomitus, Epilepsia, Hydrops, oriri possunt."*

tery being, in its first stages, "a fever of the intestines," and in every stage, as far as relates to the excretions, an increase of one discharge from the diminution of another; which cannot be effectually remedied, but by restoring the functions of the body to their natural order and equilibrium.

Senac gave Emetic tartar in small doses; but he expressly says, he gave it as a laxative to keep up a free passage from the stomach to the rectum. It is a common practice to give the glass, and other preparations of antimony, in casual doses, and uncertain periods, but the operation is always intended for the first passages. In this practice, though the primæ viæ are so necessary to be cleansed, I attribute the principal success to the effects antimonials produce, in opening the obstructed capillaries, and preventing a reflux of humours to the bowels; for often in fluxes, when from carelessness and cold, antimonials have had their whole force and action turned upon the bowels, they have increased the determination of the fluids there, and brought on sudden death.

The activity of emetic tartar makes the direction of it difficult; it is in many respects a dangerous medicine, in hot climates, the nervous system there being so irritable, excepting merely as an emetic. It has done much mischief when employed as a diaphoretic in fevers and fluxes. The reguline virulence of the antimony being combined with acid, makes its operation, as a sudorific, very precarious; and it often proves fatal to the stomach.

Such preparations of antimony as Jame's powder, that have what has been termed the phlogiston of the mineral, mitigated and the reguline part capable of action, from acidity are best in these diseases, being more certainly sudorific, their operation in the stomach and bowels considerably depends on the state of the humours contained there; and they principally become active when nature requires it.

It has been supposed, that the doses of these preparations of antimony cannot be so well ascertained, as its solution by the vegetable acid; for which reason emetic tartar has been preferred for use. It must be admitted that emetic tartar is a certain vomit, and when given for that purpose, the dose is easily ascertained; but as it acts immediately on the stomach, it is frequently impossible to produce any other effects by it, in whatever dose administered. A very respectable physician, at the head of a medical seminary,* has greatly contributed to the general use of emetic tar-

* Dr. Cullen.

far, and much abuse of it has arisen in hot climates, from respect to his authority and character.

It has been supposed also by the same professor, that the application of cold air, as a sedative, by abating the re-action of the vascular system, may be useful in some circumstances of fever; but he does not venture to pronounce in what. This dangerous conjecture, too, we have seen followed, by the extravagant custom of exposing patients indiscriminately in fevers and fluxes, almost sub dio, and the mischief it produced disregarded.

A moderately cool temperate air is proper and necessary in every species of fever; but if any thing beyond that degree is meant, it cannot be supported by any reasoning that applies to the small pox; though this gave rise to the speculation, and many experiments on it in the southern parts of Europe.

The small pox fever is *sui generis*, and terminates in phlegmons; it requires a treatment of its own; for example, cooler air than is required in a state of health is necessary; raising a sweat is prejudicial, and often changes the distinct into the confluent sort. On the contrary, in fevers their solution is commonly by sweat; cold air applied, as in small pox, impedes that solution, and changes an intermittent into a remittent, or both into a continued fever.

The preceding paragraph will not be deemed digressive, as it is necessary to elucidate my subject.

It is not my intention to dispute the auxiliary aid, that may occasionally be drawn from various purgatives, and even from various astringents, in certain conditions of the dysentery, diarrhœa, or tenesmus; or from rhubarb, absorbents, and correctors, in unimportant complaints of the bowels, originating there from acrimony and crudities; but to recommend a practice for removing epidemical dysenteries, by means adequate to, and that correspond with their general cause.

It will occur to every practitioner (as my intention here is the use of sudorifics) that I mean a careful continued course of them, to keep up a sweat in extent proportioned to the violence of the disease; and not the trifling way of giving them in small doses, whilst the patient is exposed, and their operation neglected. It will occur also, that the sudorific employed must be suitable to the nature of the flux; the stage of it, and the habit of the patient.

When I propose a method for the cure of this disease by a course of sudorifics, I am aware of no objection that can possibly attend the novelty of the doctrine; excepting that it wants the sanction of the fathers of physic, and has to oppose the errors and prejudices of

custom. But facts must support it, where this disease is most formidable, from the important consideration that success in war, the safety of possessions, and the protection of commerce, depend on the preservation of soldiers and sailors ; among whom the flux has ever been found to make the most dreadful havoc in the East and West Indies, and on all service in hot climates.

Though I have had a succession of opportunities in my private practice since the year 1768, to prove the extent of the doctrine I advance ; I have also had many opportunities to prove its efficacy, in that degree of dysentery, which is no where to be seen but in military camps and garrisons, for which reason I shall illustrate the subject with a short account of the bloody flux, as it raged among the troops in Jamaica, in April 1780, and particularly in the camp at Castile fort, with the method that I followed in the treatment.

This flux will appear to want almost all the usually conceived remote causes of a dysentery ; but it will be found with the immediate one, common to all.

The state of the human frame for some time prior to the above period, underwent a multitude of diurnal transitions, from the absence, or presence of a violent sea breeze ; the weather was now remarkably dry, hot for the season of the year, and at times sultry. It was impossible to use the least exercise without being heated ; and it was almost impossible to get heated without being immediately chilled by the breeze.*

It is the soldiers' life to be much exposed, and it is his custom to be careless of himself ; when he is fatigued or heated, he hastens to cool himself in the breeze, or night air, and perhaps throws off his clothes, and often lies down and sleeps in that condition. If he is wet, he dries his clothes, linen, and skin together. By these means, perspiration, the great fountain of health in hot climates, is suddenly stopped, and febrile strictures occupy the whole surface of the body.

A flux following these data, must distinguish itself by an inflammatory diathesis ; and its progress will consequently be rapid.

The general symptoms were a chillness in the beginning, succeeded by feverish heats, gripings, and fequent small motions ; sickness of the stomach, and sometimes retchings, copious purging soon followed, with green, brown, or yellow watery stools ; these

* When the breeze is violent, and what is called fiery, it checks perspiration, when people are exposed to it, in an inactive situation, making the skin dry and parched, and causing a feverish tendency.

were now mixed with or succeeded by great discharges of blood ; several ounces of pure arterial blood were voided in a stream, every half hour, or hour, and some patients bled to death in this manner. The stools varied in fœtor and appearance, according to the periods of the disease, and as they were more or less retained. A considerable degree of fever brought on the disease, and accompanied it with some ; with others but little. Small, bloody, slimy stools continually harrassed the patient in the last stages, particularly at nights. The tongue was greatly furred, and sometimes of a brown, or black colour. Aphthæ appeared but seldom. This is the general account of those who experienced the violence of the disease, and survived the first week ; but many who were seized at the setting in of the flux that spring, perished in three or four days.

The curative indications are to cleanse the intestines, and to cause a revulsion to the surface of the body. When the disease is rapid, the cure depends on performing these things as speedily as possible.

Experience having shewn that the common methods and medicines hitherto used, fall far short, in violent dysenteries, of obtaining the important point of revulsion, in proper time, and supporting it ; the practice will still be deficient, if we cannot find means adequate to these purposes.

The inductive considerations are, to bleed as often as it can be done with safety ; to cleanse the primæ viæ ; to check the impetus with which the circulation is determined on the intestines, distending and bursting the coats of the distributing branches of the mesenteric arteries ; to remove the spasm from the vessels of the surface of the body, and to cause a diversion there ; all these must be done immediately, that the revulsion may be effectual.

Bleeding being an operation of great consequence in the flux, the cure is generally begun with it, repeating it as the symptoms authorise. There are but few instances where it may not safely be done in the beginning of the disease ; observing only " non quæ ætas sit, sed quæ vires sint."* The necessity is obvious where the patient is plethoric, with much fever, full pulse, and severe pains.

After bleeding, a vomit of ipecacuanha is to be given ; which commonly relieves the stomach from a load of acid, poraceous, bilious impurities. But our great expectation from vomiting is, that its action on the muscular fibres of the stomach, forces open the ex-

* Cels. Lib. II. Cap. 10.

treme arterial capillaries, forwards the circulation to the surface of the body, and induces to sweat. This, the invariable effect of vomits, has not been noticed by the ancients; and has never been by the moderns applied to the end I propose in the cure of intestinal diseases. An opiate, after its operation is necessary.

After the vomit and opiate, it is proper to empty the bowels, but with caution, in case the patient be weak; and in such a manner as not to increase the determination of the blood there, and to divert it from the surface; for then we should lose the ground gained by the vomit, and counteract our principal design. An antimonial that acts much upon the skin, and purges at the same time, is what I always use.

The *primæ viæ* being cleansed, and the revulsion begun, it must be supported by sudorifics, that the disease may be thrown off by sweat; this will be effected by uniting an opiate with a diaphoretic, and administering it as occasion requires. Laudanum and antimonial wine combined, is a medicine that causes little or no irritation, and is a pleasant and certain diaphoretic. It is generally necessary in the flux, when a sweat is intended by antimonial, or other emetic medicines, in small doses, to add laudanum, to take off their irritation, by which means their doses and effect may be greatly extended.

James's Powder is admirably calculated to answer the first intentions in this disease; it possesses this great advantage, that though it shall effectually cleanse the *primæ viæ*, properly given, it never fails to excite a plentiful sweat, and its effects terminate on the skin. This double operation, if I may so call it, perhaps has made it so decisive in obstinate fevers.

When the diaphoresis is begun, I cover my patient, if a soldier, with a blanket, (which no soldier should be without) and take care that no wind is admitted directly upon him. I do not suffer him to uncover himself, but order whatever he wants to be brought to him, and supply him copiously with warm barley-water, mint, sage, balm, or oat-meal tea; and now and then give him a basin of gruel, or thin flour pap, with a spoonful or two of good sound white wine in it, as free as possible from acidity.

