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WORKS

OF

DR JOHN BROWN.

THE WORKS
OF
DR JOHN BROWN.

TO
WHICH IS PREFIXED
A BIOGRAPHICAL ACCOUNT
OF
THE AUTHOR,

BY
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LATELY ONE OF THE PRESIDENTS OF
THE ROYAL MEDICAL SOCIETY
OF EDINBURGH.

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THE
ELEMENTS OF MEDICINE ;

TO WHICH IS PREFIXED

A REFUTATION

OF

THE DOCTRINE OF SPASM.

OBSERVATIONS
ON THE
PRESENT SYSTEM OF SPASM,
AS TAUGHT IN THE
UNIVERSITY OF EDINBURGH.

1. **T**HE most difficult and irksome task, in which the reasoning faculty * can be engaged, is the attempt to refute a doctrine completely false and absurd. As, in the purest demonstrative science, there are certain fundamental propositions, the truth of which is not proved by demonstration, but referred to the testimony of feeling ; so, in false systematic reasoning, there are many fundamental and other propositions, the falsity of which eludes demonstra-

* We shall, before we are done, see the difference betwixt the reasoning faculty and the medical faculty.

tion, and admits of no other probation but that also arising from feeling : The former are axioms, or self-evident truths. the latter are hypotheses, or self-evident falsehoods. Most of the systems in other branches of philosophy, and all the medical systems, set out with this kind of false reasoning : It is the logic which distinguishes almost every work : The very page of history has not been exempted from it : The dignity of history has been debased ; its truth contaminated ; its impartiality sacrificed at the shrine of superstition, policy, and interest. The humane indignation, which oppression, rapine, and cruelty, exercised over the mild, defenceless, and innocent, excites, is more provoked by the false colourings of the soothing narrative, than by the perpetration of the atrocious deeds : For the vilest of purposes have the foundations of truth, candour, and every moral virtue, been undermined, and in the very writings which were intended to rear and support them. The public has been deceived, and wantonly insulted : The whole business of science has been a masquerade : It is time to unmask, and exhibit the genuine features of the actors. An attempt to which, with respect to medicine, is the intention of this work. To execute it, a specimen of the truth is not enough : The habits of practitioners, the contagious influence of opinion, and the impres-

sions made upon the minds of the public, are not to be removed all of a sudden, and by the perusal of a few outlines : Still the tares may be mistaken for the wheat : The weeds of error may choke it in the blade : To prevent which, the soil must be entrenched to the very extremities of the roots : Not a tendril must be left : Eradication is required : It is not enough to show truth : It must be well marked by its contrast in error.

3. ALL this will be best effected, by beginning with that system in preference to others, which was the last in reputation, and of which, though itself has passed away, such impressions may still remain, as to require extirpation. The system, therefore, of spasm, as it has been taught for about twenty years in the medical school of Edinburgh, where it is still taught *, and, as it is contained in a book, intitled, *First Lines* † of the Practice of Physic, is the subject, with which, for the reason assigned, it is judged most proper to set out.

* Anno 1787.

† A translation of Baron Haller's title of *Primæ Linæ*, meaning outlines ; a phrase, in English, taken from the painters : But though the words *first* and *lines* are both English, they never were put together, but in this single instance, as far as we know.

3. As spasm is the word of this doctrine, and supposed to express the fundamental affection upon which diseases in general depend ; it will naturally be expected, that the ostensible author has set out with a distinct definition and explanation of its meaning : From that part of his task, however, he keeps very much aloof.

4. No mention is made of it in his Physiology *, unless we take, for such, a definition of an affection of that name, as old as the first accounts of the art. His words are : “ There is a state of the contraction of muscles which is not disposed spontaneously to alternate with relaxation, and in which, too, the fibres do not easily yield to extending powers : Such a state of contraction is called a spasm †.” This is the common definition of that well known affection. But it has nothing to do with the spasm which makes the subject of our present inquiry. If, by way of assigning a cause for the omission of the definition of that affection in the work we mention, it should be alleged, that the physiology, which is the explanation of the healthy functions, is not the place for the considera-

* See a little book, intituled, Institutions of Medicine, by William Cullen, M. D. &c. 3d. edit. 1785.

† Institutions of Medicine, &c. 111.

tion of any morbid function ; the answer is, that that is not the rule observed in the little work referred to ; where, as in the instance just now quoted, the pathology * is very commonly, and sometimes professedly, blended with the physiology. Accordingly, we are told, that “ the pathology of the simple solids cannot be properly separated from their physiology ; and, therefore, many different states of these solids, though such as are always morbid, are mentioned.” Then it is next added, that “ it is proper to subjoin,” to the physiology of that part, “ a short view of the whole of ” the “ pathology †. Indeed, this author gives not, and never gave, any other text for pathology, but what he has interspersed with his physiology in the same little work ; having used, for that purpose, when he delivered his pathological lectures, the noted pathology of the Leyden professor, Dr Gaubius. In which, as we are not to expect the spasm of which we speak ; it being an imaginary affection in the opinion of that writer, as well as of the whole Boerhaavian school ; so, neither was it supplied by its adopter, in his commentary upon that text.

* Or explanation of morbid affection.

† The same book, 25.

5. IT is only in his text upon the subject of fever, where the first mention is made, and, in place of a definition, a strange description given, of spasm*. He ushers in the subject in these words: "The proximate cause of fever seems hitherto to have eluded the research of physicians; and we shall not pretend to ascertain it in a manner that may solve every difficulty, but shall endeavour to make an approach towards it, such as, we hope, may be of use in conducting the practice."

6. THIS is a strange introduction to a strange subject. The proximate cause † of fever is announced in the title, and the reader is led to expect information about a subject which, he is told, had "eluded the research of" other "physicians." But, with the same breath, he finds he is only to meet with "an endeavour to an approach towards it;" and he is encouraged with the "hope" of its being "such as may be of use in conducting the prac-

* First Lines, chap. ii. 32. to 48.

† The proximate cause of diseases among physicians is that state of the body upon which all the symptoms depend. It is, according to them, occasioned by a set of powers, to which they apply the general term of remote causes, and these are further distinguished, as we have formerly pointed out, 76. 77.

tice." Was it for no more than this, that other systems were to be overturned, and a new one substituted in their place? Was it only an enigma with which the reader was to be favoured, instead of a comprehensive view of the nature of fevers, and in the part of the subject, too, where that was certainly to be expected? He next proceeds to observe, that,

7. "As the hot stage of fevers is so constantly preceded by a cold stage," he "presumes, that the latter is the cause of the former; and therefore, that the cause of the cold stage is the cause of" all which follows in the course of the paroxysm."

8. HERE our author sets out with the assumption of a fact, which will not be granted him; which is, that "the hot stage of fevers is constantly preceded by a cold stage." That is an assertion of his own, to answer the purpose of an hypothesis, by which he means to reconcile the most continued fevers, as well as the intermittent kind, to the proximate cause which he has in view. The very pure intermittents, whether of the tertian, quartan, or quotidian type, are ushered in with a cold stage, followed with a hot one; a process very much obscured in the remittent form of fevers, which, in that and

other respects, appear so different from the pure intermittents, as, till of late, to have been thought to require different remedies: Particularly, it is not long since physicians agreed to give the peruvian bark in remittents. The phenomenon of a precedence of cold to hot stage, makes no figure in the fevers called *continuae*, or continued; and it is still more foreign from the most continued form of fevers, called therefore *continentes*. Contrary, therefore, to what he sets out with upon the subject of fever in general, “the paroxysm or fit of an intermittent, as that is most commonly formed, does not exhibit “circumstances essentially necessary to, and properly constituting, the nature of fever *,” in the point of view in which he regards it. The hot stage preceded by a cold, occurs in no fevers but in the intermittent kind. No inference, therefore, from that fact, can be extended to other fevers.

9. BUT we shall next find, that the same fact, in so far as it regards intermittent fevers, when properly considered, does not, by any means, warrant his conclusion in favour even of that form of fevers. The “cold stage is always” accompanied, not “preceded, by strong marks of a general debility pre-

* First Lines, vol. i. 9.

vailing in the system," as that is manifested in "the smallness and weakness of the pulse; the paleness and coldness of the extreme parts; the shrinking of the whole body; the languor, inactivity, and debility of the animal motions; the imperfect sensations; the feeling of cold while the body is truly warm." It is also in perfect conformity to the truth, that not only "most," but all, "the remote causes of fever are sedative," that is, debilitating; for we will not dispute with him at present about the propriety of that term *. It is equally demonstrated in fact †, that "the paroxysms of fever," not only "may be, and most commonly are," but are always, "renewed by the application of debilitating powers:" Nor is it less proved in fact, that "a state of debility subsists in the animal motions, and other functions through the whole of fever, and that it is the result of the operation of debilitating powers applied to the body." We grant him, that not only intermittent, but all fevers, both in their beginning, and through their whole course, exhibit most undoubted proofs of debility (131. 132.) ‡. Beside the clear and decisive proof which the new doctrine so amply exhibits, we have even this au-

* Observat. 7. 8. 9.

† First Lines, 34. 35.

‡ Elem. Med. 650. 652. 653. 654. 655. 657. 670. 673. 674. 675. ad 689.

thor's confession of the fact. The proof makes, with equal force and simplicity, for the conclusion, that the common cause of all fevers is debility * ; but it goes by much too far, to establish spasm as that common cause.

10. "WHILE, therefore, it is an undoubted truth, that the cause of the cold stage is the cause of all that follows," not only in the course of any one "paroxysm," but of the whole disease in every febrile case † ; it does not follow, that "it is therefore evident, that there are three states which always take place in fever ; a state of debility, a state of cold, and a state of heat ‡." Here is a conclusion drawn in direct contradiction to the premises : According to his whole induction of proofs, the cold stage is not secondary to a previous state of debility, marked as this is, but is itself that very state of debility. For, when is it that the pulse appears small and weak ? when do the extremities begin to be pale and cold ? when happens it that one of the feet has been burnt through the shoe and stocking without the patient feeling it ? Surely these symptoms happen after the commencement of disease in the

* Elem. Med. 607. 674.

† First Lines, 33.

‡ First Lines, 35.

cold stage : They are all symptoms of disease, and not characteristics of a state preceding the disease : That a state of debility, indeed, precedes every disease depending on debility, is a certain fact : But the period when that happens, is the period of predisposition ; during which, no symptom of disease can take place, the predisposition being, according to its definition, a state of the body, so deviating from good health, and so approaching to bad, as to seem still to remain within the latitude of the former, though it is only an insidious resemblance of it *. Debility, then, without these symptoms, may, and does, precede the cold stage † ; but, as expressed by these symptoms, it is the cold stage.

11. IT must be the cold stage ; for this further reason, that the cold, the hot, and the sweating stages, are the only stages which either have been, or can be, observed to take place in intermittent fever. A previous stage, or one of debility, distinct from the cold stage, is only a fiction, a revery, a dream of Dr Cullen. “ The strong marks, then, of general debility,” which our author mentions, do not “ precede ‡,” but accompany, the cold stage of in-

* Elem. Med. 8.

† Observat. 52. 56.

‡ First Lines, 34.

termittents. And though there are marks of debility which precede the morbid state, both of intermittent, and of all other proper fevers, nay, even of the whole form of diseases depending upon debility as their cause; these are so obscured in a shade of apparent health, of which they are still an insidious resemblance *, as hitherto to have eluded the observation of physicians, and, most certainly, of our author.

12. HE goes on, however, with his hypothesis; “and as these three states,” continues he, “regularly and constantly succeed to each other, in the order in which we have mentioned them, it is presumed, that they are in the series of cause and effect with respect to one another.” Strange logic again! Is presumption all that we are to have for proof, in a matter of the most material consequence to mankind of all others, to wit, the cause of febrile state? What is presumed? “It is presumed, that they are in the series of cause and effect with respect to one another.” Here our author, compared to one acquainted with the truth (and there are many who now are), is like a person hood-winked in the play of Blind Harry. His play-fellows, whose eyes are open,

* Elem. Med. 8.

can perceive him often to be in a right tract of pursuit, and as often in a moment carried away from it. His observations are like the rebuffs which Milton's devil met with in his progress from Pandemonium, to blast the happy state of the first pair of the human race.

13. **DEBILITY** is the cause of the intermittent, as well as of every form of proper fever (122.). It constitutes the state of predisposition, which has been proved to be the same state as that of disease; it constitutes the state of disease *. Nothing more is wanted. The whole cause consists in it. There is no occasion for any other state to account for the whole phenomena of proper fever. No part of this, however, is discerned. Debility in the predisposition, debility through the whole febrile course, is overlooked. Its occurrence in either has been a profound secret, concealed from all other physicians, and not less from this. What, then, is sought for? Debility. For what purpose? Not for the right purpose of laying hold of it as the proper cause of fevers, which it is; but for that of rendering it subservient to the establishment of spasm as the true cause. Where is it sought for? Not in

* Elem. Med. 650. 657.

the predisposition ; of which, whatever is the cause, the same also is the cause of the disease ; disease and predisposition being the same, differing only in degree. Neither is it sought for in any part of the course of the disease. It is too late to look for it in the hot stage ; because, whatever the cause be, it must have operated before that period. It is even too late to look for it in the cold stage ; that being the disease, not the cause of the disease. Where, then, is it supposed to be ? In a state subsequent to predisposition, but pre-existent to disease. Such a state is as impossible as the idea of a mathematical point consisting of parts. “ There are no stages of intermittent fevers, but the cold, hot, and sweating ones. The pre-existent stage of debility, is the fiction of an imagination bewildered in the mazes of its own false conceptions : Which is proved by “ the strong marks of general debility,” being nothing but the actual symptoms of the cold stage.

14. “ THIS,” however, continues the author, “ we hold as a matter of fact, even although we should not be able to explain in what manner, or by what mechanical means, these states severally produce each other.” Good God ! After the miserable attempt to prove, by reasoning, that debility produces a spasm for the purpose which we now know :

Is the act already finished ? is the curtain dropt ? is no further reason to be assigned ? are we left to the music, to a song, for all the rest ? Indeed we are. Here, let a remark in the first edition of the *Elementa* be attended to. “ As a defence of spasm has been attempted in so cold, feeble, and ineffective a manner, as if the author,” in the very act of making it, “ had foreseen, that it would be to no purpose ; so, about the end of the eighteenth century, at a time when it is an established and universal practice, to subject every part of natural, every part of moral knowledge, to the test of experiment ; to weigh them in the nicest balance” of criticism ; “ to repel the futile conclusions drawn from empty theories ; to banish prejudice far” from literate inquiry ; “ and not even to withhold animadversion from the subject of religion itself ; would any body imagine, that a mere piece of theory *, not recommended even by the thinnest shadow of reason or truth, and the falsity of which has been demonstrated by the most solid, and the very, arguments employed in its defence ;” would any one think, that, after a vain defence of it by every species of false logic, it would be “ at last obtruded” on the world “ as a fact ?” “ Yet that” very thing, “ however

* opinionem.

much exceeding the bounds of credibility, has been done *.”

15. THIS is, perhaps, the only person who ever pretended to reason in avowed defiance of every right rule: Respect to the understanding of his hearers or readers has seldom checked his loose career: Conclusions at variance with their premises; propositions in perpetual repugnance to each other; assertions supported only by the assertor's solitary testimony; conjecture assumed for certainty; presumption for proof; strained inference for evidence; emphasis for energy; words ill put together for well expressed meaning, are the hideous

* As the first edition of the *Elementa* is out of print, we shall supply the reader with the original of the above translation.—123. “*Ut aliqua spasmi, qualis exposita et diluta (116.), defensio frigide, impotenter, et quasi vanam fore proviso, tentata est; ita, decimi octavi seculi fine, ubi omnia naturæ, omnia veri, ad experimentorum fidem jamdudum revocantur, æquissima trutina perpenduntur, rationum inanium futilitas repellitur, animi præjudicia procul ablegantur, nec acri censuræ ipse numinis cultus eripitur; quis, opinionem meram, nulla rationis, nulla veri, vel tenuissimam, umbra commendatam, solidissimis argumentis, item ipsi tuendæ adhibitis, compertam falsam (116.), post vanam omni falsæ logicæ genere defensionem, pro re vera et certa oblatum iri, crederet? Quod utique, quantumvis fidem superans, factum.*”

features, for which the reader has to look, through this whole motley work. Plain sense, and any tolerable clearness of conception, is distracted by the task of even collecting, not to say of arranging, and reducing to order, such heterogeneous materials. It is enough to separate the chaff from the corn, though the useless labour of nicely describing its comparative impurity be dispensed with. The contrary would be an attempt towards making a rope of sand, which defies the address of the devil. Of this strange sort of reasoning, we have a very complete specimen in that, which we have laid before our readers in the few paragraphs of which we have taken notice. That the three states, of debility, cold and hot stage, are in the series of cause and effect with respect to one another," is not proved in fact, even by "an endeavour to an approach towards" proving it. It cannot be proved, because,

16. FIRST, the mode of probation is incapable of bringing forth a proof; the means are inadequate to the end. The consideration of symptoms in medicine, like the inquiry into abstract causes in other departments of philosophy, has been demonstrated, not only to be fallacious, but false, in every attempt

which has been made to reason from it*. Of which, beside the instances formerly mentioned, the one before us amounts to a demonstration, that symptoms, abstractly considered, as a source of information, which is the precise case here, inevitably lead into error. The appearance of the present symptoms, when we look no further, warrants no conclusion. The pulse often appears small and weak, when it is not so in reality; the proof of which, practitioners can well attest, in finding, to use their own words, the pulse so often to rise upon bleeding. "Paleness, coldness" any where, "and shrinking of the whole body," take place at an early period, not only in fevers, which we know to be diseases of debility, but in diseases of excessive vigour. For the proof of this, we need only to appeal to the experience of our readers; who, upon the arrival of a catarrh, of an inflammatory sore throat, or indeed of any of the diseases which we denominate sthenic †, will readily recollect, that, among other symptoms, a feeling of cold, and a keen, sometimes an exquisite, desire for warmth, was a distinguishing one. Paleness, and shrinking of the surface, equal-

* Observat. p. 7, 8, 19, 20.—41. 43.

† Elem. Med. 154.

ly occur in the same set of diseases *. “Languor, inactivity, and” apparent “debility of” what he calls “the animal motions, that is, a feeling, as it were, of fatigue, and a disinclination and inability to perform voluntary motion †, equally distinguish the approach of sthenic and asthenic diseases, those arising from increased, and those arising from diminished, excitement. In peripneumony ‡ itself,

* Elem. Med. 163. In the former reference, “cutis siccitas,” in the latter, “imminuta cutis molis,” is added in MS.

† Elem. Med. 148. where the increased excitement is observed to impair some functions, but never, while it remains, by a debilitating operation.

‡ When the first lectures of the new doctrine were delivered, the students of the old enjoyed an imaginary triumph, in the belief of their having raised an insuperable obstacle to a most fundamental part of the former; by finding the incapability of moving the limbs, in peripneumony and rheumatism, often as great as in paralytic and other affections of debility. But their confidence, the natural result of the false knowledge and bad logic, with which they had been imbued by their teachers, was reduced to an abashment, that better became their age and rank in scientific knowledge; when they were simply told, that nothing but stimulant and excessively invigorating powers, produced both the symptoms in question, and all the other symptoms in peripneumony and rheumatism; and nothing but evacuant and debilitating remedies removed them; and that the case was perfectly reversed in the diseases of debility, which nothing, but debilitating powers, produced,

there is often as great an inability to move a leg or an arm, as in a dead palsy. The same function is also most commonly impaired in rheumatism. Neither do we know any thing about the action of the heart, but in so far as we consider it in the state of the pulse; which has been explained in conformity with the proposition, to which we have called the attention of the reader. This being the true statement of the fact, the kind of proof adduced to establish debility as the cause of spasm, taken from the consideration of the symptoms, falls to the ground.

17. THE same proof is equally wide of his purpose, as taken from the consideration of remote causes. That these operate debility in intermittent *, as well as in continued fevers †, and in all diseases which merit the appellation of fever or febrile ‡, we

and nothing, but stimulant remedies, removed. They might, therefore, give what names they pleased to either set of symptoms: But, if they attempted to cure those of real debility, by bleeding, evacuation, and starving, which was the practice of the doctrine they defended, and, for the cure of the symptoms where the debility was only apparent, used wine, opium, and other stimulants, they ought to be hanged.

* Elem. Med. 650. 652. ad 656.

† Elem. Med. 670. 673. 674. 675. ad 690.

‡ Elem. Med. 346. The diseases mentioned in 347, are

heartily admit, and even grant, that the establishment of that fact is a most essential part of the fundamental principle of the new doctrine. But that a state of debility, arising from this source, takes place, as distinct from the morbid state, which constitutes the cold stage of intermittents, or any after part of these, or any part whatever in the course of continued fevers, we as confidently deny; and that upon the full proof, arising from the arguments which disprove that pre-existent state, as inferred from the appearance of symptoms.

18. WE have now sufficiently disproved the author's boldly asserted fact, that a state of debility pre-existent to the first part of morbid state, the cold stage of intermittents, is the cause of the cold stage, and of all the after phenomena through the whole course of the fit. We have shown, that the proof drawn from the symptoms is invalid; both as applying equally to sthenic pyrexial diseases, which arise from excessive vigour, and are improperly, and with the worst effect upon the practice,

called *Pyrexia*, to distinguish them, as depending upon increased vigour, from proper fevers which depend upon debility; a distinction, the neglect of which among physicians, has been a principal cause of the universal depravity of the practice, as arising from the old doctrine.

denominated febrile *, and as, of itself, proving nothing at all. We have shewn its equal futility, as inferred from the consideration of the remote causes †, these proving debility to be the whole and a direct cause, but not as indirect, and constituting spasm as the cause.

19. DEPRIVED, therefore, of these two props, upon which alone he rested the whole reasoning which he had to bring in support of his conclusion (a conclusion so broad and extensive, as to be meant to comprehend a full explanation of the whole doctrine of fevers), he is obliged to have recourse to a bold assertion of his conclusion as a matter of fact. A matter of fact, according to the mode of proof which he has induced, it is now proved it cannot be. The next question, therefore, is, upon what footing does he expect, that we are to take it off his hand as a matter of fact?

20. HE makes an apology for the risk which he finds he runs of not “being able to explain in what manner, or by what mechanical means,” his conclusion is to be supported; or, “these states severally produce each other †.” With every step which we

* See the last note.

† First lines, 35.

‡ First lines, 36.

make in the review of this work, astonishment succeeds to astonishment. There are only three shapes, in one or other of which he can offer us his fact ; that is, either as an axiom, a self-evident truth ; or as demonstrated by arguments ; or as begged upon the credit of his own authority.

21. THAT we are not bound to take it as an axiom, as a self-evident truth, I suppose every one of our readers will most heartily agree. There is nothing on the face of a proposition, which sets forth, that the “ three states, of debility, of a cold, and of a hot, stage,” in intermittent fevers, regularly and constantly succeed each other, in the order” just now “ mentioned ;” which, from that, “ presumes that they are in the series of cause and effect to one another ;” and which “ upholds that assertion for a fact, even although the explanation of the manner, or mechanical means” by which “ these states severally produce each other,” should fail ; there is surely nothing in such a proposition, entitling it to an immediate and unavoidable assent of the mind to the truth of it. On the contrary, in all the books of Alchemy, in all the responses of the Delphic Pythioness, in all the prophesies of Sir Thomas Leir-mont, in all the metaphysics of John Duns Scotus, nay, in all the theories of physic, only excepting

those which we will meet with in this, and other works of our author, there is not to be found a sentence so impenetrable to human intellect, so dark, so mysterious, so incomprehensible, and, as good sense, past all finding out. Though, therefore, we cannot demonstrate, by reasoning, its diametrical opposition to truth ; yet, we humbly conclude, that there is such an opposition between them ; and doubt not of being joined by our readers in that conclusion, for the same good reason, by which they, as well as we, are compelled to conclude, that two and three make five, and do not make six ; though, by demonstration, neither of us can either prove the former, or disprove the latter. That being the true state of what he “ holds as a matter of fact,” and the only view in which it can be taken ;

22. It follows, that it is not offered, at least does not come before us, as a fact demonstrated by reasoning and argument : For though he, no doubt, slyly meant to pass it, upon such as would take it from him, for a piece of demonstration, in consequence of the feeble, though his highest, reasoning, displayed in the three foregoing paragraphs ; yet the demonstration of the true cause of fever, being widely different from that which he strained so hard

for, effectually prevents the appearance of his fact before us in the shape of demonstration.

23. SINCE this "matter of fact" (157.) comes neither before us as an axiom (158.), nor as demonstrated by arguments; but, on the contrary, is, without demonstration, found to be the reverse of a self-evident truth; it is plain, that it is meant to be presented to the public, and such as it is, as a fact, upon the authority of the assertor.

24. UPON this occasion, let me be allowed to translate a fragment of an observation from the same first edition of the *Elementa*, from which we so lately had occasion to borrow. It immediately follows that portion which we translated and transcribed before *: "And spasm, which, it has been demonstrated, is not only foreign from" the nature of "fevers, but absolutely" a "non-existent" state in the animal economy, for a great variety of reasons mentioned, and referred to in the original, "is," at last, "abruptly obtruded" upon the public, "as a fact and truth. Can any thing be true," in the nature of things, "contrary to the clearness of reason, and the certainty of fact? Did Syden-

* See note at 152.

ham †; did the ornament of human nature, Newton, gain credit by assertions, and not by execution; the former” by that of “his cures, the latter,” by “clear demonstration? Shall the last argument” of every dispute, “*he said it*, which, in a rude state of human science, was applied to the greatest man in moral philosophy,” and “not,” even in these circumstances, “with a becoming propriety to him, be applied to such a person as this, forsooth, with a vengeance? Who is he *? Other

† It must be added, *in the few phlogistic or sthenic diseases* which depend upon too much vigour, and which are but a few of the whole; whereas, in the far greatest number, his practice was as bad as that of his contemporaries, the Alexipharmac physicians, was in the few, in the cure of which his whole merit lay. See above, *Outlines*, p 74. 75.

* The idiom of the Latin leads to speak in the second person singular, when, in English, the third person of the same, or of the plural, number, is commonly employed in the same sense. This observation is necessary to some readers, whose profession should place them above the occasion for it, and particularly to let them know, that the dignity of a great subject is not to be let down for the little-minded gratification of personal attack. In the *Elementa*, no such person as Dr Cullen is known, unless that there, as well as here, upon the particular subject of spasm, he is comprehended as a professed modifier of that doctrine in some parts of his theory. As some of our readers may be desirous of seeing the original, it is as follows: “*Et spasimus, qui, quod distentio necessaria deest (115.), quod pro-*

physicians had often mistaken inferences from theory for facts, as in the case of the noted plethora, of the autocrateia, or vis medicatrix naturæ, and many others ; but these were received as such by a general agreement among physicians, and not asserted upon any single authority. They were errors, indeed, and gross ones, as we are afterwards to show ; but they were errors, upheld by the united influence of the greatest names of the profession, and which had been countenanced at all times,

priis is argumentis (116.) conciditur, quod contrarius (117. p. 105. 106.) credito ejus effectui status occurrit, quod noto opportunitatis statui (118.), noto noxarum excitantium, et auxiliorum, operi, idem discrepat (118. p. 107. 108. 109.), quod in eo doctrina traditur, ubi noxæ excitantes et remedia, causa et consilium, non solito modo (119. p. 110.) inter se opponuntur ; ubi nullum noxarum, nullum remediorum, commune opus, reperitur, contra omnia omnibus dissident (119.) ; ubi nihil novi, nihil proprii adfertur (120.), sed priores errores verbis dissimulantur, re adsciscuntur, et amplificantur ; non solum a febribus alienus, sed non omnino, esse (116. ad 119.) demonstratus est, abruptim tandem, tanquam res vera, obtruditur. Ecquid verum contra rationem claram, res certas, esse potest ? Ecquid Sydenhamus, ecquid generis humani decus Newtonus, dicendo, et non, ille curationibus efficacibus, hic demonstratione clara, fidem invenerunt ? An ultimum argumentum, το αυτος εφη, in rudi humanæ scientiæ statu, maximo in moribus viro male decenter adhibitum, tibi, scilicet, si diis placeat, adhibendum ? Quis tu es ?”

and in all countries, to which the Greek art of medicine had extended, almost without being called in question. They were errors of great antiquity, having been ushered into the world in the writings of Hippocrates : But since the days of this author and of Socrates, who both enjoyed the implicit belief and acquiescence of their hearers in most parts of their doctrines, no one, with the exception only of this author, has pretended to pass an inference from theory upon his readers or hearers for a fact. We need not repeat from what sort of theory it is an inference.

25. BUT, it is further here a matter of curiosity to observe, how completely our author gropes in the dark upon this occasion, which required the utmost illumination, and his, at least, having all his wits about him : He seems to be in the most perfect ignorance of what constitutes a fundamental fact ; which is not explanation, but proof : For, besides that such explanations as his are sufficient, instead of recommending, to damn any fact ; it must be recollected, that explanations of any kind must be banished from every fact, which is meant for the foundation of a scientific doctrine *. Gravity,

* Introd. p. 15. to the 25.

constantly acting upon bodies once put in motion, without being explained, is sufficient to explain the system of motions which takes place in the revolutions of the planets around the sun *. Excitability, acted upon by the exciting powers, without any explanation, also sufficiently explains the functions of life in every living being, animal or vegetable, upon this terraqueous globe. And, as the former proposition seems to extend to every solar system through the infinity of space; so the latter seems to be of equal universality, with respect to the kind of life, to which only it is applied. Sir Isaac, were he to return to his former state upon earth, would regret the occasion he inadvertently gave to the absurd explanations of gravity, which have so much confounded science since his death †. And, if any caution, any warning, can be sufficient to guard the minds of men from the indulgence in such abuses; instructed by that, and many other examples, the author of the doctrine of life has been careful to provide his followers with the proper cautions ‡: To a fact, therefore, extended no further than to serve as a fundamental proposition in explanation of the cause of fevers, no more was requisite than

* Introd. p. 43. to the 47.

† Introd. p. 16. 18.

‡ Introd. p. 43. to 45. 46.

to prove its truth and application to that extent ; which being done, all explanation, as it has no other effect but the bad one which has been pointed out, instead of being anxiously desired, was to be carefully guarded against. It is much to be regretted, that, in the avidity of mankind to grasp at systems of knowledge, they are hurried forward, by such a blind impulse, as almost never to consider either the extent of their own powers, that of the subject *, or the proper means of attaining their ambitious aim †. Here we have an instance of an attempt to establish the proximate cause of fever, or of “an endeavour to make an approach towards it,” by an author in perfect ignorance of the general nature of fundamental cause, and divested of every idea requisite to a proper conception of it.

26. YET, like a person completely bewildered in a journey, and proceeding, notwithstanding, in that direction which his deluded imagination suggests, till there is no end of his wandering ; our author, in his next step ‡, plunges into inextricable confusion, and engulphs himself in the profound abyss of the *vis medicatrix naturæ*. From the bottom of which

* *Introduct.* p. 39.

† *Introduct.* p. 15. 2d. par.

‡ *First Lines*, 37.

the words sent up are : “ How the state of debility produces some of the symptoms of the cold stage, we cannot particularly explain, but refer it to a general law of the economy, whereby it happens, that powers which have a tendency to hurt and destroy the system, often excite such motions, as are suited to obviate the effects of the noxious power. This is the *vis medicatrix naturæ*, so famous in the schools of physic ; and it is probable, that many of the motions excited in fever are the effects of this power.” This

Vis Medicatrix Naturæ

27. HAS been the most jaded being of all others : Sad has its task been among the sectarians in medicine, at all periods, since the first accounts of the profession. Old Hippocrates, whenever he was at a dead stand, and had exhausted all his skill, constantly left his cures to the *vis medicatrix naturæ*. The same being, or genius, of whatever gender you suppose it, or by whatever name you call it, was the chief dependence of the Stahlian physicians*.

* A sectary of physicians, who maintained, that the cure of diseases was to be intrusted to the wisdom of nature, or of the constitution. They were so named from their lead-

The corpuscularian physicians * depended upon it, as often as the remedies, suggested by their indication of cure, failed, which, we may believe, was not seldom. It made a figure in the doctrine, which taught, that *lentor*, or spissitude of the blood, was the cause of disease. And, as we might otherwise well suppose, the chemical system of physic, which referred all diseases to the prevalence of an acid or alkali in the fluids, would very frequently find great convenience in a reliance upon this pliant principle, or whatever it is to be called ; for I am utterly at a loss how to denominate it. Last of all, it is brought in, to act a part no less important, than that of producing the spasm, which is supposed to be the cause of fever, and, as we shall by and by see, of the sthenic pyrexia, or diseases, erroneously misnamed febrile ; while they depend upon a cause the very opposite to that which produces fever.

28. OUR author's embarrassment is here inexpressible. He is at a loss " particularly to explain

er, the celebrated Stahl, a professor of medicine and chemistry, in Berlin, in the beginning of this century.

* Another sectary of physicians, whose fundamental tenet was, that certain angular pointed bodies formed the diseased state, and that the changing their form to round, or ejecting them from the system, restored the healthy state. *Introduct.* 56. 57.

how the state of debility produces some of the symptoms of the cold stage." We would excuse him all this anxiety about explanation, whether general or "particular, if he had proved his proposition to be a fact." But, as we have proved it to be a fiction, it is no wonder that he should be at a loss to explain it. If it is often neither easy nor wise, to explain facts which are established upon the sure basis of certain proof, how great must the difficulty and folly be of the attempt to explain non-entities? The true phenomena of nature can never unite in proof of a thing which has no real existence in nature, in an *ens rationis*, a mere production of imagination. If the most fundamental proposition of the new doctrine be true, that we are nothing of ourselves, but in daily, hourly, and momentary, dependence upon external powers * : If our natural tendency is to death †, or the dissolution of that system, the living state of which is kept up by external powers acting upon the excitability (6. 10.): If we are weak and sickly, in proportion to the subduction of the external powers, or their ultimately excessive application ‡; and strong and healthy, in proportion to their application within a certain li-

* Outlines, 1. to the 5. 7. 9. 10.

† Elem. Med. 72.

‡ Outlines, 17. 24. 25. 26.

mit * : If no regard is due to the united testimonies of physicians, from their ignorance of the nature of the animal, as well as every other, living economy, and from the false notions into which their wrong method of cure could not fail to lead them : If the explanation of the same animal economy, according to the new doctrine, and the surprising efficacy of the remedies which it suggests, have proved, beyond a doubt, that morbid state always depends either on debilitating powers, whether of the direct or indirect kind, or on excessively invigorating and stimulant ones ; and that the hurtful effect of either set of powers is removed by the salutary operation of the other (7.) : If, in short, the healthy state takes place, because powers are applied, both proper in kind and in due proportion ; while the diseased state is occasioned by the deviations which have been mentioned ; and all that, without any visible interposition of any power in the constitution to alter their effect : Lastly, if neither in health, nor in predisposition, nor in the greatest number of diseases (for the *vis medicatrix* has been alleged chiefly, and almost only, to interpose in fevers), this imaginary power was ever once dreamed of ; and if no sort of proof has ever been brought of its real

* Outlines, 11. 13.

existence in any case : What credit is due to the assumption of such a power, instead of the solid proof, that a question of such importance as the cause of fevers, “after eluding the research of other physicians,” might be expected to rest on ?

29. THIS power, supposed to be inherent in the constitution, of correcting morbid tendency, and of possessing an influence tending to restore the healthy state, has, under different denominations, and in different degrees of its supposed energy, been interwoven in the composition of almost every system of physic. In the work of the fanatic Van Helmont, as a little genius enthroned on the upper orifice of the stomach, it gave laws to the whole system ; sometimes variously raising, at other times allaying, a state of commotion over all. In the language of Stahl, the same thing by a term, less ridiculous than that of the Archæus, was expressed by the wisdom of the soul, exercised in discerning between motions of salutary and hurtful tendency, and in providing accordingly for the safety of the system. It has been as variously considered, reconsidered, viewed in different lights, adopted, rejected, refuted, resumed, and defended again. But, while every criticism upon this doctrine from systematic reasoning, equally erroneous and remote from

the truth as itself, must, for that reason, fall short of a just refutation ; it is hoped, that

A Refutation of Stahlism,

30. “UPON right principles, as delivered in the first edition of the *Elementa*, will not be an ungrateful present to our readers. “There is in other animals, as well as in man, a certain propensity, appetite, and antipathy. Hence arise many desires, many aversions. Rest is the object of desire to a person fatigued, and labour the pursuit of one who is languid with inaction. The desire in hunger is for food ; after fullness, loathing takes place of appetite. Thirst begets an ardent desire for drink ; and the quenching of the former produces an aversion to the latter. A person, when cold, wishes for heat ; when hot, for cold. When one is tired with thinking, his propensity is to amusement ; when sated with amusement, his bent is upon thinking again. One inflamed with anger, hatred, or love, is roused to revenge, mischief, or the endearing embrace ; and he becomes heavy and inactive when these passions are satiated. These things happen without any exertion of reason or of wisdom, and even without consciousness, or any judgment of the end, good

or bad ; nay, they happen in spite of a man. They arise from a certain feeling, more or less distinct or obscure, of the present condition of the body," as being more or less pleasant or disagreeable. "They are not a consequence of the superintendence of a thinking faculty ; their only cause being a certain conformation of the animal frame, producing in it a disposition to them," "different, as the conditions are different. Nobody owes his desire for food to the intention of being nourished, of preserving his health ; that," instead of a cause, being only an "effect," which "we come to the knowledge of by education and experience : The object" of appetite "is to remove an ungrateful, and acquire a grateful feeling : Reason, therefore, and judgment, have no concern in this operation. The whole is governed by blind instinct, arising, by a law of necessity, from the state of the system. But the action of even that instinct is not exactly right in any part of its operation ; or, if it were, no disease, no predisposition, would take place for a great part of life." Under a proper action of the instinct, "the desire for the exciting powers, as well as their application, would be so perfectly exact, as to prevent aberration into either extreme. There would be no excess" in their application, so as to lean, "in its effect, to sthenic diseases, or a predisposition to

these: There would be no" ultimate excess, or "defect, so as to produce a tendency to the other form of diseases or predispositions. By an operation of the exciting powers, most perfectly accommodated to the safety of the constitution, the exhaustion of the excitability would proceed in a gradual, uniform, and gentle manner, and, as it were, by" stolen and "silent steps." A long time would this process "go on, and, at last, without an effort, without a struggle," without a pang, "gently and calmly give way to a late termination in death. Widely different is the" true "state of the fact: There is scarcely one instance in ten thousand of a life spent throughout, according to the description just now given." The event, with respect to all the rest of mankind, bears testimony to the mistake of the doctrine, which maintains, that the motions of the system are directed by a wise intellectual power.

31. "BUT neither is there any proper measure observed in this blind instinct, these vague appetites. The desire for the exciting powers, as well as their application, is" sometimes "in excess," sometimes in "under-proportion. What is luxury, but an immoderate desire for food, drink, deserts, venery, and other elegant gratifications? What is indo-

lence, but an aversion" in some "to what is so agreeable to others, corporeal motion, in consequence of inactivity, and still more from habitual inaction," or sedentary life? Who governs his passions as he ought? How often is cold, how often is heat, hurtfully applied, without the consciousness of the person affected? Few even taught by experience; are such masters of the golden mean of mental exertion, as not to hurt themselves sometimes by an excess, sometimes by a deficiency, in it. Yet all these are a perpetual and daily source of diseases and predispositions."

32. "IN none of them, however, does the wise governing principle interfere to prevent the hurtful effects. Why does it come to the relief of health when brought into danger, and not with the first opportunity? Why does it step forward to obviate ultimate danger, and not rather prevent the first tendency? Every day excessive indulgence in food, in conjunction with other hurtful powers, paves the way to sthenic diseases, or actually produces them: while abstinence has, as often, the same effect, with respect to asthenic diseases and predispositions. As the wisdom of the mind does not prevent, but, on the contrary, permits, the commencement, increase, and completion, of all diseases to take place, through

all the intermediate degrees, from their minutest origin, to the last part of their progress : In order to prevent them, what hurt will it do to lower or increase the aliment," either in quality or quantity ? Are we not, what by medical, what by moral precepts, to make head against luxury and sloth, which, from excessive or deficient excitement, directly or indirectly, occasion the greatest number of diseases among people in polished life ? Again, are we to allow cold, labour, and low diet, which have at all times, and in all nations, affected the poor with diseases of direct debility (15. 16. 17.), and still do affect them, to proceed, without checking the havock they make ? and are we to set no plan on foot to prevent such havock ? It will be granted, that diseases are to be prevented ; and, if so, there will be seldom use for the judgment of the wise intellectual directrix, even in the health-bringing piles."

33. "FURTHER, if the same powers, which produce the predispositions which have been mentioned by a lesser degree of their action, by a greater produce diseases ; does any objection to the removal of them, in the same manner, arise from sound reason, or from a practice of cure, warranted by any sort of success ? If there is an appetite for food, which is often the case in sthenic diseases, must

food, for that reason, be given? And are we to suppose, that the attention, which proved of service in the predisposition, will prove hurtful when disease has taken place; and," on the contrary, "will not now be even absolutely necessary? Are we not to let blood in a peripneumony, and that liberally? And, because" the use of "that" remedy "may be often superseded in slighter affections of that sort, should a person, who labours under a cold, an inflammatory sore throat, indulge in banqueting with the Lord Mayor and Aldermen of London upon some high occasion of festivity, and not rather stay at home, and fast, sweat, take a purge, and use other proper means? Nay, if a rich and full diet, in conjunction with other hurtful powers, produces the hæmorrhoidés or piles itself, and low diet prevents the disease from coming on *, must the latter

* This is rather a mistake, which, at the time he wrote the first edition of the *Elementa*, the author had not yet fully corrected. He remained still so much in the old opinion, with respect to the bleeding diseases, as to allow them to be sthenic in their first attack; though, even then, he perceived, that they soon degenerated into asthenic diseases, and that, indeed, as early as the first evacuation of blood, either by the lancet, or disease. Since that time, however, he has completed the correction of the pernicious theory respecting bleeding diseases; having found them, in their state of predisposition, and through their whole

among other remedies, be omitted, and the former indulged in, that an opportunity, forsooth, may be given to the wisdom of the intellectual faculty to prevent other diseases, by increasing and keeping up this" very nasty and troublesome "one? God forbid! would be the voice of common sense. In the same manner, must the small-pox and measles be left to the nod of this governess of" human "health, and nothing be granted, in the former to cold, and in the latter, to antiphlogistic regimen *? Must loose reins be given even to the rage of mania †, to humour this wise directrix? And, whether it was occasioned by intense exertion in thinking, or by drunkenness, or by unaccustomed sobriety succeeding to this, or by grief for disappointment in any great expectation, or by other means

course, to depend upon penury of blood, and debility from that, as well as all its other sources. He admits, indeed, that an over-proportion of blood, as well as of any other hurtful power, may produce the commencement of these diseases; but the moment that takes place, he has shown, that all is debility, and the cure only stimulant.—See above, 46.

* That cold, and the other parts of the antiphlogistic regimen, are equally the proper plan of cure for the measles as for the small-pox, has been one of his many discoveries since he wrote this.

† Or madness.

of excess or defect” in the application of the exciting powers : “ Are we to attempt no management of an opposite nature to the effect of these” hurtful powers ?

34. “ LIKEWISE, in the gangrenous sore throat, in the typhus fever, in the plague itself, which are forms of fever occasioned by debilitating powers preceding them depending upon debility as their cause, and cured by stimulant” remedies ; “ are we to discharge the patient from the use of the latter, because this governess, which watches over the health of the system, does not give the signal ? And must even beef-soup, and wine,” because the patient does not desire them, not be given, to fortify the system against the duration of the disease, to prevent its increase, and to provide, by such and other proper management, against future consequences ? If a considerable stimulus of this sort is necessary to the life of a robust, sound person, is a lesser stimulus to be denied to persons very highly weakened, and therefore in so much more need of it ? If all life depends upon stimulus *, and if deficiency of it is a most plentiful source of diseases †, are we not, in”

* Outlines, 5. 7. 8. 9.

† The diseases arising from this source, as well as from ultimate excess, though never discerned by physicians, are

all “these, to give as much stimulus as possible ; and the more, for this reason, that, besides reasoning, certain fact has established its utility ? If luxury and sloth, by stimulating in excess for a long space of time, but in an agreeable manner, and then, after exhausting the excitability passing into indirect debility, can be proved to produce the gout, the indigestion of old persons, asthma, epilepsy, palsy, and apoplexy, and in that way to conduct most rich men and others to their graves : and if reason and experience have shown, that stimulants sparingly given, and not directly debilitating powers,” according to the established practice, “are the” proper “remedies : Must we also forbid the” moderate use of the “former, because persons, who have been accustomed to them, cease not to long for their use in an hurtful excess ? In fine, if there are bleeding discharges, depending upon debility, often arising from sthenic diseases *, converted into those of an opposite nature, by” means of “indirect debility, and sometimes occasioned by direct debility : If rheumatism, and other sthenic diseases, accompanied with inflammation of a part, often pass

in the proportion of ninety-seven out of the hundred, to all the rest of the diseases incident to humanity.

* What the author now calls sthenic, are diseases arising from too much stimulus.

into" those of "an opposite nature; and if affections, similar to these, often arise from another source, which is not sthenic: In all these cases, because bleeding, and an antisthenic plan of cure, which were the proper remedies in the" sthenic "cases, do not suit the asthenic, as we readily grant," though "in contradiction to the common practice; must we also not proceed, to a certain extent, in the use of stimulant remedies, to which experience has also given its sanction, and enjoin a tonic diet and exercise? Lastly, to omit nothing of consequence in the" whole "circle of diseases; if all the debilitating hurtful powers are concerned in the production of dropsy," considered as "a disease of the whole system", and if" no remedies, but "stimulant prevent, and, unless it has gained ground by neglect, remove it; are we also not to attempt its cure, as often as that is in our power? Or, should we rather wait till death comes on, which, without the interposition of medical aid, would certainly happen, and then lay the blame," not "upon" want of wisdom in "the governing principle," but upon its "being overpowered?"

* There are collections of water from local causes, which are to be considered as local; and therefore essentially different from universal disease. Outlines, 37. 42. 71. to 78. 134.

If perfect health, in every respect, seldom happens to mortals ; if the stimulus of the powers applied to the system, are seldom so wisely adapted to it, as to prevent its producing either excessive or deficient excitement ; and if, therefore, every deviation, from the most perfectly sound state, in either direction, is the same in kind *, as” that of the most violent disease : Will not any” reasonable “ person grant, that every power,” allowing for a moment that there is such, “ whether corporeal or mental, should equally interpose at the most early commencement, as at the extreme termination,” of the morbid state, or more so, and cure the affection rather at that period, when it is easily overcome, than at that, when it is difficultly, or not at all to be, removed, and” thereby “ prevent its rising to actual “ disease ?” But, as matters have hitherto gone under the direction of this “ intellectual governess of the motions of the system, is not her wisdom, like that of a governor, who deserts his garrison when the arms of an enemy thunder around it, and keep it under an accurate blockade, and then steps forth after it is stormed, in the very act of surrender ? Your answer to all this, Dr Stahl,

* Elem. Med. 9. 10. 52. to 60.

or that of your pupil Juncker, if either of" you have any to make*.

35. IT is hoped, that this refutation of Stahlism is the more complete, that it is not, which has

* Dr Stahl did not give his works, either medical or chemical, in writing himself, but attested copies of both, done by Juncker.

94. "Est in animalibus aliis et homine impetus quidam, appetitus, et aversio. Hinc multa cupiuntur, a multis animus abhorret. Fessus quietem, hoc languens laborem, quærit. Jejunus cibum desiderat, satur fastidit. Sitiens potionem ardet, extincta siti, poculum rejicit. Frigidus calorem, frigus calidus, expetit. Cogitando lassus ad oblectationem ruit, cujus pertæsus illam rursus repetit. Ira, odio, amore, flagrans, ad ultionem, maleficium, dulces amplexus, concitatur; quibus expletis adfectibus, hebescit, quiescit. Hæc, nulla ratione, nedum sapientia, ac ne quidem mentis conscientia, aut ullo finis, boni, mali, judicio, ulla salutis cura, quin et invito homine, fiunt. Quodam corporis conditionis præsentis, jucundæ aut injucundæ, sensu, clariore, obscuriore, nascuntur. Non præside mente, tantumque fiunt, quia fabrica animalis ita conformata est, ut eam conformationem, sub alia conditione aliter, necessario consequantur. Nemo sua sponte cibum eo consilio desiderat, ut corpus alatur, ut valeat; qui effectus tantum disciplina aut experientia cognoscitur, sed, ut injucundum sensum amoveat, jucundum assequatur. Ratio igitur et prudentia ab hoc opere abest. Totam regit cæcus impetus, e corporis statu, necessitatis lege, fluens.

95. Sed ne hic quidem, in ulla operis sui parte, recte prorsus agit; aut, si ageret, nullus morbus, nulla in hunc

been the case in all former attempts, a criticism upon an erroneous system from false principles, but a complete exposition, naturally arising from a just view of the animal economy, either in its sound or

opportunitas, per magnam vitæ partem, existeret. Ad amussim potestates incitantes adpeterentur, adpetitæ admoventur, ut in nutram partem incitatio inclinaret; non superaret, et ad morbos sthenicos vel eorum periculum vergeret; non deficeret, et in alteram speciem sive morborum sive opportunitatum deflecteret. Sola incitabilitas, aptissimo saluti potestatum incitantium opere, paulatim, æqualiter, leniter, et tacito quasi gradu, post longum tempus, exhausta, absque nisu, absque lucta, placide et tranquille demum, seræ morti cederet. Sed longe aliter res se habet. Ne singuli e denis millenis sic agunt, sic exigunt, vitam. Reliqui omnes doctrinæ, sapientem mentem corporis motus dirigere tradentis, errores, testimonium certum dicunt.

