Medical sketches / by Richard Pew, member of the Royal Medical Society, Edinburgh.

MEDICAL

SKETCHES.

PART THE FIRST.

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TO

SIR WILLIAM DOLBEN, BART.

SIR,

PERMIT me to ſhelter the following imperfect Sketches under the reſpectable Name of SIR WILLIAM DOLBEN;---to acknowledge the many obligations I am under to his Family, and Connections; and to add, that I am,

With grateful Eſteem,

His faithful,

Obliged,

And affectionate Servant,

SHASTON,
20th July, 1785. THE AUTHOR.

Cælum, non animum mutant, qui trans mare currunt.
HOR. EPIST. xi. Lib. i. v. 27.

ADVERTISEMENT.

THE following OBSERVATIONS, if not of *long*, are the reſult of *much* and attentive Experience:—Some of them would have appeared ſooner, had not a painful and tedious illneſs interrupted the Author's purſuits; others would have been deferred, until they could have been rendered more complete, had not frequent returns of the ſame illneſs given him cauſe to ſuſpect, that it might ultimately, and he knows not how ſoon, prove fatal:—He hoped, that in their preſent imperfect ſtate, they might tend to improve the Theory and Cure of Diſeaſes; and in that hope, he ſubmits them to the free and candid conſideration of his Brethren.

Si "diu nobis vivere non licet
Relinquamus aliquid quo nos vixiſſe teſtemur."

SENECA.

☞ The Reader is desired to correct the following

ERRATA:

Page 25, last line but one, for *Shenkins*, read *Skenkius*.
47, line 8, for *Jacobos*, read *Jacobum*.
66, line 3, for *these*, read *those*.

MEDICAL SKETCHES.

PART I.

EPILEPSY.

EVERY one knows what is meant by the term EPILEPSY, that it is employed to denominate a diſeaſe, in which the patient, for the moſt part, ſuddenly falls down deprived of all ſenſe, and is affected with violent convulſive motions of ſome or all the limbs.——Although few diſeaſes admit of greater variety in their appearances, or are ſubject to ſuch different modifications---the loſs or diminution

of ſenſibility to external ſtimuli, and convulſive affections of ſome part of the body, are ſo univerſally attendant on all, that theſe two circumſtances will effectually diſtinguiſh EPILEPSY from almoſt every other affection; and, hence Dr. Cullen, with elegant conciſeneſs, has defined it, "*Muſculorum convulſio cum ſopore.*" *Synopſ. Noſolog. Method.* GL. iii. edit. iii.

To enter into an hiſtorical detail of all the phenomena which at times accompany this terrible diſorder, would only lead me to repeat what may be met with in almoſt every practical writer, and interfere with that conciſeneſs which it is my wiſh to preſerve in the following Sketches.—— Such therefore as wiſh to peruſe a compleat hiſtory of this affection, are referred to thoſe writers, but more eſpecially to Van Swieten, where they will find it delivered with great accuracy, and to ſufficient extent.---I ſhall therefore proceed immediately to inveſtigate the cauſes of Epilepſy.

However

However numerous and complicated the cauſes generally enumerated may be, all of them may perhaps be referred to ſome one of the following heads :—

Firſt, To ſome inequality of the bones compoſing the encephalon, occaſioning ſome diſproportion between the cranium and its contents.

Secondly, To preternatural tuberoſities or exoſtoſes on the inſide of the cranium.

Thirdly, To inflammation, tumefaction, ſuppuration, induration or oſſification of the membranes covering the brain, or of the brain itſelf.

Fourthly, To hydatids formed within the cranium.

Fifthly, To an acrimonious ſtate of the humours in general, or within the cranium in particular.

Sixthly, To inanition or collapſe.

Seventhly, To fear, and eſpecially a ſudden fright.

As the moſt obvious and ſimple way in which an Epileptic Fit may be produced, I ſhall begin with a few obſervations on exoſtoſis, in hopes to deduce arguments from thence which may lead us with ſome degree of probability to the *modus operandi* of the other remote cauſes of Epilepſy.

That exoſtoſis operates as a remote cauſe in the production of Epilepſy has been proved by repeated diſſections, and that in caſes where the diſeaſe had continued for a great number of years——hence we may take occaſion to obſerve in this place, that as this cauſe of Epilepſy does frequently exiſt to a conſiderable degree, and for a conſiderable length of time, without producing any great inconvenience, this ſpecies of Epilepſy may generally be conſidered as a chronic diſeaſe---for the patient is ſeldom

dom carried off by the Epileptic paroxyſm, but after ſome convulſive ſtruggles more or leſs violent, and of longer or ſhorter duration, according to the force of the remote and exciting cauſes, returns again to his ordinary ſtate of health or nearly ſo, and very often a conſiderable ſpace of time elapſes before the commencement of a ſecond paroxyſm.---Now as, during the interval, the patient is, to all appearance, in perfect health, and (generally) does not feel the leaſt trace of the diſeaſe, there muſt neceſſarily be ſome other cauſe which operates at certain periods, and gives occaſion to the recurrence of the Epileptic ſeizure, it will be of the utmoſt conſequence to diſcover if poſſible what this exciting cauſe is; as, upon juſt ideas concerning it, will chiefly depend our method of cure.

From the nature of exoſtoſis it is ſufficiently evident that it cannot admit of any ſudden diminution or increaſe; nor is it ſuſceptible of any other ſudden change, which can be ſuppoſed to give occaſion to

an

an Epileptic ſeizure.---It can operate only in a mechanical way, as an extraneous body, and by its bulk.* It appears therefore probable that the exciting (or that) cauſe which brings this remote cauſe into action, muſt be ſuch as can ſo enlarge the contents of the cranium, (the brain and its membranes) as to occaſion it to preſs againſt the exoſtoſis, in ſuch a manner and to ſuch a degree, as by irritation or otherwiſe materially to interrupt the functions of the brain.----This enlargement of the contents of the cranium may ariſe either from a plethoric ſtate of the veſſels in general, or from a determination to the head in particular; and hence where the remote cauſe is known to exiſt, we find that a paroxyſm is brought on, or rendered more frequent, by all thoſe cauſes which are known to increaſe the general, or topical plethora; as free living, violent exerciſe, exceſſive drinking, intenſe thought, or any other means which can contribute to the fullneſs of the veſſels in general, or increaſe

* Vide Caſe 1ſt.

creaſe the determination to the head in particular.

In whatever way the exciting cauſe is produced, the manner in which it operates in bringing on an Epileptic ſeizure, may perhaps be conſidered as ſomewhat analogous to the following---

Let A B fig. 1ſt, repreſent a ſection of the cranium, C a preternatural tuberoſity, or exoſtoſis, reſting upon, but not depreſſing, D E F, the membranes covering the brain; here no preſſure or iritation is exerted, and therefore no diſeaſe is produced.

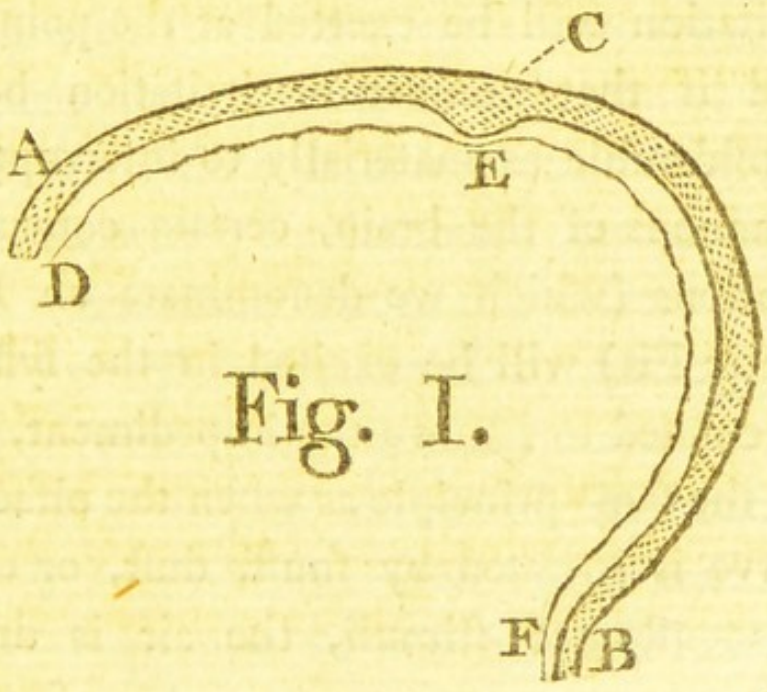

Fig. I.

Let

Let now the exoſtoſis C, fig. 2d, be increaſed, or the contents of the cranium, D E F, (the brain and its membranes) be

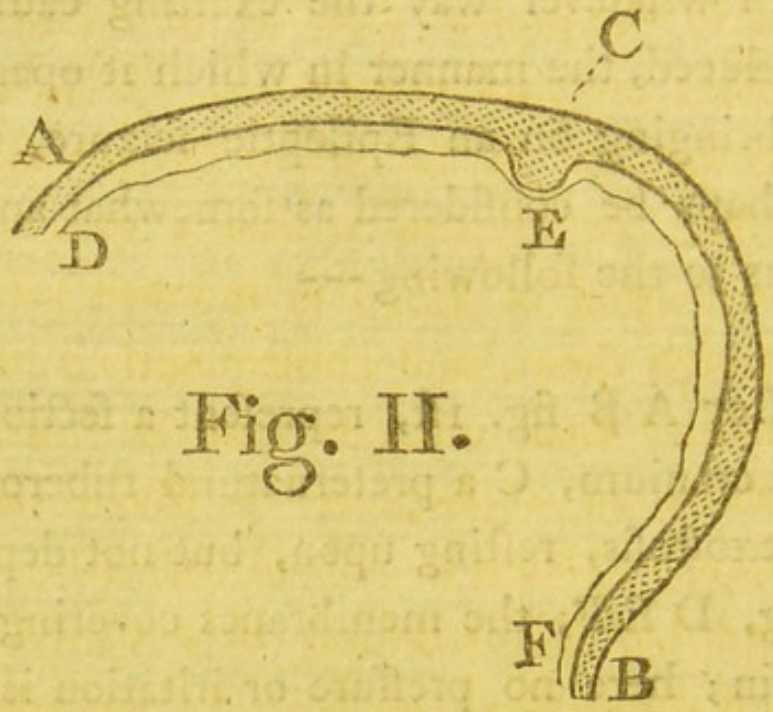

Fig. II.

enlarged, in either caſe ſome preſſure or irritation will be exerted at the point E; and if that preſſure or irritation be ſo conſiderable as materially to interrupt the functions of the brain, certain convulſive motions (which we denominate an Epileptic Fit) will be excited in the ſyſtem, calculated to remove the impediment, upon the ſame principle as when the olfactory nerve is irritated by ſnuff, duſt, or other unaccuſtomed ſtimuli, the air is driven forcibly

forcibly through the noſe, in the effort of ſneezing to remove it.---And what means could Nature take ſo likely to prove effectual in the preſent caſe, as to excite thoſe violent convulſive motions, which either together or in ſucceſſion agitate all the limbs; for by this means a greater determination of blood is induced into and through them, and conſequently a ſmaller quantity than uſual is ſent to the head, whence an opportunity is given for the diſtended veſſels to unload themſelves; excited by the irritation they contract on their diminiſhed contents, in conſequence of which the morbid preſſure is taken off, and with it the Epileptic paroxyſm, the patient ſoon returns to his natural ſtate, and for a time is free from the diſeaſe, but as where an increaſed determination has once taken place, the dilated veſſels are ſomewhat weakened by having been kept for ſome time upon the ſtretch; whenever there is a recurrence of the leaſt tendency to plethora, theſe veſſels will from their relaxation be leſs able to reſiſt the

impulſe of the heart and arteries, they will more readily give way, the plethora will thus become local, the ſame determination will be again induced, the ſame preſſure will be exerted, and an Epileptic Fit, with all its phenomena will again be the conſequence: and thus that habit of determination ſeems to take place, which gives ſo great a tendency to the return of the Epileptic paroxyſm, after a perſon has been once affected; and hence too appears the neceſſity of attempting the removal of this diſeaſe in its infancy, before thoſe habits of determination are confirmed, which render it afterwards ſo difficult, and ſometimes, perhaps, impoſſible to be removed.

BOARHAAVE has given the following remarkable inſtance of Epilepſy taking place in this manner. —— A lad about twelve years of age ſuſtained a fall, which occaſioned a depreſſion of the cranium, but this not producing any immediate bad ſymptoms was intirely overlooked, until the age of eighteen, when he became Epileptic:

Epileptic: the moſt experienced Phyſicians were now conſulted, who endeavoured in vain to diſcover the cauſe of the diſeaſe, and the moſt celebrated anti-epileptic remedies were given to no purpoſe. At length they ordered the head to be ſhaved, when the depreſſion of the cranium, before neglected, was diſcovered, the ſutures were ſeparated from each other, and the diſtribution of the veſſels in the depreſſed part (which had not increaſed like the reſt of the cranium) was different from what it was elſewhere.---Duretus directed that the whole ſhould be taken out with a large trephine, by which means the young man was perfectly cured of his Epilepſy.—— Vid. Caſe 1.

Having thus examined the moſt ſimple manner in which an Epileptic paroxyſm is produced, it is neceſſary to take a general view of the other ſuppoſed cauſes of Epilepſy, to which, at firſt ſight, the ſame kind of reaſoning does not appear ſo immediately to apply.——Previous to this

ſtep, however, it may be proper to obſerve, that it is not at all material whether the inequality, or diſproportion, giving occaſion to compreſſion depend upon an exoſtoſis or enlargement of the cranium operating upon the brain,---or upon a tumor, or enlargement of the brain, or its membranes, operating upon, or againſt, the cranium:---provided the preſſure be equal in degree, the effect will be the ſame.---And all that ſeems neceſſary to the production of Epilepſy is, that the preſſure exerted be partial and circumſcribed, or at leaſt greater on one part of the brain than another.

Hence we ſee, that Epilepſy has ſometimes taken place, when no apparent cauſe could be diſcovered on diſſection. In ſuch caſes it ſeems probable that an increaſed tenſion, and ſenſibility of the ſyſtem had taken place, with ſome little enlargement of the contents of the cranium, which ſlightly preſſing againſt ſome natural protuberance or inequality of the cranium,

(as

(as near the orbit of the eye, for inſtance) was ſufficient, in that highly ſenſible and diſtended ſtate, to prove the exciting cauſe of an Epileptic ſeizure.

In ſome inſtances we can perceive this exceſs of ſenſibility ſome days before the paroxyſm takes place, by the patient fancying he ſees a ſpark of light; or by his having an idea of a ſun beam in his eye, even in a darkened room, which is not a ſingular, altho' rather an uncommon, preſage of an approaching Epilepſy.

Here ſeems to have exiſted an exceſs of ſenſibility of the optic nerve and its neighbourhood; which, as ſoon as the ſlighteſt preſſure was applied, gave occaſion to an Epileptic ſeizure.

Some inequality of the bones compoſing the encephalon.

After what has been ſaid on the ſubject of exoſtoſis, little need be added here concerning

cerning the manner in which this cauſe operates; for it is ſufficiently obvious, that this inequality muſt conſiſt in the depreſſion of ſome part of the cranium, beneath the level of the reſt; in conſequence of which, with reſpect to the brain, it becomes in effect an extraneous body; and therefore, when the contents of the cranium are any how increaſed, it may give occaſion to that preſſure and irritation, which in the caſe of exoſtoſis was proved to bring on an Epileptic Fit.

INFLAMMATION, &c.

Inflammation may generally be conſidered as an exciting cauſe: but where none of the preceding remote cauſes are preſent, circumſcribed inflammation may ſometimes perhaps give occaſion to that kind of preſſure and irritation which ſeems neceſſary to the production of an Epileptic ſeizure.

Tumefaction.---This is a natural and general conſequence of inflammation, attended

tended with a great increaſe of ſenſibility; and, as was obſerved before, it is not material whether the enlargement giving occaſion to preſſure be ſituated in the brain itſelf, in its membranes, or on the inſide of the ſkull; therefore, when the inflammation, and the conſequent tumefaction, are conſiderable, it is not improbable that ſuch preſſure may be exerted as will give occaſion in this highly ſenſible ſtate to an Epileptic Fit.

And that Epilepſy does take place from this cauſe, without any other morbid affection either of the cranium, or its contents, is rendered probable, from the occurrence of Epilepſy about the eve of the variolous eruption, which in plethoric and ſanguineous habits is not a very uncommon circumſtance:---at this period the whole ſyſtem is in an highly ſenſible, inflamed, and diſtended ſtate.

The occurrence of Epilepſy from this cauſe has been conſidered as an indiſputable

ble evidence of the immediate agency of acrimony in producing this affection, which it was ſuppoſed to do by irritating the brain; but it operates probably in a ſecondary way only, and in a manner eſſentially different from that of the immediate action of acrimony, as will be more fully explained, when we come to treat of acrimony as a ſuppoſed cauſe of this diſeaſe.*

Suppuration.---This is a farther natural conſequence of inflammation, and the abſceſs formed, firſt from its bulk, and after its rupture, from the acrid nature of its contents, may certainly prove the cauſe of Epilepſy, inſtances of which may be found in Van Swieten.---But as when this happens, there is little chance for its intermiſſion, it does not ſo properly come under our conſideration in this place, where it is intended to treat of Epilepſy chiefly as a chronic, idiopathic, and periodical diſeaſe.

* This will be illuſtrated likewiſe in the ſketch on the proximate cauſe of Fevers.

Induration.

Induration.---This is not a very unfrequent termination of inflammation, eſpecially in membranous parts; as the moſt familiar example of which may be mentioned that opacity of the cornea, which often ſucceeds a peculiar ſpecies of chronic inflammation of the eyes, (or rather perhaps increaſed determination) and, after it has once taken place, returns at irregular periods, frequently without any apparent cauſe, continues often with more or leſs violence for a conſiderable length of time, and after having withſtood every effort both of the Phyſician and Surgeon, at laſt diſappears as unaccountably as it came on; leaving behind it, for the moſt part, ſome obſcurity or induration of the cornea, which induration ſeems in its turn to ſupport the increaſed determination, and to give occaſión, on the ſlighteſt cold or other accidental cauſe of a phlogiſtic diatheſis, to its return.

That ſuch a determination does take place in the membranes covering the brain

ſeems probable from that ſuffuſion of the eye, which in many inſtances takes place ſome little time before the Epileptic ſeizure; one inſtance of which is related by Dr. Cullen* of a gentleman in whom a ſuffuſion of one eye was always obſerved a day or two before every Epileptic ſeizure: and another will be found in the caſe of W. L. Eſq. No. 2. —— The appearances on diſſection in this caſe alſo prove, that the ſame ſpecies of induration which takes place in the eye, takes place alſo in the membranes covering the brain, and ſeems to ſupport the increaſed determination; for although we examined the contents of the cranium with the utmoſt attention, we could not diſcover any other cauſe, to which, with the ſmalleſt probability, the diſeaſe could be attributed.