When the sudorific process has been successfully continued, all the symptoms grow milder; and if the patient break out in a rash or efflorescent eruptions, or boils, the disease will soon be removed,

Should it be objected, that uncovering and exposing the patient, while sweating, when he rises to go to stool, is an inconveniency which militates against my doctrine, I answer that where there are

proper attendants and utensils, the patient need not be exposed nor move from his bed; and that when once a complete and universal sweat is raised, the necessity for exposing the patient at all will soon be at an end, as the disease sometimes suddenly disappears.

In the West-Indies, in the presence of several of the officers of different regiments, who were desirous of being spectators of a fact so interesting to the army, a soldier has been taken in the worst condition of the disease, with blood running from him as in a hemorrhage from a wound, and in the utmost agony, I have given him three grains of the common Glass of Antimony, finely prepared and made into a small pill; this perhaps has operated upwards and downwards; but in promoting its operation to the skin, those other operations ceased, and a violent sweat has ensued, which was kept up by warm herb teas, and now and then small doses of laudanum, which may always be given with safety, and without any of its usual inconveniences, while the patient is sweating, which is a fact worthy the attention of practitioners; even the first stool, after the sweating has been raised, has been less bloody, and the third or fourth frequently scarcely tinged. Such is the power of revulsion.

If the flux continue obstinate, and the sweats do not go on kindly, it will not only be requisite to carry off the morbid humours by a dose of the antimonial purgative, but repeated vomits of ipecacuanha are to be given. In this case, the circulation has not been enough diverted from the intestines, to produce a full and sufficient diaphoresis; it is therefore necessary to give a fresh impulse to the fibres, by the action of vomiting; for in vomiting the action of the stomach and the contraction of the abdominal viscera, force the blood to the surface, and upper parts of the body.

Another cause of obstinacy in the flux, is indurated fæces, lodged in the intestines; and though the patient shall have been repeatedly purged, and taken nothing but fluids during his illness, it is amazing what scybalæ, or lumps of excrement will sometimes be brought away, by a repetition of the antimonial purgative, after an interval of several days; for which reason, when the sweats have been plentiful, the pulse moderate, and the flux still continues, we may suspect this to be the case. The extraordinary appearance these balls of excrement sometimes acquire from a long retention among the diseased secretions, has induced some writers to whimsical suppositions concerning their cause, and component principles.

Pringle says, he does not know whether those lumps, which have the appearance of suet, are the same which Hippocrates calls *σαρκες*, *carunculæ*.

Certainly they are not ; for the *σαρκες* of Hippocrates, (*Σαρξ*, *caro*,) are those excretions that Celsus calls "carnosa." Galen says, they are the muscular substance of the intestines. Cardanus says, that they are "a mesenterio et vicinis partibus erosis intestinis"

And commentators in general, say, that they are "secunda in testinorum tunica." Besides, Hippocrates says that the *σαρκες* are a fatal symptom ; *ἀκοιαι ἐν σαρκεσὶ ὑποχωρησασί θανασιμον*.* However, Brassavola, in his comment on the passage, says, he has cured patients who have voided them.

The *corpora pinguia* are concretions by no means fatal, nor uncommon in the dysentery though the *carunculæ* certainly are, notwithstanding what Brassavola asserts ; for as Forestus says, "ita ut quædam corpora pinguia dumtaxat excernantur, facile curari poterit,—ita ut veluti carunculæ, hoc est, magnæ intestinorum partes excernantur, lethalis est talis dysenteria." Lib. XXII. Obs. 33. Scholia.

The *corpora pinguia* have been always properly distinguished by every writer of experience and correctness, from the *carunculæ*, *strigmenta*, and *ramenta*.

Pringle has fallen into the same error respecting the *caseous*, or cheesy substances, frequently found in the stools of dysenteric people ; supposing it actually cheese eaten by the patient. Platerus makes the same mistake respecting the pinguious substances.

I pursue the method I have related, regulating it as occasion may require, or particular occurrences suggest, until the patient is in a condition for bark, and other tonics and corroborants.

The flux will continue troublesome to some patients from mere weakness and relaxation of the vessels, without any material griping, or feverish symptoms ; here I never hesitate to give bark, with snake-root and wine.

In all complaints of the bowels, particularly in the dysentery, bark should never be given in substance ; it causes irritations and gripings ; and either brings back the disease, or fills the patient with obstructions : a strong decoction, therefore, is ever to be preferred.

As the flux is always increased at the approach of night, so for some time after it has abated, the pulse quickens, and the patient

* Aphor. 26. Sect. IV.

grows feverish in the evening : this is an admonition that we should desist from bark, and give a gentle diaphoretic at nights.

The remaining acrimony which sometimes keeps up a small irritation, after every other symptom is removed, may be corrected with absorbents, and carried off before the use of bark, or at any subsequent period if it should recur, with rhubarb and magnesia, or any mild cathartic.

During the convalescent state of those who have been much reduced, and to prevent a relapse, a flannel shirt, or jacket, worn next the skin, is very beneficial. When the bowels have suffered considerably by the flux, and cannot recover their tone, but from weakness are subject to returns of the disease, or to diarrhœa or tenesmus, on the least exposure to cold, a flannel jacket next the skin, will be found almost a certain remedy and preventive.

It is to be observed, when the attack is sudden and violent, it is often necessary to overtake the disease with opiates, and cordials, before any recourse to pathological reasoning is to be adopted ; otherwise the patient may be exhausted and sunk, beyond the recovery of medicine.

Here I cannot help expressing my concern, that the aggravated symptoms that return in the morning, have not put an end to the custom in the army and navy practice, of giving large doses of opium at night. When opium is given alone, and continued for any time after its cordial effects are over, it weakens the vessels injures the nerves, causes either a strangury, or a paralysis of the bladder, and lowers the powers of life ; the humours instead of being dissipated, accumulate in the diseased parts, that when the constipation it has created is off, the blood rushes forth with increased violence, and accelerates the patient's end.

Degner says, that with many of his patients there was an entire suppression of urine, for six, eight, ten, or fourteen days.* Many writers mention suppression of urine among the symptoms of this disease, but as I have never seen any thing like it occur, where opiates or astringents had not been improperly used, I consider it rather as a symptom of mismanagement, than of the disease. From opium I have often observed this effect ; and have speedily removed it by increasing perspiration, and giving a cup of strong, clear, good coffee, every few hours.

In the beginning of the disease, the intestines are in a state of inflammation ; and in the farther advanced state of it, we find the

* In his History of the Dysentery, at Nimeguen, in 1736, page 18.

mesenteric vessels and glands enlarged and obstructed ; the intestines thickened, their coats tumified, relaxed, abraded, and hastening into a state of ulceration, or sphacelation. Opium, in these situations (beyond which the disease is never curable,) must increase and multiply every evil.

The real use of opium is to arrest the hurry of the disease ; to procure time to put some rational method of cure into execution ; to take off the irritating property of other medicines, and to give them their intended effect, and to ease those tormina which are sometimes intolerable. Here the matchless power of opium raises our admiration.

In the preceding history it will appear, that the flux is not confined to practical seasons, and situations ; that what have been commonly considered as remote causes, only give the type to the disease ; and that its general cause, producible various ways, is *obstructed perspiration*.

The flux that prevailed in Jamaica, in the autumn of the year 1779, was attended with many of those causes, that are called remote. August, September, October, and the beginning of November, were unusually close and sultry, with frequent rains ; the great discharge of perspiration from the rarefaction of the blood, in such a season, relaxes the extremities of the perspiratory vessels, and subjects them to sudden spasm and collapsion.

The camp dysentery, in low, damp, marshy countries in Europe, in the autumnal season, has all the concomitants, and type of a flux in hot climates, after heavy rains*.

There will be less disposition to inflammation, and the fluids will tend more to a state of dissolution ;—yet it is a *fever turned upon the Intestines*, for want of a free and regular perspiration, from the thickness and moisture of the atmosphere.

The irritation thus produced on the bowels, soon causes a violent determination of blood ; and as the circulation is diminished in the vessels of the surface of the body, it is increased in those of the intestines.

By this increased action of the arteries, the progress of the blood is impeded in the minute ramifications of the vessels ; hence extravasation and hæmorrhage ; an immediate revulsion is therefore necessary ; it must be extensive, but suitable, that there may be no mischief done, by increasing the debility incident to the disease.

* The King of Prussia and the Duke of Brunswick have witnessed this melancholy truth in consequence of the wet ground which their troops occupied during the two last months, in Champagne. November 1792.

Bleeding cannot be performed on every subject, nor in every stage, nor condition of a flux; cathartics only cleanse the affected parts; emetics are limited to answer particular purposes; diaphoretics have never been used in a manner nor extent sufficient to produce an effect; and the custom of exposing patients to partial currents of cold air, in hot climates, prevents nature from doing any thing towards the cure.

The type of the disease being duly attended to, will indicate the quantity and nature of the evacuations necessary to facilitate revulsion; and it is safely and effectually completed by a careful, continued course of sudorifics, and dilution, carried on in extent proportioned to the disease.

Thus have I communicated what I conceive to be the general cause of the dysentery, and explained the method I have followed in its cure. I have avoided the detail of minute descriptions, circumstances, particular cases, and dissections, as not coming within my design; which is, to explain my method of cure, applicable to the cause I have assigned of this disease, and comprised in the following considerations; that the dysentery is a *Fever of the Intestines*; that the cause is *obstructed perspiration*; and that the cure consists in turning back the circulation to the surface of the body, and increasing the sensible perspiration by the most active Sudorifics.

Induced by motives not to be resisted, I have ventured on the public, without the advantages of leisure and retirement; and as I have nothing to expect from the ornaments of diction, and composition, I have placed my *spes et solatia* in the rectitude of my intentions. The judicious and candid will judge of them, and determine how far an attempt to make some return for the benefits which we receive from society, is laudable, when it contributes to mitigate one of the great calamities of mankind.