96. Nullus cæci impetus, vagorum adpetituum, modus servatur. Adpetuntur pariter et admoventur potestates, aut nimis, aut parum, incitantes. Quid est luxus, nisi immodica cibi, potionis, secundæ mensæ, veneris, et aliarum voluptatum elegantium, cupiditas? Quid est desidia, nisi a motu corporis, quo alii adeo delectantur, abhorrens per inertiam, magisque consuetudine quietis, voluntas? Quis, ut decet, animi adfectibus moderatur? Quoties frigus, quoties calor, non conscio qui adfcitur, nocenter admoveatur? Pauci vel experientia docti, auream mentis utendæ mediocritatem adeo callent, ut non, quandoque nimis, sæpius non satis, cogitando, sibi noceant. Quæ tamen omnia perpetua et quotidiana morborum et opportunitatum origo sunt. Cur saluti labanti, et non quam primum, illa sapientia succurrit; cur extremo discrimini et non primo se

morbid state. The former sort of animadversion is only a comparison of one false doctrine with another : the latter is a comparison of error with the truth ; the former is a measurement regulated by

opponit ? Cibi quotidie supra verum indulgentia, cum aliis noxis excitantibus, ad morbos sthenicos ; abstinentia ad asthenicos, viam vel ipsos, facit, factos auget. Cum id sapiens animus non prohibeat, contraque, omnes morbos a primo semine ad extremum fructum nasci, crescere, et maturescere, sinat ; quid, ad iis occurrendum, alimentum, prout res postulet, imminuere vel augere, nocebit ? Annon luxuriæ, annon desidiam, quæ, aut nimis, aut parum, recta, eventu, incitando, maximam apud mortales, in vitæ cultu ævum transigentes, morborum turbam concitant, qua medicis, qua veri præceptis, obviam eundum ? Rursus, quæ omni tempore, in omnibus gentibus, pauperes rectæ debilitatis morbis implicuerunt et implicant, frigus, labor et victus tenuis, an impune grassari sinenda, et prohibendi effectus eorum ratio nulla instituenda ? Prohibendos morbos dabitur. Et, si dabitur, mentis sapientis consilio, etiam in salutifera hæmorrhoidæ, rarius opus erit.

97. Porro, si eadem, quæ opportunitates relatas (96.) actione minore, morbos majore, faciunt (29. 32.) ; quæ ratio bona, quæ felix curatio, similiter, ad eos solvendo, insistere vetat ? Si cibus, ut sæpe, in sthenicis morbis desiderabitur, an ideo dandus erit ; et, quæ cura in morbi periculo profuit, ea, hoc jam facto, nocitura, et non etiam nunc demum necessaria futura, credenda ? An sanguis in peripneumonia non mittendus, fundendus ? Et, quia ejus missioni in levioribus ejusdem notæ morbis sæpe superse-deri potest, an cum Consule et Prætoribus Londinensibus festo tempore illi epulandum, qui catarrho, qui cyananche

an erroneous, the latter by a just, standard. And even in that false point of view, all former animadversions upon this doctrine of a wisdom in the constitution governing its actions, were necessarily par-

tonsillari, laboret, et non domi jejuno manendum, sudandum, alvi purgationem subeundum, et convenientia alia facienda? Quin et, si ipsam hæmorrhoida, cum aliis noxis excitantibus, victus lautior, conjuncto opere, faciat, tenuis futuræ occurrat; an hic inter alia auxilia ideo omittendus, illi indulgendum, ut mentis, si diis placeat, sapientiæ, hunc morbum augendo, servando, alios prohibendi occasio detur? Sensus communis, dī meliora velint, precaretur. Pari modo, an variola, an rubeola, præsidis huic salutis nutui relinquenda, nihilque in illa frigori, in hac curationi antisthenicæ, tribuendum? An ipsius manix furori, ut sapienti reatrici mos geratur, habenæ laxæ permittendæ? Et, sive cogitandi contentio, sive ebrietas, sive post hanc insolita sobrietas, sive animi, magna spe dejecti, dolor, sive alia eam, nimis aut parum incitando, fecerint; illis contraria administratione nihil attendendum?

98. Item in cynanche gangrænosa, in typho, in ipsa peste, quas febris formas debilitantia antecedentia faciunt, debilitas causa continet, stimulantia juvant; an his ægrotanti, quia signum non dat illa saluti invigilans imperatrix, interdendum, et vel jusculo bovino vinove, quei, in morbi debilitantis longitudinem, mature vires muniantur, crescenti malo occurratur, et in futurum prospiciatur, quia non desiderantur, abstinendum? Si robusti, sani, vitæ magnus hujusmodi stimulus necessarius est, an minor, summopere debilibus, eoque magis illo egentibus, negandus? Si omnis vita in stimulo posita est (6), isque deficiens numerosa morborum origo; an in his morbis, quantum stimuli adjici potest, non

tial and limited. The complete rejection of Stahl-ianism would come with an ill grace from any sectarian hitherto, who, upon the most urgent occasions, had often nothing else to depend upon for

adjiciendum, eoque magis, quod, præter rationem, talem usum certa res firmavit? Si luxus et desidia, diu nimis, sed jucunde, stimulando, dein, post longum fere tempus, exhausta incitabilitate, in noxam, eventu debilitantem (20.), transeundo, podagram, dyspepsiam senilem, item asthma, epilepsiam, paralytin, et apoplexiam, facere, eaque via ple-rosque divites et alios ad tumulum deducere, demonstrari possunt; et non recta debilitantia, sed parcius stimulan- tia, auxilio esse, ratio et experientia confirmavit: An his quoque, quia per consuetudinem nimis et nocenter stimu- lantia adepti non desinunt, obsistendum? Denique, si san- guinis profluvia sunt in debilitate posita sæpe a sthenicis, in contraria per indirectam debilitatem (20.) mutatis, ali- quando a recta debilitantibus noxis (22. 23.), oriunda; si rheumatismus, et alii cum inflammatione partis morbi sthe- nici, haud raro in contrariam naturam transeunt, iisque si- miles adfectus, sine sthenica origine, aliunde sæpe nascun- tur; ut sanguinis detractio et curatio antisthenica, quæ in illis responderunt, his non convenire, contra vulgatum usum, facile hic conceditur, ita stimulantibus, quæ experi- entia quoque probavit, auxiliis, quodam tenus insistere, et tonicum victum cum exercitatione præcipere, etiam non op- portebit? Postremo, ut nihil, in morborum orbe, paulo memorabilius, præteratur, si omnes noxæ debilitantes hy- dropem, idiopathicum intellige, faciunt, stimulantia prohi- bent, et nisi neglectus invaluerit, solvunt: an huic quoque mederi, quoties facultas erit, non tentandum, potiusque mors certa expectanda, et in oppressam præsidis sapienti-

making out his cure. Hippocrates, as we have said *, often professedly relied upon it. The feeble attempt of his immediate follower Hierophilus †, and the scarcely more effectual one of Galen, to increase the number of articles of cure, by no means superseded the demand for the vis medicatrix. It is not to be expected, that the success of the professedly irrational and unprincipled practice of Serapion, and his empirical followers ‡, would be above the occasion for recourse to it : And, though Asclepiades borrowed his proximate cause, as well as his indication of cure, from a philosophical system, which denied the interposition of an intellectual principle in the government of the universe, and

am culpa conferenda ? Si solida ab omni parte valetudo raro mortalibus contingit, raro rerum, corpori incumbentium, stimulus ei tam apte accommodatur, ut aut non nimis, aut non parum, incitet, coque omnis, a sanissimo statu in utramvis partem, recessus, idem genere status est ac gravissimus quivis morbus ; nonne omnem facultatem, sive corporis sive animi fit, primis principiis æque, ac extremo fini, magisve, interesse, maloque tum potius, cum facile, quam sero demum, cum difficile, superatu, aut omnino insuperabile, est, mederi, et justo occurrere morbo, debere concedes ? Nonne regentis corpus mentis sapientia ejus præfecti similis est, qui, circumtonantibus hostium armis, arcta obsidione clausum præsidium deserit, in expugnato demum, et media deditione proditurus ? Si sit quod ad hæc respondeas, respondi Stahli, aut jube Junckerum.”

* Outlines, 68. 75.

† Outlines, 68, 69.

‡ Outlines, 78.

which, therefore, did not naturally lean to that supposition in the animal economy, or individual living systems; at the same time, no such light could arise from this erroneous modification of medical doctrine, as to lead to the conclusion which we here mean to establish. Whatever was their reasoning, the appearance of the fact, though false, and such as had deceived so many others, could not fail to influence them in the belief of its reality in one point of view or other. The mechanical explanations of the functions of the animal economy, which arose upon the discovery of the circulation of the blood, all led to such false and imperfect views in the several modes of cure, as to create a necessity for the belief in this principle. If, upon mechanical principles, the blood, according to a notion which has been very general among them, determined its motion in different directions, and thereby produced diseases, and, at other times, assumed opposite directions, and thereby effected their cure: What was all that, but assuming the fact, only denying its cause as originating in wisdom and intention? It was plainly saying, which was worse than saying nothing, that the system was so made, that the mechanism of the animal economy was such, as to possess a power in itself, independent of those to which it is now demonstrated its ordinary actions

are owing, of sometimes inducing diseased state (for they had their *vis destructrix*, according to the barbarous language of some of them, or their *vis morbifica*, as well as their *vis medicatrix naturæ*), and, at other times, of repelling it, and reproducing the healthy state. In this there was no difference; it was still the *vis medicatrix naturæ*: Only the other was a rational, this a mechanical, *vis medicatrix*. The indication of the chemical practitioners to cure a morbid state, consisting in acidity, by alkaline substances; or, when the morbid fault was alkaline, by acid means, could never inspire even them with a persuasion, that it could go any length, without great help from the *vis medicatrix* *. The same reliance on which was equally necessary to the Corpuscularian doctors, and therefore equally unavoidable. Boerhaave's lentor, his acrimony and projectility of the blood, as well as all the other morbid states, which that celebrated eclectic author borrowed from other doctrines, led to nothing so complete in the curative part, as to furnish the most obscure conception of the principle held forth in the new doctrine; that health, disease, every deviation from the former, every approach to the latter, through all their varying degrees, arise from the

* Outlines, 70. 71.

operation of the exciting powers upon the excitability *. And although Dr Sydenham, in the few sthenic diseases to which his mode of cure was imperfectly adapted, had proportionally less occasion to take up the hypothesis of a vis medicatrix naturæ; yet his equal ignorance of asthenic diseases with every other physician, rendered him, in every one of them, equally obnoxious to that otherwise universal delusion. Accordingly, no medical work is more crammed with it than his. In short, it is only a perfect acquaintance with the true nature of life, which can open the eyes of practitioners to the perception of an absurd piece of theory, which, under the pretence of a venerable fact, has, at all times, run away with all their senses.

36. WHILE such is the universal reception which has been given to the vis medicatrix naturæ, and such are the lights in which it has been viewed, and the various uses in practice, as well as theory, which have been made of it; in returning from a long, but, we hope, useful digression on that subject, to

The Continuation of the Subject of Spasm;

37. WE have next to observe, that the application, with respect to it, of the vis medicatrix natu-

* Outlines, 72.

ræ, is an addition to the variety of uses which have been made of it. According to most authors, it was an effort of some power or other, such as we have mentioned, to relieve the system from the oppression and tendency to death which disease induces: According to our author, it is the cause of spasm, which is the cause of the disease. In their view of it, the effort only took place after the disease was so much advanced in its progress, as to threaten immediate danger to life: In his, it occurs before the commencement of the disease, that is, before the arrival of the cold stage, which he considers as the beginning of the disease: For he will surely not allege, that the disease is begun before the spasm is formed, that is, that an effect can precede its cause. Here, again, we have occasion to turn the attention of the reader to his supposed pre-existent state of debility, by observing, that as debility, only by means of the vis medicatrix, produces the spasm; and as the spasm is the cause of the disease, consequently the debility, as a part, or "state," of the disease, has no existence. It is only a circumstance, or part of the cause, concurring with another circumstance, or another part of the cause, the vis medicatrix, to form the whole cause. Till this, therefore, that is, the whole, the complete cause, takes place, it is evident, that no part of its

effect can take place ; and, therefore, that a state of debility, supposed to be one of these parts, is, from his reasoning, to be held as no part of the disease.

38. HE next observes, that, “ by a general law of the economy, it happens, that powers, which have a tendency to hurt and destroy the system, often excite such motions as are suited to obviate the effects of the noxious power.” This proposition has received its sufficient answer in the refutation of the hypothesis of a *vis medicatrix naturæ* in every one of its statements, and particularly in that of Stahlism. But, to take this absurd supposition out of the way for ever, we would ask, What the powers” are which “ have a tendency to hurt and destroy the system,” and which “ excite such motions as are suited to obviate the effects of the noxious power ?*”

“ The powers which, upon any occasion, operate on us, have been enumerated †, and are known ; and the question is, which of them are here meant for hurtful ones, which, in either excessive or de-

* The reader would expect, here, to read, “ excite such motions as are suited to obviate *their own effects*.” This professor’s language is far from being accurate, or even proper ; but it is good enough for his matter.

† Outlines, 2. 3.

ficient application, they may all be? I would ask a single instance of any one power operating with hurtful tendency, and, in the progress of that operation, converting its hurtful effect into a salutary one.

39. By taking nourishing food, and a proper quantity of generous drink, one will be strong: ultimate excess*, or too little†, will weaken him: But when weakness has once been induced, Is there, in the whole records of human observation, or in the whole collection of daily experience, a single example of an acquisition of strength, while the debilitating power continued? Did ever a man, who had been accustomed to live well in eating and drinking, after dropping that diet, and weakening himself with the contrary, so long as he continued the practice, become strong again? In what circumstances of diet was it, that the students of medicine used to run about the streets of Edinburgh, and break lamps? Was that riotous activity the effect of eating vegetables, and drinking water? Were

* Elem. Med. 124. 125. 126.

† Elem. Med. 128. et post hunc manu scribe, "Sed et iidem adfectus e nimio ad extremum idone materiae cibo (124.), reliquorum omnium, sic supra modum stimulantium more; ut et inedia, nascuntur."

the poorer kind of students of divinity restrained, by the sublime precepts which the subject of their studies inculcates, or by want of the means which produce high spirits and inordinate effort, from following the same practice? If any number of persons, addicted to rioting, were kept upon bread and water for ten days or upwards, Would that propensity still remain? The operation, in this case, is a debilitating one; so is that which is said to arouse the high efforts of the *vis medicatrix*; so, our author says, is that which produces his spasm: But where, in the former, are the proofs of high effort, of increased motion or vigour, call it what you will? There are, as will readily be perceived, none: But, according to the fundamental proposition of the new doctrine, the debility of all the functions goes on, increasing in proportion to the degree of debilitating operation applied: Neither are there any in the latter, since what has been mistaken for increased action, or motion, or, according to his strange language, reaction, is proved to be, in reality, diminished vigour; all the remote causes being debilitating, and all the remedies, proper either in kind or proportion, stimulant*; while the only marks of judgment commonly employed, those

* Outlines, 85. Elem. Med. 654. 655.

taken from the appearance of the symptoms, are demonstrably false* : so far, therefore, as the review of the debilitating powers, under our present consideration, goes, debility, which has no tendency to produce vigour in the course of diseases, is equally devoid of that effect in the formation of their cause.

40. LET us prosecute the same inquiry in the consideration of morbid state, as it arises from cold : Cold is not stimulant, according to one, nor tonic, according to another, nor astringent, according to a third, supposition ; but, on the contrary, always and directly debilitating †. If, after it has been evidently applied, a state of vigour ever arises, such a state is not the consequence of the cold, but of the application of stimulant powers preventing its debilitating effect ; or it is the effect of cold, moderating, by its debilitating operation, the excessive stimulus of heat, and of other stimulant powers ‡. Widely different from this is our author's account of cold, in the following assertions : “ The operation,” says he, “ of cold on a living body, is so different, in different circumstances, as to be of difficult explanation ; and this, therefore, is

* Outlines, 41. 43. to 46.

† Elem. Med. 117.

‡ The full account of the operation of cold is given in the *Elementa Medicinæ*, from the 117th to the 124th paragraph.

attempted with some diffidence." The reader will not wonder at his diffidence, when he proceeds to say, that "cold, in certain circumstances, has manifestly a sedative power * : It can extinguish the vital principle intirely, either in particular parts, or in the whole body ; and, considering how much the vital principle of animals depends upon heat, it cannot be doubted, that the power of cold is always more or less directly sedative." This, then, is one operation which he assigns to cold in his usual way of mere assertion, without either proof or reasoning : " But," continues he, " it is equally manifest, that, in certain circumstances, cold proves a stimulus to the living body, and particularly to the sanguiferous system †." Not content with assigning to the same power two diametrically opposite effects, with the same breath he gives it as many more : His words are, " And, besides the sedative and stimulant power of cold, it is manifestly also a powerful astringent, causing a contraction of the vessels on the surface of the body, and thereby producing paleness, and a suppression of perspiration. It is likewise probable, that this constriction is communicated to the whole body, and that there-

* The sedative effects of cold are clearly refuted in the paragraphs referred to, and in paragraph 21.

† First Lines, 79.

by the application of cold proves a tonic power with respect to the whole system *.”

41. THIS is a fair specimen of our author's reasoning upon most occasions. Cold is the same, and a given power, and, with respect to living systems, should possess the same, and a given operation: But here, to one and the same power, four different, and some of them diametrically opposite, operations are assigned. We have already asserted, that it is always a debilitating power; and, whatever dispute there might be about the possibility of sedative operation in some powers, such as contagions and poisons, with the mode of operation of which we have no acquaintance, in the operation of cold there is none. Upon dead and living matter equally, the action of the temperature is always in exact proportion to its degree. Upon living systems, and therefore the human, that degree of its action, which we call moderate heat, is absolutely necessary to the healthy state. Rising considerably above that, it produces diseases of too much vigour, to which we give the name of *sthenic*, as we do that of *asthenic* to those of debility. In these it is, that a still higher, or an ultimate excess of heat has the

* First Lines, 89.

indirect effect of producing the cause debility ; as in the Torrid Zone, and other hot countries : Again, falling below the health-giving point, at which part of the scale, mankind, from their feelings, have agreed to give it the name of cold, temperature produces the same diseases by a degree of debility exactly proportioned to its degree. In this degree of its operation, however, it still stimulates, only in a degree not sufficient to health and agreeable feeling. Somewhere betwixt sixty-two and sixty-four of Farenheit's thermometer, there is a point of temperature, which is agreeable to our feelings, and exactly adapted to our healthy state. Every lower degree of its stimulus falls short of that effect, till death becomes the consequence of an ultimate diminution. When that happens, and the action of temperature is too low to support human life ; that it is not however sedative, but, on the contrary, still stimulant, is proved, by the animals of cold blood being, in the same degree, still able to support, not only their living, but even their healthy state ; which the temperature can only do by its stimulus as heat. While, therefore, this is the true state of the fact, in direct contradiction to that asserted by our author, at the same time, in no part of the range of scale (from the health-giving agreeable point of temperature, down to that at which animal life is no

longer supported for want of stimulus, and not destroyed by the positive operation of a sedative), is ever action increased in consequence of its diminution. If the reddening of the face under exercise in cold weather, the bracing of the scrotum by cold washing after its relaxation by heat, and the relief of fevers in the Torrid Zone, and in other similar situations, should be adduced, as so many instances of stimulant effect, arising under the operation of cold: The answer to the first of these appearances is, that it is owing to the impulse communicated to the blood-vessels by exercise *, to which, from the nature of their constitution, men have a propensity, in order to get rid of the disagreeable feeling of cold †: But, without that, or some other stimulus, cold would proceed to death, without producing an invigorating effect; and its application, either to a part, or the whole body, in an overheated state, is a reduction of the excessive temperature, which induces relaxation and debility to its stimulant range. For example, if the external temperature, instead of remaining at the middle healthy point, should mount up ten degrees higher; and, at the same time, a degree of cold, as much below the same

* This is explained in MS. after 137.

† See the refutation of Stahlianism.

middle point, conveyed in a dense medium, should be applied, the only result would be a subduction of ten degrees of heat, not an addition of ten degrees of that temperature, which is called cold. This is the true state of a fact, the mistake of which has produced the most pernicious applications to practice. In the cure of the fevers of the Torrid Zone, there is no access to real cold; the best which can be done there, is to diminish the faulty excess of heat. The contrary explanation, however, has proved the death of thousands; nothing having been more common of late, than, in the severest winter weather of this country, to open windows, put out fires, and leave no more covering, than a single sheet, upon a patient expiring under debility. While temperature, therefore, acts as cold, that is, in all its degrees under the middle point betwixt the extremes of heat and cold, it is never followed by stimulant effect; its only effect is debility, constantly arising in a degree proportioned to that in which the cold is applied. Its operation, therefore, in diseases of debility, as in the confluent small-pox *, the gout †, chronic rheumatism ‡, and fevers, is hurtful in the same proportion in which it is ser-

* Elem. Med. 669.

† Elem. Med. 595. 613.

‡ Elem. Med. 583.

viceable in diseases of excessive vigour ; such as the distinct small-pox *, acute rheumatism †, inflammatory pyrexia ‡, and catarrh, or the common cold §. The truth of all this can be ascertained by a very short and simple experiment. Let any person, who denies it, sit down in the present hard frost, upon a cold stone, in the open air, stark naked, and wait till the *vis medicatrix* strikes up a heat in him ||. From what has been said on the operation of cold, it follows, with all the clearness of demonstration, that it is naturally and constantly debilitating ; that stimulant effect takes place in no part of it ; and that no inference, in favour of a *vis medicatrix*, can be drawn from a just estimation of the action of cold as a hurtful power to living systems. Its supposed tonic power is upon the same footing as the stimulant ; it being never cold, but some stimulus, such as that of heat, succeeding to it, or alternating with it, and prevailing over its debilitating energy, which produces any thing like that state of vigour called tone. Its astringent operation is only true with respect to dead matter, which it constricts, over

* Elem. Med. 374.

† Elem. Med. 387.

‡ Elem. Med. 347.

§ Elem. Med. 407.

|| Before that happened, it is likely that death would convey the surviving part of him to a place where his situation might, perhaps, be hot enough.

all nature, in proportion to its degree, but is altogether a false application of an action of cold to living matter. The paleness and shrinking of the surface, which are the only marks that ever could be taken of the astringency of cold, are perfectly explicable by its debilitating power, impairing the action of the vessels in their extremities, without having recourse to an operation on dead matter in explanation of one exerted on that sort of matter in nature, which is totally under the influence of excitement*.

42. As we have found certain proof of no stimulant operation arising under a debilitating one, in the hurtful powers which we have already considered; so, neither shall we find any in those of which we have next to speak. Accordingly, though loss of blood, and of other fluids †, want of corporeal ‡, or mental, exercise §, a low state of passion ||, which are all directly debilitating powers; and the

* Elem. Med. 62. MS.—Outlines, 52. to 58.

† Elem. Med. 134.

‡ Elem. Med. 137. MS. 138. “*Nimia exercitatio vel salutari gradu minor, debilitat; illa, nimio stimulo incitabilitatem consumendo; hæc, necessarium corpori surripiendo,*” &c.

§ Elem. Med, 139.

|| Elem. Med, 142.

same powers in ultimate excess, as well as his “intemperance in drinking, and excess in venery *,” which are debilitating indirectly †; though all these both beget predisposition to diseases of debility, and give birth to them; yet, in no part of the progress of that operation, can any stimulant operation be discerned. Among the worst fevers, are those which originate from grief, fear, and despondency; of which the two last are justly held, by every judicious practitioner, as symptoms of evil import; which is the reverse of “their exciting such motions, as are suited to obviate” their own “hurtful effect †.” It is certain, then, that “the vis medicatrix naturæ,” whether “famous” or infamous, “in the schools of physic,” produces none “of the motions excited in fever; that not one of them “are” the effects of “such a power.”

43. AFTER the proof of the vis medicatrix naturæ of others, which is a vis destructrix § in the hands of our author, being equally a non-entity in all the senses in which it has been received; it might be expected, that, since, of itself, it merited not the attention which we have bestowed on it, we might

* First Lines, 92.

† First Lines, 37.

‡ Loc. relat.

§ First Lines, 38.

therefore now dismiss the subject : We are, however, obliged to give it a further prosecution, because the author's scattered and desultory manner of reasoning is not to be answered by tearing up any one fundamental part, but by varying the attack, as he varies his modes of argumentation, or rather asseveration ; and because some might otherwise deem our refutation incomplete. To prosecute, then, this most irksome labour, of exploring a field for criticism without bounds, and which denies to the inquirer the gratification of bestowing upon any part of it a single expression of approbation : In the very next paragraph *, his assertion of the *vis medicatrix*, as being the cause of the cold stage (for by the words "some part," he means *the whole*) ; and his reasons for the assertion are inimitable.

44. His first reason is, "because the cold stage appears to be universally a means of producing the hot." This, again, is intended for a bold assertion, and not of a partial, but universal, application. It is impossible to conceive his reason for it, unless it be, which is not unusual with him, that, because the cold stage in intermittents precedes the hot ;

* First Lines, 38.

therefore, the former must be the cause of the latter (144.). Here we must repeat, what was formerly said in contradiction to his assertion of the universality of a cold stage in fevers, that, excepting those of the intermittent and remittent kind, the precedence of a cold stage takes place in no fevers whatever (145.); and therefore, that every conclusion from that fact must fall to the ground, with respect to all other fevers; consequently, to that extent, he cannot be allowed his favourite proximate cause of fevers. But, even with respect to those in which a cold stage is evident, the cold stage is not the cause of the hot, more than any part of an effect, depending upon a common cause, is the cause of any other. It is a point already proved (146.), that whatever is the cause of either, must be the cause also of the other: And, to cut short every occasion for superfluous criticism, we again repeat, what has been said so often, that the cause of every stage of an ague is the same, to wit, debility*; which is proved by every power concerned in their production, being debilitating †, and every remedy efficacious in removing them, being stimulant and invigorating ‡. This puts an end to

* *Observat. on Spasm*, page 10. par. 10.

† *Elem. Med.* 652. to 659. 661.

‡ *Elem. Med.* 660. to 664.

the dispute, since it is proved, to a demonstration, that the diversity of symptoms in the cold and hot stages are only a diversity in appearance, and not in reality * ; and symptoms never furnish any criterion to be depended upon in any judgment of the nature of disease.

45. LET us proceed to examine his next reason for asserting, “ That some part of the cold stage may be imputed” to his trusty friend, “ the same” dame, *vis medicatrix* : It is, “ because cold, externally applied, has very often similar effects :” As, in any true doctrine, there is a strong chain of clear facts, all closely connected together, and depending upon a fact in common to them all ; so, in that sort of reasoning which sets out from a confused perplexed hypothesis, there is nothing but an incoherent rope of discordant materials, without mutual relation, and fixure in a connected basis. The sound reasoner, like a masterly musician, adjusts, with perfect exactness, every part of his detail ; the fabricator of system can no more give uniformity to his whole, than a person, devoid of ear, and uninstructed by rules, can go over again the notes of an air which he had once randomly put together.

* *Elem. Med.* 655.—*Outlines*, 43. to 48.

The former faithfully follows the phenomena of nature, as they present themselves in order to his cautious observation ; the latter borrows rashly and indiscriminately from every source, little regardful of their certainty in fact, or use in application. The reader is left to apply this remark, as his good judgment may direct, while we proceed in our train of observations, as evenly as the windings and turnings of the subject will permit : That cold, externally applied, produces heat, is a repetition of the absurd, though very generally entertained, notion of the interference of the *vis medicatrix* in the supposed sedative operation of cold. It is twenty-four years since our author reprobated Professor Muishenbroëk's doctrine of *Frigorific Particles*, after the example of many others : Who had then taken up the juster notion of, what is called cold, being only a privation or diminution of heat, and a negative, not a positive, power. Though, therefore, he was equally, with more judicious observers, ignorant of the true effects of cold upon the human and other living systems ; still it might have been expected, that, having learned the falsity of a doctrine which made cold a positive power, he would have also seen, that the notion of its sedative operation was an application, in physic, of that erroneous piece of reasoning. This was the last relic which we re-

collect of the corpuscularian doctrine ; the universal reprobation of which was not reserved for the new medical doctrine, but was the merit of the chemical and mechanical observers of nature, during the latter part of what is passed of this century. Whose example, in adding useful detached facts to the little stock formerly acquired, and thereby gradually contributing towards a collection, which might at last admit of the attempt to arrange them into a general form of knowledge, had our author been contented to follow ; instead of his ill-fated visionary scheme of imposing an indigested farrago of the dreams, fictions, and reveries, of the sixteenth, seventeenth, and all preceding centuries, upon the sense and discernment of the present, he would have proved a more useful member of society, had more credit for his labours, and better provided for his own internal satisfaction. Upon the occasion of the present assertion, of “ cold very often producing heat” in the progress of its operation : However ignorant he was of its true operation, and whatever, and how many soever, modes of operation he, with others, was pleased to assign it, it was the last degree of imbecillity of recollection, to forget, that, what he had allowed to be a negative quality, could never be a positive hurtful power, that is, a sedative of destructive tendency.

And, besides the proof already adduced, of cold being always a debilitating power, we have only to add here, to what was said before, that the instance which he brings, of cold water, when the body is well covered up in bed, occasioning sweat, is likewise a mistaken one. Nay, there is a triple mistake here. And first, in the usual way, that power to which the effect is chiefly owing, is altogether overlooked; while to that, which contributed little or nothing towards it, the whole is attributed. Nobody will pretend to say, that a draught of cold water, in a cold situation, will occasion sweat. Or, if any doubt can remain with any person, we beg leave to recommend him to the situation on the cold stone *; where let him sit, till he is impressed with the double conviction, that, in no part of the operation of cold, either heat or sweat arises, or can arise. Next, although it were admitted, that the living human system could be heated, in the progress of a refrigerant operation; that would be no proof, that the hot stage of an ague consists in an increased action, produced in the course of a preceding sedative, or even debilitating, one, and arising from an operation of nature independent of the ordinary powers, to which her motions are owing.

* Above, page 66.

It neither would, nor could be a proof of such a state; because there is positive proof of the contrary *. If it should be urged, in this author's defence, that he was not obliged to foresee objections to his doctrine from a doctrine not known at the time when he composed it; and if that, therefore, will be readily granted him, he certainly should not have also expected the exclusive privilege of laying down fundamental propositions, without being sure of their truth. He should have fenced them all around with such a bulwark of proof, as to defy assault from any quarter. But, instead of that necessary precaution, no more care has been taken to establish, upon a solid basis, every proposition connected with this pretended fundamental part of doctrine, than if that had been thought a matter of indifference. The Peruvian bark, and, before the discovery of it, wine, and other strong drinks, according to the practice of Riverius, and other physicians his contemporaries, and lately the still more diffusible stimuli introduced by the new doctrine, have been given both in the cold, the hot, and the sweating stage, and always, not with advantage only, but, in the cases where the diffusible stimuli had been used,

* In all which has been said in refutation of the vis medicatrix.

with astonishing success : While, on the contrary, bleeding, purging, and other debilitating means, were never employed but with hurtful effect ; with only one single exception of vernal agues, which, upon a false theory, were supposed to admit of some bleeding, as partaking of a phlogistic nature. All which is a double proof of the sameness of the nature of the disease in both these periods, and completely subversive of our author's supposition, of the cold and hot stages being of a diametrically opposite nature to each other ; identity of effect being always a sure warrant for the conclusion for identity of cause, though the latter be otherwise often unknown. If the hot stage were a state of increased action, the stimulant remedies, which we have just now mentioned as being so salutary, would be equally hurtful in it, as they are known to be in other diseases where there is no doubt of the reality of increased action ; for instance, in the several phlegmasiæ *, synocha †, and catarrh. The contrary, however, being the indisputed fact, gives a complete overthrow to the supposition of the hot stage in agues, consisting of increased action, whether as oc-

* Diseases of increased excitement, or vigour, with inflammation of a part.

† The same sort of disease, without the inflammation of a part.

casioned by the interposition of a vis medicatrix, during the operation of the cold stage, or by any other means.

46. His last argument for “some part of the cold stage” being “imputable to the” vis medicatrix, or to his “general law of the animal economy, whereby it happens, that powers, which have a tendency to hurt and destroy the system, often excite such motions as are suited to obviate the effects of the noxious power * , is, that “it seems to be in proportion to the degree of tremor in the cold stage, that the hot stage proceeds more or less quickly to a termination of the paroxysm, and to a more completè solution, and longer intermission †.” Our common puzzle is to find a reason for our author’s assertions; but, in this, we are completely nonplused to find a meaning. Here a fact is asserted, that the quickness of the termination of the paroxysm, the completeness of its solution, and the length of the intermission, before the arrival of another paroxysm, is in proportion to the degree of tremor in the cold stage.” That may be, and, we believe, sometimes is, true: But, what has it to do with the present question? Does it prove the exist-

* First Lines, 37.

† First Lines, 38.

ence of a power, the existence of which has been disproved? or solve the important question, Whether it was Nature, or Hippocrates, that created this demon; this *αυτοκρατεια*, as he named her; this vis medicatrix, of his followers; this reaction, as we shall find it denominated by and by; this faculty in the constitution of redressing its own grievances; this Archæus of Van Helmont; this wisdom of the soul of Dr Stahl; this arbitrary tyrannical imp; which, for once that it is only said to have pointed at doing good, is proved to have a thousand times done real mischief, in consequence of the universal erroneous practice into which physicians have been betrayed by their implicit faith in it?

47. THE motions of fevers, of the intermittent kind, proceed not with that regularity which our author, to answer the purposes of his theory, assigns them. Though there are three distinct forms of them, known by the appellations of tertian, quartan, and quotidian; yet, betwixt the most regular and purely intermitting movements of these, and that febrile state, in which all tendency to intermission, and even remission, is obliterated, an endless variety intervenes, which authors have in vain attempted to reduce to any order. Their distinctions of them into quintans, sextans, septans, and so forth,

on the one hand ; and, on the other, into half, double, doubled, triple, tripled, tertians, quartans, and quotidians ; sometimes, again, of the intermit- tent, sometimes of the remittent kind ; and, added to these, with much variation in the degree of ei- ther intermission or remission, are all without sense in the design, or use in the application. If we have proved, that symptoms, considered in themselves, without a proper knowledge of the powers which either produce or remove them, lead to no judg- ment of their proper nature, or of their common cause * ; what credit is due to an author, who, to- tally divested of that knowledge, rests the proof of a fundamental proposition upon a presumption of it ? We know not why the cold fit of intermittents is distinguished by a concourse of symptoms, dif- ferent from that which ushers in continued fevers (for, in spite of our author's strained reasoning to the contrary, different they are), and equally differ- ent from the concourses which happen in the gout, in epilepsy, in apoplexy, and in the commencement of palsy ; while all these concourses equally differ from each other † : But we know, that powers, the same in kind, differing only in degree, and often not even in that, produce them, and that powers of

* Outlines, 43.

† Elem. Med. 659.

an opposite effect, the same also in kind, and adapted in degree to the degree of morbid state, remove them. No further our knowledge goes; and so far it is solid, useful, knowledge: From which, with respect to the symptom of tremor, which so eminently distinguishes the commencement of the intermittent paroxysms, the only conclusion which we are enabled to draw, is, that if we see in fact a high degree of that symptom followed by a better kind of the disease, than a lower degree of it, the cause is more mild in the former than in the latter, and will be removed by a proportionally smaller energy of the means of cure. But it by no means leads to the idea, that debility serves no other purpose than the contradictory one of counteracting its own tendency, and of exciting a state of the system, diametrically opposite to that in which itself consists. Bad as such a conclusion is, and worse it could not be, it is nearly as good as any which could be expected from his knowledge of the truth. In consequence of which, like a person viewing an object through a thick mist, or in a vanishing twilight, he could obscurely see something like what Dr Hoffman had cally *atony*, which he might call *debility*. And, as it is an adage of that author, that atony begets spasms; revolving in his mind what he might make of this phenomenon, it occurred to him, perhaps

naturally, in this state of reverie, and having such an example before his eyes, to make a spasm out of it, that is, to place the spasm of his original author upon the basis of this atony or debility.

48. HERE, if some should regret, that, like a tennis-ball flung against a wall, and as instantly rebounding from it, he should have stumbled so near the truth, and yet, in his very next turn of thought, taken a direction which was to mislead him from it for ever ; the occasion for that regret will cease, when it is considered, that, in no part of his works, is there any appearance of his having, to use his own expression, made any sort of approach * to an adequate notion of debility. A sufficient proof of which we, once for all, produce in his debilitating evacuant plan of cure ; which, we have shown, is precisely the same with those of all preceding medical systems, the complete unacquaintance of which with the true nature of debility, and with the vast proportion, to any other hurtful powers, which it bears in the production of diseases †, stands incontroverted ‡.

* *Observat. on Spasm*, par. 6. 15. † See note, par. 34.

‡ See above, a *Short Account of the Old Method of Cure*, *Outlines*, p. 48, &c.

49. THOUGH we have completely overturned the several arguments upon which, as so many feeble props, the cementless, crazy, mouldering fabric of our author's proximate cause of fever rested; and shown, that whatever he has advanced, whether in the form of argument, or assertion, are mere conceptions of a bewildered imagination, without any foundation in nature and truth, and even devoid of all connection, all relation, as parts of a whole, among themselves: We come, in the next paragraph *, to the review of spasm, now, for the first time, announced; and, like a spurious brat which had hitherto been kept out of sight, produced into company, and recognised as legitimate. In the recognition of which,

50. "IT is to be particularly observed," continues he, "That, in the time of the cold stage of fever, there seems to be a spasm induced every where on the extremities of the arteries, particularly of those upon the surface of the body." An impudent affectation of modesty runs through the whole style of this writer. He says here, "there seems to be a spasm." In the next paragraph, he says, "there is little doubt that a spasm does take place,"

* First Lines, 39.

&c. In the next, his words are, “ we are led to believe, that, together with the spasm, there is an atony,” &c. In the 43d, “ Some illustration and proof of this,” he “ expects, will arise,” &c. In the 44th, “ It may seem difficult to explain, how an atony and spasm can subsist, at the same time, in the same vessels ; but, whatever difficulty there may be in accounting for this, we consider it as a matter of fact,” &c. In the paragraph immediately following *, “ this atony,” he “ supposes to depend upon a diminution of the energy of the brain,” &c. In the 46th, as if he had collected confidence from the success of his preceding reasoning upon the subject, he sums up his doctrine of fevers, as he calls it, in the words which there follow : which begin thus ; “ Upon the whole, the doctrine of fever is explicitly this.” He had talked mincingly of the particulars, but he is so pleased with the sum total, as to declare himself “ explicitly” on it.

51. If an entertainment can be made out without the assistance of a bad kind of music, and a leisure hour passed better any way, than in hearing and reading a miserable piece of poetry, and if, in all cases, the exact value of both these arts is stamped

* First Lines, 45.

by their effect ; what better rule of judgment can we lay down for estimating works of science, than that of judging likewise from their effect ? The application to the present case is evident. Physic, taken in its most ample extent, as being that department of knowledge, which grasps, at its peculiar subject, the whole doctrine of life, in so far as this is attached to any sort of matter in the universe, is, therefore, of all others, of the highest importance ; because of the greatest extent and utility. Consequently, as the merit of every cultivator of so great a branch, is in proportion to the number and value of useful facts, which he contributes towards its improvement ; so, the contrary practice must, with equal clearness, be the standard of demerit. If the noblest part of the living creation is the animated, and of the animated the noblest part, in his own opinion, is man ; how valuable is the knowledge, which, upon sure and distinct principle, can prevent the dissolution of such a living system ? and how pernicious that pretension to knowledge, which, for want of acquaintance with the nature of life, in every attempt to prevent its dissolution, produces it ? When, therefore, the importance of this science, in its applications as an art, is compared with the execution of those arts we just now spoke of, it will be evident, that their comparative failure in per-

formance is not to be tried in the same scale of animadversion. Bad poets and painters are only ridiculous characters ; bad physicians, detestable : The former fail in pleasing or improving the taste ; the latter deprive us of happiness : The deficiency of the former is foible ; that of the latter, crime : We laugh at the demerit of the one ; the contrariety of effect which the other produces, is too serious, and too intelligible to the common feelings of humanity, to need explanation. In the imperfect and varying state of propriety of thinking in human life, ridiculous characters must appear ; perhaps they add to the sum total of a beautiful variety, while, for certain, the more perfect characters are set off to advantage by the contrast : But that blundering affectation of high knowledge, which depopulates the human race more than all the plagues and curses of life put together, cannot be mentioned with indifference, cannot be detected without the acutest feelings of an honest indignation.

52. WHILE nothing of this is intended for personal application ; we have only, in returning to particulars, to ask our author, if he was serious in these expressions of modesty and diffidence (the recurrence of which, almost in every paragraph, could not fail to disgust and cloy every reader), that the weight

of the task, he had imposed on himself was too heavy for his shoulders, where was the necessity of his engaging in it? There was no great wonder in his discerning great mistakes, defects, and imperfections in every medical system which had preceded his own: But, unless he was conscious of powers in himself adequate to the attempt of producing something really beneficial to mankind, could he not have let it alone? If all the medical systems, which had appeared in the world, were such as they are now found to be, in perfect repugnance to the great end of them, the preservation of life and health; where was the use of selecting from them their very worst parts, and rendering these, by the new touch given them, still worse than they had been in their original form? And, what sort of modesty was it, to expect, that a mass of such materials, so put together, would, at this advanced period of the eighteenth century, pass for a new and correct system of medicine? For, such as it is, we scarcely know a single fragment of it which can be called the author's own. Let the spasmodic part of the doctrine be restored to Hoffman*; the pathological, to Gaubius†; the physiological

* *Introduct.* pp. 24. 25. † *Observat. on Spasm*, par. 4.

‡ See above, *Observat. on Spasm*, note, par. 4. Compare that little book with its original, in Haller.

and anatomical, to Baron Haller †; the best part of the chemical, to Dr Black, the rest to preceding chemists*; the astonishing theory of making a man, to several writers of the two last centuries, quoted by Haller †; the system of ether, to the corrupters of the venerable doctrine of Sir Isaac Newton; the nosological labour, to Sauvages and his followers in that department; the botanical part, to Linnæus; and we shall find the works of this author reduced to a commodious size; his originality to nothing, and his invention humbly moving in the narrow circle of cobling the false systems of others, for want of ability to make even a bad one of his own.

53. To return from this definitive judgment of the merit of the work before us, which seems already warranted by the overthrow given to its foundation; as if conscious of the flimsiness of his reasoning in the paragraphs which we have noticed, he seems to drop the thought of connecting the origin of his spasm with it, and proceeds to the separate proofs of its existence, in the following words: "This appears from the suppression of all excretions, and from the shrinking of the external

* This will be explained after.

† Institut. of Med note just now mentioned.

parts ; and although this may, perhaps, be imputed, in part, to the weaker action of the heart, in propelling the blood into the extreme vessels ; yet, as these symptoms often continue after the action of the heart is restored, there is reason to believe, that a spasmodic constriction has taken place, that it subsists for some time, and supports the hot stage ; for this stage ceases with the flowing of the sweat, and the return of other excretions, which are marks of the relaxation of vessels before constricted.”

54. THAT a proper idea of this lately invented spasm may be formed ; besides its seat, which, we are told, is “ every where the extremities of the arteries, particularly those upon the surface of the body,” it will be proper to point out the diseases of which it is said to be the cause. These are the fevers of the intermittent and remittent kind, whether tertian, quartan, quotidian, or anomalous *, and synocha, synochus, and typhus, his first six genera ; and all his phlegmasiæ, or second order of his first class ; as well as all his exanthemata, or third order of the same class ; and likewise his two remaining orders, hemorrhages and fluxes. All these,

* See above, par. 17. 18. notes, and *Genera Morborum Cullenii*.

though far from being diseases of the same nature, but many of them diametrically opposite to each other in every requisite essential to morbid distinction, he has brought together under one common head, supposing them so far the same, as to agree all in one general character: Which is, that, “after beginning with some degree of cold shivering, they show some increase of heat, an increased frequency of pulse, and some diminution of strength in the animal functions.” They are further separated from others, and united together into one class, named the class of pyrexiaë; which, again, is subdivided into five orders, denominated fevers, inflammations, eruptions, hæmorrhages, and fluxes *. This is an arrangement formed, as he would wish us to believe, upon the solid ground of matter of fact. Their further agreement in spasm, as their common cause, though the most wild of all theories, and demonstrably false in every part of it, he would also, as we have already seen, wish us to take from him, as a fact, upon his bare word †.

55. WE had overthrown his hypothesis of spasm upon the ground on which he first defended it †;

* First Lines, G. 7. Synopsis Nosologiæ Methodicæ, edit. anno 1772.

† Above, par. 14.

‡ Above, 15. 16. 17. to 27.

but since we now find him on another ground, and pretending to bring proof of the truth of his spasm as the cause of fevers, we must also meet him there. But, before meddling with his proofs, and allowing him for a little the full and last enjoyment of the conclusion from them, it may not be improper, first to attempt a breach in his outworks, to gain thereby a post, from the superior advantage of which we may be enabled more effectually to drive him from every interior hold. In the first place, then, if we shall find among the diseases, supposed by him to agree in the circumstances which have been mentioned, two sets diametrically opposite to each other in all the essential distinctions of morbid state, that is, arising from the most opposite powers, depending upon the most opposite causes, and removed by the most opposite means; we expect credit from every reader, for the conclusion, that spasm cannot be the cause of both, and upon this sure principle, that different, much less diametrically opposite, effects, cannot arise from the same cause. Since he has given, at least a nominal connection with debility to his spasm, passing over, therefore, the diseases of real debility, we shall first prosecute our inquiry in the other set of diseases, the true cause of which is the reverse of debility, and upon the proof of which rests our rejection of spasm as their

cause. These are the sthenic diseases pointed out in a former part of this work *, and explained in other parts †. Here we shall present the reader with a refutation of spasm, as the cause of sthenic diseases, translated from the same work, to which we have so often had recourse, the first edition of the *Elementa*, that work being, as we have said, out of print ‡.

56. “ SPASM cannot be the cause of sthenic diseases, because neither the hurtful powers producing them, nor the remedies removing them, have any tendency, the former to produce, or the latter to remove, a spasm. How should stimulants, which, in consequence of increasing excitement, first increase all the functions, then produce a disturbance of some of them, and a diminution of others §, while they go on to increase the rest, withdraw their effect from all the rest of the system, and turn their whole energy on the extreme vessels of the surface ; and,” from the effect they produce there, “ excite” only “ a symptomatic affection over the rest of the system ? How should bleeding, the various other evacuations, and abstinence, which di-

* Outlines. page 45.

† Outlines 10. 11. 46. 52. 54. to 60. 75. 76. to 77.

‡ Elem. Med. prim. edit. 109. § Outlines, 59.

minish excitement over the whole body, by diminishing the distention of the vessels, and, therefore," proportionally removing a "stimulus applied to them all? How should avoiding exercise, which retards the velocity of the blood's motion? How should" a similar "rest from mental labour, and keeping the mind calm and serene, which imply, that a violent stimulus, operating upon the brain itself, is thereby guarded against?" How should all these "neglect their well known office of acting upon the whole system, and, as it were, in a transport of fury, direct the whole force of their action upon the extreme vessels of the surface? Show but one exciting power which produces a spasm, one remedy which removes it; and it shall be granted, that all the rest have a similar operation; and spasm, without saying a word to the contrary, shall be sustained as the cause of sthenic diathesis.

57. BUT, what has become of predisposition? whither has it run from us? what explanation must we now give of it, if spasm is to be admitted as the cause of the disease? By excess in eating and drinking alone, and want of proper exercise, a person may be carried from the very nice line of perfect health, through all the intermediate degrees of predisposition, to the highest degree of a peripneumony.

When that has happened, what difference is there in the state of the body on the day on which the disease happened, and the day before? Were the vessels, which are full on the day of the disease, empty the former day? Does the pulse, from being weak, small, and soft, all of a sudden, become strong, great, and hard, immediately upon the arrival of the disease? Are there no strength, no vigour of mind, no force of passion, to be discerned before the disease comes on, greater than happen in the contrary predisposition, or even in perfect health? Does a person, under a predisposition to dropsy, or, already "overtaken with that disease, in an instant of time, fall into" so very opposite a disease as "pleurisy? Is the operation of the exciting powers in vain applied to the body, during all the rest of the period of predisposition, and only exerted at the beginning of the disease? Are we to suppose, that the stimuli of excess in thinking, of habitual passionateness, of rich, seasoned food, of strong drink, of abundance of blood over the whole system, while the motion of the latter is further quickened by exercise, all applied in so many forms, for a long continuance, and in a high degree, will not gradually have some effect; and, on the contrary, that they will at once, and all of a sudden, excite the disease, and only produce that effect, by inducing

at last a spasm upon the extreme vessels, and not even at this time affect the rest of the body? Shall predisposition, which, though not sufficiently understood, is, upon all other occasions, an acknowledged state, not be granted to precede this disease? It cannot. Predisposition to this, and every other sthenic disease, will be granted: And, if so, it will not," of course, "be denied, that it is a-kin to the disease, the difference betwixt them turning upon a very slender circumstance of distinction. All the phenomena which distinguish the commencement of disease, except a slight disturbance of certain functions, also depending upon the same cause as the state of the other functions" not disturbed, and to be removed by the same means, also distinguish the last part of predisposition. And therefore, if spasm belongs to the former, it must to the latter: But its presence is not insisted upon in the predisposition, its absence is allowed; consequently, neither is its existence in the morbid state to be allowed: Since, therefore, the same exciting powers, which produce disease, also produce predisposition; and since they have been proved to produce both by the same mode of operation *; the conclusion, therefore, to

* The complete proof of this is given in both editions of the *Elementa*, and, to unprejudiced readers, is, of itself,

be drawn from that fact is, that the same effect flows from their common operation, in both predisposition and disease, and not different ones in either, according to the common notion, unsupported by any shadow of reason. Hence, it is evident, that spasm, which occurs not in predisposition, cannot either have a place in disease."

58. FURTHER, as spasm necessarily depends upon debility, that is another reason why it cannot take place in sthenic diseases; for debility cannot take place in diseases, depending upon a cause" producing "excessive vigour: Which is a fact demonstrated by this universal argument, that stimulants" only "produce the diseases, and debilitating means remove them, and with certain power" and efficacy *. "And though certain symptoms, such as, shivering with feeling of cold, languor, and a feeling of weariness, because these indicate a diminution of functions, are therefore said, to make for debility as the cause; there is not, however, any

sufficient; but medical readers must have the refutation prosecuted through all their usual modes of reasoning, before their conviction is procured; and even then, it is only from the most judicious from whom that is to be counted upon. See Outlines, 65. 66. 85.