Hydatids. —— That theſe exiſt within the cranium as a cauſe of Epilepſy, there are ſeveral inſtances upon record, although authors have enumerated no ſpecific ſymp-

* Lectures on the Practice of Phyſic.

toms,

toms, by which ſuch caſes may be diſtinguiſhed when they do occur; it is probable they contain only an inſipid ſerum, or ſerocity; or if the fluid contained be at all acrid, it will be ſo perfectly incloſed in the membranous cyſt, that it cannot operate as acrimony on the brain; we muſt conſider them then as bringing about their effects in the production of Epilepſy from their bulk and by preſſure. —— All thoſe cauſes, therefore, which can increaſe that bulk, or that preſſure, will here likewiſe operate in the excitement of a paroxyſm.

An acrimonious State of the Fluids.

Without entering into the difficulties attending the admiſſion of acrimony, independent of ſome previous morbid affection of the ſolids, we may content ourſelves at preſent with obſerving that it is extremely difficult to conceive how acrimony *(acting as ſuch)* ſhould ever produce Epilepſy as a chronic diſeaſe: for admitting (a circumſtance probable indeed but not yet proved)

that the brain is furniſhed with abſortents, and that acrimony once poured out could be again taken up --- it is impoſſible that this could be done in that ſudden and inſtantaneous manner, in which an Epileptic paroxyſm ſometimes leaves the patient; and as long as it remained unabſorbed, it ſeems reaſonable to ſuppoſe that it would ſtill continue to operate until Epilepſy in this way frequently proved fatal: beſides, we find that thoſe Epilepſies which have immediately ſucceeded the retropulſion of acrimony, return periodically, and (altho' they are undoubtedly more dangerous) frequently admit, like all other caſes of chronic Epilepſy, of a compleat intermiſſion, and ſometimes a conſiderable interval elapſes between each paroxyſm. Acrimony, therefore, when repelled, does not ſeem to be effuſed in a different part, and operate there in its proper form---but probably produces its effects by inducing a plethoric ſtate, eſpecially in thoſe veſſels from the neighbourhood of which it had formerly made its eſcape; --- and which (plethora) perhaps

perhaps by that diſcharge had been previouſly taken off.---It is obvious therefore that acrimony, when repelled, may prove the cauſe of Epilepſy, (independent of its action directly as ſuch) by giving occaſion to that compreſſion which in the foregoing inſtances was thought neceſſary to produce the diſeaſe.*

It has been obſerved before, that the occurrence of Epilepſy, juſt preceding the ſmall-pox, has been adduced as a proof of the direct action of acrimony, in the production of this diſeaſe, which it was ſuppoſed to do immediately as ſuch by irritating the brain. ---- It was there obſerved too, that its operation was probably in a ſecondary way only, by inducing that highly ſenſible, diſtended, and inflamed ſtate, ſo evidently exiſting in every part of the ſyſtem, juſt before and during the early ſtage of the eruptive period in which

* This will be rendered more intelligible by what will be hereafter advanced on the theory of Fever.

it was ſuppoſed that Epilepſy might readily take place independent of the immediate action of acrimony :*---and that it does ſo is rendered ſtill more probable from the conſideration that the Epileptic ſymptoms generally diſappear as ſoon as the eruptive ſtage is compleated; for if they depended on the immediate operation of the variolous acrimony on the brain, one ſhould be naturally led to ſuppoſe, that thoſe ſymptoms would increaſe after the variolous fermentation was compleated, when a much larger proportion of that acrimony muſt be abſorbed from every part, and conveyed to the brain in a much greater quantity than it could poſſibly be previous to the eruptive ſtage, and would probably therefore produce effects, in proportion to the quantity and activity of the acrimony ſo conveyed.--But it will perhaps be objected to this idea, that the variolous acrimony

* In the ſucceeding Eſſay the Reader will find many arguments to prove, that the variolous acrimony, as well as thoſe of other Fevers, produce their effects chiefly by increaſing the determination to the head.

having

having once operated on the human ſyſtem loſes its effect altogether; and therefore it is no wonder, that Epilepſy having been once produced by this cauſe, the brain and nervous ſyſtem ſhould be in ſuch a ſtate, as to be no longer ſuſceptible of any farther ſtimulus from this ſource, and that the diſeaſe therefore does not occur.---- This reaſoning, ſo far as relates to the ſmall-pox, may be very juſt; but it is true likewiſe that the variolous eruption is the ſpecific conſequence of the variolous acrimony; and perhaps it is true alſo, that in certain circumſtances it never fails to communicate that diſeaſe.

But in the caſe of Epilepſy, no ſuch reaſoning can be admitted; for although in general language we ſay that Epilepſy is a frequent attendant on the eruptive ſtage of ſmall-pox, yet it is ſo far from being the ſpecific or neceſſary conſequence of that infection, that perhaps in ninety-nine inſtances out of a hundred it does not take place; and therefore, if dependent on

acrimony

acrimony at all, it does not depend on the variolous acrimony as ſuch, but ſeems to be merely a conſequence of that highly ſenſible ſtate which, as before obſerved, is induced in the conſtitution, by the peculiar and ſpecific effect of that acrimony in the production of thoſe inflammatory puſtules called the ſmall-pox.---Beſides, we have the cleareſt evidence, that this poiſon has the effect of irritating the conſtitution (as acrimony) after the eruptive ſtage has been compleated, and the whole ſyſtem has experienced the ſpecific ſtimulus; for we find that it conſtantly does ſo in the production of the ſecondary fever, often the moſt dangerous circumſtance in the whole variolous proceſs,|| eſpecially in the confluent ſpecies of the diſeaſe, where the quantity of this poiſon is very great: and as it is capable of exciting a ſecond time ſuch violent and dangerous effects, it is probable, that if it

|| No Epilepſy however here takes place, for want of that circumſcribed inflammation which the firſt effect of the variolous acrimony always produces.

ever

ever operated immediately as acrimony in the production of Epilepſy, it would not now fail to produce its effect in this way, when the ſyſtem from its exhauſted and irritable ſtate would be extremely liable to run into irregular and convulſive motions, were the proper remote cauſes applied:--- And hence may be deduced a ſtrong preſumptive evidence, that Epilepſy never ariſes from acrimony alone, without the concurrence or production of ſome other cauſe.

To this may be added the circumſtance of perſons being inoculated by way of being convinced whether they had already had the ſmall-pox or not: in ſuch inſtances I believe we have no evidence, that Epilepſy ever occurred where the inflammation neceſſary to the variolous eruption was not excited.

Van Sweiten, indeed, has adduced an inſtance from Shenkins, of an Epilepſy occaſioned by a tumor in the thigh, which

was cured by cleaning the bone, (which was carious) and removing the putrid ſanies; and another from Bonetus, of an Epilepſy ariſing from a carious great toe. And when we conſider how highly acrid and corroſive the ſanies produced by carious bones ſometimes is, we ſhall not be ſurpriſed, that in ſome inſtances it may prove ſufficiently ſtimulating to the *bare nerve or nerves*, expoſed to its action, to excite convulſions, independent of its being conveyed to the brain; but ſtill as we know that ulcers of the moſt fœtid and corroſive kind do frequently exiſt without the occurrence of Epilepſy, this may be conſidered not only as a ſtrong preſumptive evidence that Epilepſy does not frequently ariſe from an acrimonious diſpoſition of the fluids, but proves likewiſe that acrimony of a much more corroſive kind than can be ſuppoſed to exiſt in the moſt vitiated general ſtate of the fluids, may be abſorbed in a conſiderable quantity, (for open ſores are beyond all doubt the beſt abſorbing ſurfaces) without producing an

Epileptic

Epileptic paroxyſm :--- As an example of which we may mention hectic fever evidently ariſing from the abſorption of pus.

And is it not very poſſible, that in thoſe few caſes of Epilepſy which have been ſuppoſed to depend on this cauſe alone, ſome other hidden remote or exciting cauſe might have exiſted at the ſame time, and given occaſion to the diſeaſe.

Upon the whole, therefore, all that can with certainty be deduced from theſe caſes is, that a ſore leg is not always a certain preſervative againſt the occurrence of an Epileptic ſeizure.

Inanition, or Collapſe.

As an inſtance of Epilepſy depending on this cauſe, thoſe convulſive ſtruggles are adduced which take place in animals expiring under the hand of the butcher.-- But this analogy ſeems too remote from any thing which can be ſuppoſed to take

place in the human ſyſtem as giving occaſion to chronic Epilepſy. —— Thoſe caſes which are accompanied with, and ſeem to depend upon, a certain degree of collapſe for their immediate production, will perhaps admit of a very different explanation, to be mentioned hereafter.---And it ſeems probable, that where convulſions ariſe from inanition or collapſe ſolely, and without the concurrence of other cauſes, they do not take place until the animal is ſo far exhauſted as to be in an irrecoverable ſtate; or at leaſt require for their production a very ſudden exhauſtion of the vital fluid, by the diviſion of ſome large artery (the moſt uſual way of killing animals.) For otherwiſe, ſhould we not obſerve ſuch occurrences to take place more frequently? or, rather, ſhould they not be the certain and inevitable conſequence of great exhauſtion? —— Yet comparatively ſpeaking ſuch ſymptoms are in reality a very rare occurrence. For, in the firſt place, it may be obſerved, that although ſyncope often takes place from phlebotomy, yet if

carried

carried to almoſt ever ſo great an extent, Epilepſy ſeldom occurs, and perhaps never, unleſs ſome of the cauſes mentioned in the preceding pages exiſt likewiſe, as the exciting, or aſſiſtant exciting cauſe of the diſeaſe.

Secondly, I have ſeen one patient expire from the loſs of blood in uterine hemorrhage, and that too very ſuddenly after delivery, yet no proper convulſions took place.---I have likewiſe ſeen ſeveral other perſons ſo far exhauſted from flooding, that I could not, in one or two inſtances, for a conſiderable time, diſtinguiſh with certainty whether the patient was dead or alive; yet I could not perceive the leaſt appearance of proper convulſion, although I paid particular attention to this circumſtance.--There is indeed in moſt inſtances a kind of ſhaking, or tremulous motion, which takes place, but it ſeldom ariſes to ſuch a height as can properly be called epileptic or convulſive, but may rather be conſidered as a general *ſubſultus tendium*.

Laſtly,

Laſtly, We ſee that in fevers, in *phthyſis pulmonalis*, and in many other diſeaſes, an aſtoniſhing degree of exhauſtion takes place without the occurrence of convulſive ſtruggles, which ſeldom or never ariſe in ſuch caſes, except in the very agonies of death. It ſeems therefore highly probable that Epilepſy, ariſing from this cauſe, can ſeldom if ever be conſidered as a chronic diſeaſe, and will ſeldom if ever as ſuch come under the care of the Phyſician.--- That this affection does ſometimes occur in patients apparently exhauſted, muſt readily and without heſitation be admitted; but probably, in general, if not univerſally, it will be found that ſome particular determination to the brain, or partial congeſtion within the cranium, (ocaſioning an increaſed *ſenſibility*) takes place, as the exciting, or aſſiſtant exciting cauſe of the diſeaſe, to which the exhauſted ſtate of the ſyſtem contributes no otherwiſe than by giving occaſion to that *irritability*, which ſo greatly facilitates the operation of the exciting cauſes.

But

But as the term Irritability has been employed to expreſs two very different and oppoſite ſtates of the ſyſtem, the Reader muſt in this place excuſe a ſhort digreſſion, to explain the ſenſe in which that term is employed in the preſent ſketch, becauſe the diſtinction will be here of conſiderable importance.

All Phyſiologiſts are agreed, that to the due ſenſibility of any part, it is neceſſary that there ſhould be a certain degree of tenſion in the arterial ſyſtem of that part, and that no compreſſion or other impediment take place in the nerve or nerves leading to or from it.---When tenſion is increaſed beyond the ſalutary ſtandard, and yet not ſo far as to interrupt the ingreſs and egreſs of the nervous influence, ſenſibility is increaſed in proportion, and often to ſuch a degree as to become morbid, or exceſſive.--As an example of which morbid tenſion and ſenſibility may be mentioned, inflammation of any part---for inſtance that of the eye.

In

In many caſes of opthalmy tenſion is ſo greatly increaſed, that the whole *tunica albuginea* becomes diſtended with red blood, and the ſenſibility is thereby ſo amazingly augmented, that the leaſt breath of air, or the ſmalleſt ray of light, produces the moſt exquiſite torture, and that even in a darkened room, and when the eyes have been covered with two or three handkerchiefs.*

When tenſion is diminiſhed below the proper ſtandard, as in the caſe of great loſs of blood, or other conſiderable evacuations, a ſtate of the ſyſtem directly oppoſite to the former is induced; but which alſo diſpoſes it to be affected by very ſlight cauſes in a violent manner.

A ſudden rap at the door, for inſtance, or other ſimilar cauſe, will in this ſtate frequently occaſion palpitation of the heart, univerſal tremblings, and ſometimes ſyncope. --- Both theſe ſtates have been fre-

* Cullen's Prælectiones Medicæ.

quently

quently comprehended under the general term irritability, and altho' ſome Phyſiologiſts have properly diſtinguiſhed them from each other, yet it is not uncommon ſtill to meet in the ſame writers with expreſſions like the following; " In this *exhauſted* and *irritable* ſtate of the ſyſtem, &c." --- " In this *diſtended* and *irritable* ſtate of the ſyſtem, &c."

Nothing, however, as was before obſerved, is more neceſſary than to diſtinguiſh theſe two ſtates (depending on cauſes ſo diametrically oppoſite) from each other.

The former, therefore, as differing from the natural and healthy ſtate of ſenſation, rather in degree than in kind, I have diſtinguiſhed by the phraſe, *exceſs of ſenſibility*, correſponding to the excitement of Haller and Cullen.

The latter I have diſtinguiſhed by the term *irritability*, correſponding pretty nearly to the collapſe of the ſame authors.

Now it is probable from many circumſtances, that theſe two oppoſite ſtates of irritability, and morbid ſenſibility, may take place in different parts of the ſame conſtitution at the ſame time; that is, an increaſed determination to any particular part, giving occaſion to an increaſe of ſenſibility in that part, may take place notwithſtanding a general ſtate of inanition, irritability, or collapſe, may exiſt in every other part of the ſyſtem:---And that this does actually happen in ſome caſes of Epilepſy, ſeems pretty clearly proved in the following inſtance---Caſe 3.

In this caſe of Joice Wallis, there was the greateſt determination to the head I ever remember to have ſeen;--her eyes were often conſiderably inflamed, and ſhe always felt conſiderable pain and fulneſs in her forehead for ſome time before the Epileptic ſeizure:---theſe are the moſt unequivocal marks of increaſed determination to the head.

We find that the firſt ſeizure immediately ſucceeded a ſudden fright, which probably operated by inducing *irritability*; for altho' fear is perhaps juſtly conſidered as a ſedative power, and therefore operates by diminiſhing tenſion and exceſſive *ſenſibility*, yet it was obſerved that when the tenſion of any part was diminiſhed below the proper ſtandard, irritability of that part immediately took place, which diſpoſed it to be affected by ſlighter cauſes than would formerly have operated upon it; and that ſomething like this happened in the caſe before us, ſeems probable from this circumſtance, that the Epilepſy left her after the ſmall-pox, and did not recur again until twelve months had elapſed, and then from the ſame cauſe as before, (a violent fright) and from its continuing ſince that period to recur at the end of the menſtrual evacuation, and at no other time. For how could the ſmall-pox (which were numerous, eſpecially in the face) contribute to the removal of the complaint, except it was by diminiſhing *tenſion*, (from

the quantity of the ſuppuration) and thereby diminiſhing the ſenſibility of the brain, and, perhaps, obviating the cauſe of preſſure or irritation? Or how can we account for the return of paroxyſm, at the end of the menſtrual evacuation, except by admitting (a fact which will ſcarcely be denied) that this diſcharge increaſes the irritability of the ſyſtem, ſeeing that the evacuation (operating directly as ſuch) would tend to diminiſh the action of the remote cauſe by obviating tenſion?

It would ſeem, therefore, that this caſe affords an inſtance of increaſed tenſion, ſenſibility, or excitement, exiſting with reſpect to the brain; and of morbid inanition, irritability or collapſe, taking place with reſpect to the trunk and extremities; but neither to ſo great a degree as ſeparately to produce the diſeaſe.

For when the tenſion and ſenſibility of the brain were diminiſhed by the evacuation produced by the ſmall-pox, the *irritability* induced

induced by the menſtrual evacuation, was not ſufficient to give occaſion to the diſeaſe.

And now that the *tenſion* and exceſs of *ſenſibility* are probably again reſtored, we ſee that this is not ſufficient to excite a paroxyſm, without the concurrence of that *irritability*, which is induced by the irruption of the catemenia, by fear, or by ſome other cauſe operating upon the ſame principle.

It appears probable, therefore, that collapſe does not operate immediately as the exciting cauſe of an Epileptic Fit, but as an aſſiſting cauſe only, inducing that irritability which gives the proper exciting cauſe an opportunity to exert its effect; for we have ſeen that it does not occur, even in caſes of very great exhauſtion, unleſs we can trace pretty clearly ſome increaſed determination to the head, or ſome impediment or other to the due diſtribution of the nervous influence.

Fear,

Fear, and eſpecially a ſudden Fright.

In the operation of fear, there is ſomething extremely myſterious; ſometimes it evidently promotes, and at other times as evidently ſeems to prevent, the occurrence of Epilepſy.

It is a well known fact, that in the poor-houſe at Haerlem, the excellent Boarhaave checked the progreſs of Epilepſy from imitation by the influence of terror, in the following manner:---

One of the children was, from a fright, ſeized with convulſions, which became periodical; preſently another child, who was ſtanding by her, fell into the ſame kind of fit; the next ſeizure another, then a third, a fourth, nay, almoſt all the children in the houſe at the ſame time. The medical gentlemen who attended, had recourſe to the moſt celebrated anti-epileptic remedies to no purpoſe; at length they requeſt the aſſiſtance of Boerhaave, who coming to Haerlem examines minutely every

every circumſtance reſpecting the unhappy affair, and obſerving that the diſeaſe was communicated from one child (by its effect on the imagination) to the others, he conceived, that if the mind could be fixed ſteadily upon ſome other object, the communication of the diſeaſe might be prevented; he therefore, before all the children, in preſence of the Governors, directed, with great parade and ſolemnity, that iron hooks of a peculiar kind ſhould be kept conſtantly red-hot in a portable furnace, and that the firſt child who became epileptic ſhould be burnt with them in a particular part of the bare arm to the bone. This plan had the deſired effect, none of the children being afterwards affected with the complaint.——Caſe 4.

It is ſomewhat difficult to explain how fear operated in this caſe; but we have before obſerved, that it probably produces its effect by inducing irritability.---On the unexpected appearance of an alarming object, our knees tremble,

and

and our hearts palpitate---muſcles which were before under the influence of the will, continue no longer ſubject to its controul, but become involuntary, irregular, and ſometimes convulſive.

The propenſity to imitation, eſpecially in young and mobile habits, is well known and confeſſedly great: this propenſity conſpiring therefore with the irritability induced by fear, was a ſufficient prediſponent cauſe to the Epileptic ſeizure; the exciting cauſe (the convulſive ſtruggles) being preſented to the eye; for the Epileptic object moſt probably operated in a two-fold (though ſeemingly inſtantaneous) manner; firſt, as an object of terror, inducing fear and irritability; ſecondly, as an object of imitation.---Now in thoſe children there exiſted moſt probably no proper and permanent remote cauſe, except the exceſs of ſenſibility natural to infancy.——Fear, therefore, and its conſequence, (irritability) were not ſufficient to produce a paroxyſm, without the concurrence

currence of an object of imitation. And therefore, altho' the puniſhment threatened might have induced as great, and perhaps a greater degree of fear than the ſight of the Epileptic patient, yet the eye and the attention being by that means withdrawn from the object before imitated, no convulſions took place.