Dr. Moseley's vitriolic solution is prepared as follows.

White Vitriol, 3 drachms,

Alum, 1 drachm,

Cochineal, 3 grains,

boiling water one pint, mix in a marble mortar, settle and decant off, or strain through paper.

In this solution, Dr. Moseley says that the proportion of either the Vitriol or Alum may be augmented or diminished according to circumstances, viz. when evacuations are wanted, the quantity of alum may be diminished, or even entirely left out, and when great astringency is required, the quantity of alum is to be increased.

I frequently direct three drachms of each in the same quantity of water. The dose is from a table to a tea spoonful according to the age and strength of the patient, which is to be taken every morning fasting, and in some instances taken every six hours.

This is recommended particularly in the latter stage of dysentery, and I have found it an excellent emetic in the commencement of the disease; it generally pukes soon, and I have never given an emetic that more certainly produced perspiration. The following pill has succeeded very well where I have used it.

Ipecacuanha,	2 grains,
Calomel,	1 grain,
Opium,	1-2 grain,

Mix and make into a pill. One pill, containing this quantity, is to be given every six hours. The quantity of opium may be increased, or diminished according to circumstances.

I have it from good authority that a decoction of the root of the *Asclepias Syriaca*, or milk weed has been used in dysentery with happy effect. The dose may be half a gill of the strong decoction for an adult given once in six hours; but it may be increased or diminished according to its effects on the patient.

I am inclined to give credit to this account, as I know, the root of the *Asclepias Syriaca*, to be a powerful remedy in dropsy, operating as a Diuretic, and Diaphoretic. N. S.

CATALOGUE OF BOOKS.

WITH THE EDITIONS,

REFERRED TO IN THE FOREGOING WORK.

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APPENDIX.

SYSTEMA NOSOLOGICUM MORBORUM FEBRILIUM.

CLASSIS I.*

FEBRES IDIOPATHICÆ.

PRÆGRESSIS languore, lassitudine, et aliis debilitatis, signis; pulsus frequens, calor auctus, sine morbo locali primario.†

ORDO I.

Febres Intermittentes et Remittentes.

Febres idiopathicæ miasmate paludum ortæ, paroxysmis pluribus, intermissione, saltem remissione evidente, interposita, cum exacerbatione notabili, et plerumque cum horrore redeuntibus, constantes.

Exacerbantes,
Continuæ,
Continuæ periodicæ,
Continuæ remittentes,
Proportionatæ,
Continentes.

GENUS I. QUOTIDIANA.

Paroxysmi similes intervallo viginti quatuor circiter horarum paroxysmis matutinis.

1. Interposita intermissione.

Variat,

A. Paroxysmi duratione.

a. Quotidiana cum paroxysmis haud ultra horas duodecem extensis.

* I have in the foregoing work pointed out the alterations I would propose in the definitions and arrangement of Dr. Cullen's Nosology of Febrile Diseases; it is here offered to the reader with those alterations, and some others of less consequence.

† Vol. 1. page 26, 27, 27.

Quotidiana legitima.

- b. Quotidiana cum paroxysmis haud ultra horas duodecem extensis.
Quotidiana notha.

B. Paroxysmi recurso.

- a. Quotidiana paroxysmo uno quotidie.

Quotidiana simplex.

- b. Paroxysmis binis quotidie.

Quotidiana duplicata * Burserii. Inst. Med. Pract.

2. Interposita remissione tantum.

Amphimerina,

Quotidiana continua.

Quotidiana remittens.

GENUS II. TERTIANA.

Paroxysmi similes intervallo quadraginta octo circiter horarum .
accessionibus meridianis.

I. Tertia Regularis.†

1. Interposita intermissione.

Variat,

A. Paroxysmi duratione.

- a. Tertia cum paroxysmis haud ultra horas duodecem
extensis.

Tertia legitima,

Tertia vera.

- b. Tertia cum paroxysmis ultra horas duodecem extensis.

Tertia notha vel spuria.

B. Paroxysmi recurso.‡

- a. Tertia cum paroxysmis tertio quoque die singulis, aliis
diebus nullis.

Tertia legitima.

* Vol. i. p. 47, 48.

† Vol. i. p. 48, et sequel.

‡ I regard regular intermittents as varying only in the length and recurrence of the paroxysm. According to the arrangement I follow, Dr. Cullen's third variety, comes under the head of irregular intermittents. If the symptoms alluded to by him, disturb the course of the paroxysm, the fever is irregular; and if not, they do not deserve to be mentioned in a nosological character. If coma or spasm deserve to be mentioned, why not delirium or syncope? Of this it is evident, there would be no end. His fourth and fifth varieties, as far as I can judge, have no place in a system of nosology.

- b. Tertianæ quotidie revertens, cum paroxysmis inequalibus, alternis similibus.

Tertianæ duplex vel duplicata.

- c. Tertianæ alternis diebus revertens, paroxysmis eodem die binis.

Tertianæ duplicata.

- d. Tertianæ quotidie revertens, cum paroxysmis altero die binis, altero unico tantum.

Tertianæ triplex.

Semitertianæ primi ordinis.

Hemitritæus. Lommii Observ. Méd. Libri. Tres. p. 22.

Eller Obser. de Cog. et Cur. Morb. Sect. 4. p. 83.

- e. Tertianæ quotidie revertens, interposita remissione inter diem imparem et parem magnis, inter parem et imparem minus notabili,

Hemitrittæus. Cullen, &c.*

Semitertianæ,

Semitertianæ se undi ordinis,

Amphemerina hemitritæa,

Amphemerina pseudo hemitritæa.

- f. Tertianæ cum paroxysmis quotidie binis, alternis diebus similibus.

Tertianæ quadruplex. Tulp.ii. Obser. Med. lib. 14, c. 46

2. Interposita remissione tantum.

Tritæophya,

Tritæa.

Hemitritæa,

Tertianæ remittentes et continuæ,

Tertianæ subintrantes, proportionatæ, subcontinuæ,

Quotidiana deceptiva,

Amphemerina semiquintana,

Tritæophya deceptiva.†.

II. Tertianæ Irregularis.‡

1. Tertianæ cum recurso paroxysmi irregulari.

Tertianæ erratica,

Tertianæ erratica vaga.

2. Tertianæ cum decursu paroxysmi irregulari.

* The same word being introduced under different definitions, arises from authors using them in different senses.

† The varieties which Dr. Cullen enumerates from Torti, characterised by particular symptoms, I omit, for a reason just given.

Variat,

A. Ordine paroxysmi graduum perturbato.*

Dr. Cleghorn on the Diseases of Minorca. Senac de Febribus. Frank Epitome de Cur. Hom. Morb. Jackson on the Fevers of Jamaica. Burserii Instit. Med. Practice. Schenkii Observ. Med. rariores.

B. Paroxysmis, vel nonnullis paroxysmi gradibus, partem corporis tantum afficientibus.†

Vogelii Prælect. Acad. de Cog. et Cur. Morb. Sauvagesii Nosol. Method.

C. Paroxysmis symptomatibus gravioribus‡ perturbatis.§ Elodes, Assodes, Syncopales, &c.

Stork Anni Medici. Dr. Cleghorn on the Diseases of Minorca. Sir John Pringle's Obs. on the Dis. of the Army. Dr. Rush's Med. Obs. and Inq. Mr. Clark, Med. Obs. and Inq. vol. 4. Transactions of a Society for the Improvement of Med. and Surg. Knowledge for 1798. Mr. Bain Ed. Med. Ess. vol. 6. Mr. Davidson Med. Com. vol 15.

GENUS III. QUARTANA.

Paroxysmi similes intervallo septuaginta duarum circiter horarum. Accessionibus pomeridianis.

I. Quartana Regularis.

1. Interposita intermissiœ.

Variat,

A. Paroxysmi duratione,

a. Quartana paroxysmis haud ultra horas duodecem extensis

Quartana legitima,

Quartana vera.

b. Quartana paroxysmis ultra horas duodecem extensis.

Quartana Notha vel spuria.

* Vol. i. p. 53, 54.

† Vol. i. p. 54.

‡ Such symptoms sometimes assume the intermitting, and particularly the tertian form, unaccompanied by fever. Stork Ann. Med. Com. vol. i. Strack de Febribus.

§ Vol. i. p. 54, 55.

B. Paroxysmi recursu.

- a. Quartana cum paroxysmis quarto quoque die singulis ; aliis diebus nullis.

Quartana legitima.

- b. Quartana cum paroxysmis quarto quoque die binis ; aliis diebus nullis.

Quartana duplicata.

- c. Quartana cum paroxysmis quarto quoque die tribus ; aliis diebus nullis.

Quartana triplicata.

- d. Quartana quæ ex quatuor diebus tertium tantum a febre vacuum habet, paroxysmis quarto quoque die similibus.

Quartana duplex.

- e. Quartana quotidie accedens, paroxysmis quarto quoque die similibus.

Quartana triplex.

2. Interposita remissione tantum.

Tetartophia.

Quartana remittens.

II. Quartana Irregularis.

1. Quartana cum recursu paroxysmi irregulari.

Quartana erratica.

Quartana erratica vaga.

2. Quartana cum decursu paroxysmi irregulari.*

Variat,

A. Ordine paroxysmi graduum perturbato.

B. Paroxysmis, vel nonnullis paroxysmi gradibus, partem corporis tantum afficientibus.

C. Paroxysmis symptomatibus gravioribus perturbatis.

GENUS IV. INTERMITTENS LONGA.†

Paroxysmi similes, intervallo plus quam septuaginta duarum horarum.

* Vol. i. p. 54, et seq.