* Loca relata, and 86.

debility in the system to act as the cause of these symptoms ; as is plain from this single fact, that the same excessively exciting, or stimulant, hurtful powers, which produce all the rest of the symptoms, also produce those, and the same remedies remove” both. “If bleeding,” for example, allays the excessive action of the vessels, and removes the other symptoms of the disease * ; do not those of shivering, languor, and feeling of lassitude, disappear with the rest ? And, if they are removed by a debilitating energy, must we suppose they are also produced by it ? Who would pretend to say so † ?

59. SPASM cannot be blended with the cause of sthenic diseases, for this further reason ; because, besides there being no debility” in this set of diseases (59.), distention, or something resembling it” in effect, “which, together with laxity and atony of the fibres, it shall be afterwards shown, is necessary to every true spasm, such as that, which, in diseases of debility, often occupies the internal fibres of the system †, in this case has absolutely no place in the fibres of the extreme vessels. The blood,

* Which it does.

† See *Observat. on Spasm*, par. 16. 2d note.

‡ *Outlines* 49. *Elem. Med.* 57. 195. 196. 197. 198. 199. 200. ad 204.

indeed, is abundant, and therefore distends" its respective vessels, "in the sthenic diseases, but not to the degree of producing a spasm in any" part of "them. And how great is the difference betwixt these" slight "distentions and that" prodigious "one, which produces spasm in the stomach, in the intestines, in the bladder of urine, in the vessels of the kidneys, and biliary ducts? Nay, even if they were adequate to the production of a spasm, the effect of that should not be confined to the extremities of the vessels, but should extend to all the rest of the vascular system. But, as the latter is not true, neither is the former *. Neither, in this case, can the something which resembles distention in its effect (49.), such as produces tetanic spasm, perform the part of distention; for that, whatever

* Physicians never, at any time, could comprehend the human living system as a whole, acted upon over all by whatever powers were applied to any part of it, but constantly imputed its morbid state to certain affections of parts. The same is the idea which runs through all the winding jargon about spasm. The hurtful powers are not supposed to operate upon the whole system, but upon the extreme vessels on the surface; and the remedies are not supposed to produce their effect, by altering the state of the whole system, but only by removing the spasm from the part affected. The complete refutation of this universal error, has been delivered in the section where the excitability is treated of. See Outlines, 31.

it is, regards the muscles, and is connected with the effect" arising from the influence "of the will; to" the influence of which, the vessels, which are an organ of involuntary motion, cannot be subjected.

60. LASTLY, there is no room for a spasm in sthenic cases; because it is peculiar to those diseases, the whole phenomena of which depend upon debility, whereas all the phenomena of the sthenic flow from a cause" which produces "too much vigour. There is not a surer proof of the presence of asthenic disease, of the absence of sthenic, than the presence of spasm or convulsion; which is an observation of the highest importance, in point of practical application, both in the diagnosis and cure. And, from the same, we may learn, how great a blunder it was, which not only united spasm with sthenic diathesis, but also made it its cause, assigning to it, not its usual" and natural "seat, but an unheard of and incompatible one. Nothing is more consistent with itself than Nature, nothing more regular, nothing more uniform, nothing more simple *."

* The original of the last sentence, as well as what follows to the end of the paragraph, the translation of which it is thought proper to omit, is here subjoined, to gratify some readers, who may wish to see it. "Nihil sibi con-

61. THERE is still one argument in reserve to be added to those already produced," which is, "that spasm is intirely superfluous, in the consideration of the cause of sthenic diseases; it having been fully demonstrated, that sthenic diathesis is sufficient for their production *. Nay, what is taken for spasm in those diseases, is nothing else but sthenic diathesis, a little more prevalent upon the surface, than in the interior parts of the body; a full explanation of which shall be given by and by. The true state," so mistaken for a spasm, "is an increase of density of the fibres" of the vessels, "diminishing

stantius natura est, nihil ordinis, nihil formæ servantius, nihil simplicius. Ubicunque aliquam sui partem ostendat, ei alias propiores, alias remotiores, alias contiguas, alias extremas, perinde ac in hominis corpore membra, suo quodque loco, disposita, pro certo habeas, et non quemlibet cui-libet artui temere hæere credas. Spasmus omnino in morbis sthenicis, magisque extrema vascula occupans, idem, ac alter pedum hominis, fronte eminens, est. Qui, contra, interiorum cavorum aliquid, in morbis asthenicis, e debilitatis ubique signis, et laborantis loci distentione constantibus, adfectans, positum suo loco pedem, alteri respondentem, et notis artubus subjectum, refert."

* The references to the places where that demonstration is given in this edition, are the 33. 37. 85. 86. In the second edition, consult the whole first chapter of the first part, from the 111th paragraph, where the powers producing either sthenic or asthenic diathesis, are fully explained.

all their diameters, and effacing those of the extreme vessels *. This state," instead of arising from any thing tending to produce a spasm, "is produced by nothing but the stimulant hurtful powers which occasion all the other symptoms; and is removed by the debilitating powers which remove the whole disease from every part of the body. And it is in support of the same conclusion, that the former are the only powers which produce predisposition; the latter the only ones which remove it, and cure the disease. What greater simplicity can the simplicity of nature require? To which" simplicity of nature, "what is more repugnant than spasm? So far is this part of our subject prosecuted in the first edition of the *Elementa*.

62. HAVING disproved the existence of spasm in sthenic diseases, or those diseases which depend on an excessive application of the ordinary supports of the healthy state, from the powers producing and removing those diseases (193.), having no tendency, the former to produce, and the latter to remove, a spasm: From the acknowledgment of spasm having no share in the production of predisposition, though that has been proved to be precisely the

* See *Outlines*, 50. *Elem. Med.* 60.

same state with disease, only inferior in degree, and therefore arising from the action of all the same powers, in the same inferiority of degree (194.): From the assumption of debility, as necessary to the formation of spasm, which can have no real existence in diseases, which originate from a very opposite state (195.): From the want of a circumstance essential to the formation of every real spasm *, that is, distention, or something analogous to it, acting upon fibres in a state of atony and laxity (196.): From spasm † being peculiar to diseases of debility, and incompatible with those of an opposite origin (197.): Lastly, from its being a superfluous state in sthenic diseases, for the production of which, the sthenic diathesis has been demonstrated, to be in every respect sufficient as a cause (198.): The author of the *Elementa* proceeds next ‡ to the refutation of the same spasm, as the cause of fevers (132.) §, in the following words :

63. “As” spasm “is therefore to be altogether rejected from sthenic diseases, it has also as little concern in the extreme vessels in fevers, by which

* Above, 4.

† The same spasm as in last note.

‡ 190. *Elem. Med.* edit. prim.

§ *Elem. Med.* 650. 666. to 690. *Cull. Gen. Morb.* Cl. 1, Sect. 1. G. I. II. III. V. VI. G. X. Sp. 2. G. XXV.

we understand asthenic diseases : For, though these are not without the debility which is required for this spasm, and which is essential to the true spasm that affects the internal parts ; yet, distention," a state "equally essential, is wanting. Now, if vessels, in a state of repletion and distention to the degree in which these are so affected in sthenic diseases, do not reach that degree of distention which is adequate to the production of spasm (196.), they are much less in their empty state, such as their present is, to be supposed to rise to that degree. To every spasm, with the exception of one, the exception of which weakens not our argument, distention is necessary. This distention in dyspepsia *, and in the gout, which is a peculiar dyspepsia †, is occasioned by foulness, and air let loose ; in the colic, by the latter also, and hardened feces ; in the renal and biliary vessels, by concretions ‡. But is there any thing, bearing the most distant resemblance to these, in the empty extreme vessels of persons in fever ? The spasm, which is not excited by distention, is the tetanic §. And" even "in it, that there is something similar to distention, is proved

* Called in English *indigestion*.

† Elem. Med. 59€

‡ Commonly called *stones*.

§ Or any spasm arising in any external part, as the lock-jaw, cramps, stitches, &c.

by the sameness of the effect. The consideration of which makes no more for this circumferential spasm, as some one calls it, than that of the other. Neither does its seat in the muscles, and its connection with the will, admit of any portion of reasoning which applies to the other."

64. "WHILE that is the fact, it is worth while to attend to the arguments used in defence of spasm. These resolve into paleness and diminution of bulk on the surface, the diminution of tumors, and the drying up of ulcers*.

65. THE cause of the paleness, shrinking of the surface, and suppression of perspiration †, is not to seek for; as then happening, when the heart, from its share of the common debility, is unable to propel the blood to the extreme vessels. The same is the evident origin of the decrease of tumors, of the drying up of ulcers," of the suppression of any other evacuation, as well as that on the external surface. "Of these affections, do suppose spasm the cause, and then attend to the consequence. The blood, however slowly, would not cease to continue

* First Lines, 39.

† All that is expressed by *cutis attenuatur*.

its motion to the extreme vessels; and if it were detained in the system by a spasm, the effect of that would be a congestion and accumulation of it in the" obstructed "part; so accumulated, it would distend the free vessels; it would press upon the neighbourhood of the vessels occupied by spasm; it would produce a repletion in all the surrounding parts; and, in time, its increased quantity would restore" the lost complexion, remove the paleness, distend the tumors, and, if the ulcers" and excretions "were at first prevented by the spasm from running, it would soon give them enlargement, and, at last, by the destruction of some vessels from the increase of acrimony, it would increase their discharge. We see, then, that the only arguments advanced in defence of spasm, amount to a refutation of it, and to a demonstration of debility being its cause.

66. It is next to be observed, that, in this case of asthenic disease, as well as in the former sthenic case *, neither the powers producing, nor those removing the disease, have any tendency, the former to produce, or the latter to remove, such a spasm, as Van Helmont, Hoffman, and Dr Cullen, have

* Above, 199.

supposed to arise in the extreme perspiratory terminations of the arterial system. In this case, all the powers which operate as hurtful, produce debility over all, and, in the vascular system, that form of debility, which consists in the relaxation of the muscular fibres, considered as simple, and in an atony of them, considered as living solids. By these two circumstances, these fibres, which encircle the vessels, have their constituent particles set at a greater distance from each other, and consequently the bore, the cavity, or diameter of the vessels, which their dimension describes, is enlarged *. The plain fact, with respect to the state of the perspiratory vessels, is, that, instead of a spasm, or contracted state of the vessels in question, their real state is preternatural enlargement, allowing, during the period of the morbid state, the grossest contents of the large vessels to escape. Attend to the reasoning on this part of the subject in the first edition of the *Elementa*. The supporter of the doctrine of spasm, whoever he is, shall be allowed his spasm, provided he will promise to keep fast hold of it, and prevent it from slipping through his fingers. In the beginning of a typhus fever, the skin is dry : Towards

* *Outlines*, 50. and 51. and the passages in the *Elementa* there referred to.

the end of it, clammy sweat, sometimes intire blood in all its constituent parts, flows out through all the pores. What has become of spasm now? Where is it gone? Can an affection, which should prevent the transmission of the imperceptible perspiratory vapour, transmit the grossest fluid of the system? “What sort of a spasm, what sort of a contraction” of diameters, “is that, which produces an enlargement of diameter three times greater than that which takes place in the natural and healthy state of the vessels, independent of all spasm? The spasmodic theorist will not reply, that the spasm is now at last removed; for this” good and unanswerable “reason, that, as the effect, which is the fever, remains, nay, increases, he knows that the cause, that is, the spasm, must remain and increase,” in proportion *. Relaxation and atony of the vessels,

* The words in the original of the latter part of this paragraph are: “Verum dabitur tibi tuus hic spasmus, dummodo, servaturum te illum, et sponte manibus effugere prohibitorium, promittas. Initio typhi cutis sicca est. Sub finem sudor spissus, est ubi sanguis integer omnibus, quibus constat, partibus, per omnia foramina diffluit. Quid spasmus nunc? Quorsum evasit? An, qui cæco vaporibus perspirabili obstare debet, crassissimum humorem trajiciat? Qualis spasmus, qualis nimia contractio est, quæ triplo eâ, quæ, omnis spasmi experts, naturalis et sana est, majorem diametrum pandat? Non solum nunc spasmus demum

not only in their extremities, but through their whole tracts, is the debility of that part of the system : But the hurtful powers produce the same effect in every organ, in every function of the system. Accordingly, it is not in the vessels only, which are organs of involuntary motion, but in the muscles, which perform the function of voluntary motion ; nor in both these only, but in the organs and functions of sense ; and, besides all these, in the great organ of the intellectual function, and of that of passion and emotion, the brain, that the same debility prevails. It is debility, or diminution of excitement, for want of the powers, the operation of which creates excitement over all the nervous system, and no affection fixed in any part, which produces the whole phenomena of fevers. I here put again the foundering question to all the partisans of this wretched spasmodic doctrine, Is there a power, in the whole number of those which produce fevers, which can be demonstrated, without a previous operation upon the whole system, to go to the surface and produce a spasm ? Or is there a remedy, which, without the same previous operation, operates on the surface to remove it ? The state of

rejicies ; quia, manente, immo cressente effectu, febre, causa, spasmus, maneat, et augeatur, nosti esse necesse."

the surface in fevers is the atony and relaxation which have been mentioned : If it is pale and parched at first, that is owing to the weakness of the heart and arteries ; if colliquative sweat, and a transmission of actual blood through all the pores, follows in the progress of the disease, that is the effect of a greater debility of the same sanguiferous system, acting so weakly upon the blood as to be incapable of keeping it in its proper state of diffusion, and therefore allowing either the thin serous parts, or some of the red globules, to separate from the more viscid and gross portion of the common mass, and to escape, with a very slight force behind *, by all the watery outlets, internal as well as external.

67. FURTHER, as spasm has no share in the predisposition to this form of diseases, it also, for that very reason, can have none in the morbid state †, as the same state of the system, that is, debility, precisely constitutes both, with the variation only of degree, so fully now explained ‡.

68. BESIDES, as we have said, though the debility necessary to the formation of spasm, undoubt-

* The medical phrase is, *vis a tergo*.

† 62. above.

‡ 57. above.

edly occurs both in febrile and every other form of asthenic diseases ; still, neither of two circumstances, the concurrence of the one or other of which with the state of debility is essentially necessary to the formation of spasm, takes place in the present case. The vessels are neither in their extremities, nor in any part of their tracts, organs of voluntary motion : They have not therefore, that dependence upon the will, which, concurring with debility, produces the effect in the fibres of the muscles * : And they are so far from being in the other state of muscular fibres, indispensably necessary to the production of the other mode of spasm, that the very reverse is their real state. The perspiratory extremities are either altogether empty, as in the dry and shrivelled state of the external surface in the beginning of fevers, or very imperfectly filled, by the serous and thin red particles flowing through them without any distending impetus †.

69. NEXT, as spasm has been shown to be entirely superfluous in the production of sthenic diseases, it is equally so in that of fevers ; a full demonstration having been given that sthenic diathe-

* 4. to 7. above.

† 63. above.

sis is sufficient for their production *. The state of the surface, which has been mistaken for spasm, is nothing else but asthenic diathesis, a little more prevalent on the surface, than in the interior parts of the body ; of which a full explanation will by and by follow. This state, instead of arising from any thing of a tendency to produce a spasm, arises from nothing but the debilitating hurtful powers which produce all the other symptoms ; and is only removed by the stimulant remedies which remove the whole disease from every part of the system. This proposition is equally applicable in explanation of the state of predisposition which precedes the febrile state : It goes further, and comprehends all the other diseases depending on debility, not febrile, as well as the predisposition to each. Here, then, is an account of asthenic diseases, equally simple as that given of the other form, the sthenic †. And the notion of the febrile part of these diseases depending upon spasm, is equally embarrassing and repugnant to truth.

70. HERE we must rest, and pause in this irksome piece of business. Having, by a complete in-

* See the whole first chapter of the Elem. Med. 2d edit. from the 111th paragraph.

† 61. above, part of I.

duction of facts and arguments, refuted the fundamental part of the most futile and erroneous of all medical doctrines, the spasmodic ; which, like the ghost of a departed sinner, has, with mischievous effect to mankind, fascinated the senses, and turned the brains, of all its visionary adherents. But as it is a confused, heterogeneous, mass of many former erroneous materials, it is expected that the reader will not think himself uselessly employed in glancing over an appendix, to the extent of another number, containing a prosecution of the falsity of this motley system through all its windings and doublings (par. 1.).

PREFACE

TO THE

ORIGINAL WORK.

By the author of this work, more than twenty years were wasted in learning, teaching, and diligently scrutinizing every part of medicine. The first five past away in hearing others, studying what he had heard, implicitly believing it, and entering upon the possession as a rich and valuable inheritance. His mode of employment, the next five years, was to explain more clearly the several particulars, to refine, and give them a nicer polish. During the next equal space of time, because no part of it had succeeded to his mind, he became cold upon the subject, and, with many eminent men, even with the vulgar themselves, to deplore the healing art as altogether uncertain and incomprehensible. All this time passed away without the acquisition of any ad-

vantage, and of that, which, of all things, is the most agreeable to the mind, the light of truth; and so great, so precious, a portion of the fading and short-lived age of man, was lost. It was only betwixt the fifteenth and twentieth year of his studies, that, like a traveller in an unknown country, wandering in the shade of night, after losing every trace of his road, a very obscure gleam of light, like that of the first break of day, dawned upon him.

THIRTEEN years ago (*a*), when he was going in the thirty-sixth year of his age, he fell into his first fit of the gout. For many years before, he had lived well, with the exception of having confined himself to a diet more sparing than usual a few months before the arrival of the disease (*b*). In about six weeks the disease finished its course, and did not return till six years after, and not even then, but in consequence of unusual low living for

(*a*) Four years must be added now, it being that time since the second volume of the *Elementa* was published, that is, seventeen years since the author's first fit of the gout. At this very time, from hard walking in very hot weather, to inspect the beauties and majesty of Hampton-Court, he had a slight attack, which gave him no sort of trouble, never hindered him from business, and which he repelled in less than thirty-six hours.

(*b*) It was about six months.

several months (*d*). He was in the vigour of his age, and, excepting the taint of the gout, and some debility, brought on by his unusual abstinence, his habit was good. The disease, according to an old theory among physicians, was said to depend upon plethora and excessive vigour; vegetable aliment was enjoined, wine was forbidden, and the careful execution of that plan of cure was promised to be rewarded with no return of the disease. A whole year past in a strict adherence to this regimen. In the course of that space of time, instead of never having a return of the disease, he experienced no less than four fits, most violent, most painful, and of a very great duration: In short, the whole year, except fourteen days, was divided between limping and excruciating pain.

IF an over-proportion of blood, and excess of vigour, was the cause of the disease, according to the general theory just now mentioned, it became next with him a subject of inquiry, how such distressing symptoms were to be explained; his reflections were, why the disease had not made its first appearance twelve or fifteen years before, at a time when there was, in reality, more blood and vigour in the

(*d*) Between five and six.

system (*e*); and why it only came on after an abatement of diet, both considerable in degree and duration; why so great an interval of time, during which he had returned to his usual full diet, had intervened betwixt the first fit and these recent ones; and, why the disease had twice, almost instantaneously, come on after the change of full nourishing diet into a sparing one. At last, the solution of this question was made out, by the interposition of one of greater magnitude, in the following interrogatories: What is the effect of food, drink, and similar supports of life? They produce strength. What is their effect afterwards? Always less and less. What is it towards the end of life? They are so far from giving any more strength, that they evidently prove weakening. Nay, the very same powers, by which life was at first supported, at last put an end to it, commonly through the intervention of disease.

(*e*) The blood is made from the food, and is in proportion to the quantity, quality, and completeness of its digestion. Now, before each of his last fits for the time specified in the text, as well as during the whole course of the attacks of the second year, his food had been almost solely vegetable, and, therefore, was not suited to produce enough, much less an excessive quantity, of blood; and the digestion was also more imperfect.

As diseases first, and death afterwards, in general happen in the way which has been just now explained, not from want, but an over-abundance of the supports of life, he found, however, that the cause was debility, and saw that it was not debilitating (*f*), but strengthening, powers which were to be thought upon as remedies. To this sort of debility he thought proper to give the name of indirect. Such, for two years, was the success of his invigorating plan (*g*), that, at the end of that space of time, he only underwent a very slight fit, which did not amount to a fourth part of any of the former ones (*b*). Now, no physician will deny, that the recurrence of such a disease as the gout, which had made four attacks in one year, would have been more frequent than in that proportion the next two years, had the same method of cure been continued; nor will any one think the addition of two fits every year too much. The mild fit was four times less in degree than the more violent ones. Multiply, there-

(*f*) According to the common practice of evacuation and starving.

(*g*) Which he, immediately after the last mentioned reflections and queries, carried into execution.

(*b*) The fit which happened at the thirty-sixth year of his age, and the four severe ones which attacked him about six years after, all within the course of the same year.

fore, twelve by four, and, according to that computation, the proportion of alleviation of the disease will amount to a reduction of eight-and-forty to one. As, during the first year, he had made use of vegetable food alone, so, during these two years, his only food was of the land-animal kind, and of the most nutritious quality. Of the latter, his choice was directed to the best in kind, without any other precaution than being sparing in the quantity he used (*i*). A young gentleman, who lived with him, and had laboured under a very severe asthma, in consequence of submitting to the same treatment, suffered only one fit at the end of the same two years, instead of experiencing one every day, as he had done upon the common treatment.

AFTERWARDS, to remove an opinion, which had been often insisted on, of the gout not depending upon debility, because inflammation accompanied it; little doubting that the inflammation itself depended on debility, he subjected the question to experiment. He invited some friends to dinner, and, by the use of certain stimulants used in their pre-

(*i*) He found most kinds of fish, whether from the sea or fresh water, nearly as debilitating as vegetable matter, when solely or chiefly relied upon for a meal.

sence (*k*), recovered the most perfect use of that foot, with which, before dinner, he could not touch the floor for pain. By this fact he saw, that not only the gout itself, but the inflammation accompanying it, was asthenic (*l*). And he found, afterwards, such inflammations affecting the throat in the putrid, in the gangrenous sore throat, and the joints in rheumatalgia, or that rheumatism which depends upon debility, and is improperly denominated chronic rheumatism (*m*), and supposed, if there be any truth in that supposition, to attack the brain in the end of typhus, to be also asthenic.

As the gout affects the alimentary canal, and especially the stomach, and proceeds, in its course, with distressing circumstances, similar to those which happen in dyspepsia (*n*); being desirous to know if there was any affinity betwixt it and them, he observed that they, as well as it, depended on debility, and yielded to stimulant remedies. Nay, he

(*k*) These are mentioned in Dr Jones's Enquiry.

(*l*) That is, depending on debility.

(*m*) The word rheumatism, as implying a similarity of the disease to the true acute rheumatism, should be rejected, and this term, taken from Sauvages, substituted in its place.

(*n*) Or indigestion.

afterwards found for certain, that all the spasmodic, all the convulsive, diseases of the same canal (*o*), and nearly all the diseases of children, were of the same stamp.

CONTINUING his investigation of the same spasmodic and convulsive diseases, when they occupy the organs of voluntary motion; he discovered that their nature was also the same in kind, but only greater in degree; as they are exemplified in the spasms and pains which occur in various parts of the external surface of the body, and in epilepsy (*p*), and in tetanus themselves. And by that means he discerned, that a vast number of affections, in which, upon the supposition of their being inflammatory, no limits had been set to the use of the lancet, instead of arising from an over-proportion of blood and excessive vigour, or any other such cause, depended upon an under-proportion of that fluid, and other causes of debility, and were to be cured, not by bleeding, nor any other evacuations (*q*), but by filling the vessels, and restoring the strength of the whole system.

(*o*) Or, first passages, comprehending the passage to the stomach, that organ itself, and the intestines below it.

(*p*) Or the falling sickness.

(*q*) Such as vomiting, purging, sweating, blistering, glistering, &c.

AT first, for the purpose of removing fits of the gout, he went no farther than the use of wine, and other strong drink of a similar operation, and nourishing food, that is, seasoned meat, and kept the use of the more powerful remedies in reserve. But, of late (*r*), his surprising success in the use of the latter, has enabled him to find, in opium, and certain other stimuli, the secret of repelling the fits of the gout as often as they returned, and, at the same time, re-establishing the sound healthy state; a secret which has hitherto been so much wanted and despaired of. This he has often effected, both in himself, and in other persons. It is now going the third year, and near the end of it (*s*), since he has always been able to prevent all return of the disease.

TAUGHT by similar instances of actual practice, he found, for certain, that bleeding discharges, which are called hemorrhages, do not depend on plethora and vigour, but upon penury of blood, and debility arising from any other source; and he therefore rejected them from the number of sthenic diseases (*t*), among which they had been arranged in the

(*r*) That is, now, for many years past.

(*s*) Now the seventh.

(*t*) Sthenic diseases, as will be afterwards explained, are

first edition of the text-book, reserving a place for them among the asthenic diseases in the second volume of that work. For he saw, that bleeding, various other evacuations, abstinence, cold, and sedatives, as they are called, proved hurtful; and that the stimulant plan of cure alone was salutary. Even wine and brandy, which had been thought so hurtful in those diseases, he found the most powerful of all other remedies in removing them. Upon finding that a certain fact, he learned, that in all the diseases, in which others had thought there was abundance of blood, there was a deficiency of it, and that, from the defect of which, and of other stimulants, the real cause of the diseases was debility; and stimulants, given in proportion to the degree of the cause, the proper remedies.

IN consequence of the light that thus beamed in from the practice, he found, that the cause and cure of fevers, both intermittent and continued, was the same as those already mentioned.

GRADUALLY led, as it were by the hand of Nature, around the whole circle of asthenic diseases

such as depend upon an excessive application of the several powers which otherwise produce health.

(*u*), he thoroughly perceived, that they all depended upon the same cause, that is, debility; that they were all to be removed by the same kind of remedies, to wit, stimulants (*x*); and that neither their cause nor their cure differed but in degree.

WITH respect to sthenic diseases, the nature of either the cause or cure of which nobody had observed; he had long ago understood, that inflammation in them, as well as the other symptoms, were not, as had been universally believed by Systematics, the cause, but the effect; and that the inflammation arose from the cause, *i. e.* the diathesis (*y*), and not even from it, unless very violent. In fine, he experienced, in his own person, that catarrh was not produced by cold, according to the common opinion, but by heat, and the other known stimuli, and was removed by cold, and other debilitating powers. By which discovery, he was led to form a proper judgment of the catarrhal symptoms in the measles: In which he found, that a very

(*u*) Diseases of debility.

(*x*) Wherever the word stimulant is used, without a particular qualification of its degree, the degree is understood to be greater than that required in the healthy state, as will afterwards more fully be explained.

(*y*) Or habit.

great man, who had improved the cure of sthenic diseases, but never attained any knowledge of the asthenic, had been misled by the alexipharmac physicians. And, as these symptoms are the most dangerous part of the disease, he was right in supposing, that the proper cure of them very much interested that of the whole disease. The consequence of which was, that it came out a demonstrated fact, that the refrigerating antiphlogistic plan of cure was of equal service in the measles and small-pox.

IN sthenic diseases he illustrated the cause, enlarged the plan of cure, enriched the knowledge of both, explained and reduced the whole to a certain principle; he distributed all general diseases into two forms, a sthenic and an asthenic one (z). He demonstrated, that the former depended upon excess, the latter upon deficiency, of exciting power; that the former were to be removed by debilitating, the latter by stimulant, remedies; that the hurtful powers which excited either, were the remedies of the other, and the contrary; and that they acted by the same operation with the powers which produce the most perfect health, differing from them

(z) Sthenic signifies an excess, asthenic a defect, of invigorating power.

only in degree. He extended the same doctrine to plants. He laid down a principle, which is illustrated and confirmed by all the parts of the detail, and itself reflects illustration and confirmation upon every one of them. Lastly, he put the question, Whether the medical art, until then conjectural, incoherent, and, in the great body of it, false, was not, at last, reduced to a demonstrated science, which might be called the science of life (*a*)?

(*a*) That question has been answered in the affirmative by every one who had been at due pains to understand the doctrine.

PREFACE

TO THE

TRANSLATION.

A PRESSING, and very general, demand for an English translation of the *Elementa Medicinæ*, made several years before the publication of the second edition of that work, and successively repeated with an increasing importunity ever since; a desire of spreading the knowledge of a doctrine, which had exhibited so many indubitable proofs of its importance and utility to mankind; an ambition, not quite extinguished by advancing years, domestic cares, and a declining state of health, to get the better of the keenest, and most universal, persecution which ever was raised against an useful and extensive discovery; the necessity for a translation in the present decaying state of the knowledge of the Latin language; the danger of the doctrine coming before the public from adventurers unequal to the task; and some other circumstances, partly of a

private, partly of a domestic, nature, with which it would be impertinent to trouble the reader ; all these at last prevailed with the author to submit, for once, to a task, otherwise not desirable, that of translating his own work. Such a task seemed more naturally calculated to lay the foundation of the commencing fame of an ingenious pupil. But, as no one of many, whose literature and knowledge of the subject completely qualified them for the undertaking, wished to supersede the occasion for his engaging in it himself ; and as the courage of several persons of a different description kept not pace with their affectation or interestedness ; it is to be hoped the public will not be displeased to receive the work from the author himself. This performance is intended for the use of three sets of readers ; those who do not readily enter into a thought conveyed in pure Latin, and who, therefore, might wish to be possessed of a translation, for the sake of comparing it with the original, and thereby of acquiring, renewing, or improving their knowledge of the latter ; those who are only acquainted with such Latin as has prevailed in modern times ; and, lastly, those, who either cannot, or will not, be subjected to the trouble of reading Latin at all, and who, surely, may often be better employed.

BOTH this, and the original work, are intended, not for the exclusive use of medical readers, but also for that of the public at large; it being evident, that, without even the exception of the professional knowledge of each individual, that of his own health is preferable to all others. And such an acquisition becomes valuable in proportion to its justness and solidity. The public are presented with a work, which claims the merit of having reduced the doctrine and practice of medicine to scientific certainty and exactness. With respect to the form in which it is delivered, it is stripped of that jargon of numerous unmeaning, or misleading terms, and all that mystery, either in style or matter, which has hitherto rendered the pretended healing art impenetrable to the most intelligent and discerning, and locked it fast up in the schools. No terms are admitted but the few which necessity imposed, and these are every where defined. The style is simple, and suited to the simplicity of the subject. In the language and composition, as far as the thoughts, which are new throughout, and that restraint, which is inseparable from exactness of translation, permit, clearness is every where preferred to elegance, and diffusion to brevity.

THE author, in prefixing his name to both forms of his work, has thrown the gauntlet to its numerous, but anonymous, opposers. They are therefore called upon, now or never, to disprove it, and the judicious and candid part of mankind to judge between the parties.

THE
ELEMENTS
OF
MEDICINE.

THE FIRST AND REASONING PART.

CHAP. I.

1. **M**EDICINE is the science of preserving the good, and of preventing and curing the bad, health of animals.

2. **T**HE application of the same profession to vegetables, should be named agriculture.

3. **G**OOD health consists in a pleasant, easy, and exact use of all the functions..

4. **BAD** health consists in an uneasy, difficult, or disturbed exercise of all or any of the functions. The latter respects diseases.

5. **DISEASES** are either extended over the whole system, or confined to a part; the former merit the appellation of Universal, the latter that of Local.

6. **THE** former are always universal from their first commencement, the latter in their course, and that but seldom. The former are always, the latter never, preceded by predisposition. The originality of the former proceeds from an affection of the principle of life, of the latter from local injury. The cure of those is applied to the whole body, of these to the injured part.

7. To the province of the physician belong all the universal, and as many of the local, as first affect a part, and, in consequence of that, at last injure the rest of the body with some resemblance to the universal diseases.

8. **PREDISPOSITION** to disease is that state of the body, which recedes from health, and approaches to disease, in such a manner as to seem still within the

boundaries of the former ; of which, however, it is only an insidious and deceiving resemblance.

9. THESE *three* states (*a*) constitute the life (*b*) of animals ; to which that of vegetables is not dissimilar, but more imperfect.

(*a*) Of health, disease, and predisposition.

(*b*) Or living state.

CHAP. II.

10. IN all the states of life, man and other animals differ from themselves in their dead state, or from any other inanimate matter in this property alone ; that they can be affected by external agents, as well as by certain functions peculiar to themselves, in such a manner, that the phenomena peculiar to their living state, that is, their own functions, can be produced. This proposition comprehends every thing which is vital in nature, and therefore, at least, applies to vegetables.

11. THE external agents, in general, are reducible to heat, diet (*a*), other matters taken into the stomach, the blood, the fluids secreted from the blood, and air. How poisons and contagions come under the same view, shall afterwards be mentioned (*b*).

12. THE functions of the system itself, producing the same effect, are muscular contraction, sense,

(*a*) Consisting of food, drink, and condiment.

(*b*) There is a correction of the original here, the words of which are, "Quo modo venena & contagiones eodem spectent, post modo dicetur."

and the energy of the brain in thinking, and in exciting passion and emotion. “While these affect the system in the same manner as the other agents; so, with respect to their origin, they arise both from the other and from themselves (*c*).”

13. THE result of withholding either the property distinguishing living from dead matter, or the operation of either of the two sets of powers, is the non-existence of life (*d*). Nothing else is necessary to life (*e*).

14. THE property, by which both sets of powers act, should be named Excitability; and the powers themselves, Exciting Powers. By the word “body” is meant, both the body simply so called, and also as endued with an intellectual part, a part appropriated to passion and emotion, or to the soul; the appellation commonly given to it, in medical writings, is system (*f*).

(*c*) This also is a correction on the margin of the original: the Latin words are, “Hæc dum sic, ut reliquæ, corpus adficiunt, ita tam a cæteris, quam a se ipsis, exoriantur.”

(*d*) Here occurs another correction of the text in MS. which is as follows; “Earum rerum & actionum sive dempto opere, sive dempta proprietate, vita nulla.”

(*e*) “Fere” is expelled.

(*f*) No disquisition is here meant to be entered into, as

15. THE common effect, produced by the exciting powers, is sense, motion, mental action, and the passions. Which effect being one and the same, it must, therefore, be granted, that the operation of all the powers is also one and the same (*g*).

16. THE effect of the exciting powers, acting upon the excitability, is to be denominated Excitement.

17. SINCE, of the same exciting powers, some act by evident impulses, and the identity of the effect of others infers the same mode (*b*) of operation; and since they have all a certain activity in them, they ought to be denominated stimulant, or stimuli.

religion is no where interfered with, but left to its proper guardians.

(*g*) That is, since sense, motion, mental functions, and the passions, are the only, and a constant, effect of the exciting powers, acting upon the excitability; and since that happens, whether one, or more, or all the powers, or which soever of them, act, the irresistible conclusion, which arises in the mind, is, that, the effect of the powers being the same, the mode of operation of them all must be the same. This mode of reasoning, which is certainly as just as it is new in medicine, will often occur, and, we trust, will stand the test of the most scrupulous scrutiny.

(*b*) Or ratio.

α. STIMULI are either universal or local.

ϵ. THE universal stimuli are the exciting powers, so acting upon the excitability, as always to produce some excitement over the whole system. And their appellation of universal, is convenient to distinguish them from the local.

γ. THE local stimuli act only on the part to which they are applied ; and do not, without previously producing an affection in it, affect the rest of the body (*i*).

(*i*) The three paragraphs which follow α. ϵ. γ. are an addition. The words of them are ; “ Stimuli sunt vel communes vel locales. Stimuli communes sunt potestates incitantes, ita in incitabilitatem agentes, ut incitationis toto corpore semper aliquid efficiant, communes, quo commodius a localibus internoscantur, adpellandi. Locales stimuli in partem tantum, cui admoventur, agunt ; nec, nisi parto jam illic adfectu, reliquum corpus, ac sæpe ne sic quidem, adficiunt.”

CHAP. III.

18. WE know not what excitability is, or in what manner it is affected by the exciting powers : But whatever it be, either a certain quantity, or a certain energy of it, is assigned to every being upon the commencement of its living state. The quantity, or energy, is different in different animals, and in the same animal at different times. It is partly owing to the uncertain nature of the subject, partly to the poverty of common language, and likewise to the novelty of this doctrine, that the phrases of the excitability being abundant, increased, accumulated, superfluous ; or weak, not well enough sustained, not well enough exercised, or deficient in energy, when enough of stimulus has not been applied ; sometimes tired, fatigued, worn out, languid, exhausted or consumed, when the stimulus has operated in a violent degree ; or being at other times in vigour, or reduced to one half, when the stimulus has neither been applied in excess nor defect, will be employed in different parts of this ensuing work (*a*). Both upon this, and every other sub-

(*a*) In this paragraph, line 6, in place of “tributi sive vis sive copia,” read, tributi sive copia sive vis. In line 10,

ject, we must abide by facts ; and carefully avoid the slippery question about causes, as being, in general, incomprehensible, and as having ever proved a venomous snake to philosophy.

19. As there is always some excitability, however small, while life remains, and the action of the exciting powers in one degree or another is never wanting ; the conclusion from that fact is, that they are all endowed with more or less of stimulant power, and that this must be either excessive, in due proportion, or deficient. A great quantity of blood stimulates in excess, and, therefore, produces the diseases which depend upon too much stimulus ; but an under-proportion of blood, though debilitating in its effect, and inducing the diseases which depend upon debility as their cause, must still be understood to be stimulant ; but only so much more weakly stimulant, as the penury is more considerable : The same conclusion applies to all the other exciting powers, unless that poisons, conta-

after " *incitabilitas modo,*" read, *abundare, augeri, cumulari, superesse, vel imbecilla esse, parum sustentari, exerceri parum, vi deficere.* And in the line 12, after " *modo,*" read, *lassari, fatigari, defatigari, languere vel.* In line 13, after " *incubuit,*" read, *modo vigere, vel ad dimidium redigi, cum neque abundavit, neque defecit, stimulus.*

gions, and some few other powers, might to some seem exceptions. But,

20. POISONS either do not produce the universal diseases, which make our present subject; or, if they do, by operating the same effect as the ordinary exciting powers, their mode of operation must also be allowed to be the same (*b*).

21. SOME contagions accompany diseases depending on too much stimulus (*c*); others those which consist in debility (*d*). If both these are the product, not of contagion alone, but, by a conjoint operation, also of the hurtful powers which usually depend upon stimulus (which is a fact ascertained); the effect, therefore, in this case, being the same, the conclusion is unavoidable, that their cause is also the same, and the mode of operation of both the same. It must, therefore, be admitted, that the

(*b*) This proposition, of frequent occurrence in this work, that identity of known effect always produces identity of cause, though unknown, will be found to be a mode of reasoning of equal service in guarding our reader from the deceitfulness of abstract reasoning, and in leading him into a proper mode of investigating solid and useful truth.

(*c*) As the small-pox and measles.

(*d*) As the petechial typhus fever, the plague.

operation of contagions is stimulant (*e*). It makes for the same conclusion, that no remedies, but those which cure diseases, depending upon the operation of the usual hurtful powers, remove those which have been supposed to be induced by contagions. Finally, the great debilitating energy, observable in certain contagions, does not more prove a diversity of action in them, than it does in the case of an equal or greater degree of debility, arising from cold (*f*).

δ. It might appear to some, that a certain matter of food, not sufficiently nourishing, and therefore of hurtful tendency; as also that emetics, and purgatives, and sedative passions, as they are called, might be thought to belong to the number of powers, the operation of which might seem so many exceptions from the ordinary stimulant operation.

ε. In general, all vegetable matter, when depended upon alone for nourishment, is hurtful, at least to those who have been accustomed to better, and

(*e*) This is all which is contended for at present; the degree of their stimulus will be afterwards considered.

(*f*) At the freezing point, or below it, man, and similar animals of warm blood, could not live a second in a dense medium, such as that of water; but the animals of cold blood can.

that by a debilitating operation ; and yet, even it, since it supports life, however incommodiously, longer than a total want of food, must, of course, be stimulant. But, if asthenic diseases arise from vegetable food, and not, to a certain degree, from want ; that circumstance must be owing to a certain change produced in the system, by which the sum total of stimuli is rendered less fit to act upon the excitability. That such is the case, is proved by the most stimulant matter of food losing part of its stimulus by continued use, and requiring the substitution of another in its place.

ζ. IN the same manner is the operation of emetics and purgatives to be explained, as diminishing the sum total of excitement ; which depends partly on an agreeable relation which the exciting power bears to the excitability, or on an agreeable sensation. That it is sometimes the relation, sometimes the sensation, that acts in this case, is evident from the hurtful effect of things most grateful to the sense, as in the examples of the legumina, and other articles of vegetable food ; and by the salutary effect of disagreeable things, as the several forms and preparations of opium : Both which produce their effect, the former by a debilitating, that is, an insufficient-

ly stimulant, the latter by a considerably stimulant, operation (g).

n. THE sedative affections, as they are called, are only a lesser degree of the exciting ones. Thus,

(g) Suppose a certain power, as 40, to mark the degree in which the sum total of proper stimulant operation consists, and the excitement, produced to that degree, to arise from different exciting powers, all of them conducing to the same effect, by the operation of each bearing an agreeable relation to the excitability, or producing an agreeable sensation on it; the inference to be drawn from that fact is, that a certain suitableness in the mixture of the whole to the excitability, as well as the degree of stimulus, produces the effect. Again, suppose certain ingredients, which cannot be denied to be stimulant, added to this given mixture, the effect of the added article will be one of two: it will either increase the excitement first produced, without altering the agreeable state which that had induced; or it will, still without any reason for supposing it not stimulant, diminish the excitement which had arisen from the combination of the agreeable articles. And this will happen merely from the effect of a discordant combination of exciting powers, while that, which diminishes the exciting effect of the others, as well as these others, which constituted its given sum, are both stimulant; but the former in a higher, the latter in a lower, degree, and therefore acting over all as debilitating powers. Mustard taken with meat, or onions with beef-stakes, are agreeable to most tastes; but they are, though still stimulant, disagreeable to others, and debilitating. Pease-soup and pease-pudding, though, independent of the animal juice infused into them, they are far

fear and grief are only diminutions (*b*), or lower degrees, of confidence and joy. The news of money gained produces joy, and grief arises from the loss of it. Here, then, no operation of a nature contrary to stimulant takes place; it is nothing but a diminution, or inferior degree, of stimulant operation. The subject of the passions admits of the same reasoning in every respect as that of heat (*i*); and, in the same manner, all the bodies in nature which seem to be sedative, are debilitating, that is, weakly stimulant; owing their debility to a degree of stimulus greatly inferior to the proper one.

22. SINCE the general powers produce all the phenomena of life, and the only operation by which they

from being salutary, will be well borne by many; while in others, especially those who have been accustomed to more stimulant meals, and in persons who are gouty, and liable to complaints of the first passages, they will produce morbid affection. The same thing is to be said of beef-steaks with onions, which agree with the sound state, and disagree with that of the first passages just now mentioned. With regard to all these enfeebling matters, there is no question about their being stimulant; the whole effect is to be referred to their rendering a mixture, stimulant in a certain degree, less so.

(*b*) Not passions different in kind.

(*i*) The doctrine of cold, as an active power, and opposite to heat, is now universally rejected, and considered as only a diminution of heat.

do so, is stimulant ; it therefore follows, that the whole phenomena of life, every state and degree of health and disease, also consist in stimulus, and are owing to no other cause.

23. EXCITEMENT, the effect of the exciting powers, the true cause of life, is, within certain boundaries (*k*), produced in a degree proportioned to the degree of stimulus. The degree of stimulus, when moderate (*l*), produces health ; in a higher degree it gives occasion to diseases of excessive stimulus ; in a lower degree, or ultimately low (*m*), it induces those which depend upon a deficiency of stimulus, or debility. And, as what has been mentioned is the cause both of diseases and perfect health ; so, that which restores the morbid to the healthy state, is a diminution of excitement in the case of diseases of excessive stimulus, and an increase of the same excitement for the removal of diseases of debility. Both which intentions are called Indications of Cure (*n*).

(*k*) "Quibus mox perire dicitur," is erased in the original.

(*l*) Of a middle kind.

(*m*) Aut ad extremum magnus, in MS.

(*n*) Betwixt the 21st and 22d paragraph comes the following addition in the MS. of the Elem. Med. δ . "Ad ex-

24. THIS mutual relation obtains betwixt excitability and excitement, that the more weakly the powers have acted, or the less the stimulus has been, the more abundant the excitability becomes ; the

“ cipiendorum numerum, quædam cibi materia, parum
 “ alens nocensque, item supra & infra purgatrix, adfec-
 “ tusque sedantes, qui dicuntur, pertinere credi possunt.
 “ ε. Sed omnis fere e plantarum genere cibi materia, si quis
 “ soli ei pro alimento fedit, saltem meliore ali solitis mate-
 “ ria, nocet, idque debilitando. Quæ tamen, quoniam di-
 “ utius quam nulla, vitam, utut incommode sustentat, sti-
 “ mulet quoque necesse est. Quod si inde morbi astheni-
 “ ci, et non quodam tenus ab inedia, nascuntur ; id eo fit,
 “ quod aliqua intus mutatio, qua minus adversus incitabi-
 “ litatem efficax stimulorum summa redditur, usuvenit.
 “ Quod ita esse, vel valedissima cibi materia, stimuli ali-
 “ quantum, morando, disperdens, et, ut alia ei forma suffi-
 “ ciatur, exigens, ostendit. ζ. Simili modo supra et infra
 “ purgantium opus, ut incitationis, quæ partim, in grata in-
 “ citabilitati adfinitate, gratove sensu, consistit, summam
 “ sic inminuens, explicabile est. Interdum adfinitatem,
 “ interdum sensum, agere, hoc patet ; quod vel gratissima
 “ sensui, ut legumina et alia e plantis petita, nocent ; in-
 “ grata, sicuti opû formæ, juvant, idque, utrumque, illa
 “ debilitando, id est, non satis stimulando ; hæ valide sti-
 “ mulando, faciunt.

η. “ Affectus sedantes, qui vulgo dicuntur, excitantium
 “ tantummodo vis minor sunt. Sic metus et animi dolor
 “ tantummodo fiduciæ et gaudii sunt detractioes. Lu-
 “ crifactæ pecuniæ nuncius gaudio, perditæ dolori, est, pro
 “ magnitudine uterque summæ crescens. Utque in pecu-
 “ niæ accessione stimulus accedit, sic in illius decessione

more powerful the stimulus of the agents has been, the more exhausted does the excitability become (*o*).

25. A MEAN stimulus, affecting also a mean or half consumed excitability, produces the highest excitement. And the excitement becomes less and less, in proportion as either the stimulus is applied in a higher degree, or the excitability more accumulated. Hence the vigour of youth, and the weakness of childhood and old age. Hence, within a more moderate space of time, a middle diet gives vigour, and debility is the effect of its being either too full or too sparing.

26. WHILE that is the case, every age, every habit, if the excitement be properly directed, has its due degree of vigour accommodated to it. Childhood, and that weakness which an abundant excitability produces, admits of little stimulus; but upon less than the middle proportion, becomes languid, upon

“ hic decedit. Nullum igitur stimulantī contrariū opus
 “ hic suboritur, tantumque stimulantis operis imminutio.
 “ Idemque hic ubique, quod de calore dicendum. Eodem-
 “ que modo quæcunque sedare videri poterant, ea omnia
 “ ita debilitant quidem, id est imbecilliter stimulant, ut e
 “ minore justo stimulo ea debilitas oriatur.”

(*o*) All that follows, in the original, to the words “ ratio
 “ reperitur,” is erased.

more, is oppressed. Old age, and that frailty which is occasioned by a deficiency of excitability, requires a great deal of stimulus, becomes enfeebled by less, and upset by more (*p*). The reason for the latter is, that the excitability, without which no vital action is produced, does not exist in that degree, by which vigour of the functions is produced; while the former is to be explained from the exciting or stimulant power, without which the excitability is of no effect, not being applied in that degree which is requisite to the vigour which it should give. The impotency of stimulus may rise to such a degree, as to produce death from its extreme underproportion. On the contrary, the exhaustion of excitability may go so far, as to extinguish life by the extreme excess of stimulus.

27. THE circumstances, under which excitement is produced, have two confining boundaries (*q*).

28. THE one (*r*) of these circumstances is, exhaustion of the excitability from violence of stimu-

(*p*) What follows, to the end of this number, is an addition in MS. to the original.

(*q*) The Latin text is altered in MS. thus; "Conditiones, quibus incitatio nascitur, intra duo fines continentur."

(*r*) "Quarum" is erased in this paragraph.

lus. For all the stimulant powers may carry (*s*) their stimulant energy to that degree, under which no excitement will arise. The reason for which is, that the body becomes no longer fit to receive the operation of stimulus; another expression for which is, that the excitability is consumed.

29. THE termination (*t*) of excitement, from the exhaustion of the excitability by stimulus, may be either temporary or irreparable, and may arise either from a short continuance of a high degree of stimulus, or a long application of one, the excess of which is more moderate. Both circumstances come to the same thing; the high degree of stimulus compensating for the shortness of its application, and the shortness of its application for its greater moderation in degree (*u*). The effect of the former is sudden death; of the latter, a more gradual death, preceded by diseases. And though a most exact measure of excitement were kept up, yet death at last, however late, supervenes.

(*s*) Hic, in the Latin text, is erased, and, after "esse," potest is inserted.

(*t*) Or cessation, or extinction.

(*u*) A force of stimulus as six, operating for a space of time as one; and a force of stimulus as one, operating for a space of time as six, will produce the same effect in wearing out the excitability.

30. EBRIETY, debauch in eating and drinking, sweat, languor, heat, either operating alone, or overcoming the effect of cold, dulness in mental exertion from excessive thinking, or sinking of the spirits in consequence of violence of passion, finally, sleep; all these are the consequences of a short application of a high degree of stimulus, operating an exhaustion of excitability. The long continuance of a more moderate excess in the force of stimulus, is followed by the frailty of old age, predisposition to diseases of debility, as well as those diseases themselves. The ultimate termination of both is death.