This affords an additional argument to prove, that collapſe does not generally act in the production of Epilepſy, without the concurrence of ſome of the other remote or exciting cauſes.

Some Cauſe compreſſing a Nerve at a Diſtance from the Brain.

This ſeems to require no comment—— The caſe related, No. 5. from the Edinburgh Eſſays, proves clearly that the Epilepſy, there ſpoken of, aroſe directly from compreſſion, ſince it was cured immediately and radically by the removal of the cartilaginous ſubſtance which occaſioned

it; and from the general analogy in the preceding pages, one ſhould be led to ſuppoſe, that they all ariſe from the ſame cauſe; but there occurs a difficulty in the caſe related from Dr. Lyſons, where an Epilepſy of this kind ſeemed radically cured by ligature;---for it is not eaſy to conceive how a diſeaſe, depending upon an impediment (perhaps ſlight) to the due diſtribution of the nervous influence, ſhould be removed by means of a greater impediment, which the ligature would certainly occaſion, except we adopt the idea, that the nerves of ſenſation correſpond with thoſe of motion, in a manner ſomewhat (perhaps remotely) analogous to that in which the veins correſpond with the arteries; ſo that the notice of any impediment acting on the former cannot be communicated to the brain if the latter are not pervious; whence no other motions can be excited in the parts ſo cut off, but what ariſe from the quantity or degree of nervous influence exiſting between thoſe impediments: and hence no general convulſions

vulſions took place in the inſtance referred to, (Caſe 6.) altho' the parts below the ligatures were violently agitated, to the no ſmall entertainment of the patient and the by-ſtanders.

How the affection ſhould be intirely overcome by a repetition of the ſame practice, ſeems to admit of an explanation, upon no other ground than by ſuppoſing that the diſeaſe had at firſt originated from a very ſlight remote cauſe, operating on a very ſenſible ſyſtem, and had afterwards continued in a great meaſure through the wonderful influence of habit, which habit being by the repeated application of the ligature at length overcome, in a ſyſtem probably by age rendered ſomewhat more firm, the remote and exciting cauſes (whatever thoſe cauſes might have been) were not now ſufficient (the habit being loſt) to produce their accuſtomed effect.

That the diſeaſe ſhould ſeem to originate in both feet at the ſame time, is rather a

ſingular circumſtance, and difficult to be accounted for; but we have, I think, rendered it probable, that theſe caſes depend upon compreſſion for their cauſe; and it may be obſerved, that in a ſyſtem highly ſenſible, or prone to convulſion from the power of habit, very ſlight compreſſion may be ſufficient to produce the Epileptic ſeizure.

A nerve, therefore, paſſing over or near any natural or preternatural prominence of a bone, aſſiſted by ſome fulneſs of the neighbouring veſſels, might be ſo compreſſed as to ſuſtain the neceſſary impediment or irritation, whilſt from the general correſpondence in the ſtructure of parts which are *fellows* with their aptitude to be affected in a ſimilar manner by the ſame ſtimuli; the ſame natural ſtructure, or the ſame *Luſus Naturæ*, would moſt probably take place in each, ſo that from the ſame phyſical cauſes, or from a ſympathetic affection, the motions would be exerted and ſeem to originate in both limbs at the

ſame

ſame time. --- But theſe are operations of the Deity, involved in an impenetrable obſcurity, which

> Non radii ſolis, nec lucida tela diei
> Diſcutiant.

There are ſome cauſes of ſymptomatic Epilepſy, of which I have not here thought it neceſſary to take notice; as thoſe which are occaſioned by worms, by the *cicuta aquatica*, and by dentition; but they do not in the leaſt militate with the reaſonings above advanced, in exceedingly ſenſible or irritable habits; the ſtimulus from worms and from the cicuta may be ſufficicient to excite convulſive motions, whilſt the latter may be reſolved into an impediment to the due diſtribution of the nervous influence rendering ſuch efforts neceſſary for its removal.

CASES

CASES.

I.

Puer duodecim annorum, antea nunquam Epilepticus, cadit humi; intropremitur cranium; negligitur, nec cogitatur poſtea de hoc malo; habet quidem quædam incommoda; ſed nil Epileptici uſque ad octavum decimum annum; tunc temporis cranium adhuc creſcit, & ſuturæ expanduntur & ſecedunt a ſe invicem; poſtea fit Epilepticus; exercitati Medici inquirunt omnia, inveniunt nihil; examinatur caput,

caput, tondetur; apparet locus intropreſſus antea neglectus; creverat cranium, hæc pars non; hinc membranæ omniaque cerebri vaſa hic erant aliter diſpoſita, quam in reliquo cranio: Duretus jubet totum hunc locum exſcindi latâ terebrâ, & puer ſanatur perfecte.---*Hermanni Boerhaave Prelectiones de morbis nervorum.* Pagina 818. per Jacobos Van Eams edita.

CASE II.

W. L. Eſq. aged 50, has for two years paſt been affected with violent Epileptic Fits; they occur at irregular periods, ſeldom oftener than once in two months, and continue for ſeveral hours, after which he remains dull and heavy for ſome days: he is generally ſenſible of their approach for ſeveral days before, by *a ſuffuſion of the right eye*, and when this appears, neither bleeding, bliſtering, or any other means, are ſufficient to prevent the fit: he is generally coſtive, and a little before, during, and after the paroxyſm, makes a large quantity

quantity of pale urine. He has conſulted many reſpectable Phyſicians, both in London and in the country, without any conſiderable alleviation of his diſeaſe: I adviſed that he ſhould have a ſeton in his neck, take a dram of valerian three times a day, and keep the body open with Pil. e collocyth. By this means the recurrence of his fits was ſomewhat protracted, and their violence ſomewhat abated; but at length, on the 30th of March, 1780, he was ſeized with a violent paroxyſm, which terminating in apoplexy, carried him off. Upon opening the body, I found the abdominal viſcera in a perfectly natural ſtate, except the heart, which appeared ſomewhat enlarged. Upon opening the head, the *dura mater* ſeemed ſomewhat thicker than natural, but had no other morbid appearance; on that part of the right lobe which lay nearly under the centre of the parietal bone of that ſide, there appeared in the *pia mater* a ſmall kind of red tumor or inflammatory ſpot, about the bigneſs of a ſixpence, circumſcribed, and almoſt circular,

cular, occaſioning an evident thickening and opacity of this membrane as far as it extended; the ſurface of the brain underneath, as well as in every other part, appeared in its natural ſtate. On the anterior part of the right hemiſphere, which reſts on the orbit of the eye, the arteries of the *pia mater* were conſiderably enlarged, and had a very florid appearance; on cutting into the brain, both the cortical and medullary ſubſtances ſeemed in a natural ſtate both as to colour and texture; in the right ventricle there was about three drachms of a tranſparent fluid, in the left about half an ounce of bloody ſerum.

No inequality or other unnatural appearance could be obſerved on the ſkull itſelf; but the ſutures were totally obliterated.

CASE III.

Joice Wallis, aged 27, was, about eight years ago, from a violent fright, ſeized with Epileptic Fits, which returned

every day, with more or leſs violence, for the ſpace of two months, after which they ſometimes held off for three, four, or ſix months together: about five years ago ſhe had the ſmall-pox, by which her complaint ſeemed to be cured, for ſhe had no return for twelve months; at the end of that period ſhe was again frightened, which brought on a fit, which has continued to return ſometimes at one and ſometimes at two months diſtance, but when it does occur, it is always at the end of her menſtrual evacuation:--- previous to their approach ſhe feels a pain at the forehead, and her eyes are generally inflamed; ſhe is generally coſtive, her urine pale, and ſometimes in large quantity, her menſes for the moſt part regular; ſhe ſays ſhe has lived temperately, altho' ſhe has wandered about the country with pedlary goods; ſhe has taken many medicines, but without any ſenſible advantage.

This patient was treated like the former, but as ſhe in about a fortnight afterwards

wards took to her wandering courſe of life, I heard nothing further concerning her.

CASE IV.

In domo, qua pauperes ex eleemoſynis publice aluntur, in civitate *Haerlemenſi*, perterrita puella in morbum nervorum convulſivum certis paroxyſmis reducem; ad ſtantium et adjuvantium, in eam intenta itidem corripitur eodem morbo, poſtridie altera, deinde tertia, quarta, imo fere omnes, tam pueri quam puellæ: Status miſerrimus! Corripitur hic corripitur illa, imo fere omnes eodem tempore, dum unum alter aſpicit, proſternuntur. Medici ſolertes fruſtra adhibent, quæ dictat ars, ſaluberrima antiepileptica medicamina. Confugitur tandem ad Boerhaavium, qui miſertis infelicis pauperum ſortis, petiit *Haerlemum* et dum rem examinat, invadente in unum paroxyſmo, vidit convelli plures ſpecie epilepſiæ. Datis incaſſum optimis remediis a

medicis ſapientibus, et ad imaginationem ex uno in alterum traducto morbo, rite perpenſis, hanc avertendo, credidit, poſſe curam obtineri, et obtinuit.

Scilicit premonitis ephoris, preſentibus omnibus, juſſit per cameram diſponi fornaces portabiles, prunis ardentibus inſtructas, atque iis imponi ferreos hamulos, ad certam figuram adaptatos, tum ita mandavit; quia omnia fruſtra forent, ſe aliud neſcire remedium, quam, ut qui primus puer foret vel puella, infauſto morbi paroxyſmo arriperetur, locus quidam nudati brachii candente ferro ad os uſque inureretur; atque gravitate pollebat dicendi, per territi omnes ad crudele remedium, dum inſtare ſentiunt paroxyſmum, omni mentis intentione, et metu dolorifice inuſtionis, eidem reſiſtunt fortioris oblatione ideæ: et certe quantum valeat hic ab objecto animæ intentæ revulſio, docet epilepſia diverſimode curata, ut quidem ipſe terror eandem ſuſtulerit, febris epidemica, quartana, ptyaliſmus matrimonium virga.——

Abrah.

Abrah. Kaaw Boerhaave impet. faciens Hippocrati dictum. Pag. 406.

CASE V.

An Epilepſy from an uncommon Cauſe, by Dr. Thomas Short, Phyſician at Sheffield, and F. R. S.

In July, 1720, a woman about 38 years of age was brought to me: ſhe had laboured twelve years under an Epilepſy, which from one fit a month was come to four or five violent ones every day, each continuing an hour, or an hour and a half; by which ſhe was rendered mopiſh and ſilly, and incapable to take care of her houſe and family. Her huſband was reduced in his circumſtances, from his affection and care for her, having got and followed all the advice he could. Evacuations of all kinds had been tried; the epileptic and cephalic tribe of medicines had been ranſacked, and many other medicines had been uſed in vain, the diſeaſe growing

growing more ſevere. Her fit always began in her leg, toward the lower end of the gaſtrœcnemii muſcles, and in a moment reached her head, threw her down, foaming at the mouth, with terrible diſtortions of the mouth, neck and joints. Whilſt I talked with her ſhe fell down in a fit: I examined the leg, and found no ſwelling, hardneſs, laxneſs, or redneſs different in that place from what was in the other leg: but ſuſpecting, from her fit beginning always at that part, that the cauſe of her diſeaſe lay there, I immediately plunged a ſcalpel about two inches into it, where I found a ſmall indurated body, which I ſeparated from the muſcles, and then took it up with the forceps; it proved a hard cartilaginous ſubſtance or ganglion, about the ſize of a large pea, ſeated on a nerve, which I cut aſunder, and took out the tumor. She inſtantly came out of the fit, cried out ſhe was well, and never after had a fit, but recovered her former vigour both of body and mind.——*Edinburgh Eſſays*, vol. iv. page 334.

CASE

CASE VI.

Being ſent for ſome years ago to P. K. a farmer's daughter near Glouceſter, about 20 years of age, troubled with Epileptic Fits, which frequently returned, I found her in bed, and ſeeing her in the agony of a paroxyſm, ſtayed by her till it ended.--- Upon enquiring in what manner the fits came on, I was informed that they began in the feet, and aſcended thence by degrees to the body, and laſtly to the head, when the convulſions became violent and univerſal; upon this intelligence, remembering the accounts given of the effects of ligatures in ſuch caſes, I got the patient's garters, and having doubled them, and prepared two ſhort bits of ſticks, I placed them one below each knee, in the manner of tornequets uſed previous to the amputation of limbs.

Having placed my tornequets, I waited the approach of the next fit, and the patient telling me that ſhe felt the diſorder

in her left foot, I immediately turned the tornequet upon that leg. This ſtricture ſtopping the aſcent of the diſeaſe, the foot ſhook conſiderably, and ſhe ſoon informed me that the other foot was alſo affected; I then committed the care of the left tornequet to the patient's ſiſter, and twiſted that I had put looſe on the right leg.---This method had the deſired effect, the Epilepſy proceeded no farther than the ligatures, but the feet ſhook moſt violently, and made ſo ridiculous an appearance, that the girl herſelf, tho' in the greateſt diſtreſs, could not refrain from laughing heartily, and almoſt at the ſame inſtant begging us to let the diſeaſe take its courſe, leſt her feet ſhould drop off by the violence of their agitation, which, ſhe ſaid, was intolerable.

After ſome time, the convulſions in the feet ceaſed, when I looſened the tornequets, and left her, giving directions to her mother and ſiſter, to repeat the ſame method whenever the fits returned.

The

The fits afterwards became weaker; and the ſame means being uſed, whenever notice was given of their approach, they were at laſt entirely cured without medicine; and the girl informed me within this half-year, that ſhe had been free from them ever ſince. — Vid. *Lyſon's Eſſays*, p. 159.

Some farther Obſervations on Senſibility and Irritability.

What the more immediate cauſes of morbid Senſibility and Irritability may be, it is extremely difficult, perhaps impoſſible to determine; but conjectures, where they do not counteract rational experience, and delivered as ſuch, can be attended with no bad conſequence: — Upon this principle I beg leave to offer a few ſuggeſtions.

I imagine that the increaſe of ſenſibility does not depend ſo much upon increaſed tenſion immediately as ſuch, as upon ſome change which that tenſion produces in the covering of the diſtended nerves; for if we enquire into the cauſes which ſeem to give occaſion to acute ſenſibility in thoſe organs which are appropriated to the reception, and communication of very delicate impreſſions, as the eye and ear, we ſhall find the pulpy ſubſtance of the nerve expoſed almoſt to the immediate action of ſtimuli, by being nearly diveſted of all covering, inſomuch that we cannot with the naked eye diſtinguiſh that the *retina*, or auditory nerve, have any covering at all; and we find that the *cutis vera*, when the *epidermis* is removed, becomes much more ſuſceptible of impreſſions than it was before, notwithſtanding no increaſed diſtenſion had previouſly taken place; hence does it not ſeem probable, that *the greater or leſs ſenſibility* of any part, depends in a great meaſure on the thinner or thicker covering of the nerve or nerves of that part;

and

and that any cauſe which can render this covering thinner or thicker, (intrinſic ſenſibility remaining the ſame) will, in proportion to the degree of its operation, increaſe or diminiſh the ſuſceptibility of impreſſion?

Let us therefore examine what changes may be ſuppoſed to take place in the nerves of any part by a diſtenſion of the arteries which accompany them. —— It is obvious to every one, that a given quantity of matter cannot be extended without becoming more ſlender; the ſides of the urinary bladder, for example, are much thicker when taken out of the animal in its contracted ſtate, than they are after it has been diſtended by being filled with air; and a ſimilar effect muſt happen to every other body ſo extended, without receiving any addition to its bulk: Now as the nerves every where cloſely accompany the arteries, and more eſpecially where they are deſtined to receive and communicate impreſſions, the latter cannot be diſtended without diſtending the former in propor-

tion; the conſequence of which muſt be, that their coats become thinner, and the pulpy *nervous medulla* will be more directly expoſed to the immediate action of *ſtimuli*, and therefore be ſuſceptible of much ſlighter impreſſions than before; inſomuch as we find that thoſe ſtimuli which in their natural ſtate would produce ſenſation without pain, will in this diſtended ſtate occaſion the moſt exquiſite torture; the rays of light, for example, falling upon the *retina* in its natural ſtate, convey to the mind without pain or uneaſineſs a diſtinct idea of the object from which they are reflected; but let this nervous expanſion (as formerly obſerved) be diſtended, as it is in caſes of *opthalmia*, the very minute portion of light which impinges upon it in a darkened room, and even when the eyes have been covered by two or three handkerchiefs, will ſometimes occaſion inexpreſſible anguiſh.

It has been obſerved formerly that there is a ſtate of the ſyſtem very oppoſite to this

this, but which alſo renders it very liable to be affected in a violent manner by very ſlight cauſes; this ſtate I have diſtinguiſhed (as a word already known) by the term *irritability* ---- perhaps the word *mobility* would have been more proper; but, that term having been employed in a *generic* ſenſe by Dr. Cullen, to comprehend both (what is here called) *ſenſibility* and *irritability*, I judged it more proper to adopt the latter expreſſion.

Now as the ſtate of increaſed tenſion, we have been juſt ſpeaking of, occaſions a greater ſuſceptibility of impreſſion, and thereby a greater propenſity to act, ſo this ſtate of diminiſhed tenſion or irritability ſeems to induce a greater facility, or perhaps affords a ſlighter reſiſtance in the moving powers to be acted upon, and probably for the following reaſons:——

When muſcles contract they are conſiderably ſhortened; they *ſeem* to ſwell towards the middle, but evidently diminiſh

in

in every other direction, their ſubſtance becomes more denſe and compact, and aſſumes a *whiter colour*, probably from the expulſion of the blood out of them. Now when a moderate fulneſs of the vaſcular ſyſtem prevails, the veſſels from their native elaſticity exert a ſlight preſſure on their contained fluids, and maintain a gentle reſiſtance to any farther diſtenſion; in this ſtate they muſt, in a certain degree, withſtand the contraction of muſcles, for if the blood is *ſqueezed out* of the muſcle during the act of contraction, as ſeems very probably to be the caſe, an increaſed diſtenſion of the neighbouring veſſels muſt be the certain, tho' temporary conſequence; if therefore the vaſcular ſyſtem in general be already diſtended to its proper degree, and enjoys its contractile power undiminiſhed, a conſiderable reſiſtance muſt neceſſarily be made to any farther diſtenſion, and will render a conſiderable effort neceſſary to the contraction of any muſcle.—— The *niſus* or effort of a muſcle to contract, will be in a *ratio* compounded of its ſuſceptibility

ceptibility of impreſſion, and the force of the ſtimulus applied, and if both theſe are inconſiderable, the reſiſtance in this ſtate of the ſyſtem will frequently counterbalance the effort, and therefore no contraction or convulſion will enſue. ---- This I think may very properly be called the firm or ſteady ſtate of the ſyſtem.