† Many regard Intermittents of a longer interval than the quartanas varieties of this fever and the tertian, see Dr. Cullen's Synop. Nos. Method. vol. 2 Genus 2. But this opinion being hypothetical, can hardly be admitted a proper foundation for nosological arrangement. Besides there appears to be little doubt of the existence of regular agues of a longer type than the quartan. I

Quintana. Van Swieten, Comment. in Aph. Boerh. Burserii Inst. Med. Pract.

Septana. Boerhaav. Aph. Burserii Inst. Med. Pract.

Octana, &c. Menstruæ, Bimenstruæ, &c. Annuæ.†

ORDO II.

Febres contiuae.

Febres idiopathicae sine intermissione, et non miasmate paludum, ortæ, sed cum remissionibus et exacerbationibus, parum licet notabilibus, perstantes.‡

GENUS. I. SYNOCHA.

Febres continua cum calore plurimum aucto, pulsu frequente, valido et duro, urina rubra, sensorii functionibus parum turbatis.§

Febris acuta sanguinea.

Febris continua non putris,

Diaria,

Febris inflammatoria.

GENUS II. TYPHUS.

Febris continua, cum calore parum aucto, pulsu parvo, debili, plerumque frequente, urina parum mutata, sensorii functionibus plurimum turbatis, viribus multum imminutis.*

Febris maligna,

Febris pestilens,

Febris lenta nervosa,

Febris putrida biliosa,

Febris contagiosa.

Typhus nervosus,

Tritæophya typhodes,

Ephemera Britannica,

Sudor Anglicus,

Hydronosus.

have seen a septan. The fever for several months returned every Thursday. I could not learn from the patient or his attendants that it had ever shewn any tendency to assume either the tertian or quartan type.

† The existence of fevers with such intervals as some of those mentioned under this genus is very doubtful. See vol. 1. p. 43.

‡ Vol. 1. from p. 10. to p. 19. † Vol. 1. p. 10. 11.

* Vol. 1. p. 10. 11. † Vol. 1. p. 11. & seq.

GENUS III. SYNOCHUS.

Febris continua, ex Synocha et typho composita initio synocha, progressu et versus finem, typhus.†

Lenta,
 Febris continua putrida,
 Febris continua epidemica,
 Synochus Sanguineus,
 Synochus Sudatorius,
 Synochus soporosus,
 Synochus ardens.

Species 1. Synochus simplex.‡

Synochus sine eruptione.

Species 2. Synochus petchialis.||

Synochus, incerto morbi die, plerumque post varia debilitatis signa, apparent maculæ parvæ, rubræ circulares, minime eminentes, per cutem, præcipue colli et pectoris sparsæ.

Febris petechialis,
 Febris petechialis, epidemica,
 Febris petechialis mælica,
 Febris petechialis nervosa,
 Febris peticularis,
 Febris petechizans.

Species 3- Synochus Miliaris.

Synochus, cum anxietate, frequenti suspirio, sudore olido, et punctionibus cutis. Incerto morbi die erumpunt papulæ rubræ, exiguæ, discretæ, per totam cutem, præter faciem, crebræ, quarum apices post unum vel alterum diem, pustulas minimas albas brevi manentes, ostendunt.*

Miliaria,
 Miliaris,
 Febris miliaris,
 Febris purpurata rubra et alba miliaris,
 Febris purpurea.

Species 4. Synochus Aphthosus. †

Synochus. Lingua tumidiuscula, linguæ et faucium color purpurascens; escharæ in faucibus, et ad linguæ margines, primum

† Vol. 1. p. 11. seq. ‡ Vol. 1. p. 11. || Vol. 1. p. 12.

* Vol. I. p 12 to 15.

† Vol. I. p 14, 15.

comparentes, os internum totum demum occupantes, albidæ, aliquando discretæ, sæpe coalescentes, abrasæ cito renascentes, et incertum tempus manentes.

Aphtha,
Febris Aphthosa.

Species 5. Synochus Vesicularis. ‡

Synochus. Eruptio vesiculorum, cutem et nonnunquam os internum* occupans, avellanæ magnitudinis, sero flavo turgentium, tres vel quatuor dies manentium. †

Pemphigus
Pemphigus major,
Morta,
Febris Vesicularis vel vesicatoria,
Febris bullosa,
Exanthemata serosa,
Febris Pemphygodes.

Species 6. Synochus Erysipelatosus. ‡

Synochus, plerumque cum somnolentia sæpe cum delirio. In aliqua cutis parte, sæpius in facie; erythema.

Erysipelas,
Febris erysipelacea,
Febris erysipelatosus,
Erysipelas typhodes,
Erysipelas pestilens,
Erysipelas Rosa,
Erysipelas Zoster,
Zona,
Zona ignea,
Herpes Zoster.

ORDO. III.

Exanthemata. §

Morbi contagiosi, semel tantum in decursu vitæ, aliquem afficientes, cum frebre idiopathica, incipientes; definito tempore apparent pustulæ, sæpe plures, exiguæ per cutem sparsæ.

‡ Vol. I. p 16, 17, 18.

* This eruption frequently spreads along the whole alimentary canal, but it is only its appearance in the mouth which can assist the diagnosis. vol I page 255, and sequel.

† Vol. I. p 253, 254, 255. ‡ Vol. I. p 15, 16, 17. § Vol. I. p 11, et seq. & 18 & 19.

GENUS I. VARIOLA.

Exanthema, cum vomitū et ex epigastrio presso dolore. Tertio die incipit et quinto finitur, eruptio pustularum, quæ spatio octo dierum in suppurationem, et in crustas demum abeunt, sæpe cicatrices depressas sive foveolas in cute relinquentes.

Febris variolosa.

Species 1. Variola Regularis.

Varietas 1. Variola Discretâ.

Variola cum pustulis paucis, discretis, circumscriptione circularibus, turgidis, febre, eruptione facta, protinus cessante.

Variolæ discretæ simplices,
 Variolæ discretæ crystallinæ,
 Variolæ discretæ vesiculares,
 Variolæ discretæ verrucosæ,
 Variolæ discretæ siliquosæ.*

Varietas 2. Variola Confluens.

Variola cum pustulis numerosis, confluentibus, circumscriptione irregularibus, flaccidis, parum elevatis, febre post eruptionem perstante.

Variolæ confluentes simplices, crystallinæ, vesiculares, verrucosæ, siliquosæ.
 Variolæ confluentes malignæ,
 Variolæ confluentes cobærentes,
 Variolæ confluentes nigræ,
 Variolæ sanguineæ,
 Variolæ confluentes corymbosæ.†

Species 2. Variola Irregularis.‡

Variola decursu irregulari, et symptomatibus gravioribus,
 Variolæ discretæ anomalæ,
 Variolæ confluentes anomalæ.

GENUS II. VARICELLA.

Exanthema. Papulæ post brevem febriculam erumpentes, in pustulas variolæ similes, sed vix in suppurationem euntes post paucos dies in squamulas, nulla cicatrice relicta, desinentes.

Variola Lymphatica.

* Vol. I. p 276. † Vol. I. p 277. ‡ Vol. I. p 286, et seq.

*Species 1.** *Varicella Lenticularis*.—Willan.†

Species 2. *Varicella Conoidalis*. Swine-pox. Heberden.‡

Species 3. *Varicella Globata*.—Willan.

GENUS III. RUBEOLA.

Exanthema. Sternutatio, epiphora, et tussis sicca, rauca. Quarto die vel paulo serius, erumpunt papulæ exiguæ, con fertæ, vix eminentes, et post tres dies in squamulas furfuraceas minimas abeuntes.

Morbilli,

Fibris morbillosa.

Species 1. *Rubeola Regularis*.||

Rubeola vulgaris,

Morbilli regulares.

Species 2. *Rubeola Irregularis*.§

Rubeola decursu irregulari et symptomatibus gravioribus.

Rubeola anomala,

Morbilli anomali.

GENUS IV. SCARLATINA.

Exanthema. Quarto morbi die, facies aliquantum tumens; simul in cute passim rubor floridus, maculis amplis tandem coalescentibus, post tres dies in squamulas furfuraceas abiens; superveniente dein sæpe anasarca.

Species 1. *Scarlatina Simplex*.

Scarlatina nulla comitante cynanche,

Febris Scarlatina.

Species 2. *Scarlatina Cynanchica*.

Scarlatina cum cynanche ulcerosa,

Scarlatina anginosa.

GENUS V. PESTIS.¶

Exanthema, cum summa debilitate. Incerto morbi die, eruptio bubonum vel anthracum.

Febres Pestilentialis.

* Vol. i. p. 315. † On Vaccine Inoculation. ‡ Med. Trans. vol. 1.

|| Vol. i. p. 327.

§ Vol. i. p. 327, 328, 329.

¶ The plague perhaps would be more properly arranged as a species of sytychus. Cullen's Synop. Nos. Method. tom. 2. p. 130, 131. Edition 1785.

Species 1. Pestis sine eruptione.*

Pestis interna.

Species 2. Pestis cum eruptione.

Pestis Vulgaris,

Pestis benigna.

CLASSIS II.

FEBRES SYMPTOMATICÆ.†

Morbi locales primarii, calore aucto, pulsu frequente.

ORDO I.

Phlegmasiæ‡

Febres symptomaticæ, pulsu duro; quibus est pro morbo locali, vel inflammatio externa, vel dolor tópicus simul læsa partis internæ functione.

GENUS I. PHLEGMON.§

Phlegmasia, cum rubore externo vivido, tumore circumscripto, in fastigium plerumque elevato, sæpe in apostema, raro in sphacelum,|| abeunte; dolore sæpe pulsatili.

* Vol. i. p. 362. & seq. † Vol. i. p. 19. ‡ Vol. i. p. 23, 24, 25.