31. WHEN excitability is wasted by any one stimulus, there is still a reserve of it, capable of being acted upon by any other. Thus, a person, who has dined fully, or is either fatigued in body, or tired with intellectual exertion, and therefore under a great disposition to sleep, will be recruited by strong drink; and, when the last has produced the same sleepiness, the more diffusible stimulus of opium will arouse him (*w*). Even after opium fails,

(*w*) A gentleman, engaged in a literary composition, which required an uninterrupted exertion of his mental faculties for more than forty hours, was enabled to go through it with alacrity, by supporting himself in this manner. After dining well, and setting to business, he took a glass of

and leaves him heavy and oppressed by the same propensity, a stimulus still higher and more diffusible, if there be any such, will have the same effect. A person fatigued with a journey will be roused by music to dance and skip; and he will be enabled to run after a flying beauty, if her flight encourages him with the hope of overtaking her.

32. THE waste of excitability, first exhausted by stimuli, and then recruited by new ones, is most difficultly repaired; because the more a stimulant operation has been employed, that is, the more the stimuli have been applied; there remains the less

wine every hour. Ten hours after, he eat something nourishing, but sparing in quantity, and for some hours kept himself up with punch not too strong. And, when he found himself at last like to be overcome by an inclination to sleep, he changed all his stimuli for an opiate; and finished his business in forty hours. What he had wrote was now to be put to the press. He had next to watch and correct the proofs, which cost him between four or five hours further continuance of vigilance and activity. To effect this, he took a glass with the master printer, while his men were going on with their part of the work. The succession of stimuli, in this case, was, first food, next the stimulus of the intellectual function, then wine, then the food varied, then punch, then opium, then punch and conversation.

access to fresh stimuli, by the operation of which the failure of excitement may be removed (*x*).

33. THE reason of the difficulty is, that no means of reproducing the healthy state, that is, the proper degree of excitement, is left; but the very circumstance which occasioned the waste, that is, already an excess of stimulant operation, not admitting of more stimulus (*y*).

34. SUCH, in fine, is the nature of the same loss of excitement, that it rushes to instant death, unless proper measures be taken to preserve life by a great stimulus, but less than that which occasioned it, and then by a still less, till, by means of the moderate stimulus which is suitable to nature, or a somewhat greater, life may at last be preserved (*z*). The difficult cure of drunkards and gluttons, already affected with diseases, sufficiently evinces, that the same consideration applies to all the exciting powers which stimulate in excess (*a*).

(*x*) What follows in the Elem. is erased, and all of the next number to "evadit, cum."

(*y*) What follows in this paraphrase is also left out.

(*z*) In the Elem. for "succuri vitæ", read, "servari vita."

a) This proposition applies to the most difficult part of the practice for the cure of diseases, that is, those which de-

35. THE excitability, thus exhausted by stimulus, is debility, which should be denominated indirect, because it does not arise from defect, but excess of stimulus (*b*).

36. THROUGH the whole progress to indirect debility, the second impression of every stimulus has less effect than the first, the third less than the second, and so forth to the last, which gives no more excitement; and the effect takes place in proportion to the degree or duration of the several impressions, though every one always adds some excitement. The inference from this proposition is, that, before the establishment of indirect debility, and, when it is now upon the eve of being established, the stimulus which produces it should be withdrawn; a debilitating power should be applied, as in giving over drinking wine at the end of an entertainment, and substituting water in its place, and applying refrigeration to a person who has been exposed to an excessive degree of heat (*c*).

pend upon a certain species of debility, which, in the very next paragraph, will be denominated *indirect*.

(*b*) Like another debility, by and by to be noticed.

(*c*) A convalescent, from a disease of debility, was prescribed wine, but not to carry it to excess. A hiccup was the signal, by which he was to understand that he had car-

37. THE same progress to indirect debility is retarded by diminishing the excitement from time to time, and proportionally increasing the excitability; and thereby giving more force to the action of the stimuli. Take, for example, cold bathing from time to time, lowering the diet from time to time, and a similar abatement of all the other stimulant powers.

θ. IF cold sometimes seems to stimulate, it produces that effect, not as actual cold, but either by diminishing excessive heat, and reducing it to its proper stimulant temperature (*d*), or by rendering

ried that stimulus too far. He desisted, and ended his jollity with two or three tumbler glasses of water; which prevented the establishment of the indirect debility into which he was about to fall.

(*d*) The principle upon which the operation of the cold bath depends, has never been understood; and therefore all reasoning, as well as practice, with respect to it, has been conducted in quite a vague and random manner. Suppose a range of excitement, the middle and healthy point of which is 40 degrees of excitement, the ultimate degree of its excess 70. It is, therefore, the intermediate degrees between these extremes, to which the practice of cold bathing is applicable. From 80 to 70, the former of which is the head of the scale, and constitutes the range of indirect debility; and likewise through all the intermediate degrees from 40 down to 0, the cold bath, which is a weakening power, as well as every other, is improper. It is a mistake, prevalent among systematic writers and lecturers,

the body accessible to air, or by accumulating the excitability diminished by excessive stimulus, and communicating energy to the stimulus of the exciting powers, now acting too languidly. An instance of this operation of cold occurs in the Torrid Zone, where actual cold is scarcely to be procured, in the use of refrigerants, as they are called, in fevers, and in the contraction, by means of cold, of a scrotum previously relaxed by heat. Nay, the effect goes so far, that sthenic diseases may arise more certainly from cold, alternating with heat, and either preceding or following it, than from pure heat.

38. THE other condition or circumstance, limiting excitement, is, an energy of the exciting powers too small, and therefore insufficient to produce excitement. As this case arises from a deficiency of stimulus, and an abundant excitability, it ought to be distinguished from the other, which supposes an abundance of the former, and deficiency of the lat-

that cold is of service in the fevers and other diseases of the Torrid Zone. The truth is, that, in that country, there is no access to the use of actual cold. All that can be done there, is, by various means, to diminish the excess of heat, which is constantly rushing from those degrees of it which stimulate and excite, to those, in which its ultimate stimulant power destroys excitement, and leaves nothing but indirect debility.

ter. The same distinction is required also for the purpose of practice. All the exciting powers may fall so short of stimulant force, as to produce that effect. They all, therefore, equally serve to illustrate and confirm this proposition.

39. IN this case, the excitability is abundant, because, in consequence of the stimuli being withheld, it is not exhausted. Thus, in the cold bath, the excitement is diminished; because the stimulus of heat, and therefore the sum of all the stimuli, is deficient; and the excitability, as being less exhausted by stimulus, is increased (*e*). The same

(*e*) This is altogether a negative circumstance. The accumulation, increase, or abundance of excitability, take any term you please, is not occasioned by any action or operation, but by the want of action, the want of operation. To form an adequate idea of it, suppose a scale of excitability of 80 degrees, as in the line here drawn.

EXCITING POWER.

0 10 20 30 40 50 60 70 80

EXCITABILITY.

80 70 60 50 40 30 20 10 0

At the commencement of life, the sum total assigned is understood to be 80; because no part, as yet, is wasted by the action of stimuli. Next it is wasted in proportion as these are applied from the beginning to the end of the scale. Its wasting is therefore owing to action and operation, but its accumulation to the reverse, the want of the

conclusion applies to famished persons, to water drinkers, to those who are in a state of refrigeration from other causes, to those who have suffered evacuations of any kind, to those who have neglected the stimulus of exercise, and given themselves up to indolence, to those who have neglected the use of that stimulus, which exercise of the mind affords, and to persons in low spirits. The effect of withdrawing any stimulus is the more liable to produce direct debility, the more any person has been accus-

action or operation of the exciting powers, as is expressed by the numbers placed above those first mentioned. Thus, one degree of exciting power applied, takes off one degree of excitability, and every subsequent degree impairs the excitability, in a proportion exactly equal to its degree of force. Thus, a degree of stimulant or exciting power equal to 10, reduces the excitability to 70; 20 to 60; 30 to 50; 40 to 40; 50 to 30; 60 to 20; 70 to 10; 80 to 0. And, on the contrary, the subtraction of stimulant power allows the excitability to accumulate. Thus, when the excitement is at 79, constituting only one degree of life, take off one degree of exciting power, and 2 degrees of excitability will arise. As 80 degrees of exciting power leave no excitability, so 70 degrees of exciting power leave 10; 60 20; 50 30; 40 40; 30 50; 20 60; 10 70; 0 80. Hence, death takes place from nothing positive, but from the negation of the only means by which life is supported; which are the several exciting or stimulant powers, now fully explained.

tomed to a higher operation of it (*f*). Take, for an example, the gout, and many other diseases, under the same circumstances, affecting some, and sparing others (*g*).

40. As, during the increase of excitability, the excitement decreases, and in proportion to the increase of the former; so, that that process may go all the way to death, is a fact from which nature exhibits no exception. It is confirmed by the effect of all the debilitating powers mentioned above; every in-

(*f*) For instance, persons accustomed to drink wine, and eat well-seasoned nourishing animal food, will be more hurt by a water and vegetable regimen, than those who have not lived so high in that respect. The inhabitants of Britain could not live long upon the diet of the Gentoos. Persons in genteel life could never undergo the work of day-labourers upon their fare.

(*g*) Vegetable aliment, and fruits and cold roots, as cucumbers, melons, acid drinks, and many other things not sufficiently stimulant, will bring on a fit of the gout, all or any one of them, at any time; while there are other persons free from the taint which distinguishes that disease, who can use them with impunity, or, at least, with much more freedom, and less harm. Something similar to this observation applies to most diseases. All from dicendum, in the Latin text, to the end of this paragraph, is an addition.

dividual of which, as often as it proves urgent, has a rapid tendency to death (*b*).

41. THE defect of any one stimulus, and the proportional abundance of excitability, is, for the time, compensated by any other, and often with great advantage to the system. So a person, who has dined insufficiently, and therefore not well enough stimulated, is recruited by a piece of good news. Or, if during the course of the day, he has not been sufficiently invigorated by the stimulant operation of corporeal or mental exercise, and, consequently, likely to pass a sleepless night, he will be laid asleep by a dose of strong liquor. When the latter is not at hand, opium will supply its place. The want of the venereal gratification is relieved by wine, and the want of the latter is compensated by the use of the former, each banishing the languor occasioned by the want of the other. The same conclusion applies to the use of stimuli, for which we have an artificial, rather than a natural, craving. The longing for snuff, when it cannot be got, is gratified by the practice of chewing tobacco; and, when any one is languid for want of tobacco, smoaking

(*b*) All which follows of this paragraph was brought in 37. θ . as more properly belonging to that place.

supplies the place of it. Nay, when the functions, as they often are, have undergone a temporary lesion, on account of which there is no access to the use of certain customary and natural stimuli; the substitution of others, less customary, and less natural, supports life, till the desire for the natural stimuli is restored, and these are now in a condition to support the natural vigour as usual, and the health finally established (*i*).

42. As, in this manner, the superabundance of excitability, proportioned to the deficiency of stimulus, may, through all the degrees, from its smallest to its greatest quantity, be worn out, to a certain extent, by one stimulus, and then another, and the danger of its morbid accumulation averted, till the sum of it be brought down to that which is suitable to health; so, the more abundant the same excitability is, that is, the more stimuli are withdrawn, or the greater the penury of the most powerful sti-

(*i*) This proposition is of the utmost importance, as holding out the true principle upon which so many actions and feelings of human life, both in health and disease, are to be explained, and, particularly, as laying down an indication, which applies to nineteen-twentieths of all febrile diseases, and includes our artificial as well as our natural desires and appetites.

muli is, the less recourse can be had to that mediocrity of excitability on which the vigour of life depends ; and the weakness may go to that pitch, the excitability arrive at that degree of abundance, that the loss of excitement may, at last, become irreparable. This proposition is both illustrated and confirmed by the use of every debilitating power ; as is exemplified by cold, famine, thirst, and the progress of fevers.

43. THIS superabundant excitability proceeds with such rapidity to death, that the only means of restoring health, is, first, to encounter it with a very small dose of diffusible stimulus, a dose scarcely exceeding the scanty (*k*) portion of stimulus which occasioned it ; then, after wasting a part of the superabundance, to proceed to a somewhat stronger dose of the stimulus ; and, in that manner, to be constantly taking off whatever superfluity still remains, till at last the salutary mediocrity is regained. This state is the converse of that debility which arises from a worn-out excitability (*l*), and the dan-

(*k*) Or under-proportioned.

(*l*) An instance of a worn-out excitability, is that debility which arises from intoxication ; one of an accumulated excitability, is that which dram-drinkers experience the day after a debauch, in consequence of which their hands shake, till they are re-excited by their favourite cordial.

ger of death occasioned by it. To give examples : A famished person is not immediately to be gratified with a full meal ; a person afflicted with a long duration or high degree of thirst, is not immediately to be indulged with a large draught ; but the former should be given bit by bit, the latter drop by drop, then both of them gradually more plentifully. A person benumbed with cold should gradually receive the cherishment of heat. Every person, thoroughly penetrated with grief, sorrow, or any high dejection of mind, should have good news gradually communicated to him. The news of the safety of the Roman soldier, who survived the disaster of his countrymen at Cannæ, should have been communicated to the mother in a round-about way, at first as having no better foundation than doubtful report, then as being somewhat more to be depended on, afterwards as having still a greater appearance of certainty, finally, as not admitting a shadow of doubt : and, last of all, before her son was introduced to her, the woman should have been, at the same time, fortified (*m*) both by other stimuli, and a glass of Falernian wine (*n*).

(*m*) Had a part of her very abundant excitability taken off.

(*n*) The remainder of this paragraph, in the original, is struck off, as being nonsense.

44. SINCE all life consists in stimulus, and both the over-abundance and deficiency of it is productive of diseases, and in exact proportion to the over-abundance or deficiency ; it follows, that the remedies of both these deviations from the proper standard should be accommodated to their degree ; and that a high sum total of stimulus, through the course of the disease, should be applied to a high degree of debility, or, what comes to the same thing, to a very abundant excitability ; but, that the quantity to be applied, at any particular time, should be in the same proportion small, that the excitability is abundant.

45. THE debility arising from defect of stimulus, merits the appellation of DIRECT ; because it happens in consequence of no positive hurtful power, but from a subduction of the necessary supports of life.

46. THROUGH the whole course of direct debility, every deficiency of stimulus is increased by a second, the second by a third, the third by a fourth, till the effect at last comes to be a cessation of any further excitement. This last, therefore, is never to be lessened, and the debility increased, with the view, forsooth, that, in consequence of in-

creasing the excitability, the addition of a new stimulus, may act more strongly. For, as often as that is put in practice, the morbid state is increased; and, if the debility should happen to be great, any further increase of it may induce death, but never increase the strength. For, while great debility, and, indeed, at pleasure, may, in that way, be produced; any excitement to be obtained from a stimulus to come after, is confined within narrow boundaries (*o*). Take, for an example, cold bathing in dropsy, in the gout, in fevers (*p*), in persons who,

(*o*) Suppose, that, in place of an excitement of 40 degrees, the excitement is gone down to 30, and the excitability mounted up to 50, and a debilitating power, such as the cold bath, or any of those which are just now to be mentioned in the text, has been superadded, reducing the excitement to 25, and accumulating the excitability to 55: Suppose, also, that any stimulus is next employed, with a view to raise the excitement, and sink or reduce the excitability; what will be the result? As an accumulated excitability admits of a very small degree of stimulus at any given time, while the accumulation of excitability, and sinking of excitement, even to death itself, can be effected in the shortest space of time, and by any one of the debilitating powers; consequently, the loss of vigour by the first practice, and the reparation of it by the last, will bear no proportion to one another; there will be no possibility of regaining the vigour thrown away, much less any hope of procuring more than existed before it was lowered.

(*p*) By fevers, here, are meant those diseases, so named,

previous to this, have undergone refrigeration, and in every sort of debility. And who would treat the cases of famine, of deep sorrow, of weakness of the mental function, of languor from inactivity, of penury of blood, which are all cases of direct debility; who would treat them, by superinducing more direct debility, with a view to his gaining some advantage from the very scanty stimulus, which can be admitted? The accumulation of excitability applies only to the predisposition to indirect debility, or sthenic diathesis.

47. WITH respect to every sort of debility, it is to be observed, from all that has been said upon both forms of debility, that, as indirect debility is never to be cured by direct, so neither is the latter by the former, nor either by the other, in the vain

which depend on evident debility, and not any of those, which, though most injudiciously so named, depend upon an opposite cause. Instances of the former we have in all the fevers of the intermittent or remittent kind, in synochus, typhus, and the plague itself, with others which have never been considered as fevers. Examples of the latter occur in synocha, or the common inflammatory fever, in the several diseases of the same stamp accompanied with inflammation in a part, as in the throat, lungs, and various parts of the external surface.

hope of obtaining benefit from the after employment of any stimulus (*q*).

(*q*) Indirect debility appears in the range of scale from 70 up to 80 ; the direct, in all the degrees below 40 to 0. The only cases, which admit of debilitating operation, are those of excessive excitement, from 40 up to 70. For the cure of diseases within this latter range, all the directly debilitating powers are proper, and, for the most part, they only ; because there is no access to the use of the indirectly debilitating powers, till they have run their full course of stimulant operation from 40 to 70, at which last only they become debilitating ; and, though sometimes, and under certain circumstances, they may be employed, the safest general rule is to avoid them.

CHAP. IV.

Of the Seat and Effects of Excitability.

48. THE seat of excitability in the living body (*a*), is medullary nervous matter, and muscular solid; to which the appellation of nervous system may be given. The excitability is inherent in it, but not different in different parts of its seat. This fact is proved by the production of sense, motion, the mental function, and passion (*b*), immediately, instantaneously, and not in a series of successive operation (*c*).

(*a*) Called system by medical writers.

(*b*) That is, all the functions which distinguish living animal systems.

(*c*) If a small quantity of an opiate, a large one of any strong spirit, taken into the stomach, can instantly alleviate an excruciating pain in a part the most distant from that to which the remedy is applied, and, in a short time after, remove it altogether, as is now well known, how is that to be explained but by the above proposition; it being impossible to pretend that it is carried in the vessels? Nor is any other of the many hypotheses, which have been thought of for the solution of this fact, more admissible. Should it be imagined, that it moves along the nerves, according to the last opinion, we demand proof of that assertion; which has not yet, and will not easily be produced; while

i. DIFFERENT exciting powers are applied to different parts of the nervous system, none at once to them all; but the mode of their application is such, that, wherever they are applied, every one immediately affects the whole excitability (*d*).

49. EVERY one of the same powers always affects some part more than any other; in which respect, one power affects one part more than any other, another another, with the same inequality. The affected part is generally that to which any of the powers is directly applied.

«. AND, besides that, the more excitability has been assigned to any part, from the beginning of the living state, that is, the more vivid and sensible it is, the operation upon it of each exciting power, whether acting with due force, or in excess, or in defect, and through all the intermediate degrees of

the fact just now assigned carries its own demonstration in its bosom. The question resolves itself wholly into the following solution: Why does opium at once relieve the gout in the stomach, on the external surface, and in the remotest extremity of that surface? Because the property in the living system, upon which and by which it acts, is one and the same over all.

(*d*) A «, here, is inserted, to correct an error in the numbers of the original, the number 47. being twice repeated.

its action, becomes more powerful (*e*). Thus, the brain and alimentary canal possesses more vivid excitability, that is, more propensity to life, than other internal parts; and the parts below the nails, than other external parts (*f*). Again, while the fact, just now related, is such as it has been stated, the affection of the part bears no proportion to that diffused over the whole body.

50. AN estimate may be formed of the degree of affection in the part more affected than any other, and of that which is diffused over the whole body, by comparing the affection of the former with as many lesser affections, taken together, as equal the number of parts in all the rest of the body. Suppose the greater affection of a part (*g*) to be as 6, and the lesser affection of every other part to be 3,

(*e*) That is to say, if the exciting power acts with that force which produces health, the degree of its action is greater upon the given than any other part; as, also, when its action is either greater or less than that of the middle salutary degree.

(*f*) This paragraph is an addition.

(*g*) As the inflammation of the lungs in peripneumony, the inflammation of the foot in the gout, the effusion of water into a general or particular cavity in dropsy.

and the number of the parts less effected to amount to 1000 (*b*); then it will follow, that the ratio of affection, confined to the part, to the affection of all the rest of the body, will be as 6 to 3000. This estimate, or something very like to it, is proved by the effect of the exciting hurtful powers, which always act upon the whole body (*i*); and by that of the remedies which always remove the effect of the

(*b*) Which is keeping greatly within the truth.

(*i*) The hurtful powers which produce peripneumony, in common English, the inflammation of the lungs, are excess in eating, drinking, exposure to heat, or to the alternation of heat with cold, an over-proportion of blood from inactivity, or an increased velocity of its motion from violent labour, &c. the effect of any, or all which, must fall as much upon every other part of the system as upon a small portion of extreme vessels in the lungs; and, therefore, the morbid affection produced cannot be confined to the latter, but must be extended to the former. The whole body must partake of the morbid change; it must be one common affection pervading the whole. If this is not probation, let any thing left on record by authors, or any living physician, produce a single hurtful power, which, without affecting the system over all, can penetrate into the inmost recesses of the lungs, and there produce an inflammation. I shall be content with one such hurtful power, and, in exchange for it, when produced, give up my whole doctrine.

hurtful powers from the whole body (*k*), in every general disease (*l*).

51. IN this way temperature affects the surface of the body ; diet the stomach, and the rest of the same canal ; the blood and other fluids their respective vessels ; labour and rest the vessels again, and fibres of the muscles ; passion, and exertion in thinking, the brain ; all these affect the parts mentioned, each that upon which its action is exerted, more than any other equal part.

52. INSTANCES of the greater excitement of a part, than of the rest of the body, are found in sweat

(*k*) Here, too, I throw the gauntlet. Find a single remedy which removes the disease by an operation confined to the lungs. There is not one.

(*l*) A wound in the lungs, among other effects of it, may produce an inflammation. But that is not a peripneumony, or a general disease at all. It is, on the contrary, a local one, arising from a local cause, and to be removed by local remedies, if access could be had to them. And, though nothing has been more common than blending such cases of local and general disease, at the same time, no error which has hitherto crept into the art, needs more to be corrected. Such an accident is as much a peripneumony, as an inflammation, from a contusion in the foot, is a gout, or the swelled legs of women heavy with child is dropsy. But of all this, more hereafter.

in a person in health, flowing first from the brow under exercise, in checked perspiration, in inflammation, or an affection analogous to it, in diseases, in head-ach (*m*) and delirium. Proofs of a lesser excitement in a part, are excessive perspiration and sweat not occasioned by labour or heat (*n*), especially when it is cold and clammy, profusion of the other excretions, spasm, convulsion, partial palsy, weakness or confusion of intellect, and again delirium.

53. As the operation of the general powers, whether exciting in excess, in due proportion, or in defect, is directed to some one part a little more than to any other equal part; it is next to be observed, that it must be of the same kind in that part as in the rest, and, as well as the general operation, be either in excess, or in just proportion, or deficient, but never of an opposite nature. For, as the exciting powers are the same, and the excitability every where the same, it is impossible that the effect should not be the same. The excitement, therefore, is never increased in a part, while it is diminished in the general system—nor diminished, while

(*m*) Capitis dolor, in the original, is an addition.

(*n*) Vel calore is another.

the general excitement is increased. There is no difference here but one of degree ; nor can different effects flow from one and the same cause.

λ. FOR though, on account of the great sensibility of certain parts,—for instance, the stomach (*o*),—and the forcible energy of the exciting powers, either in stimulating or debilitating, exerted on them, these parts, run sooner than most others, either into direct or indirect debility, or into a great increase of excitement ; that, however, is only a matter of short duration, and it is not long before the rest of the functions are hurried into the same state. Thus, nausea, vomiting, diarrhœa, and other similar symptoms, produced by strong drink and opiates ; as well as the same affections apparently, and the gout, colic, gripes, and other similar symptoms, occasioned by abstinence and water drinking ; likewise good appetite, and the removal of the turbulent symptoms of the stomach and intestines, which we have mentioned, taking place in the convalescent state, in consequence of a proper administration of food, drink, and diffusible stimulants : all these are short-

(*o*) For the same reason, *i. e.* the sensibility of the genital system, wine, and other strong liquors, as well as opium, operate indirect debility sooner upon these parts than others.

ly followed by a similar state of the rest of the body, and the establishment of indirect debility is the consequence of the first case ; that of direct debility succeeds to the second, and health over all is the termination of the last.

54. A PART, therefore, is the seat of no general affection ; the whole body is the seat of them all ; because, with the inequality above related, the whole excitability is affected in them all.

55. NEITHER is the affection of the more suffering part the first, and afterwards propagated over the system ; for this good reason, that, as soon as the excitability is affected any where, it is also and immediately affected every where. Both facts are confirmed by the operation of every exciting power, affecting the whole body as quickly as any one part ; by general morbid affections appearing equally soon over all the system as in any part, and for the most part sooner (*p*). Therefore,

(*p*) The pain of the thorax in peripneumony, which is the sign of the inflammation within, never appears so soon as the general affection, and in more than one half of many hundred cases, where this fact has been painfully scrutinized, it did not appear till one, two, or three days after the commencement of the general af-

56. EVERY affection of a part, however formidable, occurring in general diseases, is to be considered as only a part of the affection inherent in the whole body, and the remedies are not to be directed to a part, as if the whole disease lurked there, and was thence to be taken off only, but to the whole body, to all which it belongs (*q*).

fection. Likewise, the pain of the gout is not the first of the phenomena of that disease. But all these, and many more particulars, will be brought in with more advantage, in their proper places afterwards.

(*q*) When the affection of a part is external, and therefore accessible, the application of a remedy over it, in conjunction with the use of the internal remedies, is of service, in consequence of their mutually assisting each other. A rag drenched in a liquid opiate, helps the operation of that remedy taken internally; but that is still by operating upon the excitability over all.

CHAP. V.

Of Contraction and its Effects.

57. THE intire and vigorous contraction with which muscular fibres are endowed, is in proportion to the degree of excitement upon which it depends (*a*). This is proved by all the phenomena of health and disease, and by the operations of all the exciting powers, and of all the remedies. Force and propensity to motion are the same. We must judge from facts, not from appearances. Consequently, tremor, convulsion, and every affection comprehended under it, are to be imputed to debility as their cause. The hurtful exciting power is a stimulus uncommonly irritating to the part.

58. THE degree of contraction which constitutes spasm, is not an exception from this proposition. It is a continued and deficient function, rather than a great and exact one; and, in so far as it is a great contraction, it depends upon the local stimulus of

(*a*) It has already been proved, that all the functions depend upon excitement; and, therefore, contraction among the rest.

distention, or of something resembling distention, it consists in diminished excitement, is devoid of force, and removed by stimulant remedies. The appearance of symptoms, which is ever misleading, is never to be trusted in forming any judgment. Take, now, both the fact and the explanation of it.

59. As the degree of contraction, in so far as it is a sound function, is connected with force ; from which we are to hold it, as a certain and demonstrated fact, that the density of muscular fibres, considered as simple solids, is proportioned to the degree of their contraction.

60. IT must therefore be admitted, that excitement is the cause of density. And the density is rendered greater and greater by the excitement, in proportion to the degree of the latter : Which it is easy to perceive, through all the intermediate degrees of strength, from the highest, or that which takes place in madness, and the density corresponding to it, to the lowest, or that debility which is discerned in the article of death, in death itself, and, after death, with a laxity corresponding to it. That this is the fact, is proved by the weakness of the same fibres in their dead, and their strength in their

living, state ; the only cause of which difference, we know for certain, is excitement (*b*).

61. HENCE, the cavities of the vessels, through their whole tracts, over the whole body, are diminished in a state of strength, and increased in weakness. This is the true cause of diminished perspiration (*c*).

(*b*) Experiments have been made by Baron Haller and others, to ascertain the comparative strength of muscular fibres, and the criterion of judgment was, their greater or lesser disposition to break by appended weights ; but the power by which any body resists stretching, is the density of that body. Those experiments show, that the fibres in the living body are prodigiously stronger than the same in the dead.

(*c*) And not any of the hypothetical ones, as constriction from cold, or spasm ; which are to be considered afterwards.

CHAP. VI.

The forms of Diseases and Predisposition.

62. EXCITEMENT, the effect of the exciting powers, when of a proper degree, constitutes health ; when either excessive or deficient, it proves the occasion of disease, and of predisposition previous to the arrival of disease. The state, both of the simple solids and fluids, follows that of health as constituted by the excitement, and a given state (*a*).

μ . THE first cause of the formation of simple solids, and the sole one of their preservation afterwards, is the excitement. Under the direction of the excitement, the living solids produce the blood from an external matter taken into the system, keep it in motion, form its mixture, secrete from it various fluids, excrete them ; absorb others, and circulate and expel them from the body. It is the excitement alone, through its varying degree, which produces either health, diseases, or the return of the sound

(*a*) This proposition overturns the principal systems which have ever appeared in the profession of medicine. But more of it after.

state. It alone governs both universal and local diseases. Neither of which ever arise from faults of the solids or fluids, but always either from increased or diminished excitement. The cure of neither is to be directed to the state of the solids or fluids, and only to the diminution or increase of excitement. But,

63. AFFECTIONS peculiar to parts, or organic diseases, being foreign from this place of the work, in which the treatment of the general state of the body is only considered, must be passed over at present.

64. THAT the excitement governs all life, is proved by the exciting powers acting always by stimulating, and thereby producing excitement; it is proved by the greater or smaller activity of the functions being proportioned to the force of the exciting powers; it is proved by the effect of the remedies, which always oppose deficient to excessive, and excessive to deficient, excitement, in effecting the cure of diseases.

65. THE notion of health and disease being different states, is disproved by the operation of the

powers which produce them, and of those which remove them, being one and the same.

66. THE general diseases, arising from excessive excitement, are called sthenic (*b*); those which originate from a deficient excitement, asthenic (*c*). Hence, there are two forms of diseases, and both are always preceded by predisposition.

67. THAT the origin of diseases and predispositions, just now mentioned (*d*), is the only one and true, is proved by the same powers which produce any disease, any predisposition, also producing the whole form of diseases to which it belongs; and by the same remedies, which cure any disease, or predisposition, also curing all the diseases and predispositions of its respective form (*e*). Betwixt

(*b*) Their old name is phlogistic; but as that word is absurdly metaphorical, from an old notion of that sort of diseases depending upon fire or flame; and because it was not a proper contrast to the term here to be opposed to it; as also, because it is still more ridiculous when applied to plants, which are comprehended in this doctrine: for these reasons, it has been thought proper to reject it, and substitute the other in its place.

(*c*) Phlogistic and antiphlogistic are thrown out.

(*d*) In the last paragraph.

(*e*) The same hurtful powers produce, and the same

these opposite sets of disease and predisposition, perfect health is the mean, leaning to neither extreme.

68. THE exciting powers, which produce predisposition to diseases, or those diseases themselves, should be denominated sthenic, or strictly stimulant. Those which pave the way to asthenic diseases, or produce the latter, should be called asthenic, or debilitating. The state of the body, producing the former, or the predisposition to them, is to be called Sthenic Diathesis; that which occasions

remedies remove, both catarrh and peripneumony, only differing in degree. The powers producing them are excess in the use of stimulants, and the remedies whatever moderates that excess. Evacuation, cold, and starving, are the means. All the difference is, that more of the means are employed for the cure of peripneumony, than for that of catarrh. The hurtful powers producing indigestion and fevers, are also the same, to wit, debilitating; and the remedies the same, to wit, stimulant. Only a small degree of the remedies, proportioned to the slightness of the degree of the cause, is sufficient for the cure of indigestion; while the most diffusible stimuli are required to effect the cure of fevers. Stimulants, in one degree or other, make the cure of all asthenic diseases; evacuants, and other weakening means, in different degrees, form the whole cure of the sthenic form of diseases. Might not this have been known long since?

the latter, with the predisposition peculiar to it, receives the new term of Asthenic Diathesis. Each of these diatheses is a state of the body, the same with predisposition and disease, varying only in degree. Distinguish the powers which raise both the diatheses to the degree (*f*) of disease, by the term, exciting hurtful powers. The sthenic diseases, in which the pulse is turbulently affected, should not be denominated fevers, or febrile diseases, but, for the sake of distinguishing them from the asthenic diseases which disturb the pulse, to which fever is a proper name, they should be called pyrexies.

(*f*) Or full measure.

CHAP. VII.

The Effect of both the Diatheses, and of the most perfect Health itself.

69. THE common effect of the sthenic hurtful powers upon the functions is, first to increase the functions, then partly to impair them, but never by a debilitating operation (*a*). The effect, in common to the asthenic hurtful powers, upon the same functions, is to diminish them, in such a manner, as sometimes to exhibit an appearance, but a false one (*b*), of increasing them.

70. IF the just degree of excitement could be constantly kept up, mankind would enjoy eternal

(*a*) The inability to perform motion in peripneumony, arises not from debility, for two good reasons: First, no powers, but those which produce all the other symptoms, produce it; and the same remedies, which remove the other symptoms, are equally effectual for the removal of it.

(*b*) Spasm and convulsion, supposed to arise from increased influx of the nervous power, are both occasioned, and cured, by the same powers, as all the other symptoms.

health. But two circumstances prevent that. Such is the nature of the sthenic diathesis, that it wastes the sum total of excitability assigned to every being upon the commencement of its living state, and, thereby shortening life, often by the interposition of diseases, sooner or later induces death. Which is one cause of mortality.

71. THE asthenic diathesis is hurtful by not supplying that degree of excitement, which is necessary to life, and thereby allowing the state of life to approach more nearly to that in which death consists. Which opens another gate of death to mankind.

v. FURTHER, diseases and death are the consequences of the change of either diathesis into the other. Either diathesis, by means of the hurtful powers producing the other, when these are employed as remedies (c), may, either from accident,

(c) Stimulants are the proper remedies for curing the gout; but they may be carried so far as to produce so much sthenic diathesis as to border upon indirect debility. A consequence of which is vomiting, purging, a feeling of burning in the intestines, intermission of the pulse, and strangury; which are only to be cured by substituting watery drink and low diet in place of those opposite remedies: Nay, the stimulants may be carried

inadvertence, or design, be completely converted into the other; and when that has been done, and opposite remedies to those, which in this manner proved hurtful, are employed, it may, by a contrary excess, be turned back to the same state from which it set out (*d*). This observation will be found of the greatest consequence in the cure of both pre-

so far, as to effect the establishment of indirect debility. Hence will arise paralytic affection, anasarca, dropsy, &c. The evacuants, and other debilitating remedies by which the diseases of sthenic diathesis are removed, may, by being pushed to excess, produce the last mentioned diseases, as depending on direct debility.

(*d*) Pushing the remedies of sthenic diseases too far, may reduce the patient to an incipient dropsy; and the remedies of the latter may be urged to such excess, as to pass the range of sthenic diathesis, and terminate in indirect debility. A is affected with a disease of debility, where the excitement has gone down to 10, the excitability mounted up to 70, degrees in the scale. What is to be done? By a proper use of high stimulants, the 30 degrees of lost excitement may be restored, and as many of superfluous excitability discharged, and the excitement and excitability made to meet again at the middle point of 40. If the remedies are carried up to any degree betwixt 40 and 55, they have gone too far, and produced predisposition to sthenic diseases; if still farther, but not exceeding 70, they will have produced one or other of these diseases. But carried beyond 70, the diseases, which their operation produces, are those of indirect debility. Any disease of this sort, when

dispositions and diseases (*e*). What is wanting to a further illustration of it shall be given afterwards. An illustration of the change of sthenic diathesis into asthenic, is found in hydrothorax succeeding peripneumony. Again, the immoderate use of stimulants may convert any asthenic affection into a sthenic one; as, when a violent cough, a catarrh, or an inflammatory sore throat, are induced in consequence of the cure of the gout, though proper in kind, being carried to excess in degree.

ξ. THOUGH excitement governs all the phenomena of life; yet the symptoms of diseases, which either its excess or deficiency produces, do not, of

treated according to a rule lately delivered, will be cured. But if the stimulants adapted to this purpose be urged further, the sthenic diathesis will again be produced; and the debilitating power, suited to the removal of it, may carry down the excitement below 40 into the range of predisposition betwixt 40 and 25; and then, by a further abuse of remedies, which should only be used in the range betwixt 40 and 70, the excitement may return to the same point from which it set out, to wit, the point of 10, and the excitability rise to its original point, that of 70.

(*e*) It must never be forgot, that we are nothing in ourselves, but, while we have any excitability remaining, in proper capacity to be acted upon, we intirely depend on the exciting powers acting on it.

themselves, lead to any proper judgment respecting it ; on the contrary, their deceiving appearance has proved a source of infinite error (*f*).

72. FROM all which has hitherto been said, it is a certain and demonstrated fact, that life is a (*g*) forced state ; that the tendency of animals, every moment, is to dissolution ; that they are kept from it (*b*) by foreign powers, and even by these with difficulty, and only for a little ; and then, from the necessity of their fate, give way to death.

(*f*) This paragraph is from an addition in MS. to the original.

(*g*) not a natural, but

(*h*) not by any powers in themselves, but

CHAP. VIII.

Of Predisposition.

73. PREDISPOSITION is a middle state betwixt perfect health and disease. The powers producing it are the same with those which produce disease (*a*).

74. THE period of predisposition will be shorter or longer, according to the greater or lesser force of the hurtful powers which have induced it; and the interval between health and actual disease will be more quickly or slowly got over.

75. THAT predisposition necessarily precedes diseases, is evident from the fact of its arising from the same exciting powers, acting upon the same excitability, from which both health and disease arise, and of its being an intermediate state betwixt them both. And, as the excitement of health differs much from that of disease, it is not, therefore, to be supposed, that the former immediately mounts up to the latter, and skips over the boundaries of predisposition; nay, the contrary is certain, and beyond a doubt.

(*a*) The rest of this paragraph is erased.

76. CONTAGIOUS diseases are not an exception from this observation ; because, whether the matter of contagion act by a stimulant or a debilitating operation, its operation is the same with that of the ordinary powers, that is to say, its cause is the same (b). If, as it sometimes happens, no general affec-

(b) The small-pox and measles are cured by the same means as peripneumony, or any other sthenic disease ; and, excepting the contagious matter, arise from the same stimulant hurtful powers ; they must, therefore, with the same exception, be the same. The only difference is, that they are accompanied with a contagious matter, and the other sthenic diseases are not. The amount of which is altogether unimportant. For, if the ordinary powers have not operated, the affection does not come under the definition of general disease ; none of the functions receding from their natural state, and the eruption amounting to no more than a slight local complaint. It is, therefore, only of use to regard the general circumstances of these diseases, making no more account of the local part, than to consider, arrange, and treat it as such. It is well known, that when, by the means used for the cure of sthenic diseases, without contagion and their sequel, eruption, the sthenic diathesis is prevented or removed, the local part gives no trouble ; and that the disease is never dangerous but from the neglect of that management. But the management is nothing else but the ordinary one in any sthenic case. If it should be contended, that, all which being granted, still the eruption may contribute a little : Be that so, and it can be but very little, what is the effect ? The

tion follows the application of contagion, if no undue excess or defect of excitement is the consequence ; in that case, the affection is altogether local, and foreign from this place.

cure shows it ; which is exactly the same as in sthenic diseases without eruption. The disease, therefore, being the same (for its mere local part is out of the question, as only requiring a peculiar exposure to cold, which is equally proper in every sthenic disease) ; every part of reasoning respecting it, and, consequently, that affecting the question about predisposition, must also be the same. If, therefore, other general diseases have their predisposition, so must the small-pox, the measles, and the plague itself. If it should still be said, that the eruptive diseases, though in other respects the same with the non-eruptive, differ, in so far as predisposition is required as a common circumstance between them ; the answer is, that that difference only respects their local part, which, without the powers producing the disease, is insignificant, and a mere local complaint. As general sthenic diseases, the small-pox and measles, and as general asthenic ones, contagious fever and the plague, to the full extent of their generality, have their period of predisposition ; we may have occasion afterward to establish the question about predisposition to them even as local diseases ; but this is not the place for it ; all that was required here, being to settle the question about predisposition to them as general diseases. In the same point of view, all that has been said of contagious diseases, will apply to diseases in which poisons may have been concerned.

77. If poisons communicate any sort of morbid affection without predisposition, such an affection, for that very reason, is not to be considered as a general disease, as also for this additional reason, that the affection is neither removed nor relieved by the usual cure of general diseases; and the diversity of the effect proves, that both the cause and exciting hurtful power are different from the general ones. In one word, since predisposition and disease are the same, varying only in degree, the unavoidable conclusion is, that whatever, with a given force, produces the latter, the same, with a lesser force, will produce the former. The only cure of most poisons, is their early discharge from the system. And if, as often happens, others, by wounding an organ necessary to life, are not curable, but fatal; the effect of both is foreign from our present subject, and to be referred to local diseases.

78. THE only thing to be regarded in the powers producing either predisposition to general diseases, or those diseases in their full force, is the degree of the former (*c*) compared with that of the latter (*d*), or of the individual powers compared with one

(*c*) Those which produce predisposition.

(*d*) Those which produce the disease.

another, for the purpose of discerning the degree of hurtful power which each possesses, and the degree of curative means to be employed, in order to remove the hurtful effect (*e*).

79. THE knowledge of predisposition is of great importance ; as enabling the physician to prevent diseases (*f*), to comprehend the true cause of them

(*e*) The distinctions of the powers producing predisposition, and of those which excite disease, under the general appellation of predisponent or occasional causes, have been multiplied and refined upon without end. But the whole system of remote causes, as they have been called, is false in its first idea. The hurtful powers, whatever they be called, which produce diseases, also produce the predisposition to them. Which, being once admitted, as it henceforth must, the whole fabrick of aitiology, or of the doctrine of remote causes, must fall to the ground: Consequently, simply remote causes, not divisible into predisponent and occasional ; relative remote causes, or such as are so divisible ; internal and external predisponent, internal and external occasional, causes ; approaching causes, or *causæ proprio*res, proximate causes, of which, not only one, but often several, are assigned to every disease, must cease in medical language, and the student's attention be turned away from the endless pursuit of distinctions without a difference, to the study of the solid and useful facts which nature holds up to his contemplation in great abundance, when once his eyes are fairly opened to behold them.

(*f*) From his acquaintance with the powers which lead to them.

founded in predisposition, and to distinguish them from local affections, which are widely different from them (*g*).

80. As the predisposition to diseases, and the diseases themselves, are the same state ; a great criterion, by which general diseases may be distinguished from local ones, will be found in this single circumstance, that general diseases are always, local never, preceded by predisposition (*b*).

(*g*) Such is the simplicity to which medicine is now reduced, that when a physician comes to the bed-side of a patient, he has only three things to settle in his mind. First, whether the disease be general or local ; secondly, if general, whether it be sthenic or asthenic ; thirdly, what is its degree ? When once he has satisfied himself in these points, all which remains for him to do, is to form his indication or general view of the plan of cure, and carry that into execution by the administration of proper remedies.

(*b*) An inflammation in some part of the stomach, or, as it has been commonly called, "the Inflammation of the Stomach," as if it were always of the same kind, produces many symptoms, which bear so great a resemblance to general sthenic diseases, such as peripneumony, that by systematics and nosologists, it, as well as many other inflammations of internal cavities, have been united into an order of diseases, supposed all to partake of one common nature. The gastritis, however, which is its nosological name, is essentially different, both from peripneumony and all the other general diseases of the order with which it is asso-

81. As the affection of a part is always the original source of local diseases, and as the distinctions which we have related are established upon the solid basis of truth ; it follows, that the following disorders must be rejected from the number of general dis-

ciated, both in other respects, and in that of which we are speaking. As arising from certain local hurtful powers, it is not preceded by predisposition. So, when I come to the bed-side of a patient under these circumstances, though I had no previous knowledge of the nature of his disorder, whenever I hear that he has swallowed ground glass, small fish-bones, or, perhaps, a great quantity of Cayenne pepper, I can be at not loss to discern the nature of the disease, and to find that it is altogether local ; and that for two of the best of all reasons : First, the person having been in perfect health immediately before that accident ; and, secondly, that the substances which he had swallowed were such as would naturally divide a sound part, or, in the language of our profession, produce a solution of continuity in it. From this, again, inflammation is an inseparable consequence. And it is equally an universal fact in the animal economy, that, when any part, whether internal or external, which possesses great sensibility, is wounded, or otherwise injured, in its substance, the pain arising from the inflammation superinduced, spreads symptoms of disorder over the whole system, which are liable to mislead those who are not in possession of the criterion we here point out. As such a case, then, is not preceded by predisposition, so peripneumony, as well as every other sthenic, every asthenic, disease, must, from the proofs of the universality of the fact, be allowed to be, it must be local. And here, again, we throw the gauntlet.

eases, how great soever their resemblance to them may be, and however much they may conceal their own nature. Whatever affections, then, arise from any state of a part, from stimuli, from debilitating circumstances (neither of which last produce any commotion in the whole body, or only do so in consequence of the force of the local cause), from compression of a part, from obstruction, from other diseases (*i*), and not from the exciting powers which produce general diseases (*k*); all these must be rejected from the number of general diseases: and that for the most solid reasons; to wit, their differing from them in the hurtful powers which

(*i*) Whether general or local.

(*k*) In the original, the words are, "a communibus noxis excitantibus;" that is, general exciting hurtful powers. But I have rendered it in the text otherwise, for the sake of making the sense plain, not only to my gentlemen readers, but such medical ones as have not heard the lectures on this work. For the sake of all, then (except my own pupils, who either have heard, or shall hereafter hear, my lectures), let it here be added, that the powers producing general diseases, are those which act upon the excitability, and are thereby quickly communicated over the whole system; while those which act upon the solid texture of a part, so as to cut, prick, bruise, or contuse it, &c. are the powers productive of local disease.

(*l*) The cause of the inflammation of the stomach has been mentioned. To concentrate it into a definition; it is

produce them, in their true cause (*l*), in their cure (*m*), and in every essential respect, agreeing with them in nothing, but in a deceitful and deceiving superficial appearance.

a solution of the continuity of a solid part in the stomach, by mechanical or acrid means, followed by inflammation and pain, and, in consequence of the great sensibility of the part, propagating symptoms of disorder over all the system. The cause of the general diseases is an increase of excitement, and the inflammation accompanying those diseases arises from that increase.

(*m*) The cure of gastritis, or the inflammation of the stomach, is to contrive means to keep the hurtful, and all rude matters, from coming into contact with the inflamed part, and leave that part to heal; taking care, neither to increase the local affection by too sthenic a diet, nor to produce a tendency in the inflammation to run into gangrene, by the abuse of evacuations and other debilitating powers; and if, than which nothing is more likely, the acuteness or continuance of pain should at last bring on a state of general debility, then to use the palliative means of preventing that bad consequence. The cure of peripneumony is to weaken the system, from the very commencement of the disease, by diminishing the energy of all the exciting powers; that of the abundance of the blood by bleeding; that of the over-proportion of the other fluids by purging, starving; that arising from the stimulus of heat, and other excessive stimuli by cold, &c.

CHAP. IX.

The general Diagnosis.

82. THE violence and danger of universal diseases is in proportion to the degree of excessive excitement (*a*), or its indirect or direct deficiency (*b*); as is proved by all that has been said above: consequently, their principal variety turns upon this variation of the degree of excitement.

83. THE only diagnosis (*c*), of any importance, is that by which general diseases are distinguished

(*a*) The excess is contained between 40, the point of health in the table, and 70.

(*b*) The cases of indirect deficiency, or debility, are comprehended betwixt 70 and 80. The direct are all the degrees below 40. Betwixt 40 and 55 consists predisposition to sthenic; betwixt 40 and 25 the predisposition to asthenic diseases.

(*c*) Diagnosis is the doctrine of distinguishing diseases from one another. It was naturally thought to be of the greatest importance, when diseases were supposed very numerous, and as different from each other as their names, and the various appearances of their symptoms. That, however, has been found to be altogether a mistake in this work, in which the endless variety of general diseases is

from local, or symptomatic affections, throwing the whole system into disorder, with a certain resemblance to universal diseases. To execute which, the following marks are to be understood to suffice for the detection of every general disease: First, its being preceded by a diathesis, and this followed by one similar to it, and removed by an operation of the remedies of an opposite nature to that which occasioned the disease; while, on the contrary, local affection is distinguished, first, by the affection of a part, and the disorder of the system (*d*) being such as may be traced back to that affection; and by the absence of the diathesis of the disease which the local affection resembles, or only its accidental presence.

84. IN order to attain this useful knowledge, learn what is necessary from anatomy; waste no time in superfluous study in it; peruse the works of the illustrious Morgagni; dissect subjects; dis-

reduced to two forms, a sthenic and an asthenic one, without any other difference but what consists merely in degree. The huge volumes of diagnostics are, then, in this chapter, superseded; and much labour, not only irksome to the artist, but worse than useless, often pernicious to patients, is proved to be superfluous.

(*d*) not arising from any change in the excitement, but

tinguish remaining effects from causes which have passed away ; examine diligently very many bodies of persons who have been hanged, or have died of wounds, and are otherwise sound ; compare these diligently with the bodies of those who have died of lingering and often repeated disease ; compare every particular with every other, the whole with the whole ; guard against the rashness of forming opinions, and, if you can, you will be among a very few who have ever been able to do so ; never expect to discover the cause of disease in dead bodies ; be circumspect in forming a judgment.

85. As internal local affections are often a certain taint, which remains after general diseases have passed away, it is therefore a matter of sound judgment to understand, that there is less or more reason to suspect the former, in proportion as the latter have seldomer or oftener preceded them.

CHAP. X.

*The general Prognosis, or general Judgment of the
Event.*

86. SINCE the powers producing sthenic and asthenic diathesis, always act upon a part with more force than any other equal part ; it follows, therefore, that the danger of disease during the predisposition, and of death during the disease, arises in proportion to the degree of diathesis, or to the importance of the part especially affected. But, its degree being given, the more equal the diathesis is, the more safe it is. Nor does it ever fall heavy upon an organ necessary to life, without instant danger. And hence it is, that peripneumony, apoplexy, phrenitis, erysipelas, and the gout, when the two latter affect the head with violence, are chiefly formidable.