But in a flaccid and exhauſted ſtate of the veſſels, the reſiſtance to the expulſion of the blood out of the contracting muſcle will be comparatively ſlight, the neighbouring half diſtended veſſels will afford a welcome reception to the protruded fluids, and therefore, although the ſtimulus applied may not be conſiderable, the ſuſceptibility of impreſſion not very great, and the niſus or effort of the muſcle to contract of courſe inſignificant; yet the reſiſtance to their action will be ſo ſlight, that the muſcular contractions or convulſions will in ſuch a ſtate of the ſyſtem readily take place.

If theſe diſtinctions are well founded, they go as near to the proximate cauſe of ſenſibility and irritability as is perhaps neceſſary in the practice of Phyſic; and they ſerve to explain many phenomena which occur in diſeaſes, that it would be otherwiſe extremely difficult to account for.

There are, it is probable, ſome other cauſes of morbidly increaſed ſenſibility than thoſe above-mentioned, ſince caſes do now and then occur of uncommon ſuſceptibility of impreſſion, without the ſmalleſt appearance of increaſed tenſion; on what this depends we do not ſeem poſſeſſed of ſufficient *data* to explain, the moſt probable ſolution however ſeems to be, that ſuch inſtances of increaſed ſuſceptibility of impreſſion depend upon an increaſed production of nervous influence in that part of the brain from whence the nerves of the part ſo affected derive their origin.

This, it muſt be confeſſed, is merely matter of conjecture; but, as we obſerve partially

partially increaſed energy at the extremities of the nerves, it ſeems not unreaſonable to ſuppoſe, that the ſame may take place at their origin, and poſſibly from the ſame cauſe, increaſed tenſion there.

SKETCH II.

FEVER.

"*Nothing can act where it is not.*"

SOME difficulties which perplexed me in attempting to explain the immediate cauſe of theſe Epileptic Fits, which ſometimes occur juſt at the eve of the variolous eruption, induced me to think that the proximate cauſe of Epilepſy and of Fever very much reſembled each other, and that the foregoing reaſoning might, with certain modifications, be applied to explain the immediate cauſe of the latter: this

this opinion I ſhall endeavour to eſtabliſh in the following Sketch; previous to this, however, it is a duty incumbent on me to ſtate my reaſons for objecting to the hypotheſes already advanced; in doing which, I do not think it neceſſary to enter into an hiſtorical detail of every ſyſtem of reaſoning which has been invented to account for the phenomena of Fevers, from the days of Hippocrates to the times of Stahl, Boerhaave, Hoffman, and Cullen, but deem it ſufficient to obſerve, that each of thoſe ſyſtems has in ſucceſſion refuted and taken place of that which immediately preceded it. Upon the ſame principle, I ſhall confine myſelf chiefly in the following Sketch to an examination of the Theory maintained by the juſtly celebrated and venerable Cullen; the lateſt, the moſt ingenious, and certainly the moſt uſeful hypotheſis which has hitherto prevailed; —— and by ſhewing that this ſyſtem does not ſatisfactorily explain ſome of the moſt important phenomena occurring in Fevers, I ſhall endeavour to pave the way for another

hypotheſis, which promiſes to remove ſeveral of thoſe difficulties, and to reconcile the Humoural and Neurographic Pathologiſts with each other.

Let us begin with a ſummary view of Dr. Cullen's Syſtem, as delivered in his firſt lines of the Practice of Phyſic, vol. i. page 38.

"Upon the whole, our doctrine of Fever is explicitly this --- The remote cauſes are certain ſedative powers applied to the nervous ſyſtem, which diminiſhing the energy of the brain, thereby produces a debility in the whole of the functions, and particularly in the action of the extreme veſſels. --- Such however is, at the ſame time, the nature of the animal œconomy, that this debility proves an indirect ſtimulus to the ſanguiferous ſyſtem; whence by the intervention of the cold ſtage, and ſpaſm connected with it, the action of the heart and larger arteries is increaſed, and continues ſo till it has had the effect of reſtoring the

the energy of the brain, of extending this energy to the extreme veſſels, of reſtoring therefore their action, and thereby eſpecially overcoming the ſpaſm affecting them; upon the removing of which, the excretion of ſweat and other marks of the relaxation of excretories take place."

Seeing that Fevers often attack ſuddenly without any apparent cauſe, that vertigo, ſtupor, liſtleſſneſs, and debility, are among the firſt ſymptoms, it was by no means unnatural to ſuppoſe at firſt view, that the operation of the remote cauſe was of a directly ſedative or debilitating nature; and that it immediately affected the brain: but when it is conſidered by what kind of remedies the febrile paroxyſm may be prevented, or removed, ſuch an opinion ſeems hardly admiſſible.

An emetic operating on the ſtomach has undoubtedly a very debilitating effect on the whole conſtitution; yet an emetic adminiſtered an hour before the expected attack

attack of an intermittent, will very frequently prevent that attack. And the ſame debilitating remedy given during the cold fit, (when the ſedative power muſt be ſuppoſed to be operating) will generally remove the cold, and bring on the hot fit, and ſweating.—CULLEN.

Now is it natural to ſuppoſe, that one debilitating power can diminiſh or prevent the effect of another debilitating power? Or, what is more extraordinary that the application of a debilitating or ſedative remedy, ſhould be ſuppoſed to remove debility when preſent?----That is to ſay, to a man already weakened, apply the cauſes of weakneſs, and he will inſtantly become ſtronger: --- Certainly there is ſomething very paradoxical in ſuch a ſuppoſition.

Beſides, we ſhall hereafter have occaſion to obſerve, that all the phenomena of proper Fever, the ſtupor, delirium, liſtleſſneſs and debility, may ariſe from a ſmall quantity of acrimony introduced into the circulation,

lation, probably unpoſſeſſed of any *ſedative power*, and ſeemingly independent of its *immediate operation* on the brain; and farther it may be added, that all thoſe powers which operate immediately and in a general manner on the nervous ſyſtem, ſo far as we can hitherto trace them, produce their effects with a rapidity equal to lightning.

The electric ſhock, for example, deſtroys animal life in a ſpace of which we can ſcarcely form the ſmalleſt conception; --- whilſt the remote cauſe of Fever, wherever we can diſcover the epoch of its application, conſtantly requires ſome days to produce its effect.

It was formerly imagined that the choak damp or fixed air in mines, and in the *Grotto delcane* in Italy, produced their effects by operating as a ſedative power immediately on the nervous ſyſtem, and the analogy has by ſome been transferred to Fever; later experience, however, ſeems to have demonſtrated, that it produces

thoſe

thoſe effects in a way purely negative, and through the organs of reſpiration.

But admitting, for the ſake of argument, that the paradox is removed, and that the remote cauſes of Fever are demonſtrated to be, what Dr. Cullen ſuppoſes, "certain ſedative powers applied to the nervous ſyſtem," how ſhall we upon this principle account for the periodical repetition of paroxyſm? —— *Whither does the ſedative power retire during the interval?* —— *And how is it again called into action?*

When the debility and ſpaſm are, by the action of the *vis medicatrix*, completely removed, and the ſyſtem is again reſtored nearly to its original ſtate, we ſee no longer any other marks of diſeaſe than a ſlight diminution of ſtrength; nor can we perceive any circumſtance which would lead one, *a priori*, to expect another paroxyſm. Yet ſuch returns do frequently happen, and when they do, nothing can be more certain than that the return muſt depend upon

upon ſome cauſe, this cauſe muſt conſiſt either in ſomething applied from *without* at each acceſſion, or in ſome noxious principle permanently operating *within* the habit:——Let us examine both theſe ſuppoſitions.

If it depended on the repeated application of a noxious principle external to the body, and renewed at each period, it were natural to expect that all thoſe expoſed to its action, at the ſame time, in the ſame place, and as nearly as may be under ſimilar circumſtances, ſhould be affected in a ſimilar manner, and as nearly as poſſible at the ſame period; yet we not unfrequently find, that in the ſame houſe, of the ſame family, and living preciſely in the ſame manner, one perſon will be affected with an ague in the morning, another about noon, and a third at midnight: Nay, perhaps, the firſt with a quotidian, the ſecond with a tertian, and the third with a quartan ague.

Beſides we find, that the cauſe of repetition (whatever that cauſe may be) is applied to a particular perſon, at preciſely equal diſtances of time, and for a great while together, even although he changes his habitation, and goes to a place where no ſuch diſeaſe prevails; from the fens of Lincolnſhire, for example, to the Highlands of Scotland.

Theſe effects then produced with ſuch regularity, and affecting the patient whereever he goes, can hardly be ſuppoſed to ariſe from the repeated application of any external cauſe; we are therefore obliged to ſeek for the exciting cauſe of paroxyſm within the conſtitution itſelf, in ſome depravity of the fluids, or in ſome morbid affection of the ſolids.

Dr. Cullen, in order to maintain his favourite idea, the rejection of acrimony as a remote cauſe of Fever, has attempted in a very ingenious manner to explain the returns of paroxyſm, by attributing them

to

to certain diurnal revolutions, which he ſuppoſes to take place in the ſyſtem:--- His language, however, on this ſubject is rather obſcure.

Paragraph LVII. *p.* 49. "That Fevers generally conſiſt of repeated paroxyſms, (ſays this ingenious Profeſſor) we have alledged above to be matter of fact, but muſt here endeavour to confirm it by *aſſigning the cauſe*.--In every Fever in which we can obſerve any number of ſeparate paroxyſms, we conſtantly remark that every paroxyſm is finiſhed in leſs than twenty-four hours," *(not regularly and exactly in the ſpace of twenty-four hours)* "but as we cannot perceive *any thing in the cauſe of Fevers* determinating to this, we muſt ſuppoſe it to depend *on ſome general law of the animal œconomy*, in many reſpects to a *diurnal revolution:* whether this depends upon the original conformation of the body, or *upon certain powers conſtantly applied to it*, and inducing a habit, we cannot poſitively determine; but the returns of

ſleep and watching, of appetites and excretions, and the changes which regularly occur in the ſtate of the pulſe, ſhew ſufficiently that in the human body a diurnal revolution takes place."

Parag. LVIII. " It is this diurnal revolution which we ſuppoſe determines the *duration* of the paroxyſms of Fevers, and thoſe paroxyſms being ſo univerſally limited as in LVII. (the foregoing paragraph) while no other cauſe of this can be aſſigned, renders *it ſufficiently probable* that their duration depends upon, and is determined by the revolution mentioned. That theſe paroxyſms are connected with that revolution, appears farther from this---that tho' the intervals of paroxyſms are different in different caſes, *the times of the acceſſion of paroxyſms, are generally fixed to one time of the day*; ſo that quotidians come on in the morning, tertians at noon, and quartans in the afternoon."*

" It

* As all theſe intermittents, *in nine caſes out of ten*, gain or loſe an hour or more at each return, it is obvious,

" It is to be ſtill remarked, *that as quartans and tertians are apt to become quotidians, theſe to paſs into remittents, and theſe laſt to become continued*; and that even in the continued form, daily exacerbations and remiſſions are generally to be obſerved; all this ſhews ſo much the power of diurnal revolution, *that when in certain caſes* the daily exacerbations and remiſſions are with difficulty diſtinguiſhed, we may ſtill preſume that the general tendency of the œconomy prevails, that the diſeaſe ſtill conſiſts of repeated paroxyſms, and upon the whole, that there is no ſuch diſeaſe as that which the Schools call a Continent Fever.---We expect that this doctrine will be confirmed by what we ſhall ſay hereafter, concerning the periodical movements obſerved in continued Fevers."

This is the whole that Dr. Cullen has advanced to account for the repetition of paroxyſm.

ous, that in a number of repetitions they muſt occur at every different hour of the day and night.—This idea, therefore, does not at all apply.

paroxyſm.---Let us now examine how far this hypotheſis will clearly explain the phenomena.

If the return of paroxyſm depended on the diurnal revolutions here ſpoken of, one ſhould naturally ſuppoſe that, like the variation of the pulſe, their return would be regulated by certain ſteady and uniform laws, and that like them they would undergo their reſpective exacerbations and remiſſions at fixed and particular times of the day.* —— But what do we find to be the caſe in intermittents? Inſtead of keeping to any ſtated period, we may obſerve them occurring at every different hour, and this not only in different perſons, but in a ſucceſſion of paroxyſms in the ſame individual.

* Indeed Dr. Cullen has not in this place diſplayed his uſual perſpicuity: — He ſets out by propoſing to explain the cauſe of the *repetition* of paroxyſm, whereas his whole reaſoning ſeems to be directed to explain the cauſe of the *duration* of paroxyſm; or rather, to prove that every paroxyſm is compleated in 24 hours. So that I may be conſidered as diſputing without an argument.

For

For example: —— An ague fit which came on yeſterday at three o'clock in the afternoon, will often return as to-day at noon, --- an interval only of twenty-one hours: in another caſe this deviation will be reverſed, and the paroxyſm which occurred yeſterday at three o'clock in the afternoon, will be poſtponed to-day until ſix, admitting an interval of twenty-ſeven hours; and in a number of caſes the gain or loſs of time will be one, two, three, four, or five hours, exhibiting intervals of agues from nineteen to twenty-nine hours, in thoſe called quotidians; from forty-three to fifty-three, in thoſe called tertians; and ſo after the ſame manner in intermittents of all other denominations.

When the twelve o'clock quotidian of yeſterday returns as to-day at nine, I have often found my patients alarmed at what they thought an increaſed violence and frequency of their ague; whereas, in reality it was uniform in itſelf as to its interval of twenty-one hours. In like manner

from

from an inattention to this circumſtance, or rather from relying too implicitly on the vulgar opinion, as we are very apt to do, I have myſelf before now been ſo far deceived, when the twelve o'clock quotidian was poſtponed until three, *as to think that my remedy was ſucceeding:* but I found I was led into an error from counting by the clock; whilſt the intermittent, inattentive to our time-keeper, continued, in proportion to its cauſe, true as the needle to the pole, affording an interval of twenty-ſeven hours.

From an attentive review of theſe obſervations it is obvious, that in a number of returns the acceſſion of Fever muſt in each of theſe caſes take place at every different hour of the day, and therefore cannot poſſibly depend upon any regular and permanent revolution of the ſyſtem. Nay, ſo little is the influence of theſe quotidian, tertian, or quartan revolutions to be depended on, that from a careful and candid attention to the return of intermittents, in ſome hundreds

dreds of inſtances, *I have not found more than two caſes*, in which the intermittent has adhered ſteadily either to the quotidian, the tertian, or the quartan period. Theſe apparent irregularities muſt from their frequency come within the obſervation of every attentive practitioner, and therefore render examples in ſome meaſure ſuperfluous. But as it is more conſiſtent with my general plan, in every inſtance where it is in my power, to adduce facts in ſupport of every thing advanced, I ſhall here relate a few caſes, ſelected without *order* or *choice* from many others now under my care, to prove that ſuch deviations are by no means uncommon; and this I ſhall do in as conciſe a manner as I am able.

The Rev. Mr. W. was ſeized with the cold fit of an intermittent on Tueſday Dec. 25, 1781, at three in the afternoon; --it returned again on Thurſday exactly at noon, on Saturday at nine in the morning, and adhered to this interval of forty-five hours, until it was removed by the

bark, &c. --- This is in the common way called a tertian, or forty-eight hour ague *anticipated.*

S. Petitt's wife has had an ague three months--it goes round, (as ſhe terms it;) that is, it gains an hour at every acceſſion. For example, it came on, on Sunday Dec. 29, at five in the afternoon, on Tueſday at ſix, Thurſday at ſeven, and ſo on: this regularly poſtponed return comes the neareſt that I have met with, out of forty or fifty inſtances, to the true tertian period, its interval being forty-ſeven hours; but as this changes its hour every time, it cannot afford any proof of the influence of diurnal revolutions.

Miſs W. has had five paroxyſms of an intermittent; the firſt occurred on Wedneſday the 20th of December, 1781, at four in the afternoon; it returned on Friday at one, on Sunday at ten in the morning, and ſo on.—This anticipated tertian affords an example of forty-five hours.

Elizabeth

Elizabeth Groom has for a fortnight paſt been affected with an ague, which returns every thirty-one hours; for inſtance, the firſt fit occurred on Friday the 22d of December, 1781, at four in the afternoon, the ſecond on Saturday at eleven at night, the third on Monday at ſix in the morning, the fourth on Tueſday at one in the afternoon, and ſo on.

This is commonly called a double tertian, but is in reality nothing more than that peculiar modification of intermittents, in which the *quantity* or *activity* of the remote cauſe requires thirty-one hours to wind up a paroxyſm; as will be more fully explained hereafter.

I might have adduced numberleſs other inſtances of the ſame kind, but as theſe will ſerve diſtinctly to convey my meaning, it would be only tiring my reader to no purpoſe, by a dull repetition of ſimilar caſes.

I am afraid I ſhall as it is be thought unpardonably tedious in diſcuſſing this ſubject; but as the truth or fallacy of Dr. Cullen's theory ſeems to depend almoſt entirely on the exiſtence or non-exiſtence of ſuch revolutions, and as that ſyſtem is the only one which appears to me at all difficult to refute, I thought it neceſſary to point out at ſome length the difficulty of admitting ſuch revolutions, and the very ſlight influence they appear to poſſeſs in regulating the return or the duration of intermittents.

This I hope I have done in a manner tolerably concluſive and ſatisfactory; and in order to prevent our falling into the ſame error in future, of inventing hypotheſes to explain what ſeems never to have exiſted, would it not be better to diſcard altogether the confuſing terms quotidian, tertian, quartan periods, &c. and to diſtinguiſh all agues according to the ſpace between acceſſion and acceſſion into twenty-

one,

one, twenty-ſeven, thirty-three, thirty-nine hour intermittents, &c.

Having thus attempted to ſhew that Dr. Cullen's idea of the diurnal revolutions of the ſyſtem does not ſatisfactorily explain the periodical return of intermittents, I ſhall adduce no farther arguments againſt his general doctrine, except in a curſory way, until I have delivered what has occurred to me concerning the proximate cauſe of Fever.

Of

Of the remote Cauſes of FEVER.

PHYSICIANS ſeem now to be pretty univerſally agreed, that the remote cauſes of Fever may all be referred to two general ſources: — To the effluvia ariſing from the human body under a ſtate of diſeaſe, thence called human effluvia; or to thoſe ariſing from marſhy, ſwampy, or muddy ſoil, as that of ditches newly ſtirred or thrown out, the banks of rivers lately overflown, lakes partially dried up, and the like; and thence called marſh effluvia, or *miaſmata*. Of theſe noxious exhalations ſome are ſpecific, that is, they invariably produce a diſeaſe of the ſame nature. The *variolous* poiſon, for example, always occaſions an eruptive Fever, and of the more continued kind; whilſt others cannot be termed ſpecific, becauſe they do not always produce a diſeaſe *ſui generis*, as when the contagion received from an intermittent produces a continued Fever, or when the contagion

contagion received from a continued Fever produces an intermittent; circumſtances which are by no means uncommon. For we ſee frequently in the ſame family one patient affected with an intermittent, a ſecond to all appearance taking it from him (or beyond all doubt from the ſame ſource) with a remittent, and a third receiving it from the ſecond with a continued Fever, and of the putrid kind.

It would ſeem therefore that the remote cauſes of remittent, intermittent, and continued Fevers, are ſeldom eſſentially different in their nature; but poſſeſſing different degrees of activity, (from their being more or leſs concentrated) and acting upon conſtitutions differently diſpoſed, ſometimes produce one kind of Fever and ſometimes another.