§ Vol. i. p. 20.—Vol. 2. p. 61, 62.

|| (Vol. ii. p. 61, 62.) Apostema and sphacelus are arranged by Dr. Cullen as sequelæ of Phlogosis, his seventh genus, including Phlegmon and Erysypelas, or, as he terms it, Phlogosis erythema. The nature of nosological arrangement seems hardly to admit of any enumeration of the sequelæ of disease. If the sequela ever appears as a distinct disease, an instance of which we shall presently have occasion to consider, it ought to have its own place in a nosological system; if not, it only deserves to be mentioned as far as it contributes to distinguish the disease to which it belongs, and must have a place in the character of that disease. As it is one of the distinguishing marks of Phlegmon and Erysypelas, that the former tends most to abscess, the latter to Sphacelus, I have in their characters noticed this mark of distinction, which gives an opportunity of introducing apostema and sphacelus. To introduce any description of them, however, would render the definition too long. They can, therefore, only be mentioned in the same way as delirium, convulsions, or any other accident of disease; that is, as terms which the reader is supposed to understand, and whose explanation belongs to a system of practice. In this way Dr. Cullen himself uses apostema before he has defined it in his character of phlegmon.

Phlegmone,
 Inflammatio,
 Furunculus,
 Carbo,
 Varus,
 Carbunculus.

GENUS II. ERYSIPELAS.*

Phlegmasia, cum rubore externo, premendo evanescente ; ambitu inequali, serpente ; tumore vix evidente, in cuticulæ squamulas in phlyctænas vel vesiculas nonnunquam in sphacelum, raro in apostema abeunte ; dolore urente.

Erythema,
 Hieropyr,
 Anthrax,
 Carbo, †
 Carbunculus,
 Erythema gangrenosum,
 Pernio,
 Combustura,
 Encausis,
 Intertrigo,
 Psydracia.

GENUS III. OPHTHALMIA.

Phlegmasia, cum dolore et sæpe rubore oculi, lucis intolerantia cum lacrimatione. ‡

Ophthalmitis,
 Inflammatio oculorum,
 Ophthalmia choroidea,
 Ophthalmia tenebricosa.

GENUS IV. OTITIS.§

Phlegmasia, cum dolore auris internæ, nonnunquam cum delirio.

* Vol. i. p. 20, 21, 22.—Vol. ii. p. 65.

† Carbo and carbunculus are arranged both under phlegmon and erysipelas, having been applied to diseases which come under both these genera.

‡ For the cause of the alterations here made in Dr. Cullen's definition and arrangement of the synonymes. See vol. 2. p. 83, 84.

§ Vol. 2. p. 99. 100.

GENUS V. PHRENITIS. §

Pelegmasia, cum dolore capitis, rubore faciei et oculorum, lucis et soni intolerantia, pervigiliis delirio feroce vel typhomania,

Phrenitis vera,

Phrenismus,

Siriasis,

Cephalalgia inflammatoria.

GENUS VI. CYNANCHE.

Phlegmasia cum pulsu plerumque valido, nonnunquam debili, cum dolore faucium, respiratione vel deglutitione difficili, cum angustiae in faucibus sensu.*

Angina,

Angina inflammatoria.

Species 1. Cynanche Tonsillaris.

Cynanche cum pulsu valido, membranam faucium et pharyngis mucosam, praecipue tonsillas tumore et rubore afficiens, deglutitione difficili nonnunquam dolentissima.

Cynanche pharyngea,

Angina inflammatoria. †

Species 2. Cynanche Maligna.

Cynanche, tonsillas et membranam faucium mucosam afficiens tumore, rubore, et crustis mucosis coloris albescentis vel cineritii, serpentibus et ulcera tegentibus; pulsu debili et exanthematibus.

Cynanche ulcerosa,

Cynanche gangrenosa.

§ Vol. 2. p. 73. In the forgoing work I have arranged phrenitis before ophthalmia and otitis, because in the two last, the first often supervenes. In a nosological system, this is of no weight in influencing the arrangement; and ophthalmia and otitis being more external affections, are arranged before phrenitis. From what is said above (vol. 2. p. 74.) the reader will see why I omit many of the synonymes enumerated by Dr. Cullen.

* In the 102d and following pages of the second volume, the reader will find the reasons for the alterations made in Dr. Cullen's character and division of cynanche.

† This term has been used by different writers to express both cynanche in general, and both the cynanche tonsillaris, and trachealis in particular.

Ulcera faucium et gutturis anginosa et lethalia,
 Garotillo,
 Angina ulcerosa,
 Angina epidemica,
 Angina gangrenosa,
 Angina maligna,
 Febris epidemica cum angina ulcusculosa.

Species 3. Cynanche Trachealis.

Cynanche cum respiratione difficili, inspiratione strepente, voce rauca, tussi clangosa, tumore fere nullo in faucibus apparente, deglutitione parum difficili; pulsu valido.

Cynanche laryngea,
 Angina inflammatoria,
 Angina latens et difficilis,
 Angina interna,
 Angina perniciosa,
 Cynanche stridula,
 Suffocatio stridula,
 Morbus strangulatorius,
 Angina poliposa vel membranacea,
 Catarrhus suffocativus,
 Morbus truculentus infantum,
 Angina inflammatoria infantum.*

Species 4. Cynanche parotidea.

Cynanche cum tumore externo parotidum et maxillarum glandularum magno; respiratione et deglutitione parum læsi; febre synocha plerumque leni.

Angina externa,
 Catarrhus Bellinsulanus.

GENUS VII. PNEUMONIA.

Phlegmasia cum dyspnœa, tussi, plerumque cum dolore in quadam

* I have had occasion to observe above, that Dr. Cullen did not distinguish between the cynanche trachealis, and asthma infantum. The following synonyms arranged by him under Cynanche trachealis, appear to belong to the latter disease. Asthma infantum (vol. ii. p. 147.) Millar on the Asthma and Chin-cough. Asthma infantum spasmodicum (vol. ii. p. 152.) Rush, Dissertation, Lond. 1770. Angina epidemica (vol. ii. p. 147.) Molloy in Rutt's History of the Weather. Angina inflammatoria infantum (vol. ii. p. 17.) Russell, Economy of Nature, &c.

thoracis parte, sæpe in vomitam, nonnunquam in empyema, abiens.*

Species 1. Pneumonia Vera.

Pneumonia cum symptomatibus gravioribus et decursu celeriori.

Febris pneumonica,
 Peripneumonia, vol 2, p 177, 178.
 Peripneumonia pura vel vera,
 Pleuritis, vol. 2, p 178. Pleuritis vera, Pleuritis pulmonis,
 Paraphrenesis,
 Paraphrenitis, vol. 2. p 180, 181.
 Diaphragmitis,
 Pleuripneumonia, peripneumo-pleuritis,
 Pleuro-peripneumonia, vol. 2. p 177.
 Pleuritis dorsalis,
 Pleuritis mediastini,
 Mediastina,
 Pleuritis pericardii,
 Parapleuritis,
 Pleurodyne,
 Paraphrenesis pleuritica,
 Paraphrenesis hepatica,
 Erysipelas pulmonum, vol 2. p 182.
 Carditis, vol. 2. p 181.
 Pericarditis, vol 2, p 181.
 Carditis spontanea.

Species 2. Pneumonia Notha.

Pneumonia cum symptomatibus lenioribus, et excretionem bronchiarum plurimum aucta.

Peripneumonia notha,
 Peripneumonia catarrhalis,

Species 3. Pneumonia Phthisica.

Pneumonia cum decursu tardiori, emaciatione et debilitate, demum febre hectica, et plerumque expectoratione purulenta.†

* I have found it necessary to propose considerable alterations on Dr. Cullen's character of pneumonia, and to make its species altogether different from those admitted by him; the reasons for which will appear from what is said above (vol. 2. p. 177. et seq.) of the divisions of pneumonia, from the note to phlegmon, and from what I shall presently have occasion to say of pneumonia phthisica.

† Dr. Cullen arranges Phthisis as a sequela of hæmoptysis. This is not only objectionable for the reasons given above, (see Phlegmon) but because in the

Phthisis,
 Phthisis pulmonalis,
 Affectio phthisica,
 Tabes pulmonalis,
 Phthisis incipiens,
 Phthisis confirmata,
 Phthisis sicca,
 Phthisis humida.

GENUS VIII. PERITONITIS.

Phlegmasia cum dolore abdominis, corpore erecto et pressura aucto;* absque propriis aliarum phlegmasiarum abdominalium signis.

Epiploitis,
 Omentitis,
 Omenti inflammatio,
 Mesenteritis,
 Enteritis mesenterica.†

GENUS IX. GASTRITIS.

Phlegmasia cum pulsu debili, anxietate, in epigastrio ardore et dolore, pressura vel ingestibus quibuslibet aucto, vomendi cupiditate, ingestis protinus rejectis, singultu.

Ventriculi inflammatio,
 Febris stomachica inflammatoria.

Species 1. Gastritis Phlegmonodea.‡

Gatritis symptomatibus gravioribus,
 Gastritis legitima,

greater number of cases, Phthisis is not preceded by Hæmoptysis; and is never the immediate consequence of it. The irritation attending the rupture of the vessel must produce inflammation before Phthisis can take place. (vol. 2. p 331) It is not only a distinct disease, but one of the first importance, and is surely very improperly introduced into a nosological system, merely as the sequela of another. I have explained above why I have not adopted Dr. Cullen's division of Phthisis.

* I have here, and in the characters of gastritis interitis, and the other abdominal inflammations, introduced the circumstance of the pain being increased by external pressure, one of the best diagnostics of these diseases.

† I have arranged all the above terms as synonymes of Peritonitis, because in inflammation of the peritoneum, we do not possess, as implied by these terms, the means of ascertaining the particular seat of the inflammation.

‡ Vol. ii. p. 213.