87. LOCAL and symptomatic affections ought to be distinguished from general diseases, and the remarks made in the 83d and 85th par. transferred to this place.

CHAP. XI.

The General Method of Cure.

88. THE indication for the cure of sthenic diathesis is to diminish ; that for the cure of the asthenic diathesis, is to increase the excitement, and to continue to increase it, till that degree of it, which constitutes the mean betwixt its extremes, and which is suited to good health, be replaced. This is the only indication of cure which universal diseases admit of.

89. As both diatheses arise from an operation of the exciting powers, the same in kind, but varying in degree ; so they are both prevented and removed by an action of the remedies, also the same in kind, but opposite in degree, to that which produced them. As their cause, so is also their plan of cure, confirmed by an induction of proof (*a*), drawn from the whole course of facts and phenomena (*b*). The same debilitating remedies, which

(*a*) not one or two, but

(*b*) Suppose the sthenic diathesis mounted up to 60 in the scale ; to reduce it to 40, it is evident, that the 20 degrees of superfluous excitement must be taken off, and, therefore, that remedies, operating with a stimulus weak

remove any one sthenic disease, remove that whole form of diseases : and the same stimulant means, which cure any one asthenic disease, remove all the rest (*c*). Are not palsy, in so far as it is curable (*d*), and dropsy, in so far as it is a general affec-

enough to produce that effect, must be employed : they are still, however, stimulant, and of consequence, though they remove it, still the same in kind, as the powers which produced the diathesis ; it having been proved, that they are not to be supposed sedative, both for the reasons already given, and for this additional one, that proof has not been yet brought of a single sedative in nature. As their stimulus, however, is less than that which is required to support the ordinary state of health, they are understood to be debilitating, and, therefore, proper remedies of sthenic diathesis.

(*c*) Suppose the asthenic diathesis to have sunk down to 20 ; to raise it up to the standard of health, it is plain, from all the propositions hitherto laid down, that the 20 degrees of deficient stimulus must be restored ; and therefore, that remedies operating with a degree of stimulus adequate to the production of that effect, must be used. All the difference betwixt this force of stimulus and that of the other, is only a difference of 40 degrees. As, therefore, the debilitating powers, though stimulant, employed in the first, removed the morbid superfluity ; so, the stimulant powers used in this case, called stimulant by way of eminence, remove the morbid deficiency, and thereby restore the degree of excitement which constitutes the standard of health.

(*d*) When the prevalence of debility, and that to such a degree as to destroy the connection which subsists betwixt

tion (*e*), as well as the gout, and fevers, both relieved and removed by the same remedies? And are not peripneumony, the small-pox, the measles, rheumatism, and catarrh, removed by the same remedies (*f*)? But all these remedies in the asthenic case increase, in the sthenic diminish, the energy of life. In both cases, the operation is a common one over all, nor is there any diversity but in degree.

the fibres of muscles, and that function of the brain which we call will, takes place in parts of the system, not only remote from the centre of activity, but beyond the circulation, it must be of difficult cure; because the most powerful means of effecting that operation, act most powerfully when taken internally, and much more feebly when applied to the skin.

(*e*) What is called dropsy, consists of a case which is a general disease, and a number of others, which are only symptoms of local internal diseases, and to be treated in the last part of this work. These arise from ossifications in the large vessels next the heart, from tumors, whether scirrhus or steatomatous, impeding, by their pressure, the return of the blood by the veins to the heart. It is the general case which is here alluded to; and it may be affirmed with confidence, that it is to be cured, but not by evacuant means, and, on the contrary, by the high diffusible stimuli, necessary to the cure of diseases of high debility, such as the extremity of typhus fever, and an expiring gout. All these are cured by high stimulants.

(*f*) To wit, evacuants, cold, and starving.

90. THE remedies, therefore, of sthenic diathesis are powers, exciting by a weaker stimulus than that which is suited to health ; and are, in this work, to be denominated, for the sake of brevity, Debilitating, or Anti-sthenic, Remedies.

91. THE remedies of asthenic diathesis are powers, exciting with more force than suits the best health ; to be named here, in the practice, stimulant or sthenic, for the more convenient distinction of them from the other remedies.

92. THESE are to be employed with more or less freedom, in proportion to the higher or lower degree of each diathesis, and of the local affection depending upon it. And a choice of each should be made, in such a way, as that the most powerful may be adapted to the most violent case. But the cure of any disease of considerable violence, and scarcely of any at all, is never to be intrusted to any one remedy (*g*). The use of several remedies is preferable to that of one ; because, thereby, their direct energy is applied to the system to a greater extent, and the excitability is more com-

(*g*) What here follows, to "Plura," in the beginning of the next, is erased, as neither quite exact in sense, nor well expressed.

pletely, and more equally, affected. The person, who means that his remedies should go to a particular part (*b*), is equally wise, as any one would be, who, by cropping a twig, expects to eradicate a tree. What remedies are of general, what of local operation, shall next be mentioned.

93. GENERAL remedies are those, which, acting upon the excitability by an operation diffused over the whole body, reproduce the state of health.

94. LOCAL remedies are those which act, by a similar operation on a part, and, by an operation confined to that, restore the sound state.

95. SINCE every universal disease, every predisposition, depends upon increased or diminished excitement, and is removed by the conversion of that into the degree which constitutes the mean betwixt both ; for which reason, in order both to prevent and cure diseases, we must always use the indication proposed, and stimulate or debilitate ; never lie by, nor trust to the supposed powers of nature, which have no real existence.

(*b*) and there, from a local operation, and not by an affection of the excitability, serve the purpose,

96. IN the indication of cure, the only regard to be had to morbid matter, is to allow time for its passing out of the body. For whether it acts, like all other exciting powers, sometimes by a stimulating (*i*), sometimes by a debilitating operation (*k*), or whether its action consist in only giving the peculiar form of its respective disease, and thereby adding a local affection to a general one; in either case, there is no room for a new indication.

97. FOR if the disease, as a general one, be properly managed, every eruption, and its consequences, every species of inflammation, every species of ulceration, give way to the happy effect of the general plan of cure. And, when a contrary event takes place, in consequence of a bad method of cure, the local symptoms are proportionally aggravated. This is proved in the small-pox long ago, and in the measles lately (*l*), but with equal certainty; it is

(*i*) As in the small-pox and measles.

(*k*) As in contagious fevers and the plague.

(*l*) After the discovery of the nature of the catarrh, the catarrhal symptoms in the measles came naturally to be inquired into. A full trial was given to the refrigerant debilitating plan, in the author's own family, as well as among several patients, and, lastly, among near an hundred patients in England, treated by the father of one of the author's pupils; who all did well: while

proved by the plague, at least as often as it has been treated with any judgment, and by remedies proper in kind, and administered in due proportion ; it is proved by the malignant, or gangrenous sore throat (*m*), and by other cases of typhus, with a

of others, who were kept warm, according to a practice which Dr Sydenham had left as he found it among his Alexipharmac contemporaries, many died, and all had a bad recovery. The author's own son and name-son, a boy about six years of age, was stript half naked, and allowed to go out and play as he pleased. The only check upon him was, his being allowed nothing but fluid vegetable matter, when he returned home with a keen appetite. This matter will be further explained, and in a more proper place, afterward. But what has been said, was in illustration of the hint in the text.

(*m*) This case of disease has been considered as wholly and solely seated in the throat, and therefore conjoined with other diseases, where that local affection was understood to be the essential symptom, and a symptom which connected all the cases. But the other cases are sthenic, or to be cured in the ordinary way of bleeding and evacuation ; while such a practice is certain death in it, as being not only an asthenic case, that is, a case of debility, but one of the highest ; and, instead of depending upon the affection of the throat, the affection of the throat depends on it. Give stimulants to the patients labouring under the inflammatory sore throat, and you kill them ; bleed, purge, vomit, and starve, in the gangrenous case, and you ensure the same fate. Such, however, are the diseases which systematics, nosologists, and other strangers in the city of na-

similar affection of a part. In the two last, the danger to life depends upon the degree of the general affection, without which there is no occasion for any apprehension from the local. And the same proposition is so true, with respect to the three former, that, though the contagious matter has been applied, yet, without the general hurtful powers preceding, no true general disease arises, the danger increases in proportion to their violence, and the whole cure depends upon the general remedies. These are so many facts, which show, that no matter, whether of a contagious nature or not, contributes towards the cause of the general disease, which it accompanies or distinguishes, or, if it contributes any thing, that in that it differs not from the usual hurtful powers.

98. As, both in over-abundant and deficient excitement, the sound perspiration is diminished during the predisposition, and suppressed in the course of the disease (which has been already hinted, and will more fully be demonstrated afterwards); it is,

nature, have, from their ignorance of the place, in spite of their natural distance, brought all together. (See Dr Cullen's *Genera Morborum*, all the three editions, Genus VII.).

therefore, proper that it should be carefully supported and kept up, for the purpose of discharging every hurtful matter from the body. But neither does that suggest a new indication of cure; since the only means of effecting it are those, which otherwise remove both the diatheses, in proportion to their force, and which are not serviceable as local, but as general remedies (*n*).

(*n*) The discovery of the support of perspiration, upon a principle which extends to all the phenomena of the subject, was reserved for this work. The heating remedies of the Alexipharmac physicians were intended to support the perspiration, and thereby throw out a morbid matter: Which was a very unlucky thought in the sthenic diseases, the principal of which were peripneumony, of which we have already so often spoken; phrenitis, in which the brain was supposed to be inflamed; and the small-pox and measles; because the nature of those diseases, and the tendency of all the powers producing them, was to check the perspiration, (See No. 61.) from the excess of their stimulus; consequently, the addition of more stimuli, by way of cure, was to check it still more. But those diseases are only three out of the hundred of general diseases; whereas, the followers of a great man, who corrected that abuse through a fiery persecution, *ως δια πυρος*, against himself, went all into a much worse extreme. Their imitation of their master transported them into a rage to carry the plan of promoting perspiration, by the same means, through the remaining 97 of the hundred. And they succeeded

99. WHEN any one, who, during the former part of his life, had lived luxuriously, has now, at an advanced age, either from intention or compulsion, abated a good deal of his usual indulgence, and yet preserves some appearance of an abundance of fluids and of vigour; he must not, therefore, as is commonly done, be supposed to labour under plethora (*o*) and excessive vigour; but, on the contrary, unless there be a recent and evident cause for it, which is possible, he must be held for one who labours under indirect debility; and so much the more, if, to hurtful powers already too invigorating, in the number of which are all those which fill the vessels, directly debilitating powers have succeeded: And it is not a debilitating, or asthenic plan of cure, which would increase the direct debility, nor one

with a vengeance! For, as it is the nature of those diseases to transmit too great a quantity of fluids through the perspiratory pores, in consequence of the debility, which constitutes their cause; certainly the increase of that debility, that is to say, the increase of the cause should increase the effect. Which it most certainly did, through all the systems which have appeared for more than a century past. “*Stulti dum fugiunt vitia, in contraria currunt.*” This is intended only as a hint, to enable our intelligent readers to understand the fuller explanation of perspiration, which will soon follow.

(*o*) Or an over-proportion of blood.

too sthenic (*p*), which would increase the indirect debility, the principal part of the cause, and, consequently, increase the force of the disease: But it is a middle method, which is commonly called tonic, that should be pursued (*q*).

(*p*) Or stimulant.

(*q*) The blood is made from the food, and elaborated by the powers of digestion; that is, the more nourishing food is taken in, and the more strength there is in the system to convert it into real blood, the more, and also better, blood will be produced. The quantity of blood, so produced, may go to excess, as well as every other exciting power, the principal of which it is. But the question is, When, in whom, and under what circumstances, is an over-proportion of blood generated? Common sense would say, not at the beginning or the end of life, when the degree of nutriment used is far from being so considerable, as at the middle and vigorous period of life. Again; Which of the two sexes are supposed most liable to generate this morbid redundancy of the vital fluid? A simple creature, aided by nothing but natural sagacity, would be apt to say, the men; both because they eat more, and, from the greater variety of the modes of promoting digestion to which they are addicted, digest better. How medical systematics would laugh at such simplicity! How contrary that would seem to mystery, their Lydian stone, under which they think all wisdom so safely lodged, as to fear it would be dangerous to turn it up, and examine what was under it! What sort of habits are most liable to it? Not those who have the greatest bulk of simple solids, whether they eat or not, much less those who are liable to

100. Since to the degree of disease (under which, to make few words, let predisposition also be (*r*) comprehended), the degree of curative force should be accommodated ; in the indication of cure, therefore, regard should be had to age, sex, habit, constitution, climate, soil ; in fine, to the operations of all the exciting powers in general, of all the hurtful ones in particular, of all the remedies, whether they have previously been administered properly, or improperly.

101. THE subjects of direct debility are children, women, persons under inanition (*s*) ; those who have had an insufficient share of stimulus ; those who have a delicate set of solids ; those who have been accustomed to moisture, whether from the climate or soil ; finally, all persons in a languid state, without a preceding vigorous one, either from the powers which produced their diseases, or from the mode of cure employed to remove these.

102. ON the contrary, the persons in whom indirect debility is prevalent, are adult males ; those bleeding discharges, who can neither eat nor digest ; but all those who eat and digest will.

(*r*) For “comprehenditur,” in the original, now read “comprehendatur.”

(*s*) Or an empty state of the vessels.

who are full and over stimulated, and so much the more, the longer the latter has been the case ; those who have formerly had vigorous habits ; those who have been overheated, whether with moisture, without it, or from whatever source ; in one word, all, whose former vigour, either from the ordinary hurtful powers, or improper methods of cure, is now converted into a state of languor.

103. IN the cure of indirect debility, whatever be its degree, from whatever sort of excessive stimulus it has arisen ; of the stimulus, which is to be employed as the chief remedy, not much less than that which produced the disease, should, at first, be used ; and then less and less, till the disease is cured.

104. WHEN the first part of the cure is completed, and the convalescent now can use the more permanent and natural stimuli, he should gradually be confined to them, and drop the use of the more diffusible ; with this distinction, that if he has been in the habit of using a considerable deal of stimulus, he may be indulged in something extraordinary in that way for some time (*t*).

(*t*) This indulgence is chiefly intended for those, who have gone to some excess in the use of the stimulus of

105. THE cure of the hurtful effect of any stimulus should first be set about, by changing it for a lesser one, this for a still lesser ; and the intention of cure should be always to pass from the use of

drink, and who still, without it altogether, are not capable of taking enough of food and other durable stimuli for their support. The aim, however, of all such persons (with the exception only of those who are of an advanced age, or of those whose debility threatens to run a certain course), should be, to lay aside the daily use of drink altogether, and to indulge in occasional approaches to excess as seldom as possible. Some persons, even beyond the fiftieth year of their age, when they found they could eat, and perform all their other functions with vigour, have had the resolution to abstain from all sort of strong drink, not only with impunity, but with a most wonderful improvement of their health and vigour. Another advantage, arising from this management, is, that, whenever any disease, to which a person may be liable (such as the gout, various affections of debility, chiefly prevalent in the alimentary canal ; in a word, the diseases of either form of debility), either returns, or threatens to return ; a return to the use of wine, and other strong drink, will then become an excellent remedy, and even supersede the use of the high diffusible ones. That practice would be attended with this further advantage, that, when the occasion which called for it was over, and the disease prevented or removed, the person might again lay aside the use of drink, with all the good consequences he had formerly experienced from the practice, and thereby both prolong his life, improve his health, and enjoy the proper and vigorous use of all his functions.

the more violent and diffusible, which nature in her sound state rejects, to that of the more durable, and more suitable to nature when unoppressed, till the healthy state can at last be maintained by the usual supports (*u*).

106. IN the case of indirect debility, when the view is to restore vigour, a debilitating plan of cure should be avoided; because no sort of debility is to be cured by another, nor any degree of it by any degree of another. It is only in the progress to indirect debility (*x*), that directly debilitating powers are suitable for the purpose of supporting the vigour, in that case, in danger of being worn out (*y*): such as cold bathing, lowering the diet, weak

(*u*) In many diseases of debility arising from a former excess, the stimulant effects of which have passed away, the use of cold water, though in gratification of the patient's craving, and of other thin potions, as well as of vegetable aliment in a fluid form, and of evacuation of every kind, is most hurtful.

(*x*) Betwixt 40 and 70.

(*y*) At 65, there are only 5 degrees of vigour left, which, either by a continuance of the same excessive stimuli which produced them, or, by the addition of a degree proportioned to that effect, would be worn out. Remove some of the stimulant powers, the excess of excitement will be diminished, suppose to 60; remove more of the former, and the excess of the latter will be

drink, and a similar abatement in the use of the other stimuli.

107. FOR the cure of direct debility, we should begin with the smallest degree of stimulus, and then rise to the use of a greater and greater, till the morbid abundance of excitability be gradually worn off, and the health at last restored.

108. WHEN the disease arises from the want of any one stimulus, the return to its use should be gradual, and facilitated by other stimulants more powerful than itself.

109. ALSO, in this part of the general method of cure, debilitating, either directly or indirectly,

further diminished, till the excitement is reduced to its natural healthy standard of 40. The state of excitement, then, within this range, that is, between 40 and 70, especially in proportion to the approach of the excess to 70, is that to which only directly debilitating powers should be applied. In all cases above 70, where the excitement is gone, and below 40, where it constantly decreases all the way, till it is lost at 0, directly debilitating powers are pernicious. How bad, then, must the only practice be, which we find in books and lectures, a practice transmitted from the first accounts of our profession, and which deals in the use of no other means but directly debilitating ones? Bad, indeed, must it be!

should be avoided ; both for the reason formerly given, and also, because the stimulant plan of cure, which is the only proper one, when carried to excess, converts the sthenic diathesis (*z*) into the asthenic (*a*), and the latter into death (*b*). For which reason, while, on the one hand, the debilitating powers, mentioned before, are to be avoided ; it must, on the other, not be forgot, that the force employed in the cure should be accommodated to the degree of morbid state. The thirst, which is occasioned by debility, is increased by draughts of cold water, is hurried on to (*c*) nausea and vomiting ; is quenched by pure wine, or spirit, which prevent the troublesome symptoms that would otherwise follow. Pure wine (*d*) increases the thirst which proceeds from a sthenic cause, and excites the same troublesome symptoms which cold water does in the other case ; cold water allays it, and prevents the future tumult.

110. SINCE, therefore, the same powers excite all the phenomena of life, and produce sometimes

(*z*) that between 40 and 70,

(*a*) between 70 and 80,

(*b*) at 80.

(*c*) the higher symptoms of

(*d*) which is one of its principal causes,

an excess, sometimes a just proportion, sometimes a deficiency, of life, according to the various degrees in which they are applied; and since the same observation extends to the same powers, when they are employed as remedies of diseases; let it, therefore, be an universal rule, never unguardedly to convert either diathesis into the other. And, as every disease, which debilitating powers remove, is sthenic, every one, which is cured by stimulant means, is asthenic; the knowledge of that may furnish the proper means of caution against mistake.

THE
SECOND PART.

CHAP. I.

Of the hurtful Powers, which produce either Diathesis, Sthenic, and Asthenic.

111. THE powers producing the state of the body, upon which the predispositions to sthenic or asthenic diseases, or those diseases themselves, depend, that is, which produce the sthenic or asthenic diathesis, are those which were mentioned before (a).

The hurtful Powers producing both Diatheses.

112. HEAT, which is necessary to the production, the growth, and the vigour of animals and vegetables, as also to the form of the elements (b),

(a) 11. 12.

(b) In a certain degree of diminished heat, water freezes; but if such a diminution of it could be found

from its action upon the surface of the animal body, directly stimulates the whole; an effect which it also exerts upon vegetables. From this action of heat there is no exception, when it keeps within a certain range of scale; but when it is either deficient, where it takes the name of cold, or excessive, its effect varies (*c*). This stimulus, in a moderate degree, produces its effect in due proportion, in a degree above which, the excess of its action is such, as to produce more or less of sthenic diathesis.

113. BECAUSE the action of heat is increased somewhat more upon the surface than in the internal parts, where the temperature is nearly stationary, it therefore stimulates more on the former than in the latter. Hence, in the phlegmasiæ (*d*), the inflammation is always external. The same agent increases the tone of the muscular fibres every where, and, consequently, their density (*e*). Hence, as the diameters of all the vessels are diminished, so those of the extreme vessels every where, and especially

as to freeze air, the whole fabric of the universe would rush into dissolution.

(*c*) as shall be shown by and by,

(*d*) diseases with inflammation of a part,

(*e*) See Chap. V. Which produces a suppression of perspiration, by some imputed to constriction from cold, by others to constriction from spasms; both erroneously.

in the skin, where a greater force of the cause is exerted, are often intirely effaced. But actual suppression of the perspiration is incompatible with predisposition, and proceeds only from the diathesis, when it arises to the just measure of disease (*f*):

114. HENCE, in the measles and small-pox, the irritating matter, together with the perspirable, is detained. And not only in these, but all other sthenic diseases, the perspiration is suppressed, the excitement, both upon the surface and in the rest of the body, is increased, and catarrh particularly induced (*g*).

(*f*) The perspiration is diminished during the predisposition; but the condensing power is not sufficient to suppress it, till it attains the degree of producing the disease.

(*g*) Calefacients, or heating things, were one of the means which the Alexipharmac physicians employed to force perspiration; but the principle is now laid down, which shows that they produce the opposite effect. Hence, the merit of Dr Sydenham in recommending cold, both in the small-pox and in peripneumony, in which disease, he took his patients out of bed, and placed them in an easy chair. Happy had it been for the profession, and happier for the sick, had he extended his improvement to the measles and catarrh, and all the rest of the few sthenic diseases, and stopt there! But, by extending his antiphlogistic and refrigerant doctrine to the whole form of asthenic diseases, the harm and good

115. HEAT, in extreme excess, whether it acts hurtfully by its duration or intensity, constantly debilitates, by diminishing the tone, and producing laxity instead of density. Which effect is somewhat greater upon the skin, to which the direct energy of heat is applied, than in the interior parts, in which there is little change of temperature. Hence, arises sweating, as in the Torrid Zone; hence, the diameters of all the vessels, and particularly of the perspiratory vessels, are enlarged. Hence, proceed the colliquative sweats in fevers, and a similar state of the belly. Hence, also, corruption of the fluids, and not from a state of them directly produced by corrupting powers (*b*).

116. THE same power in the violent measles, in the confluent small-pox, in fevers, and in every

he did were in the proportion of 97 of the former to 3 of the latter.

(*b*) The idea of certain powers, of a tendency to corrupt our fluids, and of certain others to correct that effect, and take off the degeneracy, long prevailed in the minds of systematics, and is not, among many of their followers, yet laid aside. Heat was one of the number; but that it acts so, is disproved, not only by the explanation here given, but by the certainty of the fact, that the same effect is produced by cold, as well as every other debilitating power.

kind of asthenic (*i*) disease, in which the perspiration is deficient, does not lessen the deficiency (*k*), though it expands and enlarges the vessels, but, on the contrary, increases it (*l*).

117. COLD, inimical to animals, vegetables, and the elements, weakens the rest of the system, and still more the surface, the temperature of which it almost only diminishes, and it produces that effect always by a direct operation, always in proportion to its degree. Cold, equally as excessive heat, produces atony and laxity of the vessels, gangrene, and the other effects of excessive heat (*m*).

118. THAT these effects of the extremes of temperature arise from debilitating, not generating putrefaction, from an affection of the excitement, not of the fluids, plainly appears from this; that other exciting hurtful powers, such as famine, an overabundance of blood, as in the case of those who die of peripneumony, and similar hurtful powers, which neither have been, nor can be, believed to affect

(*i*) or disease of debility,

(*k*) that is, does not increase the perspiration,

(*l*) *i. e.* diminishes perspiration.

(*m*) In Siberia, the phenomena of cold on the human body very much resemble those of heat.

the fluids by any direct operation upon them (*n*), produce both the symptom of corruption, and all the rest of the symptoms, and the same stimulants, which remove the latter, remove the former. Nay, the supposed antiseptics, such as wine, Peruvian bark, acids, and other things of that kind, are either intirely destitute of that operation, or they neither are given, nor can be given, in that quantity, by which they can have any tendency to affect the mixture of the fluids: In fine, the effects of inanimate matters upon one another are never, with any propriety, transferred to living systems. Though,

(*n*) Famine, acids, and cold, have all the same effects upon the fluids which the putrefying substances were supposed to have; but surely acids produce no putrefactive process; neither can want act as positive matter; nor cold be supposed to produce any such effect. In a word, any corruption which is produced, arises only from the weakness of the heart and arteries, predominant in their extremities. They cease to act; the fluids within stagnate, and, under the heat of the body, degenerate. This is the true cause of the corruption. And the remedies are not correctors of the corrupted mass; but whatever invigorates the whole body, and consequently the heart and arteries. Nothing can be more absurd, than to suppose that a glass or two of wine and water, a little bark, and so on, after being blended in the whole mass of fluids, should go to a portion of fluids in the extreme vessels, even without the circulation, and, by mixing with it, change its qualities.

then, the fluids are frequently corrupted, the corruption is the effect of weak vessels not giving a sufficient mixture or diffusion to them, but is never the cause.

119. THE disagreeable sensation, both of cold and of heat, in extreme, is also hurtful, by diminishing the sum total of stimulant operation, which, in so far as it is agreeable, is serviceable by stimulating (*o*).

120. As cold is naturally so debilitating, and all debilitating powers diminish excitement, it is, therefore, never of service but in sthenic diseases, that is, in those which are in their progress towards indirect debility (*p*); because the excitability, already too abundant, can never be rendered more abundant, nor, when too much wasted, rendered more accumulated, without an aggravation of the disease (*q*); excitability admitting of less stimulus, in proportion as it is either more abundant, or more ultimately wasted. When the debility is moderate, a mistake of this kind is less evident; but in a high degree of debility of either sort, a violent disease,

(*o*) See note (*d*) in par. 21.

(*p*) See 106.

(*q*) 46. 47.

or even death itself, may be the consequence of the smallest increase of debility (*r*).

121. As cold, as well as excessive heat, relaxes, a fact which is seen in the cure of the small-pox, and of every sthenic disease, hence we are to understand, that the property of cold, in constricting (*s*) inanimate matter, does not extend to living

(*r*) When the debility of the direct kind is very moderate, that is, the excitement has not sunk much below 40 in the scale, the short suspension of a few degrees more would not do much mischief. Suppose the excitement at 30 instead of 40, and a dip in cold water has brought it down to 25, the effect even of that is not of a trifling nature; the debility, by this means, has passed the whole range of predisposition, and arrived at the degree where disease commences. It is true, the excitement will rise the moment the person is taken out of the bath; but still something is lost. The very accumulation implies a reduced disposition in it to be acted upon by stimuli. A person, who has abstained from any one stimulus for a given time, when it is again applied, will not bear near so much of it as he did formerly. If he abstains longer, he will bear still less, till, at last, he will be fit to bear none at all. If, on the other hand, the excitement should have fallen to 10, an addition of debilitating power would be attended with the utmost danger, not only of increasing the disease, but of inducing death.

(*s*) or condensing,

matter (*t*). The diminution of the bulk of the surface (*u*) arises from debility of the vessels, not sufficiently propelling the fluids, and filling the vessels. In this way does cold produce asthenic diathesis.

122. BUT, as always less and less excitement arises, in proportion as stimulant operation has been applied, till at last no more at all is added; cold (*x*), as well as any other directly debilitating power, may, according to various degrees of it, produce health, and all the degrees of sthenic diathesis (*y*); in the following way, however, only: It stops the waste of excitability, makes the body more susceptible of stimulant operation, checks the progress to indirect debility, and stems the latter. But it only effects that, by checking the career of heat and other stimuli which accelerate indirect debility, and by

(*t*) It has been alleged, that the diminution of the bulk of the body by cold, furnished an argument in favour of its being an astringent to it, as it certainly is a condensor of dead matter.

(*u*) or shrivelling of the skin,

(*x*) on that footing of action,

(*y*) From the highest to the lowest, from that degree of it, which, under the circumstances here mentioned, produces a moderate catarrh, to that, where the modification of its action rises to the degree of being adequate to the effect of producing a peripneumony.

keeping the excitement within the boundaries of vigour. And hence vigour, in cold countries, when the body is defended by clothes, the shelter of a house, the warmth of a fire, as well as by its own proper motion. Hence, also, the bracing, by cold, of parts which have been relaxed by excessive heat. Lastly, hence a remedy for the corruption of the fluids, which consists in invigorating the vessels, not correcting the degeneracy of their contents. This effect of cold upon the surface, which is nearly the only part of the system subject to refrigeration, is somewhat greater than in the internal parts.

123. THE debilitating effect of temperature, and therefore also its hurtful tendency, is increased by moisture.

124. OF the articles of diet, the only food in danger of being too stimulant, is flesh and land-animal food, used in great quantity. Meat too salt, and hardened, especially when it has now begun to spoil, is an exception.

125. THE same thing is to be said of condiment; of which a very small portion, upon account of its high degree of stimulus, is sufficient.

126. SPIRITUOUS, or vinous drink, in which the alkahol is always diluted, stimulates more quickly, and more readily, than seasoned food, and its stimulus is in proportion to the quantity of alkahol which it contains.

o. BUT there are stimuli, which possess an operation as much quicker, and more powerful (z), than these just now mentioned, and which are the agreeable and proper ones in health, as their operation is of shorter duration. To these, the name of diffusible is to be given. They rank above strong drink in the following order :

π. NEXT to strong drink, and immediately above it, stands musk ; above it, volatile alkali ; higher than this, ether ; and the highest of all, as far as experiments have yet reflected light upon the subject, is opium (a).

(z) than that of the articles of diet,

(a) We are pretty certain of the exactness of that place in the scale which we have assigned to opium. Nor is our arrangement of the others uncountenanced by the same kind of criterion ; but having not yet made all the trial necessary to establish the proposition, we defer any final decision of this point to an after opportunity.

P. THESE, according to their degree, possess the property of converting the asthenic diathesis into a cessation of all diathesis in health ; this into sthenic diathesis, the sthenic diathesis into indirect debility, and the last into death ; all which they accomplish with as much more ease and promptitude, as they are more powerful than all the rest of the stimuli (b).

127. THE stimulus of the articles of diet, not exclusive of the diffusible stimuli, should be denominated direct ; because it acts directly and immediately upon the excitability of the part to which it is applied. The direct stimulus, at least in so far as it regards the food, is assisted by another, depending upon a distention of muscular fibres, on

(b) In the use of the diffusible stimuli, great care should be taken to apply them only to the cases which require them ; which are only the diseases of the highest debility, or of which the intolerable pain, besides tormenting the patient, threatens the worst consequences. All from the end of the 126th, is an addition in the MS. this most valuable part of the exciting powers, whether considered as a part of diet, as the chief of them are among the Turks, or as used for the prevention of diseases, to which there may be a strong bias in the habit, or as remedies of these diseases when they have come on, or as hurtful powers when improperly employed, having been left out in both the editions of the Latin work which have yet been presented to the public.

which account, for the sake of distinction, the latter should be called indirect. As the latter is afforded by the bulk of animal and vegetable food, so, the former is produced by a relation of the stimulus to the excitability. The indirect acts upon the living solids, in so far as they are to be considered as simple; the direct acts upon them as living only. From a long and habitual excess in food and drink, at last indirect debility arises, and the group of diseases depending upon it (*c*).

c. ALL these stimuli have also a tendency to produce asthenic diathesis.

128. ALL vegetable food (*d*), and too sparing

(*c*) When I make a meal of animal food, much less bulk is requisite to give the same nourishment, than when vegetable matter is the only one employed. What makes the difference is, that there is something in the animal matter which affords a nourishing stimulus, independent of its bulk; and though the vegetable matter is not altogether devoid of that kind of stimulus, it, however, possesses it in a much smaller degree. Both stimuli are necessary, but chiefly the direct, by which animal food chiefly acts; and, therefore, is the vegetable the worst and weakest sort of aliment, because it chiefly acts by its bulk of matter. A small portion of the indirect stimulus is necessary; hence the very general use of bread. But our vigour of mind and body depends upon the direct.

(*d*) Taken in any quantity.

an use of animal, as also meat too salt, and deprived of its native juices, by keeping, when better nourishing matter is withheld, constantly weakens, and thereby produces asthenic diathesis through all its degrees. Hence arises that remarkable imbecility, both of body and mind, which distinguishes the Gentoos, who follow the Brahminan ceremonial of religion. Hence the diseases of the poor every where (*e*); hence scrofula (*f*), fevers (*g*), epi-

(*e*) The nourishment of animal food needs only a little support of tension from a moderate quantity of bread; but that vegetable food, even when supported by strong condiments, in no quantity whatever, ever gives due support, appears plainly from the instance brought in the text. Of the poor labouring people in Scotland, who chiefly live on vegetable matter, it would take three to go through the work which one Yorkshire man, nourished by bolting fat pork, can easily execute. And, among the Gentooservants, a dozen is not able to perform as much work as a single English servant. A year's experience of vegetable food, and its pernicious consequences (Vide the Preface), has now put the question, about the supposed salutary effects of low living, and the pretended virtue of a rigid observance of it, beyond all doubt, and brought irrefragable proof of its weakening effect.

(*f*) Scrofula, though supposed hereditary, produces its worst effects, not from that circumstance, but the method of management, both for the prevention and cure.

(*g*) Various particular, and sometimes specific causes,

lepsy, cough with profuse expectoration and hemorrhage, and the whole band of asthenic diseases. The direct debility flowing from this hurtful power, affects the stomach somewhat more than any other equal part (*b*); the consequences of which affection are, loss of appetite, stomach sickness, vomiting, very loose belly, and similar disturbances of the first passages.

7. BUT while improper aliment produces such effects, these will also be induced by an ultimate excess in the use of food consisting of the proper material; which must be inferred from the universal effect of all the other stimulant powers, when their operation has been pushed to the same excess (*i*).

have been assigned for the production of fevers; but it shall be proved, that whatever debilitates in a high degree, is adequate to that effect.

(*h*) Chap. IV.

(*i*) It will now appear, how far an assertion of the opposers of this doctrine is just or calumnious; low living and starving are condemned, for the facts and reasons assigned; But can it now be said, that the doctrine is friendly to intemperance? On the contrary, it has reduced the fact to its proper standard, reprobating the extremes, and establishing the mean under which virtue takes her post. It is certainly as immoral, or irreligious, if you will, to hurt health, and hasten death by abstinence, as by a luxurious excess. There is a gloomy

The mean betwixt the extremes of the hurtful powers, in so far as diet is concerned, is abstinence (*k*).

129. THE withholding, also, of the use of condiments, which, without animal food (*l*), are not sufficient to give strength, gives an additional weakness.

130. STRONG drink, and the diffusible stimuli, are never necessary to young and strong people, upon account of their rapid tendency to indirect debility, from their high stimulant power; nor are they even safe. But, in persons who have been accustomed to them, in the case of those who are advanced in age, and of those who are weak from that or any other circumstance, cold, watery, acid, or fermenting drink, has a great influence directly,

luxury in superstition, a cheerful one in sensuality; both bad.

(*k*) At least, it stands at the foot of the scale of directly debilitating powers, if they are to have the rank of standing uppermost, as being most hurtful, and to be followed by the enumeration of the indirectly debilitating powers, as being next so, which, by the way, is the rank which nature seems to point out for both.

(*l*) as in the case of the Gentoos, who make use of a great deal of condiment with their vegetable aliment.

and excess in the use of strong drink indirectly, in producing asthenic diathesis.

v. IF the diffusible stimuli, after they have been employed, are too quickly withdrawn, they, in the same manner as the more durable, allow the excitability to accumulate, and direct debility to come on, and, consequently, may be said to produce asthenic diathesis. But asthenic diathesis is never the consequence of withdrawing their operation, at least worth speaking of, but when that has been habitual. And all the hurtful effects, which they have most untruly, to the great detriment of mankind, been said, rather than are now said, to occasion, arise, not from themselves, but from the want of knowledge how to manage them. And as this operation of diffusible stimulus ought to be supported by that of a durable; at the same time, it must not be confounded with debilitating powers. What disturbances, during the operation of opium, will not a breath of cold air, affecting the body, create? And how easily, as well as quickly, are they all removed, by carefully covering up the body (*m*)?

(*m*) As there are cases of indirect debility from an habitual use of strong drink, there are also others, from a mistaken or intemperate use of the diffusible stimulus, particularly opium. Both of them require nicety and

φ. BOTH the other diffusible stimuli, as well as opium, and the more durable one of strong drink, by an indirectly debilitating operation, produce asthenic diathesis.

131. A FURTHER stimulus is an abundance of chyle and blood; by this the excitement is increased every where, and particularly in the blood-vessels, and increased in degrees proportioned to its degree of abundance. The quality of the blood, at least, as a cause, is of no effect; it is the quantity only which is. The quantity, by its action of distending the muscular fibres of the vessels, acts with a constant impulse (*n*). The doctrine of plethora, so

skill in the management of them for their cure; for which consult Chap. XI. from par. 103 to 110. The management is out of our present question; but what affects that is, that, from this observation, we can clearly find, as it was to be expected from the analogous operation of the other exciting powers, that the diffusible stimuli, when their operation is carried to excess, will also produce an asthenic diathesis of the indirect kind.

(*n*) The blood, by its quantity, distends the muscular fibres of the vessels; that distention stimulates the excitability in the fibres, and produces excitement, commonly called their irritability: thus excited, the fibres contract; the contraction of each portion sends the wave onward to another portion: when the wave has

noted in the medical schools, is only applicable to sthenic diathesis, and takes place in proportion to its degree (*o*).

passed any given portion of vessel, its fibres again relax, and make way for the next, which is pushed along in the same manner. In this way the circulation goes on, in all cases, while life remains; contraction and relaxation constantly alternate; the former propelling the wave, before the latter opens to receive the next. But the vessel may be in different states with respect to its power of either contracting or relaxing. When it is weak, which every part of the vascular system is, as often as all the rest of the system is weak, both the contraction and relaxation of each portion of vessel is imperfect. The contraction, from its smallness, and the relaxation, from its being more owing to the passive state of the simple, than the active state of the living, fibres, leave betwixt them a large diameter upon the whole. But, in a vigorous, or sthenic, state of the whole system in general, and of that of the vessels in particular, the contractions are strong and forcible, and the relaxations active, and in consent with the contractions. Hence, the diameter of each portion of vessel is diminished upon the whole, and, while the quantity of the blood is at the same time increased, the action and reaction are great; the blood distends with mechanical, the vessels resist with vital, energy; the mutual effect of both upon the excitability is considerable; all is activity, all is force; and these are in exact proportion to their cause over all the sthenic diathesis. This state of the vessel, in so far as it respects the muscular fibres, is its tone; in so far as it respects them as simple solids, its density. It is a sthenic state of the vessel, opposed to

132. THE effect of distention (*p*) is increased by the velocity of the blood, both as arising from other sources, and especially from that motion of the body which its own muscles perform ; a motion, which, by compressing the veins, carries the blood more quickly back to the heart.

133. NOTHING is more effectual than these two last mentioned stimuli, in producing sthenic diathesis, and the diseases depending upon it. Those diseases are violent, in proportion to the over-proportion of the blood, and the rapidity of the force with which it flows ; a fact, which is proved by all the exciting powers, all the symptoms of those diseases and, especially, the pulse of the arteries ; it is also proved by the great efficacy of bleeding, purging,

the asthenic first described, which is distinguished by the epithets of atony and laxity ; which, however, opposed to tone and density, are only relative terms, employed for convenience, not absolute : like the term cold, used for diminished heat, they only signify a diminution of tone and density.

(*o*) It is a curious fact, that, while the truth of this proposition is demonstrated, the plethora of the schools is only understood of a state of the vessels diametrically opposite to a just idea of plethora.

(*p*) which we have been describing,

abstinence from food, and rest, in the cure of the disease (*q*).

134. WHILE an over-proportion and velocity of blood is a chief cause of sthenic diathesis, there is nothing more powerful in producing the asthenic, than that penury of blood which the greatest celerity of motion accompanies. Hence, the smallness, weakness, and quickness of the pulse: Hence, the excitement is diminished every where, and, in preference to other equal parts, in the whole sanguiferous system, and that in exact proportion to the penury.

χ . FROM this state of the vessels, arises the discharge of blood from the lungs, from the uterus, from the anus, or around the anus, from the urinary passages, and through the perspiratory pores. Hence arise disturbances of the stomach, want of appetite, loathing of food; and, therefore, upon ac-

(*q*) Relief from bleeding, and other evacuations, is certainly a good argument for the cause of the disease being so far owing to an over-proportion of blood; and rest is as good for the proof of agitation of the vessels being concerned in the cause: Besides, exercise is otherwise a noted cause of quickness of the pulse: and the hurtful powers and symptoms are equally decisive.

count of want of nourishment, and the languor of the digestive organs, always less and less blood arises in the system. So great a penury of blood is the principal origin of bleeding diseases : which never happen but in the asthenic state. The same penury of blood acts in such a manner, and chiefly affects its own vessels ; because, according to a law so often mentioned, its debilitating energy chiefly falls upon them. In sthenic diseases, which have advanced to their height, or a little beyond it, a few drops of blood from the nose, or a dropping of blood from the same, or any other part, demonstrate only a predisposition to indirect debility, but not an establishment of it, and that the matter still remains within the operation of excessive stimulus (*r*).

(*r*) Who ever heard of a flood of blood coming from the lungs in a peripneumony ? Or, who has not heard of it in consumptive cases, which are the diseases depending upon the laxity of vessels of which we are speaking ? What vigorous woman, sound in all her functions as a woman, ever fell into perpetual floodings ? What had been the state of these women before the disease ? Did they eat and digest so completely, as that there was any reason for supposing their vessels were filled with blood ? No ; long before the arrival of the disease, their eating was puny, and, considering the kind of matter they made use of, to wit, vegetable, it was not to be supposed more beneficial from its quality

ψ. THUS, it is not an excess in the quantity of blood, but laxity and atony from its deficiency, which upholds the affair of bleeding discharges; which proceed in their course, not with any effort

than its quantity. What was the idea to be gathered from their symptoms, and particularly the pulse? The pulse had all the marks of an asthenic one; being weak, small, and quick, like that of a new-born infant. What was the state of their habit? Was it vigorous and robust? It was the reverse: soft, delicate; the habit lax; a falling off in flesh, with weakness over the whole system, and total loss of appetite. What were the remedies employed to remove this supposed offspring of plethora? Bleedings, repeated without end; other evacuations with the same freedom, and vegetable food in a fluid form, and a horizontal posture, with their head lower than their body and under extremities. Miserable are the resources of ignorance, and contemptible their execution! Fill a rigid tube full of water, open at both ends, and the fluid, no doubt, will run out at the end which is most below an exact horizontal position. But that is not the case with the fluids in living vessels. The excitement, distinguishing them from all rigid inanimate tubes, counteracts the effect of gravity, while its living state remains: In proportion to the degree of which, the sides of the vessel will embrace their column of fluids, and prevent the flowing out of the fluids, in proportion to the degree of excitement; and, before the gravity can act, the excitement must be extinguished, and the living system reduced to a lumpish mass of dead matter. It is the latter which enables them to produce that effect. And, therefore, bleeding discharges can

(*s*), but a diminution of tone : They are all asthenic ; and the asthenic diathesis, as far as it depends upon them, consists in direct debility.

ω. BUT, as every other exciting hurtful power may be converted into indirect debility, so, also, may an over-proportion of blood. For the vessels, ultimately distended, and beyond all bounds, may (*t*), by the excess of that stimulus, exhaust their own excitability, and thereby put an end to their excitement. Upon which, the forcible are converted into languid contractions, or such as could scarcely be called contractions at all ; the diameters formerly effaced, are converted into an extremely patulous state. The finer parts of the fluids flow through the patulous extremities of the arteries, wherever they find an outlet, and carry with them, sometimes serum, sometimes red blood (*u*).

never happen, either in health or sthenic diathesis, unless in that very high degree of it which approaches to indirect debility, and even then, only in the forced, scanty manner described in the text ; whereas, after the establishment of indirect debility, or in the case of direct the great discharges only can happen, and that without force, in great plenty ; but still short of what would happen if no excitement restrained it.

(*s*) or active impulse,

(*t*) under the high sthenic diathesis,

(*u*) All from “*penuria sit, imminuitur,*” in the original, is an addition in MS.

IN the asthenic diathesis, as well as the sthenic, it is not the quality of the blood, but its quantity, which is to be found fault with; and the fault in quantity, here, is deficiency. The deficient quantity produces the symptoms of the pulse, which have been mentioned above, by not sufficiently distending the vessels, and giving them sufficient excitement. Plethora, which has been thought to belong to this form of diseases only, has absolutely no existence in it. The state of the vessels, with respect to the quantity of blood in them, which is pleasant and suitable to health, is the mean betwixt the extremes which have been mentioned.

135. THIS state (x) is the chief origin of asthenic diseases, of which the so very hurtful effects of evacuation, especially bleeding, as well as vomiting, purging the belly, and every other mode of diminishing the bulk and quantity of fluids, give full proof. This proof has of late received a further confirmation, in the singular success of the cure by other stimulants first, and then by every mode of filling the system (y).

(x) of the blood and vessels, which we have been describing, that is, penury of blood, and atony and laxity of the vessels, chiefly from direct, sometimes from indirect, debility; though the latter case is exceedingly rare,

(y) Systematics allow, that there are many diseases

136. THE different fluids, secreted from the blood in different ways, are, by the distention which they give to their respective vessels, also understood to stimulate. In which respect, the milk and seed, by the abundance of each in its respective vessels, and likewise the perspirable fluid, have the chief effect. The commotion of the secretory organ (z), by means of the excitability, which is one and the same undivided property over all, is easily diffused over the whole body, and, when it rises to excess, is ca-

which are a reproach to their art, from their never yielding to their method of cure, but, on the contrary, becoming worse and worse, in proportion to the time and pains taken about it. Of these opprobria medicinæ (it would be better, I believe, to call them opprobria medicorum), few are more so than the bleeding diseases; which seem uniformly to have proceeded from evil to worse under the evacuant debilitating plan; while it has now been found, that the high stimulant plan removes them with the greatest success.

(z) It has been said above, in chap. iv. that the excitability is one uniform undivided property over the whole living system; and that, wherever it is acted upon in any part of its seat, it is affected over all. This fact, which is strictly true, and universal over every part of living matter in nature, with the utmost ease explains many things, which were confessedly inexplicable upon every other medical doctrine; and, among the rest, the several affections of the secretory system.

pable, with other powers which communicate an excess of excitement, to produce sthenic diathesis.

137. THE same secreted fluids, when they do not sufficiently distend their respective vessels, when they do not communicate enough of excitement, make no inconsiderable part of the hurtful powers which constitute asthenic diathesis.

A. FOR which reason, vomiting, purging, and every other evacuation, are powerful inducers of asthenic diathesis, which they effect in proportion to the debility which attends their operation. The same thing is to be said of excess in venery, which is partly an indirect, partly a direct, always a great, debilitating power (*a*).

B. SOMETIMES the secretory vessels seem so crammed with a colluvies of fluids, that indirect debility may possibly arise from that source; as is exemplified in that overflowing of bile, which distin-

(*a*) Nothing is more effectual in hastening death, than a love marriage betwixt an old man of worn out excitability, and a young beautiful virgin: I need not explain to any reader on which side, that of the man or the wife, either the love or the danger lies.

guishes the yellow fever (*b*). Here, too, the debilitating effect, by means of the excitability, tends to diffuse the diathesis over all (*c*).

FROM this source arise, a languid action of the extreme vessels (*d*), a slow, then no, motion of the

(*b*) of the Torrid Zone. I have been so often, and by persons of good enough sense to make just observations, informed of the necessity of purging off the redundancy of that fluid, which not only fills the intestines, but diffuses itself over the whole alimentary canal; and then of following out the cure of the disease by the use of wine, spirits, and the diffusible stimuli, that I have, though at first with some reluctance, admitted the fact. The reason of the slowness of my assent to it was, that, upon every other occasion of any accumulation of matter in the first passages, even in the colic itself, I had always found the practice of invigorating the peristaltic motion, by stimulants, sufficient to clear away all such extraneous matter; while vomiting and purging, by their relaxing effect upon the vessels, served to generate more, and increase the cause of the disease, which is always debility. This I found not an exception to that general principle, but an instance of a sort of local disease, from an over-repletion of the exhalant mucous and biliary vessels.

(*c*) All from "pars sunt" to this reference, is an addition to the original text.

(*d*) These are the exhalants which pour out the saline, watery part of the blood unchanged; the mucous glands which change, by their secretory operation, the fluid they receive from the blood; the pori biliarii, which

fluids, a stagnation and corruption of them. A diminution, or temporary destruction of excitement, over this large space in the system (*e*), by means of the same excitability, communicates debility to the rest of the body; and, in conjunction with other hurtful powers which give not enough of excitement, produces asthenic diathesis.

change the fluid which they receive from the extremities of the veins of the gate, and of the hepatic artery, or artery of the liver; the little duets which these form by the union of numbers into single vessels: the hepatic duet, or great biliary vessel of the liver, which receives the bile from all the ducts; and, lastly, the duetus communis cholicoehus, or the duct which may be denominated, in English, the general receiver of all the bile, whether from the great duct of the liver, or that which sends to the gall-bladder a part of the bile, which returns in the same vessel to the general receiver. These, and besides them, the inhalants, or absorbents, as they are called, to wit, the small vessels which take up from the exhalants and other arterial terminations of vessels, the fluid, called lymph, which is once more to be returned into the circulation; are the vessels which suffer the concurrence of symptoms described in the text.

(*e*) How great the space in the whole system is which these vessels occupy, may be easily imagined, when it is considered, that every evanescent artery, over the whole body, terminates in one or more of these colourless vessels which have been described.

Γ. THE various sorts of gestation (*f*), and of exercise and labour, by rousing the muscles into contraction, and thereby accelerating the motion of the blood in the veins towards the heart, while the valves prevent its taking a contrary direction, greatly promote excitement in all the vessels, and, therefore, over the whole system; and the effect may go so far as to produce sthenic diathesis.

Δ. As nothing contributes more to health than moderate and frequently repeated exercise, and its excess acts in the manner which has been described; at the same time, a degree of it, either greater or less than the salutary degree, by its weakening effect, the former in wasting the excitability, the latter in with-holding a necessary stimulus; that is, the one by debilitating indirectly, the other directly, produces asthenic diathesis (*g*).