But as the majority of the inhabitants of a particular diſtrict, or a particular country, muſt from the ſimilarity of their circumſtances, and their manner of life, be in a

ſimilar

ſimilar general ſtate of prediſpoſition, it is no wonder the ſame remote cauſe being applied to all, that the diſeaſes of particular ſeaſons ſhould in thoſe diſtricts bear a general reſemblance.

This idea that the remote cauſe of thoſe Fevers may differ in degree rather than in kind, is ſupported by the opinions of many ingenious and reſpectable Phyſicians; and is rendered ſtill more probable when we conſider, that the variolous poiſon received from the very ſame perſon, (altho' always attended with an eruption) will in one conſtitution produce a mild Fever of the ſimple inflammatory kind, in another a Fever of the moſt highly putrid and malignant tendency; diſeaſes as different in their natures, and requiring as oppoſite modes of treatment, as almoſt any with which we are acquainted.

Beſides, we know that the Fevers above ſpoken of, are capable of being converted into each other; and that it is by no means

means a rare or uncommon circumſtance, to ſee a Fever beginning with ill-defined intermiſſions, after a ſhort time become continued, and ultimately by proper treatment be reſtored to a remittent, or proper intermittent; whilſt a Fever aſſuming at firſt the more continued form, may ſometimes by proper management be converted into an intermittent; altho' this circumſtance is upon the whole leſs frequent than the former, and might naturally be expected to be ſo, ſince the remote cauſe, whatever it be, inſtead of becoming weaker, has (as was before obſerved) a conſtant tendency to become more concentrated, and more active, by aſſimilating a part of our fluids into its own nature.

Of the proximate Cauſe of FEVER.

HOW the remote cauſe operates in producing Fevers, whether it firſt enters the circulation, or produces its effects immediately on the nervous ſyſtem, are queſtions that, after having puzzled the moſt acute Phyſicians in all ages, remain ſtill undecided; altho' if fair analogy be admitted as a foundation for argument, nothing ſeems to be *more ſimple and obvious*.

In the preceding pages, I have endeavoured to prove, that the Theory of my admirable and much reſpected maſter (Cullen) is in ſome reſpects incomplete, and the reaſonings there employed, will apply with equal force to all the hypotheſes which have preceded it.

In the ſucceeding pages I ſhall venture to deliver an hypotheſis, which appears to me

me more probable, and more natural:---It is not offered as a complete ſyſtem, nor as one unencumbered with difficulties, but if we can hit upon a chain of reaſoning that will explain more of the phenomena, or which coincides more perfectly with a method of practice generally ſucceſsful, we ſhall perhaps approach one ſtep nearer the truth, and render ſome ſervice to the community.

Nature ſeems kindly to have provided, that ſome of the remote cauſes of Fever, eſpecially thoſe of the moſt dangerous and fatal tendency, as the ſmall-pox, meaſles, &c. ſhould for the moſt part operate only once on the ſame conſtitution during life; and the ſame ſeems to be true, in a certain degree, of moſt other Fevers. The plague is ſaid ſeldom to affect the ſame perſon twice: Sydenham obſerves, and Van Swieten agrees with him, that thoſe who have been once affected with a quartan ague are ſeldom troubled with it a ſecond time, and that when it does happen to ſeize them, it

never continues a great while.* Many years ago, when a plague amongſt the horned cattle raged with uncommon violence throughout the greateſt part of Europe, the dealers would give almoſt any price for thoſe animals which had undergone the diſeaſe, experience having taught them, that they were afterwards ſeldom liable to the infection.

From hence it appears probable, that the action of the remote cauſe is chiefly exerted on the ſolid parts of the ſyſtem; for as our fluids are continually changing, there is reaſon to ſuppoſe that a few years

* This fact is ſo ſtriking, that it does not eſcape the obſervation of the common people; for I have often heard the moſt illiterate farmers, who happened to live in ſituations much expoſed to intermittents, remark, that when a ſervant comes to them from a more healthy diſtrict, and is ſeized with an ague, it generally proves exceedingly obſtinate, often reſiſting the moſt powerful remedies for twelve months, and even longer: but if the ſame perſon happens to be affected a ſecond time, or an ague takes place in one accuſtomed to the ſituation, it generally goes off after a few fits, without medical aſſiſtance.

hence

hence not a particle of thoſe will remain which now diſtend our veſſels; and conſequently the new particles, having undergone no change from the remote cauſes of Fever, would at this period become ſuſceptible of their action, and we ſhould be again liable to the diſeaſe.

Altho' therefore our fluids are evidently affected in the progreſs of the diſeaſe, yet this ſeems to depend chiefly on the increaſed action of the ſolids, and frequently to be in proportion to it: for we find in the ſmall-pox, that after having introduced a ſmall portion of the variolous poiſon into the ſyſtem, provided our patient will abſtain from fermented liquors, from animal food, from increaſed heat, and in ſhort from all thoſe cauſes which tend to increaſe the force and velocity of the circulation, the diſeaſe will glide ſmoothly on, with a moderate and unform pace, and with little or no diſturbance to the patient, a very ſmall quantity of the variolous virus will be generated, and the number

of

of puſtules will be very few; but let him drink a ſingle glaſs of wine, let him approach near a large fire, or uſe violent exerciſe within doors, myriads of puſtules will preſently make their appearance, and the quantity of the variolous poiſon now generated will be prodigious.

This digreſſion ſeemed neceſſary, before we entered more immediately upon the enquiry how the remote cauſe operates in bringing about the diſeaſe.

In whatever way the remote cauſes of Fever, whether of the exanthematous, or non-eruptive kind, operate on the ſyſtem, they are all applied to it, ſo far as we can perceive, in the ſame or a ſimilar manner: a perſon not having had the diſeaſe, going into a room where a patient labours under the ſmall-pox, is not in general immediately ſenſible that he has received the ſlighteſt injury; yet, after ſome days, he will be convinced, that he has done ſo, by the appearance of a ſimilar diſeaſe: another

going

going near the bed where a perſon languiſhes under a fever, retires without ſuſpecting the leaſt inconvenience; a few days however frequently proves too clearly that he did not viſit his friend with impunity.

From this general reſemblance then between the infectious principles in Fevers, as to their mode of application, and the nature of their effects, (which in the early ſtages eſpecially are very much alike) I apprehend it may be allowable to transfer the analogy from one to the other, and to reaſon from the effects of one that is known, to ſimilar effects produced by others that are unknown. I ſhall therefore ſelect, as the moſt ſimple and obvious example of the whole, the caſe of a patient inoculated for the ſmall-pox.

Maſter J. aged five years, of a delicate conſtitution, light hair, and florid complection, having for ſome days abſtained from animal food, on the 5th of March, 1780, I introduced a ſmall quantity of the variolous

variolous acrimony under the ſcarf ſkin of the left arm, four days after, the part began to inflame, on the ſixth he complained of a troubleſome itching, his arm became ſtiff, and he complained likewiſe of a good deal of pain in an irregular line directed towards the axilla, where alſo he felt a good deal of uneaſineſs: theſe ſymptoms continued to increaſe until the 8th, when he appeared drowſy, ſtupid, and averſe to motion; he complained of ſevere cold, *giddineſs*, and of conſiderable pain in his head and back; on the evening of the 10th he had two ſlight *epileptic fits*; on the 11th two or three variolous puſtules appeared on his face, which by the next morning had increaſed over the whole body, to the number of a hundred; towards the evening of this day the pain of his back, the headach, and other feveriſh ſymptoms began to ſubſide, on the 12th he was quite well, in a few days the puſtules all dried off, and he returned to his natural ſtate of health, ſcarcely at all weakened, either by the diſeaſe or the remedies employed.

In

In the caſe of this young gentleman we have a diſtinct example of Fever, evidently occaſioned by a ſmall quantity of acrimony introduced into the circulation; this could not in the firſt inſtance have been applied immediately to the brain, and its action was probably very different from that of a *ſedative* power, ſince it evidently paſſed through the abſorbent ſyſtem, and in its paſſage *inflamed* the next lymphatic gland between the place of its inſertion and the heart: we have therefore the moſt convincing teſtimony of its entering the circulation, and by the pain it occaſioned in its paſſage, of its ſo far acting as a *ſtimulant* power; it was not until the eighth day after inoculation that he began to complain of the ſymptoms of Fever; ſo conſiderable an interval, that during it many changes might have taken place in the balance of circulation; and when the ſymptoms did at length come on, they in every reſpect reſembled thoſe generally attending common Fevers, or the acceſſion of an intermittent. It is extremely wonderful how ſo

very minute a portion of the variolous poiſon ſhould be capable of producing ſuch conſiderable effects; but it appears very clearly that it poſſeſſes the power of increaſing the activity of the veſſels to which it is applied, of inducing a kind of fermentation* to a conſiderable extent round the part, of converting the neighbouring fluids into its own nature, and of thus conſiderably increaſing the quantity of the virus before it begins to be abſorbed; thus augmented, it is received into the circulation, it there proves a ſtimulus to our veſſels, and more eſpecially to thoſe of the brain; in conſequence of which their action is increaſed, and a greater than their natural proportion of fluids is induced into them: this determination to the head continuing to increaſe as long as the ſtimulus continues to operate, at length arrives at ſuch a height, as materially to interrupt the functions of the brain, and the proper diſtribution of the

* By fermentation I mean only to expreſs an augmentative proceſs, and not the manner in which the augmentation is effected.

nervous

nervous influence; when this is the caſe, ſome effort becomes neceſſary to remove the impediment, and this effort beginning with a ſhivering fit probably conſtitutes what we call Fever.

My only object in this example being to prove that proper Fever, with all its phenomena, may and does ſometimes ariſe from the action of acrimony introduced into the circulation; I ſhall not ſtop here to enquire into the progreſſive phenomena of ſmall-pox, but immediately transfer the analogy to explain the phenomena of Intermittent Fevers, which afford us a better opportunity than any other of tracing with critical exactneſs the riſe, progreſs, and decline of febrile affections. And here I muſt repeat, that whatever may be the immediate cauſe of intermittents, we are obliged ultimately *in all caſes*‡ to have recourſe to

‡ C'eſt donc une erreur populaire, de croire que l'on peut prendre la Peſte, ſimplement par la peur, par l'imagination, ou par quelque autre voye, auſſi ridicule; ſans qu'il y ait d' ailleurs quelque autre diſpoſition.— Trait de la Peſte. P. 535.

ſome *material* noxious principle floating in the atmoſphere, or to the effluvia ariſing from perſons affected with them (for agues are beyond all doubt in ſome caſes infectious) as the remote cauſe in all inſtances; and as theſe are applied to our conſtitutions exactly in the ſame manner as the effluvia are which produce what is called the natural ſmall-pox; and as we have proved that theſe effluvia can produce their effects by being artificially introduced into the circulation in form of variolous acrimony, I am ſtrongly inclined to believe, that the remote cauſe of intermittents alſo enters our circulation, and exerts its primary effects on the ſanguiferous ſyſtem; and if we attend minutely to circumſtances, we ſhall find that there is always a ſufficient ſpace of time allowed for the production of ſuch effects, between the time of receiving the infection and the acceſſion of the firſt paroxyſm.

A man employed in emptying a ditch, and expoſed for a conſiderable time to the

miaſms

miaſms ariſing from the mud, is after ſome days affected with an Intermittent Fever, but it is not till after ſome days are elapſed that he experiences the firſt ſeizure. And the celebrated American, (Franklin,) when examining if any inflammable air was contained in ſome of the ſtagnant waters of this country, (which he had found to be the caſe in ſome parts of America) did not immediately experience any ill effects from the effluvia ariſing from theſe waters, as might naturally have been expected had their action *been immediately on the nervous ſyſtem*, but (ſays he) "To being ſome time employed in ſtirring this water, I aſcribed an intermitting Fever, *which ſeized me ſome days after*, to my breathing too much of the foul air which I ſtirred up from the bottom, and which I could not avoid, while I ſtooped down in endeavouring to kindle it."*

And indeed examples of this kind are ſo numerous, and ſo well known, that I

* Prieſtly on Air. Vol. I. page 323.

intro-

introduce them here merely in conformity to my general plan, which is in every inſtance, when it lies in my power, to adduce facts in ſupport of the reaſoning employed. ---I conceive then, with the late writers in general, that the moſt common cauſe of intermitting Fevers, are the marſh or mud effluvia; that theſe are received into the circulation by the lungs, or *ſome other channel*, and there prove a ſtimulus to our veſſels, but more eſpecially to thoſe of the ſeat and ſource of ſenſation, the brain; in conſequence of which, the action of thoſe veſſels is increaſed, a greater than their natural proportion of blood is induced into them, which proportion continuing to increaſe, as long as the ſtimulus continues to operate, at length arrives at ſuch a height, as materially to interrupt the functions of the brain, and the due diſtribution of the nervous influence.*

In

* That this is really the effect of the virus, ſeems highly probable from the total abſence of Fever during the interval; for that the noxious principle ſtill remains in the ſyſtem, is proved by the return of paroxyſm; but

In this ſtate to preſerve an organ ſo eſſential to life, ſome effort becomes neceſſary to remove the impediment, and this effort beginning with a ſhivering fit conſtitutes what Phyſicians have agreed to call Fever.

If the determination is not *very general*, but confined to a ſmall portion of the brain only, it ſeems to act ſimply as an irritating rather than an interrupting cauſe, the ſhivering fit is generally more violent, the convulſive motions more diſtinctly reſemble thoſe of Epilepſy, and they are often ſucceeded by very little heat. In ſuch caſes the ſhivering (or convulſive ſtruggle) alone ſeems to be ſufficient to remove ſo

but its effects are not ſenſible, until it has brought about ſome impediment to the proper diſtribution of the nervous influence.

The frequent occurrence of apoplexy, epilepſy, catalepſy, hæmorrhage from the noſe, &c. during the firſt ſtage of paroxyſm, alſo affords indiſputable evidence of an increaſed determination to the head.—*Vide Chalmers on the diſeaſes of South Carolina.* Vol. II. page 4.

ſlight

ſlight an impediment;* in the ſame manner that a true Epileptic Fit removes the determination which then takes place.

Why the ſenſes are not aboliſhed in this caſe as well as in Epilepſy, I do not think myſelf bound to explain; it may be remarked however that they are often much impaired and bewildered, and that ſlighter fits do ſometimes occur in epileptic patients without ſuch abolition.†

When the determination is pretty general, the ſhivering is often very ſlight, and ſometimes almoſt imperceptible: Nature ſeems conſcious of her inability to rout the enemy by one vigorous effort, ſhe therefore goes a more indirect way to work, and by means hitherto not well underſtood excites ſuch motions in the ſyſtem as tend in their conſequences to increaſe the action of the

* Caſes I. and II.

† In the caſe of John Palmer, where the Febrile Epilepſy was more complete, the ſenſes were totally aboliſhed.—Caſe II.

heart

heart and arteries, and ultimately by that means to reſtore the natural and proper diſtribution of the fluids.

In whatever way theſe motions are induced, they ſeem evidently calculated to expel ſomething injurious out of the ſyſtem, as they univerſally terminate in a perſpiration more or leſs copious; which, combined with other circumſtances, may be conſidered as an evidence of the reſtoration of the balance of circulation, and of the removal for the preſent of the proximate cauſe of Fever. I ſay combined with other circumſtances, becauſe the appearance of ſweat alone is not a proof of the removal of the proximate cauſe, for we ſee that in many Fevers of the worſt ſpecies, and in the worſt ſtages of thoſe Fevers, "profuſe ſweats ſometimes break out without any relief to the ſick;" and they may generally be conſidered as a ſymptom of great danger, not to mention the *ſudor Anglicanus*. —— A Fever lately prevailed in

this town* and neighbourhood, in which cold, clammy general ſweats, a forlorn ghaſtly appearance of the countenance, and a doughy œdematous appearance of the ſkin, were amongſt the firſt and moſt alarming ſymptoms.

Altho' therefore a ſpaſmodic conſtriction of the extreme veſſels, and a dry ſkin, are very general attendants on Fever, (as Cullen and Hoffman have maintained) they cannot be conſidered as the proximate cauſe, ſince Fever may exiſt without them; but muſt be conſidered *as a general conſequence of that cauſe:* and altho' in a ſecondary way this conſtriction may have a conſiderable ſhare in exciting the action of the heart and arteries, yet as this ultimately depends upon, and ſeems evidently calculated to remove, the morbid determination to the head; and as whatever will take away that increaſed determination, will alſo *infallibly*

† Wellingborough, where the Author then reſided, but was obliged to leave it on account of his health.

remove

remove the conſtriction, — I think myſelf warranted to conſider this conſtriction as a ſymptom only, and to look upon the increaſed determination to the head as the immediate eſſential cauſe, or *cauſa ſine qua non* of the diſeaſe.

In the progreſs of Fevers, and in our attempts to remove them, it will nevertheleſs be neceſſary to attend to the degree, extent, and permanency of this ſymptom, becauſe it will often afford us conſiderable aſſiſtance in aſcertaining the extent and degree of the determination in queſtion.

When the ſweat breaks out in a regular intermittent, all the ſymptoms (as before obſerved) for the moſt part gradually ſubſide; but as it ſeldom happens that the noxious principle is entirely expelled by a ſingle effort, the quantity which remains again irritates our veſſels, the determination to the head after ſome time again takes place, and when it arrives at the point of interruption, another effort be-

comes neceſſary to remove it; and thus the paroxyſm is repeated at nearly equal diſtances of time from each other, until the offending cauſe is entirely removed, until the ſyſtem is guarded againſt its effects, or until the diſeaſe degenerates into a Fever of the continued kind.

The time from the beginning of one paroxyſm to the beginning of another is very different in different caſes, and hence agues have been divided into the quotidian intermittent, ſuppoſed to return every 24 hours, the tertian every 48 hours, the quartan every 72 hours, &c.

In the former part of this Sketch I have attempted to prove that this diviſion is arbitrary, and ill founded; and that agues return at almoſt every intermediate number, from eight* to ninety-ſix or more

* At the time of writing this I have one patient who has three diſtinct paroxyſms in twenty-four hours, and another whoſe complaint returns only every fourth day.

hours,

hours, according to the greater or leſs *ſenſibility* of the ſyſtem, the *quantity* or *activity* of the remote cauſe, or perhaps more frequently to the operation of all thoſe cauſes combined.

Double tertians are conſidered by many writers as a diſtinct ſpecies of intermittent from the quotidian, becauſe they obſerve a conſtant alternation of a ſevere fit on the noon of one day, and a more ſlight one on the ſucceeding evening; and Dr. Cleghorn, in his admirable Eſſay on the Diſeaſes of Minorca, carries this idea ſo far as to conclude, that each of thoſe fits has its own proper independent cauſe.

" In double tertians (ſays he) the vehe-
" ment fit often comes on a little earlier
" in each period, whilſt the ſlight fit re-
" turns at the ſame hour, or perhaps later
" and later every other day; ſo that the
" motions of one have no influence on
" thoſe of the other: from whence it ap-
" pears

" pears, that *each of thoſe fits hath its own*
" *proper independent cauſe.*†

But let us examine if there be no way of explaining this alternation, in a more natural and ſatisfactory manner, than by thus improbably ſuppoſing, that two diſtinct eſſential cauſes of Fever ſhould operate on the ſame unfortunate conſtitution at the ſame time, and that too in ſo neighbourly and courteous a manner, as not in the leaſt degree to interrupt each other's proceedings.