Gastritis erysipelatosā, Sauvagesius, Cullen.
Cardialgia inflammatoria.

Species 2. Gastritis Erythematica.

Gastritis symptomatibus lenioribus, rubore erysipelatoso in faucibus apparente.

GENUS X. ENTERITIS.

Phlegmasia cum pulsu debili; dolore abdominis pungente, tendente, pressura aucto, partes circa umbilicum torquente; vomitu; alvo pertinaciter adstricta.

Intestinorum inflammatio,
Febris intestinorum inflammatoria.

Species 1. Enteritis Phlegmonodea.*

Enteritis symptomatibus gravioribus, cum vomitu et alvo astricta.
Enteritis iliaca,
Enteritis colica.

Species 2. Enteritis Erythematica.

Enteritis symptomatibus lenioribus, sine vomitu, et cum diarrhœa.

GENUS XI. HEPATITIS.

Phlegmasia cum hypochondrii dextri tensione et dolore pressura aucto, sæpe pungente pleuritici instar, sæpius obtuso; dolore ad claviculam et summum humeri dextri; decubitu in sinistrum latus difficili; dyspnœa; tussi sicca; vomitu; singultu. †

Hepatitis erysipelatosā,
Hepatitis pleuritica,
Pleuritis hepatica,
Hepatitis cystica.

Species 1. Hepatitis Acuta.

Hepatitis symptomatibus gravioribus et decursu celeriori.

Species 2. Hepatitis Chronica.

Hepatitis symptomatibus lenioribus et decursu tardiore. †

* Vol. 2. p. 222, 223.

† Vol. 2. p. 231. 232.

‡ Dr. Cullen gives a long character of chronic hepatitis, but all that is essential in it appears to me to be comprehended in the character here given. There is a species of chronic hepatitis attended with a low degree of fever.

GENUS XII. SPLENITIS.

Phlegmasia cum hypochondrii sinistri tensione, calore, tumore, et dolore pressura aucto; absque signis nephritidis.

Lienis inflammatio,
Splenitis phlegmonodea,
Pleuritis splenica,
Splenalgia suppuratoria.

GENUS XIII. NEPHRITIS.

Phlegmasia cum dolore in regione renis, sæpe uretris iter sequente, mictione frequente urinæ, vel tenuis decoloris, vel ruberrimæ, vomitu, cruris stupore, testiculi ejusdem lateris retractione out dolore.

Nephriti vera,*

GENUS XIV. CYSTITIS.

Phlegmasia cum hypogastrii tumore et dolore, pressura aucto, mictione frequente dolorifica, vel ischuria, tenesmo.

Inflammatio vesicæ,
Cystitis spontanea.

GENUS XV. HYSTERITIS.

Phlegmasia cum hypogastrii calore, tensione, tumore et dolore pressura aucto; ore uteri tactu dolente; vomitu.

Metritis,
Inflammatio, et febris, uterina.

GENUS XVI. RHEUMATISMUS.†

Phlegmasia cum dolore circa articulos, musculorum tractum sequente, sub motu præsertim aucto.‡ genua et reliquos majores,

* In this as in other instances, I have omitted any enumeration of complicated and symptomatic diseases, and avoided divisions founded on the causes of disease, both appearing to be inconsistent with the nature of nosology. See vol. I. p. 1 and 2.

† I omit Arthrodynia, arranged by Dr. Cullen as a sequela of rheumatism, both for reasons abovementioned, (see Phlegmon) and because it is never a febrile disease.

potius quam pedum vel manuum articulos, infestante, calore externo aucto.*

Rheumatismus,
Dolores rheumatici et arthritici,
Myositis,
Lumbago,
Ischias,
Pleurodyne,
Lumbago rheumatica.
Nephralgia rheumatica,
Ischias Rheumaticum,
Pleurodyne rheumatica,
Pleuritis spuria.

GENUS XVII. PODAGRA.

Phlegmasia cum dolore ad articulum, plerumque pedis polici, certe pedum et manuum juncturis, potissimum infesto, præeunte plerumque ventriculi affectione insolita; per intervalla revertente, et sæpe cum ventriculi, vel aliarum internarum partium affectionibus alternante.†

Febris podagrica,
Arthritis,
Dolor arthriticus,
Dolor podagricus.

Species 1. Podagra Regularis.

Podagra cum inflammatione artuum satis vehementi, per aliquos dies perstante, et paulatim cum tumore, pruritu, et desquamatione partis, recedente.

Arthritis podagra,
Arthritis rachialgica,
Arthritis æstiva.

* The first part of Dr. Cullen's definition is omitted as unnecessary. There is always, it is evident, some objection to making the causes of a disease part of its nosological character.

† The first part of Dr. Cullen's character of Gout is omitted for the same reason as the first part of that of rheumatism was omitted.

Species 2. Podagra Atonica.

Podagra cum ventriculi, vel alius partis internæ, atonia, et vel sine expectata aut solita artuum inflammatione, vel cum doloribus artuum lenibus tantum et fugacibus, et cum dyspepsia vel aliis atoniæ symptomatibus, subito sæpe alternantibus.

Arthritis melancholica,
Arthritis symptomatica,
Arthritis hiematis,
Arthritis anomala,
Arthritis chlorotica,
Arthritis asthmatica.

Species 3. Podagra Retrograda.*

Podagra cum inflammatione artuum subito recedente, et ventriculi vel alius partis internæ atonia mox insecuta.

GENUS XVIII. ARTHROPOUOSIS.

Phlegmasia cum doloribus artuum vel partium masculosarum sæpe post contusionem, profundis, obtusis diuturnis; tumor vel nullus vel modicus et diffusus; inflammatio externa nulla; febris primum lenis, tandem hectica, et simul partis apostema.†

Lumbago psoadica,
Lumbago apostematosa,
Lumbago ab arthrocece,
Ischias ex abscessu,
Morbus conarius.

ORDO II.

Hæmorrhagiæ.‡

Febres symptomaticæ, quibus est pro morbo locali, sanguinis fluxus absque vi externa.

Sanguifluxus.

* Dr. Cullen makes a fourth species of gout, the Podagra aberrans. I have above offered my reasons for omitting this species. Vol. ii. p. 263, 264.

† I have not thought it necessary to consider this disease separately in the preceding treatise. Previous to the formation of matter, what was said of the treatment of the phlegmasia in general, is in all respects applicable to it. After matter is formed it comes under the care of the surgeon.

‡ Vol. i. p. 25.

GENUS I. EPISTAXIS.*

Hæmorrhagia cum capitis dolore et gravitate ; faciei rubore ; profusione sanguinis e naribus.

Hæmorrhagia,
Hæmorrhagia narium,
Hæmorrhagia plethorica.

Species 1. Epistaxis Juniorum.

Epistaxis, faciei colore florido.‡

Species 2. Epistaxis Senum.

Epistaxis, faciei colore purpureo.†

GENUS II. HÆMOPTYSIS.

Hæmorrhagia cum genarum rubore ; molestiæ aut doloris et aliquando caloris, in pectore sensu ; dyspnœa ; titillatione faucium ; tussi aut tussicula sanguinem floridum, sæpe spumosum rejiciente.

Hæmoptoe,
Sanguinis fluxus ex pulmonibus.

Species 1. Hæmoptysis Plethorica.

Hæmoptysis nulla prægressa tussi.

Hæmoptysis accidentalis,

Hæmoptysis habitualis.

Species 2. Hæmoptysis Phthisica.

Hæmoptysis post tussim diuturnam

Hæmoptoe,

Hæmoptysis ex tuberculo pulmonum.

‡ * I follow Dr. Cullen in arranging this and some of the following hæmorrhagies, which are evidently local diseases, among the phlegmasiæ. The observations made on the nosological arrangement of simple inflammations are altogether applicable to simple hæmorrhagies. Vol. 1. p. 5. & seq.

† Epistaxis. Variat ratione etatis, Epistaxis (*juniorum*) cum signis plethoræ arteriosæ. Epistaxis (*senum*) cum signis plethoræ venosæ. Culleni Synop. Nos. Method. Genus 36.

*Species 3. Hæmoptysis Calculosa.**

Hæmoptysis, rejectis simul moleculis calculosis.

GENUS III. HÆMORRHOIS.

Hæmorrhagia cum capitis gravitate vel dolore vertigine; lumborum dolore; dolore ani; circa anum tuberculis lividis dolentibus, e quibus plerumque profluit sanguis, qui aliquando etiam, nullo tumore apparente, ex ano stillat.

Hæmorrhoidalis fluxus,
Hæmorrhoides,
Leucorrhœis,
Proctalgia hæmorrhoidalis.

Species 1. Hæmorrhœis Tumens.

Hæmorrhœis externa a mariscis.

Marisca.

Variat.

A. Cruenta,

Hæmorrhoides ordinatæ,
Hæmorrhoides excedentes,
Hæmorrhœis polyposa,
B. Mucosa,
Hæmorrhoides decoloratæ, albæ, mucidæ.
Proctalgia intertriginosa.

Species 2. Hæmorrhœis Procidens.

Hæmorrhœis externa cum procidentia ani.
Hæmorrhœis ab exania.

Species 3. Hæmorrhœis Fluens.

Hæmorrhœis interna absque tumore externo vel procidentia ani.

Species 4. Hæmorrhœis Cæca.†

Hæmorrhœis cum dolore et tumore ani sine profusione sanguinis.

* It would appear that a variation of symptoms is the only proper foundation for nosological distinctions. I have therefore only admitted three of Dr. Cullen's five species of hæmoptysis, and have proposed some change in his character of these.

† This disease, in which there is no flow of blood, is but ill arranged under the character of hæmorrhagy. It cannot, however, be separated from other species of piles, which it in all respects resembles, except that it is unaccompanied by any discharge. This is one of many instances in which an insurmountable obstacle seems opposed to the attainment of nosological accuracy.