(*f*) as riding on horseback, going in a carriage, using an hobby, sailing.

(*g*) All from the end of the 137th paragraph is an addition to the Latin text. Such omissions were the consequence of the hurry with which the demand for the second edition, from his pupils, obliged the author to proceed in finishing that work. It was, therefore, proper to supply all such material defects, and thereby prepare the work for a third edition; which will soon be offered to the public.

138. THINKING, which acts more upon the brain, to which it is immediately applied, than upon any other equal part of the system (*b*), increases excitement over the whole body (*i*). Straining in

(*b*) Vide Chap. iv. Part I.

(*i*) None of the exciting powers have more influence upon our activity, than the two which are just going to be mentioned, the exercise of our intellectual function, and that of passion or emotion. With respect to the former, Homer observes of the hero, whom he gives for a pattern of eloquence, that upon his first address, that is, while he was under some agitation, and had not yet got into his train of thought, he was awkward in every motion, and in his whole attitude; he looked down to the ground, his hands hung straight along his sides as if powerless; his whole appearance was torpid. But when he once entered upon his subject, his eyes were all fire, his limbs all motion, with force, grace, and energy. Upon commencing a lecture, the pupils have often observed the same torpor in the lecturer, and a similar vivacity and life in a few minutes, when he had now got fairly into his subject. The report which a lecturer's daughter, upon looking through the hole of a door, while the lecture was going on, made to the family and some company then present, was, that her father looked, in his lecture, as if he would look through his hearers. A Mr Donaldson is one of the few great masters, in the art of painting, who never fail, with a most exact likeness, to display the whole influence of the mind upon the features. A miniature of me, done by him, as a present, is reckoned the greatest master-piece, in these respects, which ever came from the hands of a painter.

thinking, whether in a high degree for once, or often repeated in lesser degree, or habitual, may alone prove hurtful; but, in conjunction with other powers, also hurtful from their excess of stimulus, may become more so, and amount to a degree equivalent to the production of sthenic diathesis.

139. AN evident cause of asthenic diathesis is that state of the intellectual function, in which excess in thinking, by wasting the excitability, ends in indirect debility; or that deficient, weak, vacant state of mind, incapable of keeping up a train, which produces the same hurtful effect by direct debility. This faulty state of the mind contributes greatly to weaken the system (*k*).

140. VIOLENT passions of mind, as great anger, keen grief, unbridled joy, going to such a pitch as to destroy excitability, have the same effect as excessive thinking, and admit of all the same reasoning.

141. A FORCE of passion, rising to the height of exhausting the excitability, induces that asthenic

(*k*) It may often be remarked by physicians, that their patients, after every other proper part of cure has been executed, are never completely restored to their healthy state, till they are again engaged in their usual occupations, both of mind and body.

diathesis, which is occasioned by indirect debility, and diseases of that stamp. Hence epilepsy (*l*); hence apoplexy, and that, when the mind has been screwed up to the height of passion, often fatal.

142. ON the contrary, when there is a deficiency of passion, as in melancholy, grief, fear, terror, despair, which are only lower degrees of joy, assurance, and hope, and imply no more than a diminution of exciting passions, not emotions of a nature opposite to those, and positive; their tendency is to produce the asthenic diathesis, which depends upon direct debility. The immediate production of this is loss of appetite, loathing of food, sickness at stomach, vomiting, pain of the stomach (*m*), loose belly without pain, the same with pain, indigestion (*n*), colic, the gout, and fevers.

143. THE exercise of the senses, when it is agreeable, has a very great effect in exciting the whole body, and in producing emotions, which, together with the hurtful powers mentioned above, may easily contribute to the production of sthenic diathesis. Those emotions are exemplified in drinking,

(*l*) or the falling sickness,

(*m*) called cardialgia by systematics,

(*n*) called dyspepsia,

dancing, in agreeable entertainments, where the eye is dazzled with the splendour of the dishes, of the company, and of all the objects around.

144. THE energy of the same exercise of the senses, when it is excessive, and carries the effects, just now mentioned, too far, produces indirect debility. On the contrary, when the senses are either in part destroyed, or in part dulled, or disagreeably affected (*o*), the mind is dejected, and the whole body thrown into a state of languor and direct debility. And, in both cases, especially when there is a concurrence of other debilitating hurtful powers, the asthenic diathesis arises.

145. THE effect of the air (*p*), independent of its qualities, as they are called, or its properties, and its use in supporting respiration, is less obvious to observation (*q*); at the same time, it cannot be doubted, that its application to the whole surface

(*o*) Nothing is more disagreeable than an obscure light, as when one reads with a small or unsnuffed candle. Hence, the luxury of more candles than one, or of wax or spermaceti candles. This is often experienced at Ranelagh, and may be seen in children exquisitely amused.

(*p*) upon the human body,

(*q*) than the other powers which have been mentioned,

of the body is an indispensable stimulus. The air is seldom applied in a pure state: it is commonly blended with foreign matters which diminish its force of stimulus; and, while its salutary stimulus depends upon its purity, at the same time, it is uncertain whether ever its purity goes so far as to stimulate in excess, and thereby produce sthenic diathesis. The balloons, lately invented, by which men get above the clouds, would serve excellently to throw light upon that matter, were it not for the cold which accompanies their progress. Be that as it may; since we never live in the purest air, and yet live commodiously enough, it is therefore probable, that too pure an air has a tendency to stimulate in excess, and, therefore, produce sthenic diathesis.

146. BUT, as nothing is more usual than impurity of air, and every impurity diminishes its stimulus, a very impure air, or air blended with impure matters, without doubt debilitates, and produces asthenic diathesis. Accordingly, impure air is a frequent cause of typhus, as is evident from the fate of those who died in the black hole of Calcutta. Whether ever the air, from an excess of purity, produces asthenic diathesis, is the more doubtful, that,

as has been said, it is yet undecided whether it produces sthenic diathesis or not.

E. CONTAGIOUS matter, in so far as it may have any tendency to produce general diseases, in one form produces sthenic, in another asthenic, diseases; and, therefore, acts like the ordinary hurtful powers of either sort, and admits of all the same reasoning. But, in so far as it only occasions the eruption, without making any change in the excitement, it is to be referred to the local diseases.

Z. To poisons, if they act as general stimulants, all the reasoning which has been employed with respect to the other hurtful powers, will apply. It is not likely, however, that they are general stimulants.

147. It is seldom from the separate, almost always from the united operation of all the powers, that both the diatheses, whether as remaining within the range of predisposition, or rising to the degree of actual morbid state, are produced, and from no inherent power in the system.

CHAP. II.

The Cause of each Diathesis.

148. THE cause of sthenic diathesis, produced in the way which has now been explained, is, in consequence of the operation of the powers which have been mentioned, too great an excitement of the living system every where, with the effect of first increasing all the functions, then of producing a disturbance in some, and impairing others, but never by a debilitating operation.

149. THE cause of the asthenic diathesis arising from the same source, is, in consequence of the debilitating hurtful powers, too little excitement of the living system every where, with the effect of impairing all the functions, disturbing some, giving a false appearance of increasing others, but always debilitating (*a*).

(*a*) It must now appear to the reader, to what simplicity the hitherto conjectural, incoherent, erroneous, mysterious, and enigmatical art of physic, is now reduced. It has been demonstrated, that there are only two forms of diseases; that the deviation from the state of

health, in which the morbid state consists, is not either repletion or inanition, or changes in the qualities of the fluids, whether of an acid or alkaline nature, or the introduction of foreign matters into the system, or a change of figure of the extreme partieles, or a disproportion in the distribution of the blood, or an increase or decrease of the power of the heart and vessels as regulating the circulation, or a rational principle governing the actions of the body, or an alteration in the extreme partieles, as being of too large or too small a size, or an alteration of the pores, as being too narrow or too capacious, or a constriction of the superficial vessels from cold, or a spasm of them producing a reaction, as it is called, of the heart and interior vessels, or any thing which any person has yet thought of respecting the cause and nature of morbid state. ' On the contrary, it has been proved, that health and disease are the same state, depending on the same cause, that is, excitement, varying only in degree; and that the powers producing both are the same, sometimes acting with a proper degree of force, at other times either with too much or too little; that the whole and sole province of a physician, is, not to look for morbid states and remedies which have no existence, but to consider the deviation of excitement from the healthy standard, in order to remove it by the proper means. The reasoning part of this doctrine, it is expected, the reader will find irreprehensible and unanswerable; and the practical part, from the astonishing cures which have, upon innumerable occasions, been effected, will ever stand in support of the truth and utility, as well as simplicity, of the whole.

CHAP. III.

The Sthenic Diathesis.

151. PREVIOUS to the disturbance (*a*), which never happens till after the arrival of the disease (*b*), and even then only in a violent attack of it, all the senses are acute, the motions, both voluntary and involuntary (*c*), are vigorous, there is an acuteness

(*a*) of the functions, which, it has just now been said, the hurtful effects of both sets of powers produce,

(*b*) During the predisposition to peripneumony, as well as to every other disease, neither the symptoms of disturbance, nor any other symptoms at all appear. And in mild cases, such as catarrh, the symptoms of disturbance occur not through the whole course of the disease: But, when the disease is, like the peripneumony or the gout, of a violent nature, then the system is commonly disturbed, and in a most conspicuous degree. The affection of the lungs in the former, from the inflammation within, and of one of the feet, or some other part in the latter, from an external inflammation, give extreme disturbance to the affected parts, while there is a disease of the same nature as the gout, that is, dyspepsia, or indigestion, in which the inflammation never appears.

(*c*) The voluntary motions are those which are performed under the influence of the will, such as the mo-

of genius, and a great force of sensibility, as well as of passion and emotion. The several parts of the body are perceived to be in a state of vigour from the following marks of it: The heart and arteries, from the pulse; the extreme vessels on the surface of the body, from the complexion; all the muscles, from the strength which they exert; the internal secretions, from the great quantity of milk and semen; the digestive organs, from the appetite, the digestion, the vigour of the body, and the manifest abundance of blood.

152. How far the intellectual faculty, and the force of passion, are increased, will be learned from a comparison of them in this diathesis, in good health, in the second form of diseases and predisposition to it. In this way it is, that the functions are first increased.

tion of the limbs in walking, or in any sort of exercise. The organs, by which they are moved, consist of bundles of moving fibres, called muscles. The involuntary motions are those of the interior parts of the system, such as those of the heart and vessels connected with it; the peristaltic motion in the first passages, which are the passage to the stomach, the stomach itself, and the whole convolutions of the intestines; as also those of the womb, of the bladder of urine, and so forth. None of the latter are under the influence of the will.

CHAP. IV.

The Sthenic Diathesis illustrated by an explanation of its Symptoms.

153. THE increase of the force of the senses, of the motions, of the intellectual faculty, and of the passions, depends upon the increase of excitement in every one of their organs, among other actions, quickening the motion of the blood through them.

154. THE coming on of every sthenic disease is announced by a shivering. It depends upon a diminished perspiration, by means of the diathesis being exquisitely strong in the extreme vessels of the skin. The same is the explanation to be given of the sense of cold, which commonly accompanies the shivering; and the same is the explanation of the dryness of the skin.

155. IN the same diseases, the pulse is stronger, harder, and fuller, and somewhat more frequent, than in its sound state. Its fulness and hardness is owing to the taking animal food plentifully during the predisposition. The force and frequency is oc-

casioned by the same, and any other stimulus; as that of strong drink; that of the diffusible kind; and that of exercise, whether corporeal or mental: Nay, all the stimulant hurtful powers are participant of the same effect.

156. IF, in the progress of the disease, the pulse sometimes becomes weaker, softer, emptier, and quicker, that is a bad sign, and is occasioned either by the debilitating plan of cure having been pushed beyond the proper bounds; or, in consequence of a neglect of that sort of cure, it may be owing to some debility, induced by the excess of excitement. The former of these is direct, the latter indirect, debility; both to be avoided.

157. THE complexion in the vessels, which is often a consequence of a previous appearance of paleness, and great quantity of secreted fluids, is occasioned by an over-proportion of blood, in consequence of an excessive sthenic diathesis obstructing the perspiration. The same is the cause of the head-ach, and pains in different parts. For, as the head-ach so quickly and easily yields to bleeding, it is, therefore, seldom to be suspected of being owing to inflammation within the head. And the reason for so thinking, is strengthened by this further cir-

cumstance, that the inflammation arising in general diseases always affects an external part, as far as that fact has been inquired into (*a*).

158. THE delirium, also, which sometimes arises in a violent state of disease, is not to be imputed to inflammation, and for the same reason ; for it yields so much to bleeding and other evacuations, that there is no reason for suspecting inflammation within the head. That abundance of blood in the vessels, distending these to excess, is the cause of the whole affair, is proved, on the one hand, by the redness of the face, implying such abundance ; and, on the other, by bleeding removing the disease at once.

159. THIRST and heat, which are also remarkable symptoms in sthenic diseases, depend upon the sthenic diathesis in the extreme vessels of the fauces and skin ; the diathesis so obstructing the vessels as not to allow a return of perspiration, but to suffer, however, the blood to pass into the very neighbourhood of the ends of the vessels, and, by means of the suppression of the perspiration, to accumulate, under the cuticle, the heat generated in the

(*a*) Vide above, 113.

system. Thus, in the throat, from an affection of the ends of the vessels, the saliva and other fluids, by the free flow of which the throat is lubricated, and freed from that sense of dryness, which is called thirst, are now confined (*b*), and thereby produce thirst.

160. HOARSENESS, cough, and expectoration, which are sometimes observed in sthenic diseases, commonly proceed, and succeed to each other in the following order. There is first often a hoarseness, then a dry cough, then a cough with expectoration. The cause of the hoarseness and dry cough, is an obstruction of the exhalants and mucous vessels, which terminate in the bronchia, still occasioned by a violent sthenic diathesis, and prevented from transmitting their contents to lubricate the air-vessels (*c*), so as that hoarseness may be remo-

(*b*) and prevented to flow out,

(*c*) The bronchia are the divisions of the wind-pipe running through the substance of the lungs, and blended with the blood-vessels. In the substance of the lungs, besides these two sets of vessels, the air-vessels and blood-vessels, there are likewise exhalants, small arteries, and mucous glands, coming off from the extremities of the red arteries. The wind-pipe is covered with the latter; and the great quantity of mucus thrown up from the lungs, often in perfect health, and in innumerable

ved, and the expectoration proceed with freedom. Again, the expectoration is next freely made; because the diathesis, being now diminished, and allowing the ends of the vessels to be relaxed, and fluids to be poured out in abundance upon the air-vessels, is the occasion of the fluids producing a commotion of the excitability over this whole organ, and by the convulsive motion, which is called cough, of being themselves thrown out.

161. As the greater freedom of expectoration now implies an abatement of the diathesis; so, too great a flow, and too long a continuance of it, shows that the diathesis is now rushing into the asthenic state, either from indirect debility, as when the disease, in its progress, has much exhausted the excitability; or from direct debility, as when the plan of cure, proper in kind, has been pushed beyond the bounds.

162. THOSE same symptoms (*d*), while they stop short of the range of direct debility, or are not yet changed into the indirect, are occasioned by heat,

cases, both of sthenic and asthenic general disease, sufficiently prove the existence of the source from which they flow.

(*d*) mentioned just now,

and whatever stimulates in excess, and removed by cold, and whatever acts as a weakening power.

163. PALENESS, shrivelling of the skin, clearness of the urine, and bound belly, which chiefly happen about the beginning of the disease, arise from a degree of the diathesis, shutting up the ends of the vessels in such a manner, that either nothing is excreted, or the thinner part, as in the urine, only escapes. The cure of the affection of the urine, of the obstructed perspiration and costiveness, shows that the diathesis is now gradually abating, the disease becoming mild, and now upon the eve of being thoroughly removed by emetics, purges, and sudorifics, and by the use of other debilitating remedies.

164. IN sthenic diseases, when they are gentle, the appetite is often not much diminished, and oftener more food can be taken than is serviceable. But, unless the lightest vegetable matter only, and that in the form of watery potion, or in a fluid form, be given, every morsel of it will do harm.

165. BUT, when, either from indulgence in food of a rich nature, or from employing a stimulant plan of cure, or from the disease having, from the

beginning, arisen from very violent, hurtful powers, and now attained its highest degree of violence ; in any, or all these circumstances, both the other bad symptoms, mentioned above, break out directly, and the violent disorders of the stomach, or an acute pain of the thorax, show themselves indirectly.

166. IN a violent diathesis, therefore, where there is little appetite for food, but a very great desire for drink ; with the latter, the patient is by all means to be gratified ; but the former should be avoided, as producing loathing, sickness at stomach, and vomiting. Those symptoms are not usually of long duration, unless when the diathesis is now going, or actually gone, into the asthenic state, by the means which have been mentioned above (*e*), and, by removing the other symptoms by the proper debilitating plan of cure, they go off. But when the stomach-sickness and vomiting are urgent, and begin now to be a little more obstinate, and of a little more duration, one may know that they still remain short of the change into indirect debility, by the following marks : If the pulse still maintains moderation in its frequency, and does not much abate

(*e*) Vide last paragraph, and a few immediately preceding it.

of its fulness and force ; if artificial vomiting and purging diminish the morbid vomiting, and, in one word, if the debilitating plan of cure still succeeds. But, it will then at last be understood, that the disease is altogether changed, and its cause converted into the opposite, when those symptoms every day increase ; when the pulse becomes weaker and weaker ; when gripes in the intestines, and liquid stools, are superadded to the symptoms which disturb the stomach, and when the antisthenic, or debilitating, plan of cure is now of evident detriment (*f*).

167. WHILE the same symptoms (*g*) still stop short of indirect debility, the excessive excitement in the stomach being of quicker tendency to indirect debility there than any where else, upon account of 'the stomach's great sensibility, and the force of the more powerful stimuli being chiefly exerted upon it, produces symptoms of disturbance (*b*) ; for the most powerful stimuli, and those which are signally powerful in producing sthenic diathesis (*i*), are first applied there, and exert a greater

(*f*) See above, 109.

(*g*) of the stomach and intestines,

(*h*) See above, 54.

(*i*) as high seasoned animal food, wine, spirituous

force upon the excitability in that than any other part. Those stimuli are the several preparations of animal food, the several concentrated strong drinks, the several condiments with which they are seasoned, the various diffusible stimuli, as the different preparations of opium, volatile alkali, camphor, musk, and ether. And they all act upon the stomach with that force which they exert not upon any other part. They do not upon the intestines below, because they undergo a change from the first digestion before they pass over into the first portion of the intestinal canal; not upon the lacteal vessels, because they are not received into them till they are further diluted, and undergo another

drink, cordials, and the whole train of high diffusible stimuli. Some of these, as meat and wine, have no effect upon the external surface, or any other part: others, as some of the condiments, such as mustard and strong spirits, and, above all, the diffusible stimulants, as ether, camphor, and opium in a liquid form, do act upon the second, and, by their application to it, support their own internal use. Thus, to prevent or remove the gout, anasarca, sprains, and so forth, the application of any of those high diffusible remedies, just now mentioned, will greatly contribute, along with their use as taken into the stomach, to support the general operation. These, and innumerable others, are so many facts, which have been suggested by observations and trials made in the prosecution of this doctrine.

change from the digestive operation, and when so changed, they are next carried to be mixed with the blood; not upon the heart and arteries, upon account of the same dilution meeting them also in those vessels, and of a constant change of mixture occurring through the whole course of the circulation; not upon the terminations of the arteries, whether exhalant or glandular, and whether these excrete from the body a matter already corrupted, or carry back, by the lymphatic vessels, an useful matter to the blood; and that both for the reasons which have been given, and particularly, because some great change is made in the exhalants and glands; not upon the lymphatic vessels, where a new fluid is constantly flowing in upon the old in these parts, by means of anastomosing branches, and chiefly in the thoracic duct; not upon the other blood-vessels, upon account of the great change which a repetition of the circulation produces; not upon the muscular fibres, whether voluntary or involuntary, because the stimuli by no means come in contact with these; not upon the brain or medullary substance for the same reason (*k*), as well as for the great distance of these parts from the

(*k*) to wit, that they do not come into contact with them,

part which received the first contact of the stimuli. In one word, as all the exciting powers, whether salutary or hurtful, or curative, act somewhat more powerfully upon certain parts than upon others, as these parts are generally those which they first affect, and with which they come into direct contact; those, therefore, in preference to others, are most liable to pass either from sthenic diathesis into asthenic, or from the latter to the former: which, however, happens in such a manner, that, because the excitability is one uniform, undivided property over the whole body; whether the excitement has been increased in a particular part, or diminished; and, whether its diminution has been owing to direct or indirect debility, and in either way the asthenic diathesis produced; all the rest of the body soon follows the kind of change which has taken place. And, since the powers which have acted, have been, and are the same, that is, either excessively (*l*), or insufficiently stimulant (*m*), or so to an ultimate excess; and as the excitability, upon which they have acted, and still act, is the same, that is,

(*l*) in so far as they produced sthenic diathesis,

(*m*) that is, debilitating, in so far as they produce the asthenic diathesis, which depends on direct debility, or in so far as they produce the asthenic diathesis, which depends upon indirect debility,

the whole consideration of the cause is the same, the effect must also be the same, that is, the same sort of actions, whether in excess or defect (*n*), must be established over the whole body.

168. THE inflammation, which accompanies the phlegmasiæ (*o*), occupies an external part, as far as its nature has been yet ascertained. And the reason of which is, that heat, which is the most powerful agent in those diseases, either alone, or alternating with cold, or succeeding to it, has much more power externally, where it is directly applied, than internally, where the temperature is nearly stationary, in stimulating, and, therefore, raising the general diathesis, to the degree of actual inflammation in a part. Hence the throat, hence the different joints, hence the face, where the form of inflammation is different (*p*); hence the lungs, which are to be considered as an external part, because the

(*n*) whether sthenic or asthenic,

(*o*) diseases which are sthenic, and accompanied with an inflammation of a part, as a portion of the lungs, the throat, some of the joints, and in which, as has been formerly said, the inflammation is like any other symptom, an effect of the cause of the disease, not itself the cause,

(*p*) as when the inflammation of erysipelas appears there;

air has direct access to them, all these are affected with inflammation in preference to other parts. And, besides the energy of the exciting hurtful power, just now mentioned, there is, in the part which is to undergo the inflammation, a greater sensibility (*q*) than in others, or a more accumulated excitability; by means of which it happens, that, of the parts which have been mentioned, sometimes one, sometimes another is affected, more than the rest (*r*). To this consideration of the cause, it is

(*q*) See above, 53. λ .

(*r*) In the inflammatory sore-throat, the inflammation affects the throat, which is also sometimes the seat of an erysipelalous inflammation. In erysipelas, sometimes the face, sometimes one of the legs, sometimes the ear, sometimes the temples, are inflamed. I have frequently been affected with an erysipelas, which begins with an acute inflammation and pain in one ear, which is thickened to four times its usual dimension; from that it spreads over the whole hairy-scalp, till it reaches the neighbourhood of the ear in the opposite side; never, however, affecting that ear. This progress has been sometimes from the right to the left, sometimes from the latter to the former, in proportion as either had been more exposed than the other to heat, or the alternation of heat with cold, or their succession to each other. This disease is sthenic, but in a mild degree, and to be removed by coolness, cold water, low vegetable fluid diet, and a slight purge. It was once greatly aggravated by wine, spirituous drink, and the high diffusible stimuli. In rheumatism, the inflammation at-

to be added, that which ever of the parts we have mentioned has been injured, in whatever manner it may have undergone the inflammation peculiar to the phlegmasiæ, that that part, in every after attack of a new phlegmasia, is in more danger of being inflamed than the rest. This is the true cause of the recurrence of some of the phlegmasiæ, as the inflammatory sore throat, and rheumatism (*t*). Peripneu-

taeks a large joint, sometimes shifting from one to another, sometimes several at a time, and, in contradistinction to the erysipelatous, is deep seated, extending to the interior part of the true skin, which is the case with every such inflammation, called, therefore, phlegmonic; while its seat in erysipelatus is betwixt the scarf-skin and outer part of the true skin upon the corpus mucosum. To these phlegmasiæ, accompanied with an inflammation of a part, depending upon the general cause of the disease, and especially upon the effect of temperature, may be added that which an inflammation in one of the ears accompanies, though this case is seldom admitted into the number of the phlegmasiæ. It is, indeed, sometimes local, arising from local injuries, but is as certainly at others a general disease, and to all intents and purposes a phlegmasia.

(*t*) Those two diseases, in young vigorous persons, are very liable to be exceedingly troublesome, by the frequency of their occurrence. In the younger part of my life the violence in degree, and frequency of recurrence, of the sthenic inflammatory sore throat, was very distressing, as the least variation of the external temperature, superadded to a full nourishing diet, not without the stimulus of a cheerful glass, was ready to renew, not

mony is a disease less frequent than any of the rest of this form, because “the seat of its inflammation” (*u*) is exempted from many stimuli, liable to produce sthenic diathesis with its accompanying inflammation (*x*).

only the inflammation, but the whole phenomena of the disease. The same thing I have often observed in the frequent recurrence of rheumatism in persons of the same age and habit, perhaps, with some difference of temperament. But it is to be observed, that, in proportion to the advance of life, and diminution of vigour, both these diseases become much less frequent, and much less violent. Nor is any thing more common than their giving way, at this time, to a very opposite disease, the gout, which depends upon a superaddition of direct debility to the indirect, that laid the foundation of it. I am pretty certain my inflammatory sore throat, or erysipelas, never happened spontaneously, nor without an addition of stimulant power, to those which produce that disease, in consequence of carrying to some excess the plan of cure suited to the removal or prevention of the gout.

(*u*) This is an addition in MS. to the Latin text.

(*x*) All to the end of this paragraph is erased, as obscure and incorrect; and, in place of it, the following portion of a paragraph is inserted. “Cum synocha, catarrhus, variola lenis, inflammationis, (nisi quantum in variola localis, a locali causa, ab ea de qua agitur, diversa, suboritur), expertes sint; et eadem in peripneumonia, erysipelate gravi, et similibus vehementibus, aliis, summa; in cynanche tonsillari plerumque perquam mitis reperiatur; ob eam causam inflamma-

H. As the inflammatory fever, catarrh, the gentle small-pox, are unattended by inflammation (unless that, in the last, a local inflammation from a local cause, quite different from that which makes our present subject, takes place), and as the inflammation in peripneumony, violent erysipelas, and similar other cases of great violence, is found the highest in degree; for that reason the conclusion is, that the degree of inflammation, which is a symptom of general sthenic diseases, is proportioned to the degree of the sthenic diathesis. (*y*).

169. THE inflammation, in this case, is nothing else, but a state of the inflamed part, of a common nature with that in the rest of the body. And as the inflammation is produced by a greater degree of excitement in the inflamed, than in any other equal part; so, before the disease comes on, of which the inflammation is only a part or symptom, the excite-

“ tionis, quæ communium morborum sthenicorum symp-
 “ toma est, magnitudo magnitudini diatheseos sthenicæ
 “ respondere, dicenda est.”

(*y*) It shall by and by be shown, that this sort of inflammation is only a part of the general diathesis, somewhat higher in degree than any other part, but far short of the degree constituted by the whole general affections.

ment of that part is understood to be proportionally greater than in any other part (*z*).

170. THIS inflammation, which for the sake of distinction is to be called general sthenic inflammation, should be distinguished from another, which is a local affection, arising from local hurtful powers, and depending upon a fault in the organ, or a solution of continuity (*a*).

(*z*) See above, par. 50. and 51. Suppose the excitement in every part of the system to be 45 at some point in the period of the predisposition, and 54 in the part to be inflamed; after the coming on of the disease the same proportion will hold; when the excitement has now mounted up to 60, the excitement of a part will be understood to have gone to 69; keeping up still the same proportion. But this 9 degrees of greater excitement in a part, comes far short of the sum total of excitement in all the parts affected with the general sthenic diathesis; that you may suppose 3000: and then the conclusion will be, that the general sthenic diathesis consists in a sum total of morbid affection, as 3000; while the inflammation of the part is only an affection of 3 degrees of excitement.

(*a*) Solution of continuity in all its forms, whether as being the effect of puncturing, cutting, bruising, compression, erosion from acrid matter, or from heat, or cold, is always followed by an inflammation, which, when it goes on briskly, and needs to have its violence restrained, should be called as is expressed in the next paragraph.

171. To this the term of sthenic local inflammation applies. The general always depends upon sthenic diathesis, is a symptom or part of it, never precedes it, always succeeds to it sooner or later, arises from the same hurtful powers (*b*), and is reduced by the same remedies. In contradistinction to which, the local affection, as it arises from local injury, producing a solution of continuity, or deranging the texture of the part; so, if the labouring part is not very sensible, the affection extends no further. In the case of a part being endued with a high degree of sensibility, suppose the stomach, the intestines, among the internal parts; among the external, the tender substance under the nails; in these cases, the effect of the inflammation is propagated over the whole system, and, in consequence of an affection of all the vessels, excites a tumult every where. The same local sthenic inflammation, whether it be fixed in the part, or from its propagation, give more general disturbance, yields to no remedies, but those which act upon the affected part first, and heal the solution of continuity (*c*). Let it suffice to have said so much at present upon these inflammations, for the sake of establishing necessary

(*b*) which produce the other symptoms,

(*c*) or reparation of united substance,

distinctions, as more is afterwards to be said upon the local, in its proper place. There are two inflammations still remaining, universal and local, to be more fully explained in that part of our work where the proper order requires it.

172. INFLAMMATION, also, as often as it affects a vital part, produces symptoms of disturbance. Whether ever the general sthenic inflammation affects the brain and its membranes, is hitherto not ascertained (*d*). And it is more probable, that the commotion of the head, and other disturbing symptoms of phrenitis, do not depend upon inflammation, as the following phenomena seem to shew: The first of those is, the ease by which the cure is effected, the whole tumult of symptoms readily yielding to bleeding, purging, and other asthenic (*e*) remedies; and, it not being very credible, that the effect of actual inflammation in a part so delicate, and so necessary to life, could be so easily effaced. Then

(*d*) Phrenitis has been thought, and commonly even defined, an inflammation of the brain; an opinion that, however universal, seems to be liable to much doubt: nay, there are many reasons for adopting an opposite one, as will appear from the reasoning in this paragraph of the text.

(*e*) What are commonly called antiphlogistic, we call debilitating.

another argument against the same opinion is, that there is no certain proof, after recovery, of the existence of inflammation during the disease. Next, analogy makes for the same conclusion which we are disposed to draw; for, as it has been said above, general inflammation does not arise internally in any general sthenic diseases (*f*): on the contrary, as often as it occurs, it is always in an external part (*g*). Nay, all the symptoms are such as arise from the general sthenic hurtful powers, and which, also, yield to the general antisthenic remedies, and in proportion to their degree.

173. THE same (*b*) is the cause of head-ach, redness of the eyes, as well as of delirium.

174. THERE is, however, no reason to doubt, but that inflammation is the cause of that disturbance,

(*f*) See above, par. 113.

(*g*) It was long an opinion, that the inflammation in rheumatism might be transferred to an internal part, as the stomach; but that, also, is now laid aside, and all the cases where there could be the least appearance of any such transference, have been found to be cases of the gout, or some analogous disease of debility.

(*h*) which we have assigned as the cause of phrenitic affection also,

which happens to the lungs in peripneumony. To the part where the pain is felt externally, whatever part of the thorax it is, an actual inflammation is opposed internally. And, as the inflammation is proportioned to the degree of general sthenic diathesis, and never happens but in a high degree of that diathesis; so the pain is proportioned to the degree of inflammation (*i*); and the state of the

(*i*) The inflammation was supposed to be a chief and primary circumstance, and its cause and seat, the cause and seat of the whole disease; while the general sthenic diathesis, and all the symptoms depending on it, was supposed to be the offspring of the inflammation. But the truth is, in every respect, the reverse of this account. The general sthenic diathesis is the effect of the general exciting hurtful powers. As the effect of these, in a lesser degree, it exists during the predisposition, and before the arrival of the disease; and, after the disease is come on, it subsists, as certainly as such, for one, two, or three days, as afterwards, when the sign of the inflammation, the pain, makes its appearance. It is only an increase of it, which induces the latter; and it is not to be cured by any contrivance of throwing any thing into the inflamed part, there being no such thing to be found in nature, but by the several means of removing the common cause, that is, evacuant and other debilitating remedies. Those, while, at the same time, they remove the other symptoms, by also removing the disease, prove that the common cause of the whole is the general diathesis. The inflammation, therefore, in-

pulse must be estimated by paying a due regard to its cause. In the case of an high diathesis, and high degree of inflammation, its effect, the pain, seated in some part of the thorax, sometimes about the sternum, sometimes nigh the nipples, sometimes further back on either side, sometimes in the back, between or above the shoulders, is acute and pungent, and the pulse very hard and strong. When the diathesis, and the part of it we call inflammation, is less, the pain is less acute, more dull, and easier to be borne; the pulse is (*k*) still hard and strong, though less so than in the other case. Afterwards, in the progress of the disease, the pain abates, becomes dull, the respiration, which had been much disturbed by it, becomes more easy and free. The pulse, which formerly was only less hard, now becomes truly and positively soft, and that in proportion to the degree of indirect debility, occasioned by a neglect of the proper plan of cure; or in proportion to the production of direct debility, from the antisthenic, or debilitating, plan of cure having been pushed too far. But the hardness of the pulse, and increase of pain, is never to be

stead of being the cause of the general disorder, is a consequence, like every other symptom.

(*k*) not soft and yielding, according to the common notion, but

imputed to the inflammation being seated in the membrane; nor is the softness of the former, and dulness of the latter, to be attributed to its occupying the soft parenchymatous substance (*l*), it being impossible that an inflammation, if it occupied either of those parts, should not affect the next points of the vessels in the other. The cause, therefore, of those symptoms which has here been assigned, must be admitted.

175. THE pustules, which accompany certain sthenic diseases, arise from a contagion, taken into the body, diffused over the whole, and, in passing out of it, detained along with the perspirable fluid, under the scarf-skin. The cause of the retention, and, therefore, of the great number of pustules, is, the sthenic diathesis, taking place in a high degree over the whole body, but in a still higher in the vessels of the skin, for the reasons formerly (*m*) assigned. In which operation the muscular fibres of the vessels, because they are as much increased in

(*l*) Such, however, and many other distinctions, equally false, frivolous, and misleading in the practice, have been at all times universally received by systematic, and lately by nosological writers.

(*m*) See above, par. 113. and 114.

density, in so far as they are considered as simple solids, as they receive an increase of tone, in so far as they are considered as living (*n*), are, on that account, so shortened, as not sufficiently to transmit the imperceptible vapour of the perspirable fluid. All the sthenic hurtful powers have a tendency to produce this effect, but heat, in a degree within its stimulant range, and short of indirect debility, more than any of them. The same is the cause of costiveness.

⊙ STHENIC diseases are often followed by debility, sometimes direct, at other times indirect, as is exemplified in the change of peripneumony into hydrothorax, the explanation of which is evident from what has formerly been said (*o*).

(*n*) See Chap. 5.

(*o*) This paragraph is an addition to the original in MS. The words of it, are, "Sæpe sthenicos morbos debilitas, nunc recta, nunc indirecta, sequitur; ut e peripneumonia in hydrothoracem transeunte, discitur; cujus rei ratio ex ante dictis patet."

CHAP. V.

The Asthenic Diathesis.

176. BEFORE the symptoms of disturbance appear, which only supervene upon a violent degree of morbid state, all the senses are dull; the motions, both voluntary and involuntary, are torpid; the acuteness of genius is impaired; the sensibility and passions become languid. The following functions are all in a state of languor, which is discoverable by the annexed marks: The languor of the heart and arteries is discernible in the pulse; as is also that of the extreme vessels on the surface, which is evident from the paleness, the dryness of the skin, and the shrinking of tumours, and drying up of ulcers (*a*), and the manifest absence of sthenic diathesis, to produce any resemblance to those symptoms. That the muscles are in a state of torpor is demonstrable by their weakened action; and that the internal secretions are deficient, is equally cer-

(*a*) These symptoms have lately been construed into so many marks amounting to a proof of the existence of spasm upon the extreme vessels; but we shall, by and by, find a much better explanation of them.

tain from the penury of semen and milk, and the redundancy of fluids in a state of degeneracy. The languor of the digestive organs is manifested by want of appetite, loathing of food, sometimes thirst, sickness of stomach, vomiting, weakness of the system, and evident penury of blood.

177. IN the same diathesis, whether as not having attained the height of disease, and only remaining within the latitude of predisposition, or as raised to the measure of actual disease, the intellectual faculties and the passions are impaired. In this way are the functions impaired.

CHAP. VI.

The Asthenic Diathesis illustrated by an Explanation of its Symptoms.

178. SHIVERING is not unusual at the commencement of asthenic diseases of any considerable severity; and that, as often as its cause, a very deficient perspiration, takes place. In this case the cause of the deficiency is, from the weakness of the whole system, that weakness of the heart and arteries, in consequence of which they propel their fluids every where with difficulty, and in their extremities with still more difficulty, or scarcely at all. Hence the perspiration ceases. The same is the explanation to be given of the sense of cold, when it accompanies the shivering.

179. IN asthenic affections the pulse is weak, soft, small, and very quick. The softness, when it can be perceived for the smallness, as well as the smallness, is occasioned by an under-proportion of blood, arising, during the period of predisposition, from a scantiness of animal food, and an excess in the use of vegetable; or from a deficiency of aliment

upon the whole, whether from the one or other source. The cause of the weakness and very great quickness of the pulse is the same deficiency of nourishment, as well as of all the stimuli, such as that of strong drink, that of mental or corporeal exercise, and an under-proportion of blood.

180. SINCE the excitability can only be gradually worn down (*a*) and the strength, thereby, repaired; if, at any time, therefore, the pulse becomes full and hard too soon, and without a proportional relief of the symptoms, that is a bad sign, and happens because the stimulant plan of cure (*b*) has been pushed beyond the proper rule (*c*); and it is a case of indirect debility superadded to the direct (*d*).

181. THE same is the cause of the paleness and dryness of the skin, as that of a checked perspiration; that is, the weakness of the heart and arteries. Hence the blood is not sufficiently propelled to the surface of the body.

182. HEAD-ACH, which is a most frequent symptom of asthenic affections, and pains in the joints,

(*a*) See above, par 26. 43.

(*b*) otherwise the proper one,

(*c*) See above, par. 49.

(*d*) See above, par 156.

which are more rare, are occasioned by a scantiness of blood: for such is the effect of the blood in distending the vessels, that a moderate distention, such as takes place in health, excites an agreeable sensation; and every thing, either above or below that standard, occasions an ungrateful one, and, therefore, (*e*) pain. But we are much less in this case, than in that of sthenic pain (*f*), to suspect inflammation for the cause of the pain; because, not only the pain here, but even delirium, yields so easily to the stimulant method of cure; which would not readily happen, if so delicate and sensible an organ, and one so necessary to life, laboured under an affection so liable to destroy the texture of the affected part.

183. NEITHER in general is delirium, and for the same reason (*g*) to be imputed to inflammation. It is, on the contrary, to be attributed to a scantiness of blood, and a deficiency of other stimuli. Nor is that by any means to be doubted; since stimulant remedies, which have no effect in filling the

(*e*) when it rises to a certain degree,

(*f*) See above, par 157.

(*g*) that has been just now mentioned,

vessels, successfully and quickly cure every delirium depending on debility (*b*).

AND, when, in consequence of the removal of the disease, and of the re-production and establishment of the healthy state, enough of nourishment is taken in and digested, then it is that, at last, the mental function receives a complete and solid re-establishment.

184. THIRST and heat, which do not less distinguish asthenic, than sthenic diseases, and are not less frequent symptoms, arise from the asthenic diathesis in the throat, and on the surface of the body, checking, in the latter case, the perspiration; in the former, the excretion of the saliva, the exhalable

(*h*) This is a fact as new, and of as much importance as any in the whole work. Physicians, hitherto, have had no distinct notion of a variety of inflammations; and scarce any idea of any inflammation, but such a one as was to be treated with bleeding and evacuation; nay, often, when they had no reason to suspect inflammation at all, the mere circumstance of pain was, in their estimation, sufficient to warrant a profusion of bleeding without end. But, the truth is, that pain may not only arise from an inflammation, of which they had no idea, and which was to be cured by stimulants, but it arises from spasms, convulsions, and even from emptiness.

fluid, and the mucus, and that from the atony and relaxation of the extreme vessels. In consequence of the former, the throat being not sufficiently lubricated with a due quantity of its respective fluids, is parched with thirst. The effect of the latter is, that, the perspirable fluid being detained under the cuticle, together with it the heat, which, in a free perspiration, is generally dissipated in the air, and remains nearly of the same degree, is accumulated and increases. But the increase of heat depends not on the state of excitement, or, as it is commonly called, the principle of life, since it happens both in the sthenic diathesis, and, likewise, in indirect, as well as direct, debility. But the weakness of the vessels on the surface of the body,—under which the throat, and whatever part is accessible to air, is comprehended,—is a part of the debility of the heart and arteries; the latter a part of that of the whole system.

185. THIS asthenic thirst, which is a much more frequent and more violent affection than the sthenic, is preceded by loss of appetite; the loss of appetite by loathing of food; it is succeeded by sickness at stomach, vomiting, often an acute pain of the stomach, and other troublesome symptoms; to the explanation of which we next proceed.

186. WANT of appetite, loathing of food (*i*), depend upon a debility of the whole body; as is proved by all the debilitating antecedent powers which produce them, always acting by debilitating; and by all the remedies, which both prevent and cure them, always acting by a stimulant and strengthening operation. The cause of appetite is a strong and sound contraction of the fibres of the stomach,

(*i*) These symptoms of want of appetite, loathing of food, thirst, sickness at stomach, vomiting, and acute pain of the stomach, as well as those which follow to the 195th, and from that to the 198th, form a chain of symptoms, depending upon increasing debility, which, instead of being different in kind, are all connected by an uniform operation of nature. And they furnish an instructive instance of the erroneous mode of judging of the nature of symptoms, and morbid affections, which has been so prevalent in all systems of physic, with which we are yet acquainted. However different in appearance, they are not only similar, but all unite in forming one and the same kind of disease, one and the same morbid affection: which is proved by their arising all from one and the same set of hurtful powers, to wit, debilitating; and by their being cured by one and the same set of remedies, to wit, stimulant. The former powers may vary in degree, but they are all debilitating; and the latter may also act with different degrees of force, but they are all stimulant. And the state of the system, from which the former constitute a deviation, as well as that, to which the latter produce a return, is health, which is always the same.

by which digestion is supported (*k*), and the excretion of a fluid, such as the gastric (*l*) liquor, and saliva (*m*): and to the effect of both a cer-

(*k*) The fibres of the stomach are muscular, and partly longitudinal, partly oblique, or approaching to circular. When the food is taken in, the former are contracted and shortened, by which they raise the under part of the stomach, which is unfixed, upwards. These gradually relax as the food, after its first digestion in this organ, and its conversion into a more fluid form, in the same gradual manner, passes out of the pylorus, or under orifice of the stomach. This operation takes off the distending weight in the direction from above downward; and, as the food, in proportion to its conversion from a more solid to a more fluid form, is more and more collected into the under part of the cavity of the stomach, this gives a pressure in the lateral way, and, therefore, throws the other fibres into contraction, by which the sides of the stomach are squeezed together, and, thereby, perform the office of throwing out, by the pylorus, the remaining part of the alimentary matter. Besides these successive actions, the muscular substance of the stomach is so constructed as to be provided with fibres, the motion of which, when the stomach is full, is upward and downward; when empty, downward only. All these motions give the alimentary matter the mechanical agitation necessary to promote its mixture.

(*l*) or fluid peculiarly secreted and excreted in the stomach.

(*m*) The gastric fluid, poured into the cavity of the stomach, as well as the saliva which follows it from the palate, and the watery or other drink taken in by the

tain emptiness of the stomach is necessary. But none of these circumstances can take place in a state of debility. The fibres do not contract with force; the extreme vessels do not pour out their fluids; the matter of food, formerly taken in, is not dissolved, and properly mixed, and in that state thrown out of the stomach; but continues in a great measure unchanged and indissolved. Hence it is, that there is no appetite for food, and in a higher degree of it, that a loathing takes place.

187. IN the same manner has thirst been explained (*n*): and in the same manner is the sickness at stomach, which is a higher degree of affection from the same cause; for when there is strength and vigour, sensation is most agreeable in every part of the system, as well as in the stomach and neighbouring parts.

mouth, contribute to change the food more and more into a fluid consistence, which is a change not only of its form, but, by certain means, a change also of its nature, called, in chemistry, proper mixture, takes place. This change is chiefly effected by the gastric fluid, to which, perhaps, a certain relation which the other fluids bear to the alimentary matter in this living organ, contributes. Another means of promoting the solution which goes on in this process, is the heat of the stomach,

(*n*) See par. 184.

188. WITH respect to vomiting; it is the chief of all the affections, of which we have been speaking: for to such a height has the atony and laxity of the fibres in the stomach gone, when it comes on; to such a degree has the collection of crude, nasty matters proceeded, and the distention of the stomach from these last, and air let loose is become so exquisite, that the fibres are oppressed, and cannot perform their motion from the upper to the lower part, which is commonly called the peristaltic motion. And, as in every case, both of health and disease, the tendency of that motion is always from the stimulus in an opposite direction; downward when the stimulus proceeds from the mouth, and upwards when it comes from the stomach; in that way it is that the crudities, and air let loose, of which mention has been made, acting as a local stimulus, direct all the motion, which they excite, towards the upper part of the canal. This inverted motion, being contrary to nature, can never be agreeable; and hence, before the arrival of the vomiting, stomach sickness arises; which, when it continues for any time, must be violent, because the local stimulus rouses the muscular fibres into violent and irregular motions.

189. THE cause of pain in the stomach and intes-

tines, and other parts, both internal and external, under a sthenic diathesis, is spasm. Spasm in any internal cavity, that is, in the organs of involuntary motion, is, by means of the debility in common to its seat with the whole body, a relaxation and atony of the fibres, and together with that a distending matter; what constitutes that matter in the stomach is the sordes, or foul crudities; in the intestines, hardened excrement; in both air let loose. The effect of this matter in the distention which it gives, does not so much depend upon itself, as upon the lax state of the fibres distended by it; for the fibres, when strong and vigorous, easily repel the distending power, which overpowers them in this state: but the relaxed fibres, of which we are speaking, yield more and more, and that in proportion to the urgent force exerted on them, till, losing all power of resiliation or contraction, all power of relaxation, they continue immovably contracted. All which happens according to the nature of that property in muscular fibres, by which, when they are stretched, they do not, like common elastic matter, only contract when the distending power is removed, but even while it remains. During such action and suffering, the sensible fibres undergo a certain violence; and hence the pain. But, that more is to be attributed to their own laxity, than

the distending matter, is proved by stimulants restoring the tone and density, which are exactly in proportion to each other, as depending upon the same cause. By which means contracting in the manner of sound fibres, and powerfully reacting, they, without any other assistance, as has lately been ascertained, restore the peristaltic motion, and drive downward before them the matter, still remaining, and still continuing to distend (*o*). In this way wine, aromatics, and volatile alkali, and, above all the rest, the various forms of opium, dislodge from its seat all such hurtful matter without either vomiting or purging, and that without any difficulty, and in a very short space of time.

190. THE pain, which, in asthenic complaints, is so often troublesome in the external parts of the body, also depends upon spasm, but not with the conjunction of a distending matter. And a power takes place of it,

(*o*) The prevailing notion with respect to this kind of affection has been, and still is, that its cause is the matter here mentioned, which is only an effect of the cause, that its cure, when the affection is in the stomach, is vomiting to carry off the supposed cause. But its true cause is the laxity of the fibres, and their atony from the general debility, yielding to the distending force of the matter, and thereby losing their tone and density more and more: while vomiting therefore increases, stimulating removes, the disease.

which is not to be referred to any matter, but to a certain effort of the will in moving a limb (*p*). By means of that the spasm is excited in the same manner as in the other case, by distention, and often with the most exquisite pain, where, as the effect is the same, that is, a spasm, arising from debility, and to be removed by restoring the strength; for that reason the cause also must be the same, and be reducible to debility, together with something which altogether resembles distention, and possesses a power equal to it. In this way of reasoning (*q*) we may often safely rise from the contemplation of known effect to that of unknown cause. The pain of which we

(*p*) See 58.

(*q*) A way of reasoning never made use of in medicine before, but which runs through, and influences most of the propositions in this work. It is further to be observed, that, upon no occasion, can we ever arrive at an adequate knowledge of abstract causes; that the eagerness of mankind to rush into wild and fanciful explanations of them, without any regard to real phenomena of nature, has been the cause of all the false phenomena which ever appeared in the world; and that the only sure and faithful guide to the study of causes is a cautious and painful investigation of the effects and phenomena of nature which proceed from them. See more upon this important subject, and, indeed, a complete discussion of it, in my book, entitled, "Observations on the Old Systems of Physic."

speak at present, is that which respects the spasms of the muscles.

191. THERE is another pain, less confined to the same part, more diffused, and equally troublesome, which is not supported by distention (*r*), but by another local stimulus, equally arising from debility, of equal tendency to increase the debility, and, by its debilitating operation, together with the other symptoms of debility, hastening on death. This pain arises from a strong acid, which is sometimes predominant in the alimentary canal, when under the influence of great debility, of which cholera chiefly is a clear example; but, besides that, all the affections of the alimentary canal, which are accompanied with vomiting and a loose belly, are more or less examples of it.

192. This acid is not the primary cause, but only a symptom supervening upon the disease, already formed in consequence of the debility, its proper cause, and now fully established, arising from the same source as the other symptoms, and to be removed by the same remedies. When the same acid

(*r*) correct the word *spasmus* in the original, by substituting "distentio" instead of it.

has arisen, it continues to increase all debility which happens to be predominant, either in the first passages, or in the rest of the body: And, while it exerts that operation over the whole body, its chief influence is in the part where it exists, and where the diminution of the force of the disease is most wanted.