It is worthy of remark, that the fit which occurs at noon is (as before obſerved) always the moſt violent, and ſeems often to be a little accelerated; whilſt the evening acceſſion is as conſtantly more mild, and either keeps ſteadily to the ſame hour, or is a little retarded: --- now if the two paroxyſms depended upon two diſtinct and ſeparate cauſes, how could it happen that

† Page 145.

the

the ſevere fit ſhould in all caſes occur about the middle of the day, whilſt the mild fit ſhould as conſtantly be deferred until the evening, which we find to be invariably the caſe? —— Can it be imagined, that the more active cauſe ſhould be ſo intelligent, as always to ſelect the middle of the day in preference to any other? Or is it not more reaſonable to ſuppoſe, that the ſame cauſe operates in both inſtances, but receives a different modification from certain external circumſtances operating at each period, and in ſo warm a climate as the iſland of Minorca,§ and in the month of July (when this ſpecies of intermittent becomes *epidemic* there)? Might not the influence of the ſun, by increaſing the ſenſibility or irritability of the ſyſtem, and perhaps by accelerating the neceſſary determination to the head, give occaſion to the more ſpeedy return of the mid-day

§ I believe this ſpecies of intermittent ſeldom occurs it this country, having never, that I recollect, amongſt a very great number of intermittents, ſeen this peculiar modification.

paroxyſm,

paroxyſm, as well as render it more ſevere, whilſt the abſence of that influence in the evening might retard the acceſſion, and diminiſh the violence of the paroxyſm which occurs at that period; perhaps alſo the more complete removal of the congeſtion, by the violence of the noon-tide paroxyſm, might render a longer time neceſſary to wind up the ſucceeding one?--- This idea is rendered the more plauſible, when we recollect that inſolation or expoſure to the ſun often proves the exciting cauſe of Fever, and that it is a frequent caution given by the common people in the country one to another, not to expoſe themſelves too much to the ſun, leſt they catch the ague.

Upon the whole, then, I am inclined to believe, with Dr. Huxham and others, that what has been called the double tertian, is generally nothing more than from an eighteen to a thirty hour intermittent, depending upon the ſame eſſential cauſe; but that the effects of that cauſe are ſome-

what

what diverſified by the influence of the ſun upon the noon-tide acceſſion.

Upon theſe principles, by a ſimilar mode of reaſoning, all the varieties of intermittents deſcribed by Cleghorn and others may be accounted for in a tolerably natural and ſatisfactory manner; but as the mode of doing this will readily ſuggeſt itſelf to every intelligent reader, from what has been already advanced, I am unwilling to take up any more of his time in explaining thoſe varieties in detail.

Intermittents have always a tendency greater or leſs to become continued Fevers: in order to underſtand how this is brought about, it is neceſſary to recollect what was formerly ſaid in making the diſtinction between *ſenſibility* and *irritability*; that the former, in all probability, was much connected with, and depended greatly upon, an increaſed tenſion of the arterial ſyſtem, and gave the moving powers a greater propen-

ſity *to act*, from a greater ſuſceptibility of impreſſion.

The latter, upon a flaccid ſtate of the arterial ſyſtem, occaſioning a greater facility, or rather perhaps affording a ſlighter reſiſtance, in the moving powers *to be acted upon*; the former prediſpoſes the conſtitution to a more continued, the latter to an intermittent fever; hence we obſerve, that many intermittents will not bear the bark, until ſome evacuations have preceded.

We frequently ſee (ſays Dr. Huxham) that quotidians and double tertians *(which by the bye are oftentimes the ſame thing)* will not bear the bark at the beginning till the ſaline draughts, proper diluting attenuants, and in ſome caſes *bleeding*, *purging and vomiting* have been made uſe of.*

And hence, perhaps, the reaſon why, in the plague of 1666, " the more fat

* Eſſay on Fevers. Page 23.

and

and plump became the moſt ſpeedy victims of the contagion." ‡ ---The plethoric ſtate of the ſyſtem giving a greater degree of intenſity to the diſeaſe.

I do not know whether I am perfectly underſtood, and feeling a difficulty to expreſs myſelf to my own ſatisfaction, I muſt beg the indulgence of my Reader a little longer, that I may explain myſelf more clearly, chuſing rather to be thought prolix, than to run the riſk of being miſunderſtood.

When the remote cauſes of Fever are admitted into a plethoric habit, there are two cauſes which would render their operation more ſpeedy, and more continued; in the firſt place, from the increaſed ſuſceptibility of impreſſion, (ariſing from tenſion) ſlight cauſes may produce conſiderable effects:--Secondly, the veſſels being already in a general ſtate of diſtenſion, a very ſlightly

‡ Hodges on the Plague, by Quincey.

increaſed determination to the head will prove ſufficient to interrupt the functions of the brain; at the ſame time, from a want of room in the vaſcular ſyſtem at large, the determination will with difficulty be removed, and when removed will, from the cauſes above-mentioned, readily recur;--- the Fever will in this caſe approach more nearly to a continued form.

On the contrary, when the remote cauſes of Fever are admitted into a habit ſomewhat exhauſted, their operation will from ſeveral cauſes be ſlow, from the diminiſhed ſuſceptibility of impreſſion the ſtimulus will operate with leſs force, from the empty ſtate of the veſſels its operation muſt be continued for ſome time, before ſuch a determination could take place as would materially interrupt the functions of the brain; and the intermiſſion would be more diſtinct and complete, if the vigour of the ſyſtem be not materially diminiſhed; becauſe there would be ſufficient room in the vaſcular ſyſtem to admit the congeſtion

congeſtion within the head, to be completely and eaſily removed by moderate efforts, ſince there would be leſs reſiſtance made to thoſe efforts; and this I take to be the reaſon why imperfect intermittents are rendered more diſtinct, and perfect intermittents apparently more violent, by bleeding, purging, abſtinence, and all thoſe cauſes which diminiſh the fullneſs of the veſſels.

Sometimes the remote cauſe appears ſo very active, as in all conſtitutions to produce a Fever of the continued kind:---In ſuch caſes I apprehend, the ſtimulus applied is ſo powerful as to maintain a continued determination to the head, in oppoſition to all the efforts which Nature can make for its removal; of this nature is probably the virus of the plague, of the ſmall-pox, and of the more malignant kind of Fevers which occur in this country:* but be this as

* Nay, even in theſe, remiſſions and exacerbations are often diſtinctly perceptible.

as it may, it is very certain that imperfect intermittents are very much diſpoſed to run into the moſt alarming continued Fevers; and this probably happens in the following manner --- from a want of due power in the ſyſtem, and a greater reſiſtance to its efforts, by a plethoric ſtate of the veſſels, the morbid congeſtion is never completely removed, from the frequently repeated diſtenſion, the veſſels of the brain become weaker and weaker at each returning paroxyſm, in conſequence of which, the remaining congeſtion becomes greater and greater, the intervals therefore are rendered ſhorter and ſhorter, until at length the return becomes ſo frequent as not to be diſtinctly perceived,

" It was alſo cuſtomary (ſays Dr. Hodges) to meet with ſome caſes of plague that wholly remitted for eight, ten, or twelve hours. In ſome caſes it aſſumed the quotidian, in others the tertian type."—Rogers on the Plague by Quincey. P. 100.

" I have always obſerved (ſays Sydenham) that when the diſeaſe (ſmall-pox) was violent, the ſick had as it were a fit in the evening, and then the ſymptoms raged more cruelly."—Pechy's Sydenham. P. 94.

and

and thus conſtitutes what is called a continued Fever.

I have thus far aſſumed from analogy and the reaſon of things, rather than proved, that an increaſed determination to the head is the proximate cauſe of Fever; but it is not on analogy alone that I reſt the proofs of the reaſoning employed---facts of the moſt ſtriking and convincing nature, ſtrongly countenance the opinions advanced.

Hemorrhages from the noſe are often obſerved to take place in intermittents, and when they run to any extent, and are not (as is too often the caſe) injudiciouſly checked, ſeldom fail to put a ſtop to the diſeaſe;† as happened in the two following inſtances.*

† Beſides this, apoplexies, epilepſies, &c. which are *known* to depend on increaſed determination to the head, frequently occur at the acceſſion of paroxyſm, as was formerly obſerved, and will be more clearly explained in the ſucceeding Sketch.

* Caſes III. and IV.

In

In fatal Fevers of the *continued* kind, diſſections alſo have too clearly pointed out the effects of ſuch determination, inſomuch that out of the eight diſſections related by Sir John Pringle, no leſs than four diſplayed abſceſſes in the brain; and in *moſt* of them the marks of inflammation were diſtinctly to be traced; but as his obſervations upon this ſubject are of no great length, I ſhall take the liberty to tranſcribe the whole.

" The bodies opened of thoſe who died of the common hoſpital-fever, or of Houghton's regiment, which had the diſtemper from the jails, were in all ten. In ſome of them, all the cavities were opened; in others, either the brain alone was examined, or the bowels. Theſe imperfections of this part I thought proper to mention, that the accounts here given might not be conſidered as complete, or prevent others from purſuing the inquiry further.

" The

" The moſt *unexpected* appearances were abſceſſes of the brain, of which therefore I ſhall take more particular notice. The firſt I ſaw of this kind was at Ghent; but the man being brought into the hoſpital from the barracks, no earlier than two days before he died, I could only conjecture from the ſymptoms, and the imperfect account I had of him, that his death was owing to a fever of this kind, after lingering near a month in it. I found about three ounces of purulent matter in the ventricles of his brain; and obſerved that the whole cortical and medullary ſubſtance was uncommonly flaccid and tender. Nay, ſome of the ſame kind of matter was found in the ſubſtance of the upper part of the *cerebellum:* yet this perſon, with ſome *ſtupor* and deafneſs, had his ſenſes till the night before he died, ſo far at leaſt, that he anſwered diſtinctly when rouſed and ſpoken to; but about that time the muſcles of his face began to be convulſed.

" Of two other inſtances of men who undoubtedly died of this Fever, in one, the *cerebrum* was ſuppurated; in the other, the *cerebellum*. In the former caſe the patient was under a *ſtupor*, with deafneſs from the beginning, but was never delirious, nor altogether inſenſible. His pulſe ſunk early, and about ten days before he died, his head began to ſwell, and continued very large till within two days of his death, when it ſubſided a little. For ſeveral days before his end, he would taſte nothing but cold water; and during his illneſs he lay conſtantly on his right ſide. --- The head being opened, an abſceſs as large as an egg was found in the ſubſtance of the fore-part of the right hemiſphere of the brain, full of thin matter like whey. At that time five more, ill of the ſame fever, had the like ſwelling of their heads, but recovered.* This extraordinary ſymptom I never obſerved before, nor ſince. In

* This happened at Inverneſs, and all, or moſt of theſe men, were of Houghton's regiment.—*See page 45 & 46.*

the

the other caſe, the abſceſs in the *cerebellum* was about the ſize of a ſmall pigeon's egg, and contained alſo a thin ichorous matter; nor had this patient been ever ſo thoroughly inſenſible as not to anſwer reaſonably when ſpoken to. Two days before he died his urine turned pale. Both theſe bodies were opened by Mr. Breach, apothecary in Southwark, then a mate in the hoſpital.

" But ſuppurations in the brain were not conſtant; for another who died about this time, and had been ill about the ſame number of days, with the like ſymptoms, the pale water excepted, had no abſceſs either in the brain, or *cerebellum*. And two were opened afterwards, in whom the cortical ſubſtance of the brain had an inflammatory appearance, but no ſuppuration.-- In one of them, the large inteſtines were corrupted: that man went off with a looſeneſs; and juſt before his death, he had a diſcharge of an *ichorous matter from his noſe*. In the military hoſpital at Ipſwich, one who unexpectedly died of this fever,

after having been once in a fair way, had no ſuppuration in his brain. And about that time Dr. Clephane informed me, that he had ſeen the head of another opened, who died after an abſceſs in each of the orbits; that he had found the brain flaccid, and about two ounces of a thin *ſerum* in the ventricles; but that neither of theſe two bodies had been farther inſpected.

" I ſhall not enter into a deſcription of other particulars in theſe diſſections, tho' I have them written at length, as it may be ſufficient from what has been ſaid to draw the following concluſions.

" That, as there is a viſible tendency to putrefaction through the whole courſe of the illneſs, it generally terminates, when it proves fatal, either in an actual mortification of ſome part, or in an abſceſs of the brain, often ichorous. That the inteſtines more particularly are diſpoſed to mortify; as few die without cadaverous and involuntary ſtools: and from an obſerva-

tion

tion which we made, of the *petechiæ* not appearing till after death, it ſeems reaſonable to conclude, that thoſe ſpots are owing to a reſolution and a corruption of the blood. The offenſive ſweats and ſmell of of the body, before death, are a further argument for what is now advanced. And as to the abſceſſes, ſo often found in the brain, the ichorous kind may be conſidered as a ſpecies of mortification proper to parts of that texture; and from the preceding caſes, it ſeems probable that theſe ſuppurations *are not rare occurrences in this fever*.*

"From the inflaminatory appearance of the brain, without ſuppuration, we may account for the ſame remedies having ſometimes oppoſite effects. For though in the advanced ſtate wine and cordials

* From the numerous diſſections of thoſe who died of the laſt plague at Marſeilles, it appeared that ſome of the *viſcera* were always mortified and inflamed, and that the brain and lungs were moſt frequently affected in that manner.—*Traité de la Peſte*, part. i.

are

are often the beſt medicines, yet there are ſome who cannot take them without increaſing the *delirium:* ſuch therefore have probably ſome more inflammation than uſual about the brain.

" The laſt obſervation which I ſhall make upon the diſſections is, that the evident tendency of this fever to putrefaction reduces it to the peſtilential claſs of diſeaſes; as all of that kind are diſtinguiſhed by a proſtration of ſtrength, ſunk pulſe, dejection of ſpirits, putrid ſweats and ſtools, *petechiæ*, and other marks of corruption.

" Theſe are the inferences which we may reaſonably draw from the examination of the bodies. But from thence to aſcertain the firſt morbific cauſe, where the effects only are ſeen; or to account for all the varieties of this fever, would be too great an attempt from ſuch materials. Nor would it be juſt to propoſe our method of cure as deduced from the diſſection of thoſe who died, ſince the moſt ſucceſsful

part

part of it was taken from the obſervations of others, or from trials of my own, preceding moſt of the examinations of the bodies mentioned." *

I am well aware, that the diſſections of the candid, accurate, and judicious Cleghorn,† exhibited no inſtance of ſuppuration of the brain, and ſeem therefore to contradict tne opinion I have advanced; but it muſt be remembered, that the fevers he treats of were all of the intermitting kind; and that the congeſtion, therefore, did not continue long enough to produce ſuppuration; ſo that death ſeems to have taken place, in theſe inſtances, rather from the exhauſtion of the nervous or vital influence, than from the deſtruction of the organ preparing it; to which cauſe alſo may probably be aſcribed the ſpeedy putrefaction of the abdominal viſcera.

* Pringle's Diſeaſes of the Army. Page 300, et ſequent.

† Diſeaſes of Minorca. Page 165.

Nor

Nor do the diſſections related by Morgagni afford any proof of the principles I have adopted; but as the head was not opened in any of theſe, they lead to no concluſion whatever reſpecting the immediate cauſe of fever.

FEVER.

CASE I.

Miſs M. aged twelve years, the promiſing and only hopes of an amiable and honourable pair, having been to all appearance cured by ſaline draughts of an imperfect intermittent, with which ſhe had been ſome time affected, was directed to ſtrengthen the habit by a decoction of camomile flowers and zedoary, by which the cure of her ſlight indiſpoſition ſeemed to be confirmed: after ſome days, however, ſhe was ſeized, about one o'clock in the afternoon, with a ſenſe of coldneſs, ſucceeded

ceeded by chattering of the teeth, and violent agitations of all the limbs, reſembling, during their continuance, a moſt violent cold fit of an ague, but ſo far differing from it, as to admit of complete ſuſpenſion for ſome minutes, and then return with great violence; and this alternation continued for three hours. At the inſtant of ſeizure her face was very pale, but ſoon became fluſhed, and continued ſo during the whole proceſs: her ſkin was hot to the touch, and bedewed with a gentle moiſture, her pulſe quick, ſteady, and not hard; her ſenſes for the moſt part unimpaired. She was aware of the approach of the convulſions, and expreſſed her fears of them by moanings and tears; and when aſked by what kind of ſenſation ſhe knew of their approach, ſhe ſaid, it ſeemed as if ſomething had ſurpriſed her; as a robber leaping out of a buſh, or ſomething of a ſimilar kind.

About the middle of each paroxyſm ſhe burſt into a fit of crying, ſoon after which

the convulſive motions left her, although the idea of them, and their effects, ſeemed ſtrongly impreſſed upon her mind.——For when they were entirely off, ſhe could not be perſuaded but that the bed ſhook under her, although ſhe lay perfectly ſtill: in a few minutes the convulſive ſhiverings came on again, though gradually leſs and leſs violent, and at more and more diſtant intervals, until at the end of about three hours they went off altogether, when ſhe fell aſleep, and in about an hour awoke, free from any complaint.

At the diſtance of about forty-four hours the paroxyſm returned, with nearly the ſame ſymptoms, and, after three or four repetitions, went off without any other medicines than the ſaline draughts.

This young lady has ſeveral times ſince been affected with febrile complaints, in which the above ſymptoms more or leſs appeared.

CASE

CASE II.

John Palmer, aged ten years, was, on the firſt of March, 1782, ſeized with an ague, which returned every twenty-one hours: it continued to affect him thus every day, until the 26th, when he was attacked at the febrile period with violent epileptic fits, the moſt diſtinctly marked of any I have ever ſeen: he firſt complains of the ſame ſenſation of chilline ſs as if his ague was coming on; preſently after he feels a violent pain in both feet, as if they would drop off; this pain, and this ſenſation (of dropping off) gradually aſcend to the head, when he is immediately ſeized with the convulſive motions; theſe continue violent for the ſpace of two or three minutes, during which time he is totally ſenſeleſs---his head, his legs and arms are moſt violently agitated with convulſions, towards the end his face is much elongated and diſtorted, his mouth ſtretched wide open, his eyes drawn upwards, ſo that no-

thing but the white appears; and now the whole goes off with a deep ſigh.

At the diſtance of five, ten, or fifteen minutes the ſame proceſs is repeated, and thus the paroxyſm continues for the ſpace of two or three hours; it then goes off entirely, *leaves no fever* behind it, and does not return until the accuſtomed period.

At ſix years of age he had the ſmall-pox, which were uſhered in by an epileptic fit; he had another at the turn of the diſeaſe, but, until the preſent ſeizure, has ſince experienced nothing of them. Upon a large bliſter being applied to his head, he eſcaped the fit for that day.

Finding his pulſe rather hard and full one day when in the fit, after he had ſuffered three repetitions of his ſtruggles, I took off blood to the quantity of ſix ounces, upon which that day's fit went off entirely, ---- having laſted only about twenty-

twenty-five minutes, and in a few days was completely overcome by the bark, &c.

CASE III.