Hæmorrhoides cæcæ,
Proctalgia inflammatoria.

GENUS IV. MENORRHAGIÆ.

Hæmorrhagia cum dorsi, lumborum, ventris, parturientum instar doloribus menstruorum copiosiori, vel sanguinis e vagina præter ordinem, fluxu.

Menorrhagia,
Uteri hæmorrhagia,
Hæmorrhagia uterina,
Fluor uterina sanguinis,
Convulsio uteri,
Abortus.

Species 1. Menorrhagia Rubra.

Menorrhagia cruenta,
Menorrhagia immodica,
Menorrhagia stillatitia,
Menorrhagia gravidarum,
Abortus effluxio,
Abortus ab uteri laxitate,
Menorrhagia lochialis,
Menorrhagia ex hysteroptosi,
Menorrhagia ulcerosa.

Species 2. Menorrhagia Albo.*

Menorrhagia serosa,
Leucorrhæa,
Menorrhagia decolor,
Leucorrhæa gravidarum,
Leucorrhæa nabothi.

GENUS V. HÆMATEMESIS.†

Hæmorrhagia cum regionis ventriculi tensione vel dolore, sanguinis vomitione.

Stomacace.

* Of Dr. Cullen's six species of menorrhagia, the two here given appear to me to be the only ones which nosology admits of. An observation similar to that made on the 4th species of hæmorrhoids applies to the 2d species of menorrhagia.

† The hæmatemesis hæmaturia, cystirrhagia, and some other hæmorrhagies enumerated by writers, Dr. Cullen regards as always symptomatic. The two first I have arranged as genera, because I have seen them idiopathic.

GENUS VI. HÆMATURIA.

Hæmorrhagia cum dorsi et lumborum dolore, et sanguinis mictura.

ORDO III.

Profluvia.*

Febris symptomaticæ, quibus est pro morbo locali, excretio aucta naturaliiter non rubra.

GENUS I. CATARRHUS.

Profluvium cum mucis ex glandulis membranæ narium, faucium vel bronchiorum excretionem auctam.

Coryza,

Rheuma,

Tussis.

Tussis catarrhalis et rheumatica.

Species 1.

Catarrhus cum symptomatibus lenioribus.

Catarrhus benignus vel pectoreus,

Coryza catarrhalis, vel febricos vel phlegmatorrhagia,

Tussis catarrhalis.

Species 2.†

Catarrhus cum symptomatibus gravioribus

Catarrhus epidemicus,

Rheuma epidemicum,

Synocha catarrhalis.

* *Vot. 1. p. 25.*

† For my reasons for the alterations here made on Dr. Cullen's definitions of the species of Catarrh, see the note to nephritis vera.

GENUS II. DYSENTERIA.

Profluvium cum dejectionibus frequentibus, mucosis vel sanguinolentibus; retentis plerumque sæcibus alvinis; torminis; tenesmo.*

Dysenteria epidemica,

Dysenteria castrensis,

Dysenteria caruosa,

Dysenteria intermittens.

Dysenteria alba,

Dysenteria benigna.

* For my reason for not admitting Dr. Cullen's division of dysentery, see the note to nephritis vera.

FINIS.

DR. N. SMITH'S

APPENDIX.

Of the Modus Operandi of morbid poisons, and other exciting causes of disease.

SINCE the humoral pathology has been exploded, and the discovery of the absorbent system by anatomists, the opinions of physicians, respecting the causes of diseases, have changed in many respects; and what was formerly attributed to morbid matter, and certain changes in the fluid has often been attributed to the operation of the absorbent system, in taking up and carrying into the circulating fluids from various sources such matter as produces disease. In this way it has been, and still is supposed by many, that all the morbid poisons enter the system and produce their effects. Another opinion is, that those causes of disease, such as contagion, and other morbid poisons, produce their effects by what has been called sympathy; that is, by an impression made on some part of the living system; their effects are propagated to other parts of the body, without the poison ever being carried beyond the part touched by it.

As in most cases of disease, especially when it becomes general, we have to prescribe rather for the effects of the cause, than to remove the cause itself: It may perhaps be thought unimportant whether we adopt one or the other of these opinions. This may be true in general, but still I think there is no error in theory, but what is liable to produce an error in practice; therefore it is of some importance to settle this question rightly.

That the absorbent system is of great importance in the system, cannot be doubted. The mouths of the absorbent vessels open every where; on all the surfaces, in the cavities, in the body, and throughout all the cellular substance. By their activity, while their action is unimpaired, they take up all the superfluous fluids which are thrown out on these surfaces by the exhalent vessels; and also all the superfluous fluids which are thrown into the cellular sub-

stance. If in a healthy state of this system large quantities of watery fluid are thrown into the cavities of the body, it is soon removed by this system of vessels, and the general health of the system remains unimpaired. So likewise large quantities of fluids may be injected into the cellular substance, and quickly removed in the same manner. Even fluids impregnated with poisonous substances will be absorbed, without producing any sensible effects on the system. I once, in attempting to inject a sinus on the knee joint, threw into the cellular substance more than half a gill of a solution of corrosive sublimate, which must have contained nearly two grains of that medicine; this was soon absorbed without producing the least effect on the system. The water of an hydrocele, by a rupture of the sack, is often poured into the cellular substance of the scrotum, with a considerable quantity of blood, and all this is absorbed in a few days, without any injury to health.

So far the action and office of the absorbent system is established beyond a doubt. But that this system of vessels reaches the surface of the body, and is capable of taking up fluids from thence, has been doubted.

Within a few years, Dr. Mussey, a pupil of mine, and since that, a young gentleman from Albany, whose name I do not recollect, undertook some experiments in order to settle this question. The method they adopted was to immerse themselves in a bath of warm water coloured with madder for several hours, and afterwards to examine the urine to see if it was coloured by the madder. The experiments were conducted very much alike, and the results were very similar. The urine was in a small degree coloured with the madder. But before we allow those experiments to be conclusive in establishing the absorption by the skin, we must take notice of some circumstance attending them. In both instances, the experimentors lay in the bath several hours, and after all, the urine was but slightly affected by the colouring matter. Another circumstance which should be noticed is, that the first urine passed after coming out of the bath, was not coloured at all, and the effects of the bath on the urine, was wholly over in less than 36 hours.

Now I apprehend that the facts stated by the experimentors respecting the effects of the bath, may fairly be explained without supposing the skin naturally to possess the power of absorption. The scarf skin or cuticle, is an inanimate substance, and is affected by warm water like other dead animal matter; that is, it is softened, and by long maceration is loosened and separated from the cutis vera, and when in this state the fluid in which the body is

immersed would come in contact with the mouths of the active absorbents, so that we might reasonably expect the result from those experiments which I have stated. Notwithstanding those experiments, I am still inclined to think that the cuticle is to set bounds to the absorbent system, as well as to defend the nerves and blood vessels from the contact of such substances as are liable to excite morbid action. However we may determine this point, still it may be a question where poisons are actually inserted below the scarf skin, whether they produce their effects by making an impression on the nerves and blood vessels of the part, and in that way commencing their effect, or whether they are actually taken up by the absorbent vessels, and carried into the circulating fluid. I confess there is great difficulty in settling this question by demonstration, and, perhaps we may not be able to decide it, except it be by analogous reasoning. I think, however, by carefully attending to all the circumstances of diseased actions, it will lead us to a probable solution of those difficulties.

In the first place, it may be observed of the causes of diseased action, that they produced their ultimate effects on the system at very different periods of time; in some, after they are applied, the effect is instantaneous, and in others, several years elapse before the effect is produced. In those cases, where the effect is instantaneous, there could hardly be time for the cause to operate through the medium of the absorbents; and in those cases, where the effect was delayed more than one year, we should think, that if the matter were absorbed, it must be worn out long before the effect was produced; for in one year, the whole of the fluid must be changed many times.

One circumstance which should be noticed here, is that in cases of bites from rabid animals, though, the effect is not produced for many days after the wound is inflicted, the general effect on the system is always preceded by a peculiar irritation in the part, where the poison is inserted. It would be difficult to account for this on the supposition, that the effect was produced by absorption of the virus; for if it were actually absorbed, why should it produce irritation so long afterwards? From this fact we should rather infer that the virus made an impression on the sensible fibres of that part; at first obscure and imperceptible, and at length increasing so as to effect the whole system.

Another fact, which has been considered as proof of the absorption of poison, is the effects of *Cantharides*, when applied to the

skin on the urethra. Dr. Cullen says, that the acrimony of the cantharides is absorbed and carried into the circulating fluids and is again concentrated in the urine and irritates the urethra in passing with the urine. To this it may be objected, that in cases of excoriation of the skin similar to the effects produced by the flies, the same effects on the urethra are produced. Sore nipples in nursing women will produce the same effects; and the application of the child to the breast irritating the tender papilla, will often bring on a fit of strangury. It has also been observed that where certain substances are inserted below the skin, and which generate disease, such as the contagion of small pox, the lymphatic glands, situated between the part, where the matter is deposited, and the body, swell and become tender. The same also takes place in cancers. This circumstance has been considered as a proof of absorption. But to this it may be objected that the same swelling of the glands is caused by punctured wounds, where no poison is inserted. This fact has been noticed by Dr. Crookshank. And in the case of cancers, this swelling of the glands is as often observed in tumours of a schirrous nature, before they ulcerate, as after; and in some cases the secondary tumours arise more remote from the body than the original; several of which I have seen.

The disease called hectic fever, which is always symptomatic, and arising from ulcers, some where in the body, has also been considered as proof of the doctrine of absorption. I do not know that we can bring a direct proof to the contrary, but there are several facts to be noticed, which render it very doubtful, and would rather incline us to believe that it proceeds from another cause.