193. BUT, though it be itself in that way the offspring of debility, and of a tendency to create further debility, in the same manner as spasm has been said to be; still there is not, either for the sake of changing, or throwing it out of the body, occasion for any other indication of cure: For, as it has its rise at first from a general cause, so, upon that it all along depends; whatever has the effect of overcoming the other symptoms, has also that of overcoming this. For that purpose it is, that, as in the case of spasm, stimulants, not emetics, not purgatives, nor any other debilitating powers, are required.

194. As the acid, which has been mentioned, produces the pain in the internal parts, or in the organs of involuntary motion; so, in the external parts, or organs of voluntary motion, it is occasioned by something which produces the same effect as the acid, which depends upon the will, and acts in conjunction with the convulsive state. And, as in the case of spasm,

there is no matter which corresponds with the distending, so, in this, there is none to correspond with that which produces the pain. Nay, as the spasmodic case is represented by any cramp of the muscles, so is the convulsive by any convulsion, but, above all, by epilepsy. Finally, as in the former, the same reasoning from known effect to unknown cause proves the sameness of the external and internal case, it equally proves their sameness in the latter (s).

(s) All this reasoning with respect to spasm and convulsion, showing them to be the same, and only a part in the whole, a link in the chain of the other asthenic affections, which have been mentioned, as well as the facts and arguments next to be brought, which will serve to prove all which follow to be also the same, is, of itself, of the highest importance to mankind. In a particular manner, the whole tribe of diseases of the alimentary canal, and almost all those of children, all, indeed, but the contagious eruptive ones, are both explained, and their principle of cure ascertained, with geometrical exactness. Here, then, at once is a discovery, upon scientific principles, of the true nature, and certain cure, of more than one half of the diseases of the human race; the method of cure arising from this doctrine having never failed in any of them, and never succeeded upon a contrary plan, the debilitating and evacuant, so universally recommended by the authority of the schools. The spasms and convulsions of the external parts, unless when immoderate in degree, are equally certainly

195. THE simple course of morbid affection, from its slightest to its most violent degree (to take a review of the subject from the place where we set out), is, that it begins with loss of appetite, and is brought on by want of the supports of food and of other stimuli, or by an over-proportion of stimuli, and proceeds through all the intermediate degrees to the spasmodic, or convulsive pain. For the reasons lately assigned, there is first no appetite for food, and if the patient perseveres in the debilitating process of cure, and food is not administered, such, suppose, as can be taken in the form of soups, a loathing of it follows. By and by, if still nothing is used to produce stimulant effect, thirst will come on; there will be the most keen desire for the most debilitating power, cold water, which will be preferred to the greatest dainties, and will be greedily swallowed (*t*). To this, stomach sickness immediately succeeds, which, unless prevented by a diffusible stimulus, such as glass of the most pure and strong spirit, or, failing

removed by the new method, and even epilepsy and tetanus yield to it.

(*t*) When this asthenic thirst comes on, it is the highest luxury in nature to be allowed a free indulgence in the use of cold water, which is always hurtful in proportion to the degree of its coldness.

that, another, perhaps, in some cases, a third, rushes instantly on to vomiting. When the affection rises a little higher, during the vomiting a violent pain arises in the stomach, giving a sensation as if there were a bar of iron in it, forcibly stretching and tearing it across (*u*). When the affection becomes still more severe, and the cause of the dis-

(*u*) A lady, after nursing her twelfth child for seven months, was found by her husband, a physician well acquainted with the new doctrine, very low spirited one evening. She was of a delicate, thin, exhausted habit, and had been subject often before, towards the end of her periods of nursing, to loss of appetite, colic, dejection of spirits, and as often cured by removing the child from her breast, and putting her upon a rich stimulant regimen. Her friend and physician perceiving the cause of her dejection, ordered two of their daughters who happened to be grown up, to sit up and rock the child in the cradle all night, and also watch their mother, to administer to her the things he had ordered. They themselves went to bed. The reader should have been informed, that such was this lady's lowness of spirits, that tears burst from her eyes, upon hearing the sudden order for the weaning of the infant. He fell asleep; but in an hour's time was awakened by the noise of a most violent vomiting she had fallen into. She had a pain in her stomach at the same time, from her account of which the description above was taken. All this had been occasioned by her applying the child's mouth to her nipple.

ease still higher in degree, every kind of torture is undergone; an headach comes on with a feeling of strokes, like those given by an hammer. These symptoms of disturbance are communicated to the alimentary canal, for the most part not immediately, but in consequence of the disease remaining, and lurking, with an intervention of intervals of deceitful respite. The belly is often affected with gripes and great pains, and exceedingly loose; but, which will not be wondered at in an inverted state of the peristaltic motion, it is oftener constipated, and, from time to time, undergoes all the vicissitudes of alternate vomiting and purging. Among the troublesome symptoms which have been mentioned, are comprehended dyspepsia, called in common English indigestion, the gout, diarrhœha, or loose-belly, dysentery, or the bloody-flux, cholera, (x),

(x) or that disease, the urgent symptom of which is alternate vomiting and purging, the effect of which, while their cause is a general weakness over all, but prevalent in the first passages, is to increase the weakness, from which they proceed to such a degree, as to hurry on the patient's death, with every symptom of expiring debility, in the short space of sixteen hours. This happens in the warm countries, as the southern parts of Europe, and especially in the Torrid Zone, whether in Asia, Africa, or America.

the colic (*y*), the iliac (*z*) passion, the green purging of infants, the worms, that wasting of the body

(*y*) The colic has been commonly treated by purging and bleeding, and low diet; but in no instance has that treatment of it been successful. Opiates were particularly forbidden, upon the supposition of their constipating the belly; but the truth is, that the colic, as well as diarrhæa (which has been supposed a disease of an opposite nature, from the seeming contrariety of looseness of the belly, and costiveness to each other), are the same kind of affection, only differing in degree. And the colic is to be removed by no other means than those which remove the simple looseness; that is, by durable and diffusible stimulants.

(*z*) Which is that higher degree of colic where vomiting comes on, and the peristaltic motion is so inverted as to occasion the ejection of stercoraceous matter by the mouth. Sometimes in the progress of the same disease, especially when treated only by evacuation and bleeding, a portion of gut is insinuated into the cavity of the next portion. This is called in the art *volvulus*, or *intus susceptio*. The quick and effectual cure of colic before the symptoms of *volvulus* make their appearance, is a good proof that the latter is induced by the purgative medicines, employed to clear away the obstructing cause, acting with such relaxing effect, and urgent violence, as to turn back the inverted motion in one part, while it continues inverted in all the rest, and particularly in the portion next to it. The ordinary evacuant plan, therefore, is a cause of the violence of the disease in all its stages; and lastly, of the last, which becomes a local and immovable affection. Nothing could be more absurd than the reasoning which has di-

called tabes, or consumption, and atrophy (*a*), both of them diseases chiefly of children, and by far the greatest part of the diseases of that age.

rected the practice of physicians. In which, besides the general rules of bleeding to cure bleeding, vomiting to cure vomiting, and purging to cure purging, and besides the contradiction of employing purging in colic, which, by the last rule, only applies to diarrhoea; they have taken it into their head, that a good method of removing the obstructing matter in colic, was to throw in a large quantity of heavy substance with the intention of forcibly displacing it; reasoning in that way not so well as a soldier would do in clearing away any foul matter from his firelock; for it should have been remembered, that whatever effect such substances, as quicksilver, might have by their weight in pushing downward any obstructing matter, they must operate with a contrary effect, as often as in the convoluted state of the intestinal canal, the course of any portion was upward. Neither did it ever strike them, upon any one occasion, what they should never have left out of view upon every occasion, that the idea of the action of dead matter upon dead matter, whether mechanical or chemical, that is, perceptibly or imperceptibly mechanical, is never to be transferred, in sound reasoning, to the mode of action of the same dead matter on living matter; the excitement in no case whatever admitting of any such analogy.

(*a*) These two diseases, according to a theory which has at all times prevailed in the schools, and has pervaded all medical systems, are supposed to originate from an obstruction in the mesenteric glands, through which the

196. As the cause of the disease proceeds, and the exciting hurtful powers prove more urgent, the external parts are drawn into consent; and now the organs of voluntary motion are affected. Some-

chyle, or alimentary matter, after undergoing a double preparation, one in the stomach, and another in the first convolutions of the intestines, has to pass before it arrives at its common receptacle, the thoracic duct, in order to be thrown into the venous mass of blood; and to remove it, still upon the same idea, as if all the cavities of the animal economy, whether great or small, were to be cleansed, like the soldier's firelock, no limits were set to the use of gentle aperients, and particularly the use of mineral waters. And they used gravely ("risum te-
"neatis amici!") to tell us, that with the help of a course of time, suppose the arrival of the infant, or child, at the seventh year of his age, that would carry off the disease by its detergent operation, provided the obstruction were not so great as to induce death before the lapse of that period. That all this is silly theory, devoid of all foundation in truth, is proved by the completion of hundreds of cures in the shortest spaces of time, by means of durable stimuli, which act upon their delicate frames with such efficacy as to supersede, unless in the most violent cases, all use of the diffusible. This remark applies likewise to worms, for the cure of which no bounds were set to the use of purgatives, upon the idea of clearing away the stuff in which this vermin nestled; a practice not so judicious as that of some foolish boys, who place their success in bird-catching upon the chance of bringing down the nests from the top of high trees, by throwing sticks and stones at them; while other boys;

times the legs, sometimes the arms, and other parts, differently upon different occasions, are tortured with cramps; sometimes the thorax (*b*), variously

both more sensible and alert, climb up and seize every one of them. The cause of worms is the same as that of all the other diseases of which we have spoken, differing in nothing but in what they all differ from each other, in mere degree. Debility over all, but prevalent in the alimentary canal, occasions a weakness both in all the other functions, and particularly in that of the peristaltic motion. This state implies a similar weakness in the vessels which pour their fluids into that cavity; their weakness implies an enlargement of their diameters, and that enlargement an increase of the quantity of fluids thrown in, without any increased impulse behind. Hence arises a colluvies of matter, which the increased peristaltic motion is not able to throw off. The colluvies is increased by the use of vegetable matter and fruit taken into the stomach, and depositing their feculent parts on the intestines. The indication of cure is not to increase either the general, or particular part of the cause, by purging, and the use of other debilitating powers, but to strengthen the whole living system; and especially the intestinal canal, by the whole round of stimulant remedies diffusible or durable. To this treatment the tabes and atrophia will yield in a few days, or even hours; the worms in as many weeks. And they are all increased by the common plan of cure, as universal experience has proved to a demonstration.

(*b*) Read *thorax*, in the original, for *pectus*. the latter signifying only the fore part of the chest, which is not the complete meaning here, the former the whole chest.

all round ; sometimes the shoulders, sometimes the sides, sometimes the back, sometimes the neck, are affected with pain, from which pains no part of the human body is exempted, and the region of the lungs, of the liver, and of the stomach, are especially liable to them. The smart pains which affect those parts, and are supposed to proceed from internal inflammation, are, in reality, owing to a spasmodic or convulsive affection (*c*). That this is

(*c*) Endless have been the bleedings and other evacuations employed to remove those painful affections, and as dismal has been the effect of that method of cure. The universal rule, suggested by the principles, and confirmed by the practice of this new doctrine, is to invigorate the whole system, and apply any diffusible stimulus, particularly laudanum, to the pained parts. By that practice, I know not one cure, of some hundreds, which either I or my pupils have performed, which has failed. The gout will sometimes make its attack in this way. But whatever be the particular force of disease, with which they may seem to have any connection, the only diagnosis here necessary, is to be sure that the true peripneumony is not the morbid state. When that is out of the question, and whether the painful complaint be denominated bastard peripneumony or not, the only indication of cure is what has been just now mentioned. A young lady, with whom I am nearly and tenderly connected, has been often affected with an acute pain in her right side, mostly fixed and solitary, sometimes ac-

their true origin is proved by the renewal of stimuli, removing the affections, often immediately, always in a short time, and reproducing the healthy state. It is proved by the unsuccessfulness of the contrary method of cure, which proceeds upon bleeding, the various modes of purgation and abstinence. Nay, what makes even more for the same conclusion, is, that, while the abstinence almost alone is often suf-

panied with a certain numbness and senselessness in her extremities, commonly with loss of appetite, and some degree of headach. The effectual method of cure is to apply rags dipped in laudanum, volatile alkali, or ether, and renew them as often as they become dry, and to support her internally with durable and diffusible stimuli, proportioned in kind and quantity to the exigence of the case. This method of cure of a morbid affection, which upon the contrary debilitating evacuant plan would be readily and quickly converted into an incurable asthenic disease, has always proved infallible in removing the attacks, which never after return but when she has enfeebled herself by keeping the house too much, and neglecting air, exercise, and the use of the other diffusible stimuli. Friction used over all the affected parts, is also found useful in supporting the stimulant operation of all the other remedies. There is in the fens of Lincoln, where an eminent physician, and follower of this doctrine, practises, a disease called a bastard peripneunony; in which, though it had always baffled all the efforts of the common evacuant practice, he never lost a patient, by exercising the contrary one.

ficient to produce the pains, rich diet also alone has been sufficient to remove them (*d*).

197. THE same pains, sometimes combined with enormous motion (*e*) sometimes without it (*f*), are absolutely free from inflammation. To distinguish them, then, from the pains which flow from inflammation or a similar origin, the concurrence of accompanying symptoms must be attended to. Sthenic diathesis points out, that whatever pains occur are sthenic; and the information received from the asthenic diathesis is, that the pains appearing in it are participant of its nature, and as certainly asthenic. This remark is of deep application to diseases of daily occurrence, and overturns the common prac-

(*d*) This I have often experienced in the case of the gout. Before dinner, when my stomach was empty, I have limped in going abroad to dine. But after having made that meal heartily and taken a glass or two of wine, have returned with a perfect firm step, and free from all feeling of pain and uneasiness.

(*e*) As in the convulsive kind so lately mentioned, where the enormity of motion is sometimes external, and in the organs of voluntary motion, sometimes internal, as in cholera and so forth.

(*f*) As in the spasmodic pains, head-ach, pains in the legs and soles, where there is an inability to perform the due motion.

tice. Even head-ach, which is so frequent an affection, is ten times to be removed by the stimulant plan, for once that the contrary answers (g).

198. SYMPTOMS of disturbance occur also in asthenic diseases as well as the sthenic. Such a state of disturbance (h) takes place in the alimenta-

(g) The true reason for all this, and innumerable errors in the practice, is, that the leaders in the profession never understood any diathesis but a sthenic one, or any indication of cure but an asthenic, to which they give the name of antiphlogistic, as they did that of phlogistic to the diathesis. By his reformation of the erroneous plan of cure, which his cotemporaries, the Alexipharmacs, had introduced, in the small-pox, and the few other sthenic diseases which ever occur, in all the rest of the general diseases, Dr Sydenham's authority confirmed the error. He left also the measles as he had found that disease, and all other general diseases, which are much more in frequency than 97 out the 100, or 97 to 3 of the sthenic. Great men had need to be cautious, as the least inadvertency in them, not to say essential mistakes, never fails to lead their followers, who are commonly servile imitators, and implicit believers, into capital error. If ever they attempt any thing of themselves, it is commonly to raise a crazy superstructure upon a false foundation; it is commonly to refine upon error ad infinitum.

(h) All in the original from "Talem" in the last line to "febribus" in the first of the next page inclusive, is erased, as being an anticipation of a subject, which is to follow in the 100th paragraph.

ry canal in the cases of hysteria, colic, dyspepsy, and the gout. Thus, in the alimentary canal, besides the pains, mentioned above, a certain sense of burning, anguish, contortion and direful torture, exhibit a set of appearances, formidable in the highest degree, both to the patient and bystanders, and which beget a suspicion of their proceeding from inflammation as their cause. But that those affections have nothing to do with inflammation as their cause, and that they depend upon a state of the part quite the reverse, has been proved by the stimulant method of curing them turning out successful in every instance in which it has been tried (i). The same fact is confirmed by the use of

(i) Till this doctrine appeared, it was impossible to erase, from the minds of physicians, an impression which had been deeply made there, that, nothing but the only inflammation, with which they were acquainted, could be the cause of such pain and torture, as is described in the text. I have more than once experienced the whole concourse, here mentioned, and have always found them to yield to the most stimulant method of cure, which I could contrive. I once laboured under this modification of asthenic disease, for no less than ten days, and was always able to overcome it in two hours, and procure an interval of complete ease and relief for the rest of the day. The remedies employed, were the whole round of diffusible stimuli, as opiates in all their forms, camphor, musk, volatile alkali, and

wine, opium, and other diffusible stimuli. After that, and still in conjunction with their use, animal soups, and next solid meat, and the usual diet, the usual way of living, and guarding against debility, effectually re-establish the healthy state (*k*). This

ether, &c. By these the functions for the time were completely restored. But their stimulant effect was no sooner perfectly gone off, that is, after the interposition of a long sleep, through the night, than the symptoms returned with a violence little short of what it had been the day before. This was proof positive, that their nature was asthenic, or consisting in debility; since they yielded to stimulant remedies; and that the debility was exquisitely great, since it required so high a degree of stimulant operation to remove it. While that is the undoubted fact, there is a nicety with respect to proportion to be attended to in this case. It is a rule, that the degree of curative means, whether in the cure of sthenic or asthenic diseases, should be accommodated to the degree of the diseased state, or degree of the cause. If too little of the curative means is employed, a proportional part of the disease will remain: if too much, the disease will be more than removed, that is, another state which may be morbid in another extreme, may take place. Too much was once employed in this affection, and the effect was, that the disease was not eradicated, till the tenth day of its course from the beginning.

(*k*) The rule here, if indirect debility be the cause, is to begin with a high degree of stimulant cure, and gradually reduce it to the ordinary degree which is sufficient for the healthy state. And the caution is to be sure of this gradual reduction, otherwise the indirect debility

plan of cure proves to a demonstration, that those affections are most foreign, both from sthenic inflammation and every degree of sthenic diathesis; and, besides the general sthenic inflammation, not appearing to affect internal parts, affords ano-

will be liable to return the moment the effect of the stimuli is gone off. By an attention of this kind, a disease depending upon indirect debility, may be cured in the sixth part of the time, which would be taken up by the cure, when the remedies are every day carried beyond the due bounds. For example, if the indirect debility, in the table, be the effect of an application of 71 degrees of exciting power instead of 40, that is to say, if the excitement be worn down to 9 instead of being up at 40; it is evident, that an application of 71 degrees by way of remedies, will leave the disease where it was. Suppose only 65 degrees of stimulant power administered; the excitement will fall to 66, and the wasted excitability rise to 15. Next day let only a degree of exciting power as 60 be applied; then the degree of excitement will be that number, and that of excitability 20. Five degrees of exciting power still less, will reduce the morbid excitement to 55, and raise the excitability to 25. And so on may the matter go, till the excitability is raised to 40, and the excitement reduced to the same number. But, if the reduction be much less by the day, the cure will be proportionally slower. Nay, such an error may be committed as to increase the disease instead of reducing it, which will happen, as often as a degree of stimulant power is applied, which is more than equivalent to that which produced the disease. All this attention and caution, is necessary in the cure of

ther argument against inflammation in this case being the cause (*l*).

199. THE asthenic pulmonary disturbance distresses the patient with so intolerable a fixed pain, that no bounds have been set to bleedings for the cure of it. But all such bleedings have not only been useless, but detrimental, and often fatal; whereas, on the contrary, the stimulant plan of cure has always succeeded (*m*). By it the respiration is interrupted, and nearly all the symptoms which accompany an actual peripneumony, distress the patient, and to such a degree, that it has been suspected that there was an inflammation in the case, or rather, it has been confidently believed that there

asthenic diseases of indirect debility; while that of those of direct debility is easy and simple, to wit, to give the stimulants in small proportion, and often repeated, till the disease is removed, unless, which may happen, you can guess the proportion, which may suffice to remove the disease at once, or, at least, twice.

(*l*) See 182. and 183. par. above.

(*m*) A young lady afflicted with these symptoms, in the course of a month was bled thirty times, always with a temporary relief, but with a return of the disease more violent than ever. She was then put upon a stimulant plan, and in less than a month, restored to her perfect health. That was among the most early cures taken from this doctrine.

was. Or, if any difference was discerned betwixt this affection and that phlegmasia, or sthenic general affection with inflammation; that was only a shadow of distinction, and led not to the rejection of the notion of inflammation being the cause, but only gave occasion to a question about its seat. But truly, that there is no inflammation at all here, at least as a cause, and that the disease depends upon pure debility; is sufficiently proved by the arguments, which have been brought before. The disease is increased by the antiphlogistic, and diminished, and removed, by the stimulant plan of cure.

200. THE formidable symptoms of disturbance, which accompany epilepsy, apoplexy, and fevers, such as stupor, a disposition to sleep, in them all; in fevers often that false watching, which is called typhomania, and sometimes coma (*n*); in the latter (or fevers,) starting of the tendons, in the former (or epilepsy and apoplexy), convulsion or a diminution of the voluntary motions; which by most physicians have been partly imputed to irritation (*o*),

(*n*) or an insuperable proneness to sleep,

(*o*) No diseases are more opposite to each other than high sthenic diseases, such as the common inflammatory fever, or peripneumony, and proper fevers; the former, in the table, standing at the head of the scale of

as typhomania and the starting of the tendons; partly to plethora, either alone and pure, or together with it mobility: All these without distinction are evidently owing to the same cause, upon which all asthenic diseases depend, that is, debility. Which is proved by the debilitating hurtful powers, whether acting directly or indirectly, alone producing those diseases; and by the remedies, the whole ac-

increased excitement, and the latter at the bottom of the scale of diminished excitement. And the same method for the cure of both has been pursued, to wit, the évacuant, debilitating plan. If, in peripneumony, large quantities of blood were taken at a time, the difference has been made up in the cure of fevers by repeating it the oftener; while all the other evacuations were carried on with the same profusion in both. When they talked of the respective causes of those diseases, phlogistic diathesis was the word for the high sthenic diseases, and irritation for the high asthenic. But these were words only, while, in fact, the method of treatment was the same, at least, in kind, and scarcely different in degree. To whatever part of any system of physic we turn our attention, we constantly see one mode of practice running through the whole, and that too, notwithstanding the supposed great number of diseases, very limited. It turns all upon bleeding, other evacuations, starving, and some other trifling directions under the title of regimen. It was all antiphlogistic, to use their own language; and, whatever other language they held, the nature of the disease, if we are to judge from their treatment, was phlogistic.

tion of which depends on stimulus, alone relieving or removing them. But it is in vain to impute apoplexy to plethora (*p*); as if at a time of life, when the body is nearly worn out and almost bloodless, that is, when the usual degree of aliment is neither desired, nor taken in, nor digested, more blood could be produced than in the flower and vigour of human life. On the contrary, at the time when apoplexy comes on, in consequence of indirect debility, induced by old age and excessive excitement in the mode of living, the solids are languid, the quantity of fluids deficient, as also their fountain, the blood. Epilepsy depends upon the same debility, and the same scantiness of fluids, only that its debility is oftener of the direct kind. Fevers may depend upon indirect debility, as in the confluent small-pox (*q*,) or where intoxication has

(*p*) or an over-proportion of blood, see above, 131.

(*q*) The confluent small-pox, as depending upon a very high degree of debility, is ranked among the high fevers in the after part of this work, because the scale is not regulated by the appellations given by physicians, or by any of their erroneous distinctions, but by strict regard to the degree of excitement. And for the same reason, is the violent cholera marked nearly in the same place; because the debility, taking place in it, is nearly equal in degree to the most sinking febrile debility; in a word, because the same degree of debilitating power produces, and the same degree of stimulant operation removes, the diseases so assorted.

been the principal hurtful power producing them, but at the same time, their most frequent cause is direct debility. And in all the cases, which have been just now mentioned, debility is the primary cause and final termination both of all the rest of the symptoms and of those of disturbance.

201. To the symptoms of disturbance sometimes also belong the following, which affect the head; great head-ach in fevers, imbecility of the intellectual function, confusion of thought, and delirium, the last often sufficiently fierce, though occurring in the highest degree of debility, and leading to efforts beyond the strength. This state often happens towards the end of a nervous fever, even when violent. Inflammation is apprehended, blood is let, but directly from the head; blisters, which are extreme unction in the art, are clapped on, silence and darkness are prescribed, even the most gentle stimulants are forbidden. In consequence of the emptiness of the stomach, as well as of the vessels of the whole body, and of the highest degree of languor from the want of many stimuli, vertigo is superadded to delirium, and the patient, deprived of strength, sense and intellect, breathes out his last.

202. BUT in this case there is either no inflam-

mation, or, if there be, it is of a completely different nature from the general sthenic one. That it is not the latter, the unsuccessfulness of the debilitating plan of cure, and the incredible success of that which first stimulates, and after fills the vessels, afford certain proof: And that it is not any other inflammation is evinced by so sudden a restitution of health taking place. Now, as an impaired use, or confusion of the intellectual faculty is, in a certain degree, always the consequence of debility, whether arising from any other source, or from emptiness or a general inanition of the vessels, and that too even in those, who are otherwise sound; where is the wonder, if, in the highest degree of inanition, compatible with life, in the highest degree of diminution of excitement, scarcely leaving a shadow of life, also the highest degree of failure in the intellectual function, that is, delirium, among other instances of impaired function, should take place? Nay, this very fact is certain, and proved to a demonstration. Thus famine, thus drinking water contrary to custom, after a course of drinking to excess, or both eating and drinking with intemperance, a gloomy state of the animal spirits, grief, terror, despair, not only induce a temporary delirium, but frequently bring on downright madness. The same conclusion applies to any considerable

loss of blood. For how many persons, after being wounded, either in line of battle, or on the highway, have never after, and often, during a long lifetime, come to the right use of their senses? To say nothing of contusions, wounds, and other injuries, by which the texture of the brain is injured, as belonging to local diseases, of which we are to treat afterwards. How does cold induce death? Is it not, amidst a diminution of all the other functions, by a delirium preceding death? From these facts, of such weight, both from their number and validity, and which bring forward all the powers in support of the argument, it must be admitted, that both head-ach, and every failure of the intellectual function, in every degree, and that highest degree of such failure, delirium, depend not at all upon general sthenic inflammation, the only inflammation hitherto known; but arise from the highest deficiency, both of other stimuli, and of that, which depends upon a proper fulness in the vessels, that is, debility. Debility, then, is the most frequent cause of the symptoms, which have been mentioned, as is proved by the restoration of health so quickly upon the new plan of cure.

203. BUT if ever the asthenic inflammation,

mentioned (*r*) before, excite the tumult of symptoms, which are our present subject; it produces that effect in the same manner precisely, in which debility produces it, by means of a penury of blood and deficiency of other stimuli. For,

204. The general asthenic inflammation is nothing else but asthenic diathesis, somewhat more violent in a part than in any other equal part (*s*); and upon this footing, that the degree of asthenic diathesis, constituting the inflammation, is by no means to be compared with the degree of diathesis in all the rest of the system; because the affection diffused over the whole body is far greater than that confined to a part (*t*). In other words,

205. INFLAMMATION, in this case, is nothing else, but a state of the inflamed part, of the same kind with that of all the rest of the body. And, as the inflammation is constituted by a lesser excitement in a part, than in any other equal part; so, before the arrival of the disease (*u*), of which the

(*r*) See above, paragraph 171. and 202. It is to be defined in the next paragraph.

(*s*) See above, paragraph 49.

(*t*) See above, 48, 49, 50, 51.

(*u*) See above, paragraph 169, and compare it with

inflammation is a part, a symptom, or sequel, the excitement of that part is understood to be proportionally less, than that of any other part.

206. THIS inflammation (*x*) should be distinguished from another, which is local : It is general, and depends upon a general diathesis, and only happens when the diathesis has attained a certain degree ; while the local arises from some hurtful power, which produces a solution or vitiation of the texture of the part, without regard either to diathesis or degree. The general inflammation is

this. The meaning in both is, that, as certain parts of the system have more excitability than others (51), so, those parts, which, in the diseased state, are more affected than any other. that is, are either more excited, as in sthenic inflammation, or less, as in asthenic, than any other, keep up the same proportion of disparity before the arrival of the disease, before the appearance of any of the symptoms, and while, as yet, nothing but mere predisposition has taken place. The truth of this proposition is established by that of another so comprehensive as to extend to the whole subject of life, which is, that over the whole living creation, throughout the universe, health, predisposition to disease, and disease itself, are the same state, only differing in degree (vid. paragraph 23. and 65.). Health, therefore, is also comprehended under this same proposition.

(*x*) mentioned in the two last paragraphs, 204. and 205,

brought on by the same hurtful exciting powers, which produce the general diathesis, only applied in a higher degree; and the same remedies remove both the diathesis and the inflammation. The local inflammation depends upon hurtful powers, which only injure a part, and is removed by remedies which change the state of the part; but is not affected either by general hurtful powers, or general remedies. Examples of the universal are these inflammations, which accompany the gout, the putrid sore throat, the gangrenous sore throat, and that inflammation which produces sore eyes. The local inflammation will be illustrated by examples, to be produced in their proper places (*y*). The general inflammation is attended by debility over the whole system; which debility is only a sequel of the local, and not always. To remove the former, the general method of cure (*z*) is adapted; but the cure of

(*y*) As in the inflammation, which is produced by a wounding instrument, when a person, previous to such an accident, is in health, and continues to be so after the accident. Or it may still be local, though a person is in bad health when it happens, but so, however, as that the general state of the health is understood to have no concern in it. A wound in a very tender part may induce disorder over the general system; but still all the symptoms can be traced to the wound, and not to the ordinary cause of general disease.

(*z*) See paragraph 88.

the latter, turns upon healing up the part. In this way, then, there are four sets of inflammation, two universal, a sthenic, and an asthenic, and two local; one of which is sthenic, and the other asthenic. The former often ends in suppuration, often in solution; the latter in gangrene, and sometimes in sphacelus, sometimes at last in death. If, in the end of a typhus fever (*a*) inflammation affects the brain or its membranes, which (*b*) is neither yet proved, nor a very likely fact, it will serve for an instance of an asthenic general inflammation.

(*a*) Or a low nervous fever, which is a disease of the highest debility, next to the plague, and often not inferior to that disease in malignity, and, therefore, to be arranged in the scale, as next to that disease, which stands at the bottom of diminished excitement. Physicians have constantly confounded the different degrees of this disease with sthenic ones, affecting the pulse. But they are diametrically opposite, as shall be pointed out when we come to the proper place for such distinctions.

(*b*) Though strongly asserted. A professor, in his lectures, gives a case of a typhus fever, where, upon account of delirium, and some other symptoms, thought to announce an inflammation in or near the brain, the patient was so freely bled, that the state of the pulse (which is said to have been, in his words, "a pulsus vacivus, if ever there was such a pulse,") forbid any further bleeding. The patient was given up, and the extraordinary physicians withdrew, leaving the ordinary

207. As the general sthenic inflammation is occasioned by a quantity of blood, excessively distending the vessels, which are its seat, by that distention stimulating them, by stimulating increasing their excitement, by the last producing more forcible, and more frequent contractions, by these increasing the tone of the fibres as living, and their density as simple solids, and thereby diminishing their diameters (*c*); and, consequently, making the blood flow with great effort through the contracted vessels, and, during its flow, produce pain from the high force of the contractions, and the narrowness of the space through which it has to pass; and as the same, though in a lesser degree, is the cause of sthenic

one of the family, only, about him. This gentleman, from some impression on his mind, began to think, that another bleeding might be tried with advantage. He bled him, and the patient recovered. This is an account of a case which I pretend not to understand, and, I believe, it will be no less puzzling to my readers, and the more puzzling the more sense they have. It is, however, brought as an example, that, in a seeming expiring debility, the highest degree of asthenic diathesis, there may be an universal sthenic debility, which requires bleeding. I have mentioned it, not for the sake of information, but of caution, to the reader. Any person may see the frivolity and lightness of the theories of our profession; but it requires knowledge and discernment to guard against the seduction of facts.

(*c*) See 61, above, and 131.

diathesis over the whole system of vessels, whether carrying red or colourless fluid : So,

208. THE cause of general asthenic inflammation is also abundance of blood in the inflamed vessels, producing the same effects in the inflamed portion as in the sthenic inflammation ; and, notwithstanding the penury of blood in every part of the vascular system besides, flowing abundantly into the inflamed vessels, upon account of a greater atony and laxity in them, than in the others, distending them and producing the phenomena peculiar to any inflammation (*d*).

209. As the indication of cure for the former is, to diminish the quantity of blood, which is the first

(*d*) These definitions apply to all the four inflammations (par. 206.), with respect to the state of the inflamed vessels ; their differences only depending upon the general state of all the rest of the vessels, which, in the local, may be quite the healthy state of these, while in sthenic general inflammation, it is the sthenic, and, in this, the asthenic diathesis, which are conjoined with the inflammatory state. Further, as their cause is influenced by these general-circumstances, so also is their cure ; the sthenic and asthenic general inflammations requiring the remedies of the diatheses to which they respectively belong, and the local only the remedies suited to heal up the part.

cause of the struggle, and, thereby, to reduce the excessive excitement to the degree which suits the healthy state, and the excessive contractions, which constitute the struggle, to the moderate ones, which are pleasant and agreeable to health (*f*): So,

210. THE indication of cure for the latter is, first, by powerful stimuli, to drive on the quantity of blood which there is in every part of the system, that the portion which loiters in the languid vessels of the inflamed part, may be thereby propelled, and the vessels relieved of their burden; and then, by the gradual administration of seasoned animal food, in the form of soups, and, soon after, and when now the strength is recruited, in a solid form, to fill the whole system of vessels.

211. THE two other inflammations, both local, will be treated of afterwards, each in its proper place.

212. THAT inflammation of the throat, which ends in what they call a putrid (*g*) sore throat, is

(*f*) See above, 134.

(*g*) The disease, here mentioned, is neither described, nor, seemingly, understood, in medical books and lectures. In this work, it is taken, as every thing else is,

singularly insidious. During the first days, it differs little in its appearance from the sthenic sore throat. The general symptoms are also similar. The pulse scarce exceeds the measure of the sthenic pulse, in its frequency, and other characteristics. For some time, the whole disease proceeds with gentleness and tranquillity, excepting, that a constant rejection, by spitting, of a tough mucous matter is troublesome. At last, when head is not made against it by means of the most powerful stimuli, a period arrives, when all the symptoms are suddenly precipitated into a bad state; when the pulse becomes very quick, very weak, and remarkably small; when the strength, over the whole system, sinks; and now, it is not a moderate portion of diffusible stimulus, not before administered, which will stop the much to be lamented death of the greatest ornament of human nature (*b*). The best

from nature, at the bed-side of the sick, and deserves so much the more attention, that, though it is a disease of the utmost malignity, it seems to have been altogether overlooked. Its appearances are mild at first, but, without both skill and attention, it will end fatally.

(*h*) All this refers to a lady in Scotland, of singular worth and amiability, who died, but in consequence of the plan of cure, which this doctrine enjoins, not having been followed; especially at the period of the disease, when it was most wanted.

plan of curing this disease, is to prevent the mortal period, by employing the most powerful stimuli.

213. THE diffusible stimuli are so powerful in removing the inflammation of the gout, that, sometimes strong drink, undiluted, as wine, and spirits, or the latter, diluted with water, as warm as can be borne, have, in a few hours, removed the most violent fit, and restored the use of the affected foot. And the same remedies, as have been mentioned before, are of equal efficacy in removing the general symptoms (*i*).

(*i*) Treated in the way, here and formerly (vid. the Preface) mentioned, the most violent degree of the disease always gave way in a few days, and milder cases in as many hours. I never found a single case baffle me but one, where the patient, who, with his valet, had quacked himself into the gout, as well as other complaints, and particularly an habitual costiveness, by forcing every passage by the belly, for the space of seventeen years. I was dismissed, without having my directions complied with; and without being allowed to accommodate the remedies to his practice of purging and throwing up injections, so as to endeavour, at least, to prevent or mitigate their hurtful effect. For, it must be observed here, that, as every directly debilitating power is an exciting hurtful means of bringing on any asthenic disease; so, the effect of every evacuation, and particularly that by the belly, is well known to be a certain means of bringing on a fit of the gout. Among

214. THE inflammation of the throat, in the gangrenous sore throat, is not, according to the common opinion, a primary affection; but, like every other general asthenic inflammation, depends upon the general diathesis, which, in this case, is manifestly asthenic, being a part or symptom of the diathesis, when that has attained a certain high degree.

THIS inflammation has nothing in common with the sthenic general inflammation, which distinguishes the sthenic inflammatory sore throat (*k*), or with the two local inflammations.

many other means of inducing that disease, a single dose of Glauber's salt, though that be but a mild cathartic, will bring a fit of the gout on me at any time.

(*k*) Yet, in their systems of nosology, which are laboured volumes of distinctions without differences, begun, within this half century, to be superadded to the former modes of systematising; which, without this new one, has sufficiently disgraced the art, and needed no more than the most absurd of the whole, or which the misled fancy of men could invent, to complete, in all its copartments, the vast fabric of error, and particularly in the last of these, that published in Edinburgh, the putrid sore throat, as described (above, 212.), was left out, and the gangrenous, which is that just now alluded to in the text, conjoined with the common sthenic sore throat, though diametrically, in its nature, opposite to it.

215. THE crowded pustules, in the small-pox, when it is now converted into the confluent disease of that name, that is, into an asthenic general disease, become partakers of the new diathesis, and, instead of sthenic, which was their first state, become asthenic; and as, by their local stimulus before, they quickly changed the sthenic into the asthenic diathesis, by means of indirect debility; so they, now, by the debilitating influence of their asthenic nature, confirm asthenia, “or a state of debility,” over the whole system; they increase it, and carry it quickly on to death (*l*).

216. To throw light and illustration upon them, by comparing their respective methods of cure; it is to be observed, that the cure in the one case is

(*l*) There cannot be a more exquisite stimulus in living nature, than that universal cake of inflamed pustules, which covers the whole surface in a crowded small-pox. It is no wonder, then, that, when it is superadded to the ordinary stimulant hurtful powers, to which this disease first owes its violence, and afterwards that very eruption, the united effect of both should soon pass the whole range of excessive stimulus, and quickly run into the state of indirect debility. (See par. 200.) Such is the nature and progress of the small-pox, in passing from the sthenic into the asthenic state, that is, from one disease into another of a most opposite nature.

quite different from that of the other (*m*). The remedies of the distinct small-pox, and of its accompanying eruption, are cold, and whatever, by evacuation or otherwise, debilitates. The remedies of the confluent disease, as well as of its accompanying eruption, are heat, remaining within the indirectly debilitating degree; and all the powers, which stimulate as quickly, and as powerfully as possible, and, consequently, the most diffusible.

217. THEY differ besides in this, that all the hurtful powers in the distinct case are sthenic; all in the confluent asthenic. And this difference equally applies to both diseases, and both eruptions.

218. AND as the sthenic or distinct pustules have a direct tendency to produce a sthenic inflammation, and sthenic eruption; so, the tendency of the

(*m*) The cure of the distinct small-pox is the debilitating; that of the confluent, the stimulant plan. The cause of the former is sthenic diathesis; that of the latter, the asthenic, occasioned by indirect debility; which is a distinction unattended to in general, and with very bad effect upon the practice. For, when the confluent small-pox is established, the pustules flat, and signs of mortification coming on, the covering the patient with a single sheet is as common as in the distinct small-pox.

asthenic or confluent, is as directly to gangrene, sphacelus, and death.

219. THE boils, carbuncles, and buboes, which often accompany the plague, and sometimes the typhus fever (*n*), arise from a contagious matter, taken into the body, and then detained with the perspiratory fluid, under the cuticle, and in the glands. The cause of the detention, and, therefore, of this eruption, is a total cessation of motion in the extreme arteries, especially the glands and perspiratory terminations, upon account of the universal debility, and the very great languor of the heart and arteries. That this is the case, is proved by there being no eruption during the period of predisposition, when some vigour still remains, and therefore, the perspiration goes on in a certain degree; none in the cases of sudden death from the violence of the disease; neither eruption nor disease in all the cases, where these are prevented, at an early period, by the use of the more powerful stimulants; by the disease being always gentle, and the eruption always sparing, in proportion to the proper management of the stimulant plan of cure. For, whether the suppression of perspiration be the con-

(*n*) See above, the note (*c*), under par. 207.

sequence of a very great degree of sthenic diathesis, or of an equal degree of the asthenic as in the present case; all the foreign matter, which should be thrown out of the system along with the perspirable, is, together with it, detained, and so detained below the cuticle, by stagnating, and acquiring a more acrid nature, it produces local inflammation, either of a sthenic or asthenic nature, in proportion to the different nature of each, or rather of the habit of the body.

220. IN the same manner is that eruption which diversifies the skin in the gangrenous sore throat to be explained; as well as another, which supervenes upon that state of the small-pox, which, by reason of the debility of the system, would otherwise turn out well; but if the new eruption be not opposed by the most powerful stimuli, is sure to end in death. Both these eruptions (*o*) are spotted, both

(*o*) A young child of mine, who had been long weakly, and often, in consequence of which, snatched from the jaws of death, by being properly supported, according to the principles of the new doctrine, had been prepared to receive the small-pox, and inoculated. After the eruption was completed, and it was now certain it would be exceedingly moderate, one morning he was brought before me, covered over with the appearance of the eruption described in the text.

of them red; but the former (*p*) is marked by smaller, the latter by larger spots; in the latter the colour is a fine scarlet, far exceeding all art, and almost the power of nature herself in other respects (*q*). Both of them are owing to a suppression of the perspiration by the debility which has been mentioned: the former is removed, in practice, by the stimulant plan of cure, which removes all the other symptoms; in the latter, or uncommon eruption, the debility produced of purpose in the preparatory plan of management, to render the small-pox mild, must be opposed as soon as the eruption appears, and the strength must be restored by the use of the most diffusible stimuli. The pustules, which are both few, and of no consequence, and do not even attain the measure of actual general disease, and are, therefore, free from all danger, are not to be regarded. If this practice is executed, the recovery is both certain and speedy; but, if it be neglected, or, if a contrary plan of cure be pursued, death is inevitable (*r*).

(*p*) or that in the gangrenous sore throat,

(*q*) The beautiful colours, sometimes painted in the clouds, are often not to be copied by art.

(*r*) It is certain, that the safe conduct of the small-pox depends upon debilitating the habit which is to receive the infection; and it is as little doubtful, that we

221. HEAT is not peculiar to sthenic pyrexiaë (*s*), but belongs also to other diseases of the same stamp. Nor is it so confined to those, as not also to arise in all the degrees of predisposition to those diseases,

may carry that operation a great way, by lowering the diet, purging the belly, and applying intense cold to the surface, and, by all means, guarding against all alternation with heat. In this manner, the phlogistic diathesis, chiefly arising from the ordinary powers, and in part, as it would seem, from the contagious matter, is prevented or removed; the great flow of the fluids to the surface checked; and the diameters of the perspiratory, as well as of all the other vessels, kept open and patulous. But it had been long a question with me, whether this debilitating operation might not be carried too far. If it be certain, as it is, that extreme debility suppresses perspiration, surely the process, pushed near to that degree, must endanger that event. This phenomenon happening to my child, solved the doubt which I had not yet decided; and it seemed to be in perfect conformity to the principles of this doctrine, to understand, that, as this child had been formerly weak, and, perhaps, still retained some degree of that state, the further weakening him, by the preparatory management, for the better regulating this disease, had been carried too far. A surgeon happened to be by when the child was under examination. I asked him, if he had ever seen such a case; for I had neither seen, nor heard, nor read, any thing like it. His answer was, that he had seen three, and all of them fatal. I knew how that would happen, that is, that they would continue the debilitating practice they had been following. On the con-

and in proportion to each degree (*t*). But the matter does not end here. The same heat distinguishes all asthenic diseases, whether febrile, which is a distinction without any good meaning, or not febrile, and also the predispositions to them all, and that in proportion to the degree of debility. There is not a more certain mark of a departing disease, whether sthenic or asthenic, than a return of that temperature, which is commonly called cool, to distinguish it from morbid heat.

trary, I ordered the child spirit and water, and a little of an opiate, then restored the meals which had been taken from him, and brought him about to his perfect health (for the small-pox gave no trouble) in twelve or sixteen hours.

(*s*) Pyrexia is the word for sthenic diseases affecting the pulse, called febrile, or fevers, very improperly; while the term, fever, is reserved for the high asthenic diseases, which have been confounded with the pyrexia.

(*t*) That heat takes place in predisposition, is a matter of daily observation. Thus, when a person has no other symptom of disease, it is often remarked, sometimes by himself, sometimes by another, who may have happened to feel his hands, that he is certainly not quite well, as his hands are hot. When this heat happens, either in the hands or feet, without any cause to account for it consistently with health, it is a sure prelude of disease, that is, a sure mark of a considerable predisposition to disease: and the kind of disease, of which it is the harbinger, is oftener asthenic than sthenic.

222. THE heat is then only natural, when neither diathesis is present. From that point it increases, through all the degrees of increased excitement, till indirect debility, from excess of stimulus, is established; and it increases in proportion to the degree of excitement, rendering the perspiratory vessels always less and less patulous. It also increases through all the degrees of diminished excitement to certain boundaries, which are fixed by a cause shortly to be explained, and increases in proportion to the degree of decreasing excitement, though the latter all along renders the perspiratory vessels more patulous; and thereby, among other effects, diminishes the motion, both of all the vessels, and particularly of the perspiratory.

223. WHEN the heat has now been the greatest it can be, and the debility increased in proportion, at last in the extremities, and afterwards gradually in the rest of the body, cold, which is always a bad sign, succeeds to it. In the progress of the debility, motion begins to be very languid, first in the extreme vessels of the extremities of the limbs, and then to be destroyed altogether. Hence, as heat, whether in due proportion, or in excess, depends upon the motion of the blood and other fluids, being performed in due proportion, in excess, or to a

certain extent, in a deficient degree; if, therefore, the heat is either nothing, or next to nothing, as in the present case, the effect, together with the cause, by an universal law in nature, ceases. The same thing happens in both extremes of excitability, that is, of excessive abundance in direct, and of nearly a cessation of it in indirect debility; and so much more readily will this happen, because, whatever be its source, debility is always the same.

224. BECAUSE the excitement in sthenic diseases is, for the most part, much and equally increased over the whole body; the heat, on that account, is also equally diffused over the whole. From which fact no cases are excepted, but those, in which, in certain parts, as the stomach, under a strong disposition to vomiting, and, therefore, in danger of falling into indirect debility, indirect debility either actually takes place, from the disease proceeding with an excessive force of stimulus; or direct debility comes on, when the debilitating plan of cure has been pushed beyond the rule. But, so long as the sthenic diathesis is vigorous, and supports a high force of excitement, the heat will almost always be equal.

225. THE same thing happens in moderate debility. Accordingly, through the whole course of

predisposition, and in those diseases, where the matter has not gone so far as almost a total cessation of motion, the heat is pretty equal. The effect of cessation of motion has been explained (*u*). But, before that happens, if any inequality of heat occurs in diseases of moderate debility, as is frequently the case in the hands and feet; the reason of that is, that a greater degree of debility, as in cold, labour, and sweat from these, or any other source, and that sweat, cold and clammy, has been applied to those parts, than to others. Not only in the gout, but also in other affections, both of direct and indirect debility, a burning heat, chiefly distressing to the soles of the feet, torments the patient, especially in walking. That that arises from debility checking perspiration, is proved by fatigue, cold, and other debilitating powers, proving hurtful to it; and heat, rest, and other stimulant powers, giving it ease.

226. IT remains now, that it be explained, how too great excitement, in high sthenic diseases, impairs some functions, but never, by a debilitating operation; and how too small an excitement in violent asthenic diseases, gives an appearance of increasing some functions, but always a false one.

(*u*) See above, 223.

227. IF, in peripneumony, synocha (x), and violent rheumatism, the voluntary motions are impaired, and to such a degree, that a person can neither use his hands nor his feet, more than a paralytic person; that that is not owing to debility, that is, diminished excitement, whether directly or indirectly (y), is evident, from this double proof; that, if

(x) or the inflammatory fever,

(y) When the excitement is at 40, all the functions are performed in the best and completest manner. Above that, there is more force through all the steps of predisposition, but with less durability and steadiness; which is exemplified by the comparison of hard labourers, who, at the same time, are well supported, and gentlemen, who live well, without using a proportional degree of labour, or exercise, to prevent a luxuriant state of vigour. When two such persons are subjected to a comparative trial of their vigour in any exertion, the former will be found to go through the exertion with more steadiness, and to hold out longer and better than the other, even though his first efforts may have been inferior in force to those of his antagonist. And the reason is evident; a moderate and proper degree of vigour will bear an addition of stimulant operation longer than a higher degree of it approaching to morbid state; because the distance of the excitement from indirect debility, which puts an end to excitement, is greater in the former than in the latter case. The difference, in the well-supported labourer, is 30, before he can reach an increase which leads up to 70; whereas, that of the gentleman is perhaps not more than 20. The exertion, in the struggle, adds stimulus; which

the apparent debility were real, stimulants would be of service, and debilitating remedies of disservice (*z*). But the reverse is the truth. For the same debilitating powers, which cure the other symptoms of confessed excessive excitement, also remove this indisposition to the performance of motion; and the contrary increase the affection.

228. AGAIN, in spasms and convulsions, either of the involuntary motions, in the internal parts, as in dyspepsia (*a*), in colic, in dysentery (*b*), in cho-

will be better borne by him who has least, and yet enough, than by him who has more, but of a superfluous degree, and more liable to run into the extreme of a cessation of excitement. The effect of the exertion in the labourer will be to carry him soon up, by its stimulant operation, to the degree of excitement where the gentleman began, suppose that to be 50, and, perhaps, by and by to 60. But the same stimulus of exertion, in the gentleman, will have the effect of first mounting up to 60, and by and by to 70, where the excitement begins to cease.

(*z*) Who would administer wine, opium, and the other high stimuli, whether durable or diffusible, to cure the inability to perform motion in either peripneumony, or that rheumatism which is highly sthenic? Or rather, who would think of any other means of removing that symptom, than the debilitating powers, so effectual in removing all the rest, and not less so in removing it?