John Moulton, aged twenty-five years, had been affected with an intermittent for the ſpace of ſix months: he had taken a great variety of the common remedies to no purpoſe, and on the 18th of October, 1781, applied to me; --- I ordered him to take an emetic at the end of the cold fit for two ſucceeding paroxyſms, and two ſcruples of bark with ſnake root and ſalt of tartar, every two hours during the interval. He complied with my directions; but on the 21ſt he was ſeized, at the accuſtomed period of febrile acceſſion, with a bleeding at the noſe, which continued, in ſpite of every effort to reſtrain it, the greateſt part of the night, and returned at the uſual period of attack for ſeveral days afterwards: he had not once miſſed his ague before the bleeding came on, he omitted

the

the bark from the time of its occurrence, and although he took no other medicine than the tinct. roſar. he had not the ſlighteſt return of the diſeaſe.

CASE IV.

Miſs Coles, aged ſeventeen years, had been affected with an ague ſeven months, during which time ſhe had taken a great variety of remedies, and had once experienced a month's reſpite from the diſeaſe, but it then returned with increaſed violence; on the 29th of January, 1782, ſhe applied to me on account of her being ſeized at the period of febrile acceſſion with a profuſe bleeding at the noſe; ſuſpecting, from the preceding caſe, that this was an effort of Nature to relieve her, I made no attempt to ſtop the bleeding, but adminiſtered a *placebo*, to quiet the minds of her parents; the bleeding, therefore, which ceaſed of itſelf, after ſome ounces had been loſt, continued to return nearly at the

the uſual period until the 5th of February, after which time ſhe had no farther return of her complaint.

CASE V.

James Read, aged thirty-ſix years, during the ſpring of 1782, had been afflicted with a quotidian intermittent, which reſiſted every remedy the common people make uſe of, but at length gave way to the ſummer's heat. On the 27th of October he was affected with a pain and heavineſs of his head, and thoſe kinds of feelings which uſually preceded his ague, ſoon after which his noſe began to bleed, which continued to flow until about a pint had been diſcharged, and then went off. The two ſucceeding days the bleeding again returned nearly at the ſame hour, amounted to about the ſame quantity, and then went off. At this time he applied to me; as he was a good deal weakened by the quantity of blood he had already loſt, I was afraid to truſt

truſt the continuance of the hæmorrhage any longer: I adviſed him, therefore, to take the bark largely in the interval, which being complied with, he had no farther return of his complaint.

I conſider this caſe as a ſtriking proof of increaſed determination to the head as the proximate cauſe of Fever; although it is not clear, that in the preſent inſtance it proved its own cure; but as the bark ſo ſpeedily ſucceeded *after* the bleeding, in a caſe which proved ſo obſtinate *before*, I am diſpoſed to aſcribe a conſiderable ſhare in the cure to the evacuation.

SKETCH

SKETCH III.

APOPLEXY.

AS I am addreſſing perſons acquainted with the Hiſtory of Diſeaſes in general, I conceive that the term APOPLEXY is already well underſtood, -- that it is employed to denominate a diſeaſe, in which all ſenſe and voluntary motion is ſuddenly ſuſpended, the breathing is laborious, protracted, and ſnoring, the patient ſeemingly in a profound ſleep, from which *no ſtimulus can rouſe him*; whilſt the pulſe continues natural, or is ſtronger than before.

The cauſes have been divided by authors into the prediſponent, the occaſional or exciting, and the immediate.

The prediſponent cauſes are ſaid to be, a plethoric ſtate of the ſyſtem, an anaſarcous or leucophlegmatic habit, and a peculiar conformation of the body, viz. a large head, ſhort neck, and great corpulency. —— Apoplexies do however ſometimes occur in perſons of a very different ſtructure.

The occaſional, or exciting cauſes, generally enumerated, are, violent exerciſe, immoderate paſſions, intoxication, or any cauſe which can increaſe the determination of blood to the head, or interrupt its return from thence to the heart.

The immediate cauſe is almoſt univerſally repreſented to be a ſurcharge of blood in the veſſels of the brain, or an extravaſation of blood, or of ſerum, within the cavity of the cranium; according to which idea,

idea, Apoplexies have been divided into two kinds, the ſerous and the ſanguineous Apoplexy.

It is not my intention to diſpute the agency of either of theſe cauſes, as I am perſuaded both from reaſoning, from experience, and from diſſections, that they all have at times their ſhare in producing the diſeaſe: --- All that I ſhall attempt to maintain in the following Sketch is, that they probably do not operate ſo frequently as has been generally imagined; that extravaſation is more frequently the effect, than the original cauſe, and that there is another more frequent cauſe of apoplectic ſeizures than has been generally taken notice of. I am the more readily diſpoſed to purſue this idea, becauſe it leads me to ſome hopes of removing the diſeaſe when preſent; for if we confine our idea of the proximate cauſe of Apoplexy to extravaſation alone, I believe there are few reaſonable Phyſicians, who would entertain very ſanguine hopes of their patient's recovery;

yet perfect recoveries from apoplectic ſeizures do ſometimes happen, and their reſolution into palſy of long continuance is by no means unfrequent;--this could ſcarcely take place in caſes of real extravaſation, without the operation of the trepan.

The cauſes above enumerated likewiſe do indeed explain very well the manner in which Apoplexies, from vigorous exertion either of body or mind, may be brought about; but in this way they are always to be conſidered as *ſporadic* diſeaſes, and we can ſee no reaſon upon this principle, except perhaps exceſſive heat, or ſudden changes of the weather, why they ſhould occur in a greater number of inſtances at one particular ſeaſon than at another, nor does this reaſoning well explain how Apoplexies take place in perſons ſober and moderate in their manner of life, when diſengaged from any violent exertion of the body, and unruffled by any great perturbation of mind; yet this diſeaſe does frequently happen to ſuch perſons, in ſuch

circum-

circumſtances, without any previous notice, often in bed and at perfect reſt: and I have conſtantly remarked, that when I have been called to one apoplectic patient, I was almoſt certain to be deſired to ſee ſeveral others in a ſhort ſpace of time,* ſo that Apoplexies have often ſeemed to me to be in a certain degree epidemic.

I could not help attributing this frequency at particular periods, within my own mind, to ſome general cauſe floating in the atmoſphere; although I could form no idea of what that cauſe was, or in what manner it produced its effects: I therefore noted the ſituation of my patients, their ſtructure, their peculiar mode of life, the diſeaſes to which their progenitors and connections had been liable, and the diſeaſes which prevailed at the time; but I could gain nothing from my enquiries except this, that (ſo far as I can recollect) in *every inſtance* Fevers of

* I have on more occaſions than one been called to three apoplectic patients in the ſame day.

one

one kind or other did then, or had lately prevailed in the ſame houſe, or at leaſt in the ſame village; but ſtill I was as much at a loſs as ever to account for the remote cauſe, altho' I could not help ſuſpecting that it was ſomehow or other connected with the remote cauſe of Fever; and ſince the foregoing reaſoning on Epilepſy and on Fever ſuggeſted itſelf to me, this idea has gained farther ſtrength upon my mind; ſo that I am now very much inclined to ſuſpect, that altho' ſome few caſes of ſporadic or accidental Apoplexy may, as before obſerved, poſſibly take place, yet that this diſeaſe in a general way depends for its remote and occaſional cauſe on the ſame principle which conſtitutes the *eſſential* cauſe of Fever; and in this opinion I am ſtill more confirmed by obſerving, that the moſt faithful Medical Hiſtorians have conſtantly remarked, that many people die ſuddenly during the general prevalence of moſt epidemics; that an apoplectic ſtate often accompanies the cold ſtage of intermittents; that as long ago as the days of

Hippocrates,

Hippocrates, a Fever ſucceeding Apoplexy was conſidered as a favourable ſymptom; and more eſpecially alſo by the occurrence of the following, and many ſimilar caſes, which may ſerve as examples of the intimate connection which frequently ſubſiſts between the two diſeaſes; and to prove, as far as medical reaſoning will generally admit of proof, that Fever and Apoplexy (in many inſtances at leaſt) differ in degree and permanency, rather than in kind, as to the nature of their proximate cauſe.

Mrs. Hardwick, aged ſeventy-five years, of a robuſt conſtitution, on the 20th of June, 1782, was ſeized with an apoplectic fit about eleven o'clock in the forenoon, in which ſhe fell ſenſeleſs on the floor; in about half an hour I ſaw her, when ſhe had in a very imperfect degree recovered her faculties, and was able to ſit up in a chair; her eyes were exceedingly dull and heavy, ſhe kept continually picking her apron as if ſhe ſaw ſomething upon it, her hearing was very imperfect, a thin rheum

diſtilled

diſtilled from her noſe, and ſhe gave very indiſtinct anſwers to the queſtions which were aſked her. I immediately took off ten ounces of blood from the arm, gave her a ſtrong doſe of ipecacuanha and emetic tartar, and directed, if ſhe had no ſtool by the evening, that a ſtimulating gliſter ſhould be given. The emetic operated very briſkly, ſoon after which a general warm perſpiration came on, and her ſenſes in the courſe of ſix hours were nearly reſtored; during which time ſhe had a copious ſtool. I deſired ſhe might take two ſcruples of valerian every two hours, in four ſpoonfuls of water, with half a dram of ſpirit of lavender: ſhe took a few doſes, but being of a very obſtinate diſpoſition, and finding herſelf tolerably well, abſolutely refuſed to take any more. She continued pretty well all the next day, but at eight o'clock in the morning of the 22d the apoplectic fit returned, and as ſhe had refuſed to take any thing while ſhe remained ſenſible, thoſe about her were not willing that any thing ſhould be done in the fit; ſhe continued

therefore

therefore perfectly inſenſible for near five hours, when her ſenſes gradually returned, leaving her much in the ſame ſtate, tho' ſomewhat weaker than in the preceding intermiſſion. On the 24th, about five in the morning, the fit returned again,---ſhe remained inſenſible for about ſeven hours, and then it gradually went off as before. And thus the Apoplexy continued to recur every forty-five hours, remaining longer at each repetition, and leaving the patient weaker and weaker until the 28th, when ſhe died in the fit.

On the 25th of June, 1780, I was deſired to ſee Mr. Robiſon, aged twenty-five years; he had been affected with the prevailing intermittent for about ten days, the fit returned every other day, and during the cold ſtage of it he was affected with ſuch a numbneſs of the right ſide of his body, as deprived it of both ſenſe and motion; this ſymptom was ſo much increaſed, that when I ſaw him he could neither feel when I pinched him very hard,

nor move either his leg or arm in the ſmalleſt degree; his tongue alſo was ſo much affected, that he could ſcarcely articulate ſo as to be underſtood, and his mouth was drawn to one ſide.

He had taken an emetic, the bark was therefore adminiſtered freely as ſoon as the fit went off, which prevented any farther return of his complaint.

This connection has been conſtantly remarked by Phyſicians, altho' no practical uſe ſeems to have been made of the obſervation; for Apoplexy and Fever appear ſtill to be conſidered as perfectly diſtinct diſeaſes, and are placed by the beſt modern noſologiſts in different claſſes:* Yet I am firmly perſuaded, from what has been ſaid before, that all the difference which takes place between them frequently conſiſts in this, that when the efforts of the *Vis Mediatrix Naturæ* are ſufficient to raiſe a fever

* Indeed, in an arrangement according to ſymptoms, this was unavoidable.

in

in the apoplectic ſtate of intermittents, the diſeaſe, as in the caſe of Mrs. Hardwick, ſtill retains the name of an Ague or Intermittent Fever; but when thoſe efforts are not equal to the accompliſhment of this purpoſe, the complaint then acquires the name of Apoplexy; and Phyſicians ſeem until very lately to have ſat down contented under the idea that Apoplexy is Apoplexy, rather than to ſeek for any difference (except in their diviſion into ſerous and ſanguineous) there might be either in their remote or proximate cauſes. * —— From theſe conſiderations, I ſay, I am induced to believe that the proximate cauſe of Apoplexy is generally the ſame with the proximate cauſe of Fever, a morbidly in-

* Thoſe inſtances of Apoplexy which are long preceded by vertiginous affections are much leſs frequent than ſudden ſeizures; and even theſe, as well as vertigo itſelf, will in an extenſive practice always be found to occur in groups, and generally (perhaps always) in a febriferous ſtate of the atmoſphere.—As to thoſe which come on gradually in aged leucophlegmatic habits, forming a kind of *hydrocephalus internus*, they are here out of the queſtion.

creaſed determination to the head, occaſioning an impediment to the proper diſtribution of the nervous influence; only that in Apoplexy the impediment is more univerſal and conſiderable than it is in Fever; and from ſome cauſe or cauſes not at preſent well underſtood, Nature is incapable of exciting ſuch motions in the ſyſtem as are neceſſary to remove the offending cauſe; or, in other words, ſhe ſeems to be ſo overwhelmed by the *univerſality* of the oppreſſing power, that ſhe cannot excite that reaction of the ſyſtem, which conſtitutes what is called Fever. This inability, however, admits of different degrees of duration, according to which the Apoplexy is more or leſs permanent; thus in ſome caſes it continues only during the cold fit, as in the caſes above related; in others it continues ſome days, when a Fever ſucceeds, and then, agreeable to the following obſervation of Hippocrates, the patient frequently recovers.* In other inſtances it con-

* A perſon, to all appearance in perfect health, is ſuddenly ſeized with a pain in his head, he immediately becomes

continues ſomewhat longer, but then very ſpeedily and inevitably proves fatal, or degenerates into a chronic affection of one ſide, called an *hemiplexy*, or palſy, under which the patient, having recovered more or leſs the uſe of the other ſide, does in ſome inſtances drag on a miſerable exiſtence for a conſiderable length of time; but very rarely indeed recovers his former intellectual or bodily health.

When this idea of Apoplexy and Palſy originally occurred to me, there appeared at firſt ſight two objections, which ſeemed then inſuperable:---The firſt was, how ſo conſiderable an impediment to the proper diſtribution of the nervous influence could exiſt for ſo great a length of time as we

becomes ſpeechleſs, ſnores and yawns, is perfectly inſenſible, makes involuntarily a good deal of water, and when ſpoken to or ſhaken anſwers only by groans.—If a perſon in this ſtate is *not ſeized with a fever*, he dies within ſeven days, *but if a fever comes on*, he for the moſt part recovers.—*De Morbis*, cap. vii. edit. Charter. tom. vii. p. 558.

obſerve

obſerve palſies to continue, without proving fatal. --- The ſecond, ſeeing that the cauſe of fever ſtill continued to exiſt within the conſtitution, how could it happen that a farther and fatal accumulation did not take place. Theſe difficulties, however, ſeemed upon reflection to admit of a tolerably ſatisfactory ſolution.

We have hinted before, that Apoplexy ſeems to differ from Palſy chiefly in this, that in Apoplexy the whole brain is affected, in Palſy only one part of it; and that an Apoplexy continuing for any length of time muſt inevitably prove fatal.

Now to obviate as far as poſſible ſuch a cataſtrophe, Nature ſeems kindly to have provided, that the ſeat and ſource of all our ſenſations and actions (the brain) ſhould conſiſt of two diſtinct and complete parts, *each part* extending its influence to the *organs more immediately eſſential to life*, the heart, arteries, lungs and inteſtines; whilſt the influence of one part only ſhould be com-

communicated to the organs of voluntary motion, by which contrivance the vital organs continue their functions, notwithſtanding there may be an almoſt total impediment to the proper action of *one part* of the brain; but ſenſation and motion in the voluntary organs *(theſe not being immediately eſſential to life)* continue on that ſide of the body only, whoſe correſponding part of the brain remains uninterrupted: hence when ſuch a general interrupting accumulation takes place, as muſt do to occaſion Apoplexy, the firſt effort of Nature ſeems to be, to remove the impediment by exciting a Fever; but being unable to accompliſh this deſirable purpoſe, ſhe has yet one other reſource, and this is to attempt to throw the whole impediment on one part of the brain, and in this ſhe frequently ſucceeds, by which means life indeed is for a time preſerved, but at the expence of one half of our bodily, and perhaps an equal proportion of our mental faculties likewiſe; or rather, perhaps, if the idea of the diſtinct and complete nature of each hemiſphere of the brain be

true,

true, the accumulation may either not be ſo great on one hemiſphere as on the other, or perhaps from ſome cauſes not eaſily explained, one of them may be enabled to make ſuch exertions as are ſufficient to overcome the impediment, and thereby to recover its proper functions.

And this affords an additional argument to prove, that thoſe Apoplexies at leaſt which immediately reſolve into Palſy, thoſe which intermit, and thoſe more eſpecially which ſpeedily terminate in health, do not depend upon effuſion or extravaſation for their proximate cauſe; for ſince all the ventricles of the brain communicate with each other, any fluid, eſpecially thoſe of the pituitous and uncoagulating kind, effuſed internally, would in all probability operate ſometimes on one ſide of the brain, ſometimes on the other, according as the patient happened to be laid either on his right or on his left ſide; and the paralyſis would ſometimes affect one ſide of the body ſometimes the other, according as the

the preſſure was exerted on the correſponding ſide of the brain.

If the fluid was extravaſated externally to the *dura mater*, between the *dura* and *pia mater*, or between the *pia mater* and the brain in ſufficient quantity, and ſo generally extended, as in the firſt inſtance (which for the moſt part happens) to occaſion Apoplexy, how could it poſſibly be taken up ſo ſuddenly and ſo completely on one ſide of the brain, as immediately to convert the diſeaſe into what it very frequently is converted, a ſtate of Palſy?

The reaſon why the accumulation is not renewed I imagine to be the following--- when ſpeaking of the action of the remote cauſe of Fever in inducing the proximate cauſe, page 108.

I obſerved, (" and thus the paroxyſms " are repeated at nearly equal diſtances of " time from each other, until the offend- " ing cauſe is entirely removed, until the

" *ſyſtem is guarded againſt its effects*, or until " the diſeaſe degenerates into a Fever of " the continued form") and we ſhall hereafter, in the practical part, have occaſion to obſerve, that as we have it not generally in our power immediately to *expel* the offending cauſe, it is our duty in the cure of Fevers to guard the ſyſtem againſt its effects. Now what we ſhould attempt to do in Fever by medicines, Nature ſeems to accompliſh in palſy of her own accord; for altho' the immediate oppreſſive cauſe appears to be removed from one part of the brain, yet the ſenſibility of the whole ſyſtem ſeems to be diminiſhed in ſo conſiderable a degree, as to render it inſuſceptible of thoſe impreſſions from the ſtimulus of the remote cauſe, which are neceſſary to induce the morbid determination, —— and therefore no freſh accumulation takes place.

In this manner I conceive theſe difficulties to be in a certain degree overcome; but after all it muſt be confeſſed, that all the

the reaſoning upon this obſcure and intricate ſubject, and more eſpecially the latter part of it, is to be conſidered as purely hypothetical; yet it ſeems to me notwithſtanding to carry with it a ſpecies of internal evidence, not eaſily to be controverted or rejected; it receives ſuch ſupport from the reaſoning advanced on Epilepſy and on Fever, and in return reflects ſo much light on the theory of thoſe diſeaſes, that I conſider the whole chain of reaſoning on Epilepſy, on Fever, on Apoplexy, and on Palſy, as ſo many pleaſing illuſtrations of each other; they depend for their fallacy or truth upon the ſame general principle; and, I believe, they will ſtand or fall together.