I have witnessed many cures in which large collections of matter have been absorbed without producing any such effects, and instead of causing any disease, the system was relieved, or rather begun to mend as soon as the absorption commenced.

But those, who support the doctrine of absorption, say that, it is necessary the ulcer should be open, and air admitted to the matter in order to give it a peculiar acrimony, which fits it for producing hectic fever.

To this I would object, that many open ulcers of prodigious extent do not produce that effect, while others, of but small surfaces, produce it in a high degree. The circumstance which has favoured the doctrine of absorption, and the opinion that it depended on contact of the air with the matter, is, that in cases of lumbar abscess and other large collections of matter in various parts of the body, no hectic fever is produced till the abscess is opened, and then it

comes on suddenly. But by carefully attending to all the circumstances of such cases, we may, I think attribute this effect to other causes. In such large collections of matter, there is, till opened, a great pressure of the matter on the whole surface of the abscess, and of course the matter collects, or increases, very slowly; but when the abscess is opened this pressure is taken off, and the secretion of matter (for the surface of the abscess is a secreting organ) is greatly increased; so much so, that it will secrete more matter in one day, after opening, than in weeks or months before. Of course the action of the secreting surface is greatly increased; the action is also changed, for the matter is of a different quality, after it is opened, from that which was discharged at first. Therefore it is more probable that the hectic is the effect of the peculiar action of the ulcerated surface, than that of the absorption of matter.

Upon the whole, on a careful review of all the facts which have been stated relative to the effects observed on the operation of those causes of diseased action, it appears that some of them operate too instantaneously to be brought about by absorption, while others produce their effects at such a distant period of time from their application, that it will be impossible to account for their operation upon that principle.

Besides many of the effects which have been attributed to absorption have certainly been produced without it, and therefore it is rather unphilosophic to suppose that the same effects would be produced by different causes.

(Among the objections I had brought forward against the doctrine of absorption I have not adverted to the opinions of some, which are, that though the absorbents will take up bland fluids, they will not receive poisonous matter that would be injurious. There is good reason, however, to believe that the absorbents do exercise a kind of elective attraction on fluids presented to them.)

FINIS.

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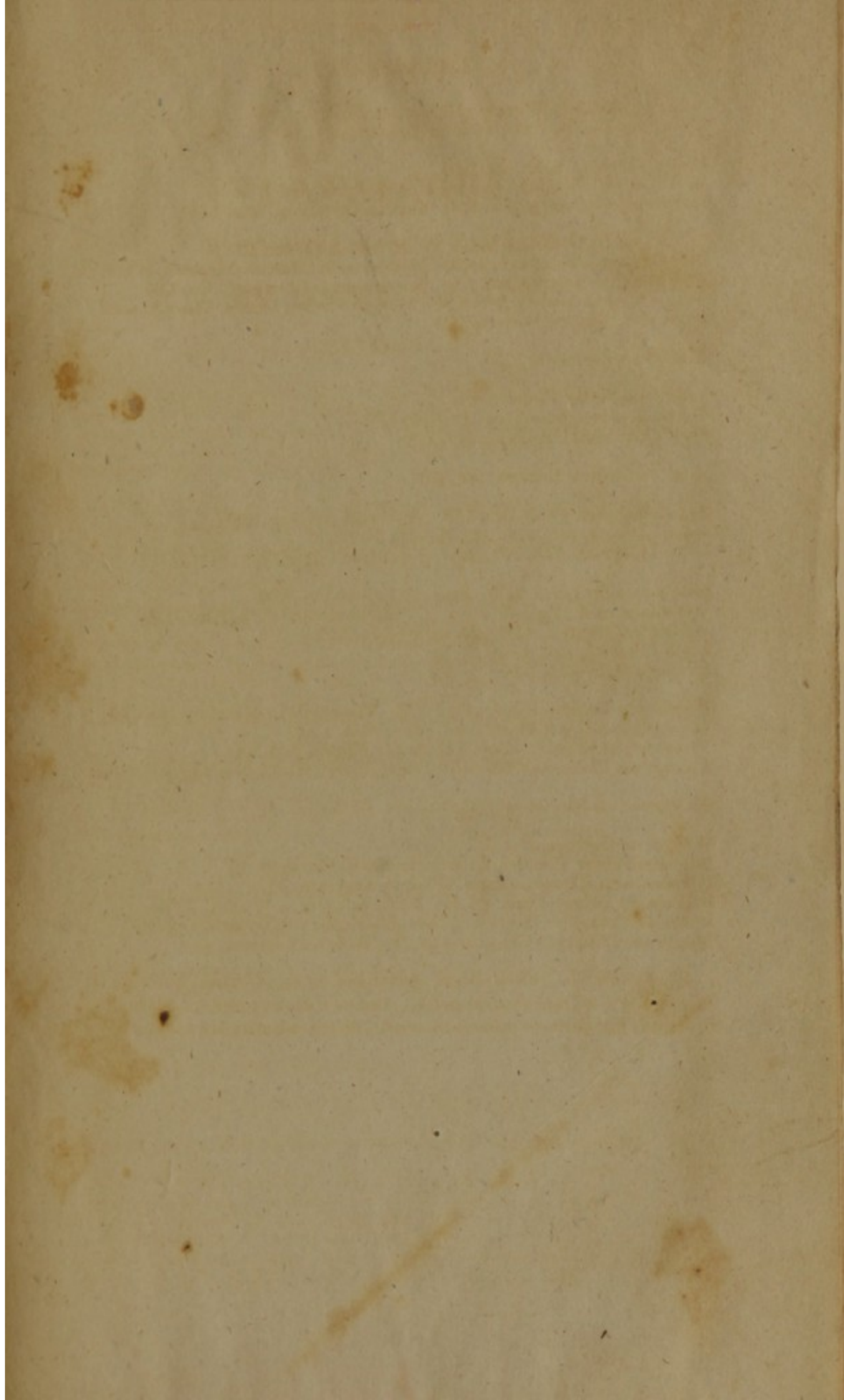
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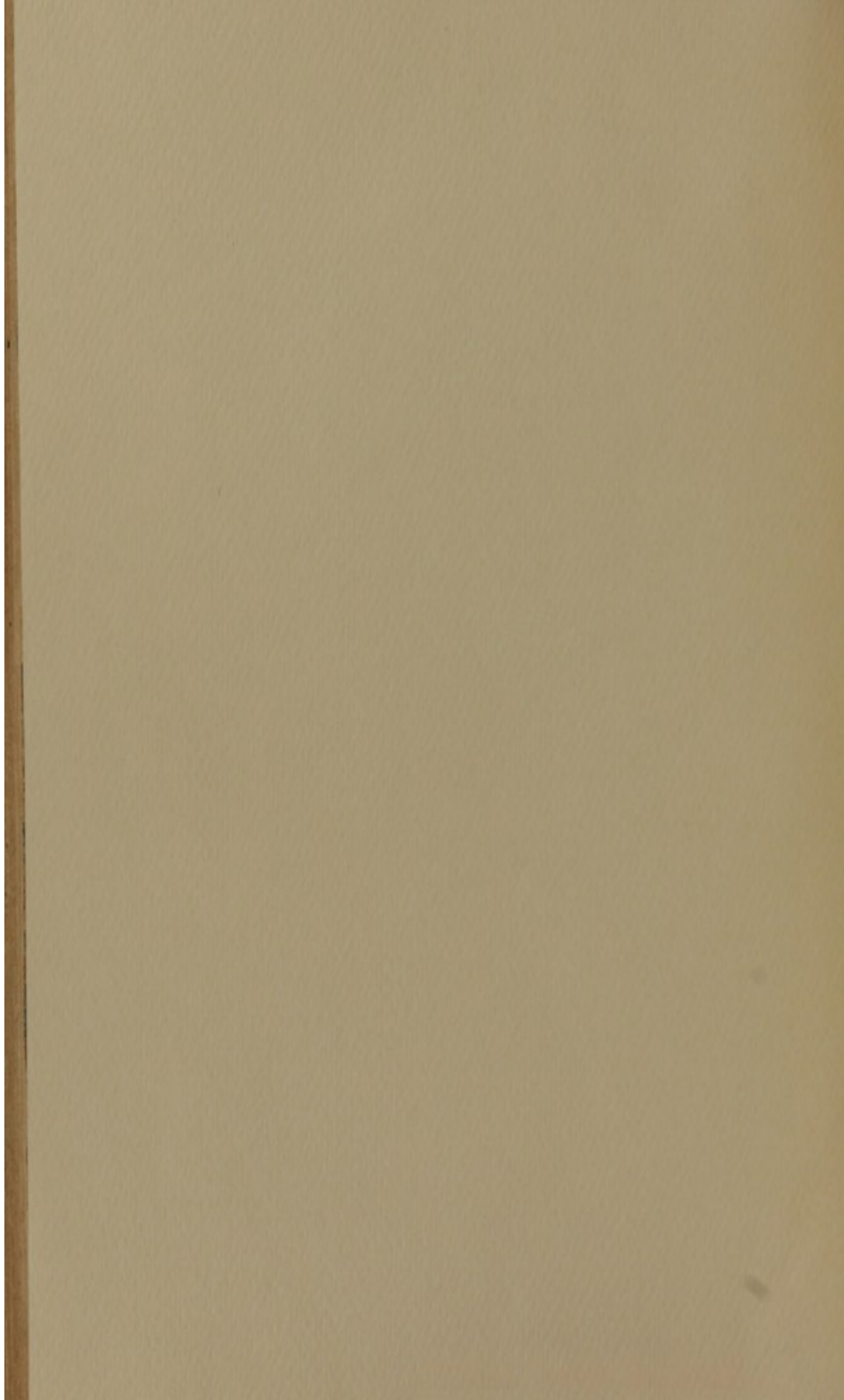
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