It was my original intention to proceed immediately to offer ſome Obſervations on the Cure of the above-mentioned Diſeaſes, as connected with experience, and the reaſonings advanced, in hopes to deduce from them methods of cure not altogether new, but leſs complicated and more energetic than thoſe commonly employed; but re-

collecting that *practical* obſervations, coming from a young and obſcure Practitioner, ſupporting and ſupported by an hypotheſis which has for its object a kind of revolution in medical reaſoning, might appear incompatible with that modeſty which ought ever to accompany a love of Science, and with that reſpectful deference which is ever due to ſuperior abilities, and to greater experience, I ſhall for the preſent take leave of my Reader, promiſing, if health permits, to reſume my pen as ſoon as the candid criticiſms of ingenious men ſhall enable me to correct thoſe errors into which, in an enquiry of this intricate nature, I muſt unavoidably have fallen; or until their ſilent approbation ſhall enable me to proceed with proper delicacy, and a proſpect of ſucceſs; in the interim adopting moſt feelingly the ſentiments of Tully:

Homines ad deos nulla re proprius accedunt quam ſalutem hominibus dando.

N. B. I could have adduced many other arguments drawn from facts, recorded by numerous reſpectable Writers, in ſupport of the reaſonings advanced; but as I have not the moſt diſtant wiſh to erect any Hypotheſis which has not its foundation on the ſolid baſis of incontrovertible facts, I choſe to reſt my arguments *chiefly* on caſes which came under my own obſervation in the courſe of ſeven years experience,* and which therefore I apprehend are not unfrequent in practice.

* This experience, I muſt confeſs, was very extenſive; ſo much ſo, as to ſap the foundations of a conſtitution not formed by Nature upon her moſt robuſt plan.

POSTSCRIPT.

LONG after the preceding SKETCHES were in their preſent form,* Doctor Jones's Enquiry into the State of Medicine made its appearance, exhibiting a ſeemingly imperfect ſketch of a ſyſtem of medical reaſoning, adopted and ſupported at Edinburgh by Dr. Brown, in which ſome opinions are maintained, reſpecting the Theory of Fever, which militate with the opinion I have advanced, and render it ne-

* All the alteration they have undergone ſince the year 1780, is the exchange of a few of the Caſes for others which occurred afterwards, and which ſeemed more ſtrictly in point.

ceſſary

ceſſary that I ſhould endeavour to remove the objections, leſt it ſhould be imagined by the followers of the new doctrine, that it is invulnerable. But that what I ſhall advance may be clearly underſtood, it will be neceſſary to take a conciſe view of Dr. Brown's general principles.

So far as I can underſtand from the work before us, Dr. Brown conſiders the animal as a ſenſitive, but not as a perfect, Automaton, or ſelf-acting machine; that it is capable of being acted upon by various ſtimuli, but without their application would for ever remain inactive:--in other words, take away every ſtimulus and life, or at leaſt all action, would immediately or ſoon ceaſe.

This property of the animal body he calls its *excitability*, and he eſtimates the degree of *excitability* by the quantity of effect produced by a given ſtimulus. A tooth coming thro' the gum, for example, will even in a grown perſon occaſion a good

good deal of pain, but in the tender infant the ſame ſtimulus will excite violent convulſions: Excitability is greater therefore in the infantile, than it is in the adult ſtate. --- Upon this idea Dr. Brown erects a whole ſyſtem of medical reaſoning, in purſuing which he comprehends all diſeaſes under two claſſes only, viz. thoſe which depend upon too great, and thoſe which depend upon too ſmall a degree of excitability: -- the former he calls the *phlogiſtic*, the latter the *aſthenic* claſs of diſeaſes.

Conſonant to this idea alſo he reduces all the indications of cure to two ſimple propoſitions.

Firſt, to increaſe excitability where defective.

Secondly, to diminiſh excitability where it prevails to exceſs.

The firſt indication is ſometimes to be fulfilled by the exhibition of what he calls the

the more quickly diffuſible, ſometimes by the more permanent ſtimuli, and ſometimes by the conjunction of both, according to the degree or permanence of the torpor exiſting at the time.

The ſecond, ſometimes by the negation of particular ſtimuli, and at others by the negation as far as poſſible of all ſtimuli whatever; for according to the above idea of the natural inactivity of the animal machine, Dr. Brown deduces as a neceſſary conſequence, that all ſubſtances capable of producing any effect upon that machine ſtimulate;---or in other words, that all medicines whatever muſt be conſidered as ſtimulants.

I ſhould be ſorry to have miſconceived, and ſtill more to have miſrepreſented, Dr. Brown's opinions; but as far as I can judge from this incoherent publication of Dr. Jones's, or from Dr. Brown's Elements, I believe the foregoing to be a fair general view of his hypotheſis.

I ſhall now proceed to make a few conciſe obſervations upon the whole.

With regard to the firſt idea,--that the animal body is not a ſelf-acting machine, I apprehend that it is an opinion in the Univerſity of Edinburgh neither new nor peculiar to Dr. Brown---If I miſtake not, the venerable and ingenious C——n long ago delivered an opinion, "That could "we remove all ſtimuli--as light, ſound, "heat, &c. (I ſpeak from recollection) "all action, and perhaps life itſelf, would "immediately, or ſoon ceaſe."*

As to the opinion that all the ſubſtances of the Materia Medica ſtimulate, I believe it has never in reality been diſputed by any one; that is, that they produce their effects by ſome poſitive operation on the ſyſtem: and what is a poſitive operation, when applied in a phyſiological or therapeutical ſenſe, but a ſtimulus?

* Phyſiological Lectures. M. S.

Opium,

Opium, for example, in a proper doſe, generally induces ſleep, and eaſes pain; it has therefore been called, and ſeemingly not improperly, a ſedative or quieting remedy; yet no reaſonable Phyſician I believe ever doubted that this was the ultimate effect of a peculiar ſtimulus originally exerted on the ſtomach, although it has been found convenient, for the ſake of diſtinction, to divide remedies into different claſſes, and to call ſome ſtimulant, others ſedative, &c. according as they ultimately either increaſe or diminiſh the apparent activity of the nervous or vaſcular ſyſtems.

Ipecacuanha, emetic tartar, and ſome other ſubſtances, in a ſufficient quantity, occaſion ſickneſs, nauſea, and *debility*, and therefore may be called nauſeating and debilitating powers; but no one queſtions that theſe are the ultimate effects of an original ſtimulus firſt exerted on the ſtomach.

In order then to diſtinguiſh theſe ſubſtances from each other, we muſt, upon the *Brunonian* principles, call them *debilitating* ſtimulants, *ſedative* ſtimulants, *tonic* ſtimulants, &c. which ſeem to be as clearly diſcriminated by the more conciſe terms already employed.

With reſpect to the laſt opinion, that all diſeaſes may be uſefully comprehended under two claſſes: the various *phlogiſtic* and *aſthenic* modifications of the ſame diſeaſe (to uſe Dr. Brown's own terms) in the ſame perſon, in its different ſtages, render it too general by far for practical purpoſes.*

Noſological arrangement, altho' greatly improved by the ſyſtematic genius of a Cullen, is not yet perhaps arrived at all

* Nay, a phlogiſtic diſeaſe may exiſt in one part, whilſt an aſthenic diſeaſe may exiſt in another part of the ſame conſtitution at the ſame time. — Vide Sketch on Epilepſy, p. 34.

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the perfection of which it is ſuſceptible: —but as this is a diſcuſſion foreign to my preſent purpoſe, I ſhall conclude with a few obſervations on that part of Dr. Jones's work, which is more immediately connected with my preſent ſubject: --- I mean, the Brunonian Theory of Intermittents.

" But the hot fit, (ſays he) which is a diſtinguiſhing part in their courſe, has never been looked upon as depending upon debility. Its reſemblance to the ſtate of the body taking place in that form of phlogiſtic diſeaſe has been the circumſtance which chiefly miſled Phyſicians, they" *(poor numſkulls!)* " have at no time poſſeſſed *ſo much philoſophical turn*, as to have been in any condition to diſcern falſe appearances from real ſtates: on the contrary, their propenſity to mark ſo many real differences of morbid ſtate, as their hiſtories furniſhed of apparent ones, has been the chief cauſe of the immenſe volumes of Diagnoſtics, and of late, of all the

the nosological distinctions, which have distorted the pathology, and perverted the practice of Physic; a glaring example of which we have in the present case: but we assert that the hot fit of intermittents is the same in kind with the cold one, differing only in this, that the debility which is their common cause undergoes some *diminution* in the hot fit, *while at the same time it is still debility*--the proof of this is incontrovertible: a state of debility constitutes the cold fit, which we are warranted to conclude from the whole concourse of symptoms, as well as from the known *debilitating effects* of the several *exciting* powers,§ the consideration of which, as our book is swelling in our hands, we must dispense with here, referring our reader to the new doctrine where this fact is proved. Another argument for the hot fit

§ These are the debilitating or *sedative* stimuli applied, "communicating (in the Brunonian language) *a deficient stimulus.*"

In like manner, when a Surgeon amputates above the elbow, he operates by *communicating to the patient* the *deficiency* of an arm.—Vide Jones's Inquiry, p. 70.

depending

depending on debility, is its being preceded by the cold one; for if the cold fit, as has been proved, depends upon debility, it is inconſiſtent with the nature of things that its effect will be increaſed action or exceſſive vigour, a ſtate diametrically oppoſite to that which the cauſe is ſuited to produce.* Phyſicians have had recourſe here to their paradoxical notion, that the living ſyſtem has a power, when the ordinary cauſe of excitement is diminiſhed, to increaſe it and produce it in a higher degree than the ordinary cauſe can do from its own internal energy. This idea has been ſufficiently refuted: it is a piece of Stahlianiſm ſet aſide with the refutation of that doctrine."

Thus far Dr. Jones.—Now, if what I have advanced in the preceding Sketch on

* How are we to reconcile this with Dr. Jones's Obſervation, that 'the debility undergoes ſome diminution in the hot fit,' how is this increaſe of ſtrength brought about? According to his principles, the debility ſhould be increaſed in this ſtage.

Fever

Fever be true, the prediſponent cauſe often conſiſts in an exceſs rather than any defect of excitability, and the eſſential cauſe in a *ſtimulant* rather than a *directly debilitating power*.* But Dr. Jones ſays, every phenomenon proves the *cauſe* of the cold fit to be debility; and certainly no one will pretend to deny, that great weakneſs always *accompanies* the cold ſtage of Fever; but if the foregoing reaſoning be juſt, this debility is of a negative kind, depending upon a temporary impediment to the *due preparation, the due diſtribution, or both of the cauſes, of ſtrength:* debility appears, therefore to be an *effect*,† not in any ſenſe the *cauſe*,

* I don't know how to guard my language here: If I ſay the eſſential cauſe is a ſtimulus, ſo it is ſays Dr. Brown, but it is a *debilitating* ſtimulus: If I ſay it is a ſedative, there is no ſuch thing ſays Dr. Brown.

† This appears very evidently from hence, that altho' an intermittent may have affected a patient for many weeks, nay for many months, no very remarkable degree of debility takes place, and he is during the intervals capable of following his wonted employments; but let this degenerate, as I have often ſeen, into a remittent

or

cauſe, of Fever, the *concomitant* merely, and *not the occaſion* of the cold fit.

Dr. Brown and Dr. Jones laugh heartily at the idea of a *Vis Medicatrix Naturæ*: "It is a piece of Stahlianiſm (ſay they) "ſet aſide with the refutation of that "doctrine." But I aſk by what other phraſe they would diſtinguiſh that power which effects the *ſpontaneous* removal of an intermittent paroxyſm, and the debility by which it is *accompanied?* ſuch removals do frequently take place, they could not take place without ſome cauſe, that cauſe is evidently friendly to the ſyſtem, it exiſts within the conſtitution itſelf, and therefore, whether it be a piece of Stahlianiſm or not, ſeems fairly entitled to the appellation of the *Vis Medicatrix Naturæ inhærens*; without which power, I am firmly

or continued Fever, *petechiæ vibices*, the moſt extreme debility, and every mark of putrefaction, preſently make their appearance; and in a very few days, if the utmoſt ſkill and attention be not interpoſed, the patient inevitably expires.

perſuaded, that the more quickly diffuſible, or even the more permanent ſtimuli of Dr. Brown, would be of little avail in the cure of diſeaſes.

Is there not alſo a more diſtinct evidence of this power in the reunion of fractured bones, and in the renovation of fleſh in wounds attended with the loſs of ſubſtance? Can any man join a broken leg, as a carpenter mends the leg of a ſtool? Or can we glue on a number of veſſels, to fill up a *ſolutio continui*, in the manner which Nature does, when not interrupted by bad ſurgery?

Unleſs the *Brunonians* have already recovered (what from their clear, conciſe, *modeſt*, and elegant mode of phyloſophizing ſooner or later they muſt recover) that ineſtimable Balſam of Fierabraſs, ſo highly extolled by their illuſtrious predeceſſor, the valorous Knight of *La Mancha*.§ I ſay

§ "Sancho, (ſays Don Quixote) If at any time thou happeneſt to ſee my body cut in two by ſome unlucky

I ſay, if they have not already recovered this moſt precious compoſition, too ſurely we cannot.

And, *in the interim*, to what other power can we look for theſe ſalutary effects, but to one reſulting, by an almighty *fiat*, from the conſtitution of our nature, and therefore not improperly termed the Αυτοκρατεια, or *Vis Medicatrix Naturæ*.

Upon the whole, Dr. Brown's fundamental error in the Theory of Fever, appears to be the ſame with Dr. Cullen's, --- that of conceiving the remote cauſe to operate as a ſedative (I ſhould have ſaid a *debilitating ſtimulant*) power directly upon

unlucky back ſtroke (*as is common among us Knights Errant*) thou haſt no more to do but to take up nicely that half of me which is fallen to the ground, and clap it on exactly to the other half of me on the ſaddle, before the blood is congealed; always taking care to lay it juſt in its proper place: then thou ſhalt give me two draughts of that balſam, and thou ſhalt immediately ſee me become whole and ſound as an apple!——Vide Ozell's Don Quixote, vol. i. p. 71.

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the brain, without previouſly entering the circulation. If this be his opinion, I refer him to the arguments employed againſt Dr. Cullen's Theory, p. 70, et ſequent.

That we may with ſafety and advantage carry the exhibition of ſtimulants (I do not mean *debilitating ſtimulants*) to a greater extent than has been commonly ſuppoſed, there is perhaps very good reaſon to believe, and the Public are indebted to Dr. Brown and Dr. Jones, for having inſiſted more ſtrenuouſly on this point than any preceding writer: --- yet it ſeems by no means clear, that any general law has hitherto been diſcovered, by which their adminiſtration can be ſafely regulated: In Medicine, as well as in Declamation, we muſt take care that we "o'erſtep not the modeſty of Nature;" the whole muſt ſtill reſt upon a careful, a *modeſt*, and a well-regulated experience, conſtantly obſerving the *ſuaviter in modo*, yet never forgetting the *fortiter in re*.

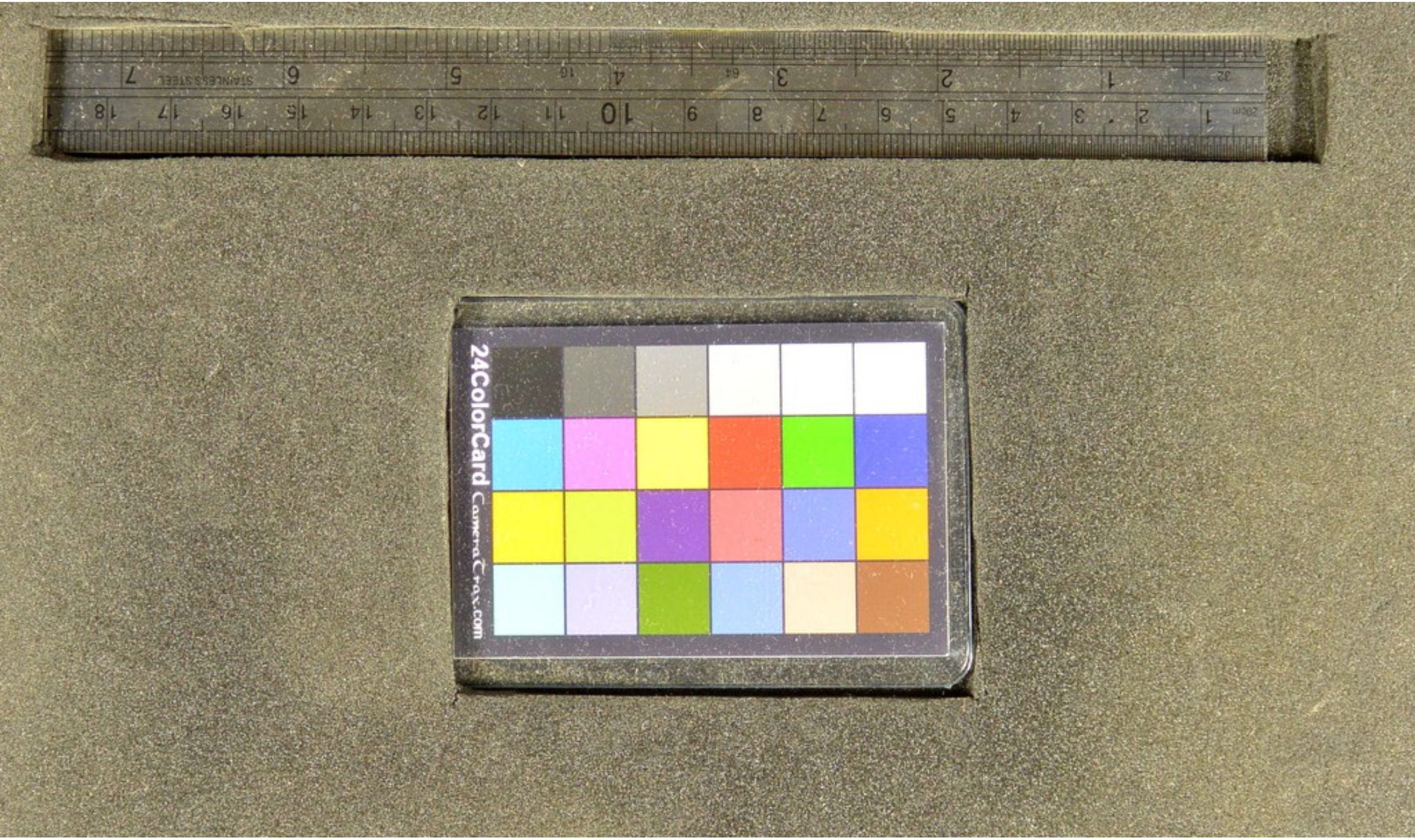
What

What has here been oppoſed to the Inquiry of Dr. Jones, will apply with equal force to the more reſpectable performance of another *Brunonian*, (I mean only ſo far as relates to the Theory of Fever) Dr. Dickinſon; † and I apprehend that Dr. Gardiner ‡ will, upon more mature deliberation, abandon his idea of the repeated periodical ſecretion of phlegm and bile as the proximate cauſe, and its re-abſorption as the temporary cure of intermittent paroxyſms, independent of the *continued* operation of the remote cauſe.

† Inquiry into the Nature and Cauſes of Fever.

‡ Obſervations on the Animal OEconomy.

(TO BE CONTINUED.)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