(*a*) in English, indigestion,

(*b*) in English, the bloody flux,

lera (*c*), in hysteria, in any violent attack, either of vomiting, or looseness of belly (great numbers of which affections happen every day, without being distinguished by names); or in the burning affection of the alimentary canal (*d*), which is considered by physicians as an inflammatory affection; or in affections of the voluntary motions externally, as in the lock-jaw, in tetanus (*e*), and in many spasms

(*c*) or that disease, the urgent symptom of which is vomiting and purging,

(*d*) See above, 198. and the annexed notes.

(*e*) Tetanus is a violent spasmodic motion of the muscles of the head, neck, and upper part of the thorax, whereby the head is kept immovably in the same position in which it had been found upon the coming on of the spasm. The teeth also, from the affection occupying the muscles of the under jaw, are kept immovably locked, and hence the name of lock-jaw. Besides the affection of the muscles, which has been mentioned, there is scarcely one muscle in the whole body free from one degree or other of the affection. Further, there is a most painful feeling over all, but especially in the parts most affected. This disease sometimes happens in cold countries, such as this, in consequence of a wound in any sensible part, or when small bones, as the ossa spongiosa, are bruised, crashed and dashed into the softer parts. The part of it called lock-jaw, is frequently a symptom in fevers. But the disease is more frequent in warmer countries than this, as in the south of Europe, where the excess of heat is liable to run into indirect debility. It is most frequent of all in the Torrid Zone, where indirect debility is the most con-

of other parts : or in convulsion, epilepsy (*f*), and many other convulsive affections ; if these functions seem very much increased ; that that is not owing to increase of strength, that is, increase of excitement, shall also be proved to any unprejudiced judge, by the following two-fold fact : that, if this were a case of really increased strength, debilitating powers, or the remedies of sthenic diathesis, would remove it ; and stimulants (*g*), not proceeding to their ultimate effect of inducing indirect debility, but remaining within that range in which

stant attendant on heat. As a violent and permanent contraction of the muscles was the most striking symptom of it, and systematic physicians supposed every such contraction to be an effect of an increase of excitement, or, to use their own words, an increased influx of the nervous fluid, or nervous power, into the parts affected ; consequently, their indication of cure was to relax the rigid contracted parts. Hence, no bounds were set to their emollient relaxing measures. Such were bleeding, other evacuations, and warm bathing. But experience soon taught, that all these increased, instead of removing, the disease. Of late, opium, because it was thought a sedative, was tried. The trial succeeded. But immense quantities of that medicine were found necessary to effect the complete cure. Laudanum used to be thrown in without measure, or any other rule, but to give it on till the disease ceased.

(*f*) or the falling sickness, in English,

(*g*) keeping within their stimulant range, and

they remove asthenia (*b*), would increase it. But to such a fact, also, is the truth in diametrical opposition (*i*). For stimulants alone, which remove the other signs of acknowledged debility, also remove those spasms and convulsions; and debilitating powers increase them, or change the disease into a worse (*k*).

(*b*) or affections of debility,

(*i*) Who does not now know, that bleeding, evacuations of other kinds, are hurtful; and that stimulants, proportioned to the degree of the cause, are the only successful remedies?

(*k*) A certain gentleman, in his desk, speaking of the method of curing epilepsy, or the falling sickness, and recommending, among other evacuant, and otherwise debilitating means, small, but frequently repeated, bleedings, unguardedly contradicts himself in his very next sentence. "However," says he, "we regular practitioners are liable to be too cautious, and even timid sometimes. For I have known a bold practitioner in the country, who cured an epilepsy by very profuse bleeding. In a few months after, the patient died of an universal dropsy; but the epilepsy never returned." I would ask this gentleman, what sort of a cure that was, which converted a disease, which may come and go for many years, nay, even for a long lifetime, into one, which, in a very short time, proved fatal? What reason would a podagric have to thank any one, who should convert the gout in him, upon any violent attack, into a fatal dropsy? That sort of treatment is not curing a disease, but increasing it, and even that to death. The convulsive symptoms of an asthenia

229. BECAUSE we know not what contraction is, or almost any function of living systems (*l*); we shall not, therefore, wrangle about whether it be an increased or diminished function (*m*); but we will by no means give up the point of those spas-

may pass away; but the asthenia remains. You may cease to call it epilepsy; but dropsy still shows that the cause of the disease remains, nay, is prodigiously increased. This fatal mistake, of an increase of the disease, upon the whole, for the cure of an inferior degree of it, proceeds from an improper use of directly debilitating powers, in place of the proper stimulant ones. But there are cases, where the last, by being carried too far, produce the same fatal mistake. Thus, in peripneumony, to get rid of the hard pulse, and the acute pungent pain (See above, 174. and the Notes), the bleedings are carried so far as to produce a fatal hydrothorax, or dropsy of the chest.

(*l*) This is perhaps, the first philosophical performance, in which care has been taken to keep clear of abstract causes. The prosecution of them has contaminated almost every department of knowledge which had been treated scientifically. See the Introduction to my Observations on the several erroneous Systems of Physic, &c. where it will appear, that even the great Sir Isaac Newton did not altogether avoid this error, especially in the questions he put, however modestly, with respect to an all-pervading ether; the wanton and aerial theoretical fabrics that have been raised upon which, have, in spite of Lord Bacon's better directions, disgraced the philosophy of the middle of the eighteenth century. Compare, what you will find in that book, with Chap. III. par. 18. in this.

(*m*) See above, Chap. V. throughout.

modic and convulsive motions being an impaired function (*n*). For, if, within certain boundaries (*o*), excitement, when increased, produces more strength, and less, when it is either diminished without limitation, or ultimately increased; and if every function, so arising, is properly defined to be either a function, increased in proportion to the increase of excitement, as contained within its boundaries, or as a function, diminished in proportion to the deficiency of the same excitement, without any boundary, or to the ultimate increase of exciting power beyond the stimulant range; consequently, in the last of these cases, it is a most proper definition to say, that the function is diminished; and in the first, that it is increased (*p*).

(*n*) I know not what the abstract state of muscular fibres is, either when they contract and relax with rapid, violent, and morbid force, or when they remain immovably fixed in one forcible permanent contraction: But I know, that nothing but debilitating powers produce them, and nothing but invigorating ones remove them; which is enough for me, who mean to prove myself a sure and cautious observer of the phenomena of nature; and, in my practice as a physician, to avoid, after the example of many others, groping in the dark, under the guidance of abstract reasoning, but to view every subject of observation by nature's clearest light.

(*o*) See above, par. 24.

(*p*) In the spasmodic and convulsive state of the func-

230. THE notion, therefore, hitherto received, with respect to these motions, is false. It proceeds

tion of motion, when compared with the vigour of the same function in its healthy state, who would say that the former is greater than the latter? The healthy and vigorous state of motion consists, not in the degree of contraction, but, with a certain degree of that, in the well-proportioned alternation between contraction and relaxation; of which we have proof indisputable, in this mode of motion being best performed in that middle state of vigour, which intervenes betwixt the extreme of the healthy, or moderately increased vigour, and the other extreme of direct or indirect debility. The increase of vigour and excitement keeps pace to a certain extent, even through some degrees of morbid excess of the latter: but a period, and that short of indirect debility, arrives, as in peripneumony, where the excitement is increased beyond the healthy state, and must be reduced, in order to restore the due healthy vigour. There are other cases, as that of mania, or sthenic insanity, where the conjoined increase of vigour and excitement will still go further. But, in every case, the increase of vigour, still judging of it from its effect in the healthy state, ceases before that of excitement; and, perhaps, we may make a step towards finding the boundary, by observing, that the greater the sum total of excess of exciting power is, the sooner does the point arrive, beyond which the vigour does not proceed. In peripneumony, it ceases at a certain period of the disease, where the salutary effect of bleeding, and other debilitating means, shows that the increase of excitement is still going on. But here, the sum total of excitement, considering the state of all the other functions, is greater than in mania, where the

upon a supposition (*q*), as if the motions proceeded from an excessive influx of the nervous fluid, according to a mode of style which they first held (*r*),

function chiefly increased in vigour is only that of voluntary motion, while all the functions of involuntary motion are very little affected. From this investigation, we can clearly discern, that every increase of excitement leads to a morbid increase of vigour, and that there is, somewhere or other, a point in the scale of increasing excitement, and below the point of indirect debility, where the vigour is no further increased; and this inference arises with respect to the practice, that we should be very observant of both facts, as pointing out a very material distinction in the indications of cure; that in direct debility being to stimulate, while that, at the cessation of vigour, is to continue to debilitate, till the sum total of excessive vigour be reduced to the proper and healthy. The inability to the performance of motion in peripneumony, is an instance of the latter; that of the conversion of the same disease from excess of debilitating cure is an instance of the former.

(*q*) Indeed, they have talked so confidently of it, that they may more justly be arraigned of going upon a *petitio principii*, or that error in logic, where a point, chiefly required to be proved, is taken for granted, and made a ground work of other reasoning.

(*r*) From a microscopical observation of Leuenhoeck, where he once thought he saw a hollow cavity in the nerves (but could never see it again, nor any body after him, though that instrument has been infinitely improved since his time), the celebrated Dr Boerhaave took his noted intertexture of vessels, making the whole mass of living bodies consist of such. The functions were, at that time;

or of the nervous power (*s*), which is now the common language, that is, if it has any meaning, from an excessive excitement in the fibres which

supposed to depend upon an inelastic fluid secreted in the brain, and distributed in the cavities of the nerves, to every part of the system. Much reasoning has been employed in refutation of that beautiful, though fanciful, system. But the only reason, that should have been employed against it, was to deny the truth of the hypothesis upon which it was built; and that negative argument might have been supported by this positive one, that it is now known, that the nerves are solid substances, and not hollow tubes. The next theory which was taken up was, that though the nerves were solid substances, yet they were porous, and, therefore, fitted to receive into their pores an elastic fluid, like the electrical, the magnetical, and, like, or rather a modification of, the supposed ether of Newton; that this inelastic fluid also floated upon the surface of the nerves, and formed an atmosphere around them, and by it all the functions of living systems, even those of the most perfect, the human, were explained. For a full account of it, see the Preface to the Observations on the Principles of the Old Systems of Physic, from page 19 to page 58. Among other applications of the ether, under the denomination now of nervous power, one was to make its influx into the muscular fibres affected with spasm, or convulsion, the cause of these morbid motions; as its influx, as an inelastic fluid, into the hollow cavities of the nerves, had been before supposed to afford the same explanation.

(*s*) That was their word, after an ingenious philosopher in Edinburgh, whose dissertation upon this subject is given

have been mentioned (*t*). And as, according to the phraseology of logicians, “errour draws on errour ;” so, this notion of the abstract cause led to another (*u*), with respect to the operation of opium. And, as they senselessly enough supposed excessive motions to be occasioned by an excess in the principle of life, at least in the labouring parts ; so, they either thought or taught, that opium possessed the virtue of checking, or allaying, as a sedative, those motions, and that contrary to the whole analogy of nature, and the certain proof afforded by all the exciting powers, every one of which has been proved to be stimulant, not one sedative (*x*). But if it were in any respect doubtful, that nothing in nature, at least in those powers, which are commonly applied to

at full length in the place of the Observation referred to, had ridiculed them out of their ether.

(*t*) It is here to be observed, that the change of the theory here has led into a vagueness of terms. It might have been proper, had the notion of either an inelastic, or elastic, fluid, been retained, to have called the supposed cause of the function a fluid, and to have talked of its influx as such ; but now that we know nothing about it, or whether it has any existence at all, to call it a power, and yet to talk of its influx or efflux, its flowing in or out, is surely vague and incoherent.

(*u*) that is, they supposed the most powerful stimulus,

(*x*) See above, par. 19 to 22, with the additions and notes.

animal bodies, is sedative, how can there be any uncertainty of that point as to opium, much less, that the contrary conclusion should be held for the truth? Has not it the same effect upon the Turks which wine has upon us? Or, are we to suppose, that the troops of that people, on their march to the onset of battle, chew opium, with the intention of checking their natural alacrity and propensity to action, and of blunting and depressing their high spirits and courage? If fevers, if the gout, if indigestion, if the colic, if asthma, and the whole train of spasmodic and convulsive diseases; in fine, all asthenic diseases, have lately, to the conviction of every person who gave the subject a due consideration, and, contrary to the expectation and opinion of all men hitherto, been proved to yield to the various forms of opium without difficulty; and if all these diseases, in which it is serviceable, have been demonstrated to be affections depending on debility, are we to agree, that opium proves of service, by an operation which is further debilitating, or rather which extinguishes the miserable remains of nature's motions? If the various forms of wine, and other strong drinks, have a very great effect in removing the same diseases, which has likewise been discovered by late experiments, and are, therefore, understood to be beneficial by the same mode of

operation as opium, are we to agree, that that similitude of operation argues a diversity, nay, a diametrical opposition, in the nature of the powers which unite, with such harmony, in producing the same effect? Lastly, if it cures diseases, which depend upon a confessed deficiency of motion (ω), equally as those, the motions in which, though seemingly increased, are, in reality, diminished; what can any person say in objection to so strong an argument, added to so many and so powerful ones already advanced? In faith, opium is not a sedative: On the contrary, as it is the most powerful of all the agents which support life, and which restore health, and a truly blessed remedy, to the divine virtue of which the lives of so many mortals have been owing, and, in future, will be owing; so, it must

(ω) In one fit of the gout, when its paroxysms were allowed to return, in consequence of a disrelish which I had taken for a certain stimulus of the drink kind, and, therefore, all at once abstaining from stimulus, I fell into a state of perfect inaction, and, though without feeling of pain or uneasiness, so devoid of muscular force, or capability of producing any motion or exertion, that even the slight degree of muscular contraction necessary to support my posture in bed failed. In that state, when my eyes were glazed, the whole dangerous paroxysm was removed by changing my drink into a more agreeable one; any strong drink would have answered, and opium best of all.

be acknowledged, that spasms and convulsions, over which it has so great power, do not consist in increased, but diminished excitement; and that opium cures them by the same operation by which it cures any of the diseases depending upon debility.

231. SOMETIMES, in diseases, there is a preternatural flow of blood. Thus, in sthenic diseases, blood drops from the nose; it is sparingly expectorated from the lungs, and tinges the urine. The first and last of these three (*y*) are considered as critical signs; but they have no other meaning than an abatement of sthenic diathesis, and a disposition to indirect debility. This is an effect, which, for the most part, soon goes off, leaving behind it a state of convalescence (*z*), and soon after a restoration of health, seldom passing into an establishment of indirect debility (*a*).

232. GREAT and continued bleeding discharges, whether from the womb, from the anus, or from around the latter, or by the nose, depend upon pure

(*y*) The original is altered according to the translation here.

(*z*) or of recovery,

(*a*) What follows in the original is erased as not necessary to the sense at present.

debility (*b*). An over-proportion of blood, distending the vessels beyond bounds, and establishing indirect debility, may sometimes be the primary cause. But, in this case, if no other debilitating power, and particularly directly debilitating, has acceded to the cause; if the discharge be stopt by a stimulant plan of cure; if the body is strengthened, and

(*b*) These are the several hemorrhages of systematic and nosological authors. They have hitherto been supposed to depend upon sthenic, what they call phlogistic diathesis, and the particular discharge to be supported by an activity, an effort, what they call a molimen hemorrhagicum, in the vessels pouring out the blood, and the parts of the vessels immediately behind. Their continuance was accounted for upon the supposition of there being an over-proportion of blood in the system, or what is commonly called a plethora; but they are all asthenic diseases, depending upon relaxation and atony both of all the rest of the vascular system, and particularly of the bleeding vessels. (See above, 134, χ .) and, instead of a plethora, there is a penury of blood; all which is proved by the phenomena during the predisposition, when little food is taken in, and less, upon account of the weakness of the digestive organs, is digested; these circumstances are increased after the arrival of the disease. The pulse withal is weak, small, and frequent; and the patient puny and emaciated. The disease is increased by bleeding and other evacuations, and both relieved and removed by wine, spirits, and diffusible stimuli; a method of cure which, till within these fifteen years, would have startled all the physicians upon earth.

the laxity of the vessels taken off, the whole affection will soon disappear, and the health be restored. On the contrary, when indirect debility has not preceded, and other directly debilitating powers have been applied; such as those are which have been mentioned; and more especially, if the diseases are treated by bleedings and other evacuations, by abstinence, or by vegetable food and watery drink; in such a case, the diseases become chronic (*c*), troublesome, at last direful and fatal. That they depend upon debility, is proved by the failure of the cure just now mentioned, and by the great success of the stimulant plan. The true cause of bleeding discharge is not plethora, which cannot happen in the case of persons ill nourished, in water drinking, and under the application of other hurtful powers, which equally destroy the tone and density of the vessels (*d*). For, as food is nearly the only material from which blood is formed, How, when it is withheld in the absence of the cause, can the effect remain? And if, upon account of the debilitating effect of other hurtful powers, any food which is taken is not digested, how can there be an over-proportion, and not a manifest scantiness of

(*c*) of long duration,

(*d*) See above, 134, and χ .

blood? But it may be alleged, that loss of blood, and every sort of debilitating power, diminishes perspiration; and that, from that circumstance, the quantity of blood is increased. How can that happen? The matter, from which the blood is made, it may be added, is taken into the stomach, and a smaller quantity of fluid passes off by perspiration. But, to that it is to be answered, that, in the first place, it is not taken in; and, next, the little which is, is not digested (*e*); then, after the serous part

(*e*) No idea in medical writings seems ever to have been formed of the body as a whole. On the contrary, nothing has been more common, than to talk of the functions as operating in a great measure, each from a cause existing within itself, or but slightly and arbitrarily connected with some other. This false notion was carried to its most ridiculous pitch in the doctrine of sympathy, and not rendered much more decent, after the phrase *consent of parts* came to be substituted in its place. Thus, the common expressions were the sympathy or consent of the stomach with the head, of the stomach with the face, of the stomach with the external surface, of the latter with the internal, and particularly with the intestines, of the excretions with each other, of the feet with the kidneys, and so forth. It was never dreamed, that there was one overruling principle throughout upon which all the functions depended. The stomach, for instance, cannot be strong while the perspiratory organs are weak, and therefore take in and digest too much, while they cannot throw out their fluid.

has been separated from the red, will it, if detained, and thrown back into the blood, again become blood? If these questions, to which there is no possibility of returning any answer, should seem in any degree ambiguous; are we to believe, that one part of the body is in such a state of vigour, as to produce an over-proportion of blood, and another in so languid a state, as not to be able to carry off, by the due outlets, its corrupted matter? And must we, giving up our fundamental principle after so complete an establishment of it, allow, that the excitability over the whole body is not the same, uniform, undivided property over all the system; that the powers acting upon it are not the same; finally, that matter can be created out of nothing (*f*)?

(*f*) It has been proved in Chap. IV. Part I, that the excitability is one uniform, undivided property over all, and that, in whatever part of its seat it is acted upon, that action extends instantaneously over all; that though some parts, differently upon different occasions, may be more acted upon than any other, equal in size and nervous importance, that that is only in so insignificant a proportion as to have no effect in constituting an inequality of action in the system. Again, the force of the powers which act is a given force, being either weak, in due proportion, or excessive, or weak again from ultimate excess. Their effect, then, upon the system, which receives their action in every degree in which it is communicated, and that with the utmost exactness, must always be the same, which

It is in vain to talk of the fattening of chickens and cattle, by keeping them from exercise, and in a state of rest. The condition of health and disease is very different. In the former, there is a certain lati-

is, either direct debility, health, sthenic diathesis, or indirect debility. To apply this to the present case, the stomach cannot be healthy, or under a predisposition to sthenic state, and thereby take in and digest, with the help of the other digestive organs, too much of the matter, from which blood is made; while the perspiratory vessels are too weak to perform their function of throwing off their excrementitious matter. On the contrary, the state of the stomach must run through the whole living system. If it can perform its function properly, or in whatever degree it performs it, all the other organs of digestion, the upper part of the intestines, the biliary vessels, the lacteals, the veins betwixt their common trunk and the heart, the heart through all its cavities, the whole arterial system, and the colourless terminations of that system, whether exhalant or glandular, and the excretory orifices of these, the inhalants, and all the venous blood returned by the arteries; lastly, all the excretories upon the external and internal surface; all these will perform their functions in the same degree as the stomach, whether properly or imperfectly. To promote the most perfect health, all the exciting powers must be applied, each in its due proportion; and the want of any one or more may make some odds, which is insignificant to this point. If a person has not had his usual exercise, a cheerful glass will prepare him for sleep. For want of the same exercise, the appetite will be impaired, but so is the function of perspiration. Too much exercise under heat will impair the

tude of the strength of the stomach ; in the latter, and especially when debility is the cause, there is a prostration of strength. In fine, it is an universal and constant effect of all debility, to produce a deficiency of the fluids in the internal parts of the system, with a relaxation of the vessels over all, especially about their excretory terminations, and a discharge of the fluids by some out-lets. The death, which happens during the time of an entertainment, is not to be imputed to an over-proportion of blood, which cannot happen in so short a space of time. The drink has no effect in filling the vessels. Nor do any persons, but those who are under direct or indirect debility, meet with such an end, never those who have an over-proportion of blood ; which, as the appetite is gone, and the digestive powers destroyed, cannot be produced (*g*). In what diseases was it that plethora was supposed to take place ?

appetite, but it also impairs the perspiration after a person gets into a state of rest. In short, any slight inequality from want of any one or more stimuli, can be made up by others. See above, par. 41.

(*g*) All which follows from “concedendum,” at the foot of page 136 in the original, is an addition in MS. The added words are, as follow : “Frustra pullorum et peccaris, per otium pinguefactio jactatur. Alia secundæ valetudinis est, adversæ alia conditio. In illa quaedam ventriculi virium latitudo est ; in hac, maximeque, ubi

Not in those, in which the digestive organs, and those which produce blood; in fine, in which the whole system are in a state of vigour, where the appetite is very keen, and the digestion most perfectly performed, and the digested matter most completely converted into blood: but in those, in which, upon account of the debility propagated over the whole body, all the functions are in a state of languor, and in which the only matter, suited to make blood, is either not applied, or not assimilated. In this way, the gout, apoplexy, epilepsy, palsy, asthma and hysteria, the indigestions of persons who have been formerly addicted to luxury; in fine, those very diseases which make our present subject, the hemorrhages, as they are called, and falsely defined by that term; lastly, the far greatest part of asthenic diseases, have been thought, at all times, and by all physicians, to depend, either upon plethora with vigour, or plethora

“ debilitas eam causa continet, illae prorsus franguntur.
 “ Denique omni debilitati proprium est et perpetuum, ut
 “ relaxatis ubique, maxime circa fines excernentes, vasis,
 “ humores intus deficient, aliquibus foraminibus diffluant.
 “ Mors convivii tempore, sanguinis abundantiae, quae tam
 “ brevi nasci nequit, non est tribuenda. Nihil valet potio.
 “ Nec talem finem, nisi recta eventuve debiles, et nun-
 “ quam sanguine, qui, perduto cibi desiderio, fractis dige-
 “ rendi viribus, abundare nequit, abundantes sortiuntur.”

with mobility. But, in fact and truth, that both all the rest of those diseases, and those accompanied with bleeding discharge, depend upon a penury of blood, and other debilitating powers, is proved by the constant failure of the antisthenic plan of cure, to the great disgrace of the profession, and by the incredible success of the new stimulant plan. And, with respect to the bleeding discharges, consider the persons affected with them in the hurtful powers which precede them, and in the symptoms which attend them. During the whole period of predisposition, quite delicate and weakly, they have very little appetite for food, and take very little; and what they take is not digested, and often rejected by vomiting. In their weak state, they are not supported by the stimulant operation of corporeal, or mental exercise, nor by that of the animal spirits, which are quite puny and dejected; nor by that of pure air, which they are not able to go out to take; nor by that of agreeable sensation; nor by that of strong drink, which, from the misleading advice of their physicians, they look upon as poison; nor by that of the distention of the vessels, which are not sufficiently filled with blood; nor by that of the secretory small vessels, upon account of their sluggish motion, and the stagnation of their degenerated fluids every where, and the direct debility constant-

ly arising from that. What sort of pulse have they? Such, as it is in all diseases of manifest debility; for instance, fevers (in which last, which is surprising, their favourite plethora was seldom suspected by them), small, weak, and very quick; and almost empty. Upon the whole, what is the condition of their intellectual functions, those of passion and emotion, and their corporeal functions, either in sense, or motion, whether of the voluntary or involuntary kind? All weak, all frail, all such, as show that they have not a third part of life to support them. What, on the contrary, is the state of those who abound in blood, and yet never experience discharges of it? They are strong, and full of vigour, in all their functions, with redness of countenance, sparkling eyes, strong, hard, and moderately frequent pulse. Their appetite for food is keen, the quantity they take is great, and well digested. As those persons may experience droppings of blood of no consequence, and yet not often, so, they fall into no discharges of blood. And it is in perfect consistency with all that has been said, to add, that the various forms of strong drink, and these particularly which are the strongest, such as are called spirits, are surprisingly successful remedies of bleeding discharges, in spite of every thing which has hitherto been thought to the contrary, in spite of rooted preju-

dices. But the preparations of opium (*b*), and of the other diffusible stimuli, are still more successful. This is a fact, which proves, to a demonstration, that, in the bleeding discharges, there is no

(*b*) Opium, though much used in the cure of certain symptoms of diseases, was never understood by those physicians, who, in books and lectures assumed to themselves the province of directing the profession of physic. Every property they assigned to it was the reverse of the truth. Instead of allowing it to be the strongest stimulant in nature, they made it a sedative; and, though they found great difficulty in finding a single sedative more, to help to make out their catalogue of a class of such bodies in nature, they were confident that it was one (see above, 230, and the Notes). Another property they ascribed to it, was that of bringing on sleep; whereas, it is the most powerful body of all others in producing and keeping up the watching state (see above, 30, 31, note (*b*)). They also assigned to it the virtue of allaying pain, but there is a kind of pain which it increases, and, besides that, aggravates every other symptom of the disease. They never could deny, that opium was exceedingly improper in inflammatory diseases, that is, the several sthenic diseases with affection of a part, whether inflammatory or catarrhal. And wherever they found it of service in pain, they might have perceived, that such pain was different from what they called inflammatory, or our general sthenic pain. The truth is; it is not a palliater of pain, but a remover of its cause, as often as that depends upon debility, while it as certainly aggravates every other. The pains, which opium is calculated to remove, are all these which depend upon general asthenic affection, as those of the gout, of chronic rheumatism, that of the gan-

excessive activity, no hemorrhagic effort, as it is called; and, on the contrary, that there is only a falling off of the natural moving energy. The hemorrhages, then, which have been the subject of so much false explanation, and false denomination, must be rejected from the number of sthenic diseases, and transferred to the asthenic diseases, under the title of Hæmorrhææ.

grenous, as well as the putrid, sore throat, all spasmodic and convulsive pains, all pains from pure debility, as in the legs, ankles and soles, or in any part of the skin, nineteen head-achs out of twenty, which are in that proportion asthenic; the pain of any deep-seated sore or gun-shot wound after every degree of sthenic diathesis is removed from the habit. It is an equal remedy against the asthenic inflammation, whether local or general, as preventing their tendency to mortification and sphacelus. Nay, when these latter states have come on, it is a most powerful means of removing them, and of correcting the degeneracy; for the effecting of which, the bark had so often failed. All this is the discovery of the author of the *Elementa*, though the credit of the last and smallest part of it, from their ignorance of the high merit of the whole, they have shewn a disposition to give another, a gentleman and eminent author in London. But a treatise on the gout, with a full account of all the virtues of opium, will soon be presented to the public, in which all this will be cleared up. Blessed as opium in all these cases is, it is equally bad in all sthenic ones.

233. IF any person be seized with a cough, at first rather dry and bound, then more moist and free, and after that accompanied with a large expectoration, if the hoarseness at first is deep, and afterwards slighter and freer, in proportion as the cough becomes more and more moist; if the chest all round, over the whole region of the lungs, is distressed with a degree of diffusive pain; if there is either no vomiting, or what of it there is, seems forced up, by the convulsive motion of the cough ending in expectoration, and in such a manner, as either not to return, or to have no spontaneous tendency to a return; if the strength is otherwise good, and the pulse strong, full, and more or less hard, and not much exceeding the frequency of a healthy pulse: such a case will be found to be sthenic, and to depend upon heat and every other stimulus (*i*), to be cured by cold, and every other debilitating remedy (*k*). The cause of these symptoms is a

(*i*) See above, the following paragraphs, 113, 114, 122, 124.

(*k*) and also 117, 128, 134, and all the debilitating powers throughout the whole chapter; while all the stimulant ones in it will be found to be such as contribute according to their degree of stimulus towards the production of the morbid effect, which makes our present subject.

high degree of sthenic diathesis (*l*) over the whole body, higher on the external surface of the body, and especially in the throat, which is a part of that surface (*m*). The same symptoms, in whatever morbid case they occur, are to be explained in the same manner. Consequently, the catarrhal symptoms; which are an inseparable part from the measles, admit precisely of the same conclusion; and, as well as the whole disease, are to be understood to arise from excessive excitement, and to be cured by the debilitating plan. The same is the judgment to be formed of the influenza; in all which cases, it is easy to make trial of the truth. Give a glass of wine or brandy, give a little opium; the hoarseness will increase, the cough will be more hard and bound, the expectoration will suffer a temporary suppression. Give a large draught of cold water, and all the symptoms will be relieved. Often does it happen, that a person, troubled with a cough, when he sits down to drink wine, is freed from it in the course of the circulation of the glass (*n*).

(*l*) or stimulant operation, or excessive excitement, or wasted excitability.

(*m*) See above, par. 113.

(*n*) Whenever his cough is cured, he should stop; as the carrying the stimulus too far will endanger the return of the cough from a very opposite cause. The cough at

The reason of which is, that asthenic diathesis was the cause, which was converted by the drink into a cessation of all diathesis, or into a temporary sthenic diathesis. Often, at the end of a debauch in drinking, the cough, and that very violent, returns; for this reason, that the sthenic diathesis has made considerable advances. It will be cured by drinking a tumbler or two of cold water, and drinking no more wine; which precautions operate by stopping the excess of excitement.

234. FROM the description just now given (*o*), it appears, that symptoms, commonly supposed to be the same, are, however, of a diametrically opposite nature (*p*); which will be evinced by a fuller ex-

first, suppose, to be from an excitement as 26; its cure to be brought about by an excitement at or above 40; its return to an excitement at or above 60, will bring on a sthenic cough.

(*o*) of the nature and cure of the symptoms we have been speaking of, compared with that which is next to be given.

(*p*) This mistake of symptoms, in consequence of judging of their interior nature, from the similarity or dissimilarity of their appearance, is the false idea, upon which the whole fabric of a department, lately introduced into the art of medicine, has been reared. It is to be observed, that symptoms the most similar to each other in their appearance are, in reality, the most different, and those,

planation. If, therefore, any one has a very great cough, a very great expectoration, either at first with hoarseness, and afterwards, through the whole course of the disease, without the hoarseness ; if he

which have the least resemblance in their appearance, have the nearest affinity in their interior nature, and, indeed, are one and the same, with no other difference, but a difference of degree, and even that, often very slight, sometimes next to none at all. The great variety of symptoms which distinguish the whole form of asthenic diseases, affords as many proofs of the truth of this proposition, as the instances of dissimilarity or difference in opinion are numerous. What is seemingly more opposite than diarrhœa and colic, than typhomania and coma, than epilepsy and general dropsy, than the cold and hot fit of agües, than spasmodic and convulsive affections compared with those in which there is no fault in the motions, either as to excess or regularity, than the several degrees of morbid diminution of menstruation down to the actual suppression, and the several degrees of the morbid increase of that natural discharge, till their flow, at last, attains its ultimate excess both in degree and duration ? And, with respect to febrile and non-febrile diseases, what is more similar than a slight synocha or inflammatory fever, and a typhus in the same degree, which, yet, are diametrically opposite, both in their cause and cure ? What is more dissimilar than the various phenomena of fevers of the intermittent kind, through all their degrees of intermitting and remitting, and those of the more continued kind ? And yet, they all arise from causes highly debilitating, and are effectually removed by remedies equal in their degree of stimulus. In one word, to show the insignificancy of the distinction of

is of a very advanced age, or arrived at the last stage of life; if he is of a weak habit; if his pulse is neither strong nor full, and, withal, very quick; if this concurrence of symptoms has been preceded by either direct or indirect debility, as usually happens in the case of famine, of water-drinking, of a long course of ebriety, and of having led a life of luxu-

diseases into febrile and non-febrile, and, when the degree of debility constituting the cause in both, is considered and compared; is there any reason for separating the high dropsy, the high dysentery, and sinking cholera from their place betwixt intermittent and remittent fevers, and the most continued kind? Lastly, what two things can be more like one another, than a crowded, distinct, and confluent small-pox, or than the common inflammatory sore throat, and that which was lately described (see above, par. 212)? Such have been the ideas, which have guided the directors of the art of medicine in their inquiries into the nature, causes, and cure of diseases. If botanists and natural historians, by all their artificial methods of arrangement, have made little progress in exploring the true nature of their subject, and on the contrary, with scarce a single exception, have confounded it; if it was ridiculous to unite into one genus a man, a monkey, and a bat, how much more absurd was the attempt to arrange the mere qualities of matter in the same way? Yet, upon this hopeful employment, has John Bull expended vast sums of money, while he left the most solid and important departments of science neglected and covered by the dirt among his feet. We have too little useful science yet; it is time to improve our scanty store (See the Introduction to Observations, &c).

ry : one may be certain, that all these symptoms are asthenic (*q*), and to be removed by stimulant remedies.

235. THE explanation of the dry cough is easy, and such as was formerly given (*r*). The origin of cough and expectoration is quite the reverse (*s*). For, whether the system has been weakened directly or indirectly, as the excitement over the whole body is diminished in the highest degree, as the debility in every part is exquisite ; the consequence is, that in the vascular system, the tone, and, in proportion, the density, is every where diminished ; and the diminution chiefly takes place in the extreme terminations of the arteries, which are most remote from the centre of activity, and, above all other parts of the vascular system, in the perspiratory vessels (*t*). When all this has taken place, the quantity of fluid which is thrown up by expectoration is incredible. Indeed (*u*) it is great enough, not to be inferior, in its degree, to the greatest pro-

(*q*) or depend upon debility, *

(*r*) See above, par. 160.

(*s*) 128. in the MS. addition 161, and particularly 134.

(*t*) 59, 60, 61.

(*u*) though it has never been attended to,

fusion which ever takes place in consumption, and even to exceed it.

236. THE cure of it, however, in all the cases which depend upon direct debility, is by no means difficult (*x*), unless the disease has proceeded be-

(*x*) I have experienced such a case more than once, and have seen and treated it in great numbers. It is sometimes a part of the concourse of symptoms, which form that asthenic case of disease, which is commonly called fever. A gentleman, under, or about the thirtieth year of his age, had been ten days in a typhus fever, occasioned by extreme cold, succeeding to the debilitating effects left upon his habit by too great moderation in his diet, and, certainly, not a good choice of the different articles of it. To aid the debilitating effects arising from these, he had experienced all the extremes of heat and fatigue, which fall to a soldier's lot, in very warm countries. He was, over and above, of a small size, slender and emaciated. He had also, from his infancy, been affected with a short cough, sometimes dry, and sometimes with a little expectoration. During the course of his cure, he had been more than once bled, though his disease had ushered itself in by a great profusion of bleeding, which suddenly took him, as he was on a journey in a cold day, of about 44 miles, in a carriage. He was vomited, purged, blistered prodigiously, and clystered. The whole force of the old plan of cure was exhausted upon him, and he so exhausted by it, as to be given up for an incurable of two diseases, a bad fever and rotten lungs. His face was hippocratic, he had the dead rattle, and his cough and expectoration were assidu-

yond the boundary of admitting a cure, and life is now approaching to its end. The cure, however, is a good deal more difficult in the case of indirect debility; and for this good reason, that there is no other plan of cure but stimulating, to remove a disease occasioned by an excess of stimulant operation (*y*). Nay, the same debility, as shall afterwards be observed, produces the same relaxation, both of the bronchia and of the rest of the body; but it does not always produce consumption. With this profusion of expectoration, appearing sometimes in the form of fever (*z*), sometimes in that of the gout, the physician has often a long struggle, while he employs his diffusible stimulants, the event of which is such, as to produce a complete restoration of health, and thereby to leave not the least suspicion of there being any local affection in the lungs, which is so much the object both of the faith and fear of physicians (*a*).

ous. By the stimulant new plan of cure he was put out of danger in ten days, and set upon his feet in as many more.

(*y*) See above, 103.

(*z*) See the last note (*x*).

(*a*) A description of this disease, in which the lungs are supposed to be affected with ulcers or tubercles, has been given in the note under this paragraph at (*x*). But, as the subject is both as new and interesting as any in this work,

I. WHEN, in all the vessels, the fluids are not agitated by a sufficient action, they are proportionally more imperfectly mixed, and therefore in a vitiated state. But in the extreme terminations of the ves-

it may be proper to give a further illustration of it by the exposition of another set of facts. Both in persons liable to the gout, and other asthenic diseases, sometimes of direct, and at other times of indirect debility, and especially in those who have been much exposed to cold, without the debilitating effect of the cold being overcome (vide par. 122, and MS. addition) by an alternation with, or succession of, heat, and in very many old people, especially among the poorer sort, who have been, and naturally are, much exposed to various debilitating powers, there is often, especially in winter, a very great cough and expectoration. This sometimes goes to such a height as to give suspicion of the affection of the lungs just now spoken of. But the completeness of its cure, which, when it arises from indirect debility, is effected by the use of animal food, avoiding vegetable, and fish, and by good wine and diluted spirits in moderate proportion at a time, but frequently repeated, avoiding claret and other French wines, and all sour and all beer drink, unless, perhaps, a little warm porter in cold weather, and a very moderate use of diffusible stimuli, keeping the feet and the body, in general, moderately warm; shows sufficiently, that there had been no local affection in the lungs. When the debility of the disease is of the indirect kind, in which the cure is more difficult, there is, still, as little reason to be apprehensive of the pulmonary or any other local affection. For the cure of it also proves the contrary. In it, the means of cure are to change the forms of stimulus, and to proceed from

sels, as being at a greater distance from the centre of motion, they often, from a total cessation of motion, stagnate, and degenerate into a foreign nature. This is an effect not produced by heat alone (*b*), but by cold (*c*); nor only by this, but by all the powers which debilitate in an equal degree (*d*) (*e*).

the use of the stronger to that of the weaker, till at length the patient can do without much of the very strong ones. (See above, par. 99, and those that follow). When the disease cannot be overcome in that way, the excitability must be understood to be worn out, and life come to its end; but still from general debility, not local disease. For, if ever any local affection does appear, it is always the last effect, not the primary cause. In this way I lost two gentlemen, after having been able to support them for many weeks, when the prognosis upon the common practice did not allow them as many hours. The cause of their indirect debility had been hard drinking. But even in those, who die of a confirmed consumption, there is not often reason for the suspicion of tubercles in the lungs. Their bodies have been opened after death, and their lungs found quite sound. And in the dissections, where the tubercles have been found, still they were only an effect.

(*b*) See above, paragraph 115.

(*c*) See also paragraph 27.

(*d*) See also 119, which compare with par. 28. Nay, all the power mentioned in par. 11 and 12, and fully explained in Part II. Chap I. throughout.

(*e*) This from I. is an addition to the original, in the following words. "Humores in omnibus vasis, minus ab idonea horum actione agitati, pro ratione minus quoque

“ permixti, vitiantur. In extremis vero vasorum finibus,
“ utpote quæ a motus centro longius distent, deleto sæpe
“ motu stagnantes, in alienam naturam degenerant. Quod
“ quidem, non calor solum, sed et frigus, nec hoc solum,
“ sed et omnia pari vi debilitantia, præstant.” 115, 117,
122, 236, and I. ad.

CHAP. VII.

Of Sleep and Watching, whether salutary or morbid.

237. As death finishes the operations of all life, so, sleep finishes those of every day : and, as the former is the consequence of a perfect extinction of the excitement, from either a complete exhaustion, or ultimate abundance, of excitability ; so, the latter (*a*) succeeds to a diminished excitement, while the excitability is either diminished, but in such sort that it can be accumulated again, or abundant, in such sort that the abundance can be wasted, and the excitement, in both cases, renewed.

238. SUCH is the nature of the excitability of animals, that it can neither be deficient nor over-abundant, without detriment ; a deficiency producing indirect, and a super-abundance, direct debility. And, as any exciting power, carried beyond its boundary (*b*), can produce the former, and the with-holding of any, give occasion to the latter (*c*) ;

(*a*) or sleep,

(*b*) See par. 28.

(*c*) See par. 38.

so, the same proposition holds good of the excessive, or too sparing use of several of them, or of them all (*d*). Sleep, then, is the effect of the actions of the day, at first giving always more and more excitement, but less and less, in proportion to the continuance of their operation (*e*), but in such sort as always to add some excitement, till the matter at last comes to a point, where the degree of excitement, necessary to constitute the waking state, no longer exists. Of this we have the most certain proof in every day's experience, and in the confirmation of it, which the complete induction of the effects of all the exciting powers affords (*f*).

(*d*) This is completely illustrated through the whole first chapter of the second part, from par. 111, to par. 147, inclusive. Nay, the proposition is constantly alluded to through the whole which has yet been said, and will be in what remains to be said.

(*e*) See par. 36.

(*f*) To illustrate this, let us take the exciting powers one by one, and begin with wine. When a person is insufficiently excited with respect to that stimulus, and rises not, suppose, above 30 degrees in his excitement, a glass carries him up 2 degrees, another 2 degrees more, and so forth, till after five glasses, and their effect in carrying him up to 40 degrees, he finds himself well and vigorous in all his functions. But, still, we are not so flimsily made, as not to bear a little of what is either too much or too little. Suppose him, then, to take five glasses more, and, conse-

THUS, heat, not ultimately excessive, or reduced, by cold, from that excess to its stimulant degree

quently, to be raised to 50 degrees, or 10 degrees above the standard. As his spirits, his intellectual, and all his other, functions, were low, while his excitement remained below 40 degrees, so they are all proportionally exalted by the time that his excitement is elevated to 50 degrees. Let him still go on, and his intellectual function will rise still higher; he will now display the full extent of his genius; his passions and emotions, of whatever kind, will rise in the same proportion; he will, in one word, be an example of the effects of Alexander's feast. Suppose, to bring him to all this, he has swallowed, besides those he had before, other five glasses. Let him go on, till he has taken five glasses more, and we shall see the effect: In the course of time, employed in taking these, he gradually falls off in his spirits, in his intellectual, and in his corporeal, functions: his tongue, his feet, his eyes, his memory, his judgment, all fail him; he, at last, becomes drowsy, and then falls fast a-sleep. The same is the progress of excitement as it arises from labour or exercise through the day, whether of mind or body. The same is the effect of the stimulus of eating, especially nourishing stimulant things, and in great plenty. Before dinner, the occupations of the former part of the day, are not yet sufficient to prepare one for sleep; which, however, after a heavy dinner, will, unless the interference of some other stimulus prevent it, very readily happen to most people, especially to those, whose frailty, from age or any other cause, renders them more liable to be fatigued by the past operations of the day than others. The younger and more vigorous will be able to hold out to the end of the day; when they, too, after having undergone the degree of sti-

(*g*), and food, and drink, and labour, either of body or mind, and the exercise of passion and emotion, when their stimulus neither stops short of the proper point, nor goes beyond it, all give a disposition to sleep. This is the most salutary state of sleep (*b*).

K. PREMATURE, unseasonable, or morbid sleep, is produced by either indirect or direct debility.

stimulus necessary to give that waste of excitability which disposes to sleep, will be overcome by it. The very flow of the blood in the vessels, and the exercise of the involuntary motions which keep it up, tend at last to the same effect. The same thing applies to the motion constantly going on in the stomach and intestines, as well as the motions which occur in all the secretory and excretory small vessels. Light, stimulating the eyes, and sound, the ears, and the several substances which act upon the organs of the other three senses, all tend, by wasting the excitability, to wear down the excitement to that point in the scale where sleep commences. And the process, in every case, is, first a low, then a higher and higher, then the highest, vigour of all the functions; which, again, gradually falls till its termination in sleep. We have, therefore, after viewing their effects singly, to suppose them, in one degree or another, united, and sleep the finishing effect of their united operation.

(*g*) See above, par 122.

(*b*) A little here is added in MS. to the original, by way of correction.

Λ. WITH respect to the effect of the former, an excessive energy of any one or more of the stimuli (*i*) produces it : Accordingly, any one or more of those which have been mentioned, by acting in excess, and wasting the excitability, such as hurried drinking, produce that effect.

M. OF the directly debilitating powers which produce the same effect, the want, or sparing application, of the powers, which, by a due degree of stimulus, produce sleep, will surprise into a bad kind of it : Accordingly, when a person is in that state, that he wants excitement in order to be in health, the defect of light, of sound, and of the various contacts of the bodies which excite the other senses, the defect of both sets of motions, the voluntary and involuntary, as well as of the exercise of the mind, of the exercise of passion, of heat, acting in its stimulant degree, and too long continued sleep itself ; all these produce hurtful sleep (*k*).

(*i*) Of indirect debility in producing premature sleep, See par. 238.

(*k*) Coma, or an insuperable disposition to sleep, is most commonly owing to the want of most of the stimuli mentioned in the text, as that of food, of wine, at least in the ordinary practice of cure, of good animal spirits, of the power of thinking in a pleasant exciting train, of a due

239. ON the contrary, sound watching is the effect of the suspenſe of the ſame diurnal actions during the period of ſleep, taking off more and more excitement, moſt at firſt, and leſs and leſs after, but always adding to the ſum of diminution of excitement, and accumulation of excitability; that is, always continuing to take off ſtimulus, till the matter comes to the degree of diminished excitement, and increaſing excitability neceſſary to the watching ſtate. In this way does ſleep prepare the ſyſtem for the watching ſtate; which is afterwards kept up, for the due length of time, by the ſeveral exciting powers acting through the day, till at laſt, by a certain failure of their action, ſleep is produced again (*l*).

N. Too long, or morbid watching, is alſo brought on in a two-fold way, by indirect and direct debility. Thus, intense thinking (*m*), violence of paſſion in extreme (*n*), ultimate exceſs in corporeal labour

quantity of blood in the veſſels, of pure open air, of corporeal exerciſe, and of the abſence of certain ſtimuli, that otherwiſe irritate in the weakened ſtate, and produced watchfulneſs.

(*l*) See the laſt par. 238.

(*m*) See above, 138.

(*n*) See 140.

(*o*), unusual and high relaxing heat, debauch in eating and drinking, a great excess in the use of the diffusible stimuli (*p*), a great abundance and velocity of blood ; all, or any of these, rising to indirect debility by an ultimate excess in their operation, are notorious for their effect of repelling sleep. Again, cold, not in that extreme degree which immediately precedes death ; abstinence from food, or that sort of it which is not sufficiently nourishing, or of sufficient indirect stimulus to produce the requisite distention ; weak drink, as tea, coffee, or watery drink, especially when a person has been accustomed to more generous ; intermission of usual labour or exercise, whether of body or mind ; a sense of shame from disgrace, and fear, and grief : all these, by their operation not sufficiently approaching to indirect debility, produce an undue or morbid state of watchfulness.

240. As debility, therefore, whether indirect or direct, or in part a mixture of both (*q*), is the cause of sleep, the first of sound sleep, the two latter of an improper or morbid state of that function ; so, an excess of the same debility, whether indirect

(*o*) See 137, Γ .

(*p*) See 124, 125, 126. *o. p.*

(*q*) See par. 47, and the Note belonging to it.

or direct, is also a cause of improper or morbid vigilance. The only salutary sleep is that which is produced by a proper degree of excitement, occasioned by a proper action of the exciting powers upon the excitability; all the extremes of either excessive sleep, or excessive vigilance, are either so many tendencies to disease, or actual disease (*r*).

A PERSON, fatigued with his usual exercise, is immediately composed to sleep; which equally flies from him who has had either less or more, than that middle degree (*s*).

(*r*) Too much, or too long continued sleep, is hurtful, because it implies a suspension of that excitement, to which proper health and due vigour is owing; it is, consequently, a state of direct debility. Too little sleep, or of too short duration, is of equal detriment, as implying a degree of excitability, not sufficiently accumulated to receive a sufficient impression from a renewal of the exciting powers. From the former, arise most of the complaints of the rich and indolent; from the latter, many of the diseases of the poor and laborious. As the action of the exciting powers should be adapted to the strength, a little indulgence in sleep is the safest extreme to the weak, as in the case of children, and persons labouring under debility.

(*s*) When a boy, I valued myself much for enduring the fatigue of walking. About the fifteenth year of my age, I walked, in a summer day, from Berwick on Tweed to Morpeth, which, with two miles wandering out of the high road, I found to be a journey of fifty miles. But I

241. As the effect of both indirect and direct debility is sometimes sleep, sometimes watching, both of them unsound, both hurtful; so, the cause of bad sleep is either sort of debility, without a stimulus acting upon the system in a weakened state, and thereby throwing the system into a state of disturbance. The same debility of either kind, with such

got not a wink of sleep the whole night, from the excess of the exertion; and the next day, so pained and enfeebled were all my joints, that it was with the utmost difficulty I made out the single stage from Morpeth to Newcastle, which was only a walk of fourteen miles. Some years after that, when I was now arrived at my full strength, and my joints perfectly knit, I walked and wandered in all sorts of ground, in roads, and out of them, over smooth and plain, and heathy and mountainous tracts, from four o'clock P. M. to two o'clock P. M. next day, with only an hour's rest, and one hearty meal at betwixt ten and eleven o'clock in the forenoon, when I was now within six miles of my destination. The hills over which I wandered in the course of the night are those called Lammermuir, situated betwixt East Lothian and the Mers: the places I travelled between in this rout were Edinburgh and Duns, the place of the nativity of the celebrated schoolman and metaphysician, John Duns Scotus, and that of my grammar education. In this great exertion, I was sustained by a great stimulus, high animal spirits, and love. At the end of my journey, and finding myself among my friends, and the object of my affection, I had vigour enough to dance with the latter. This time I slept well, and was perfectly recruited next day.

a stimulus, produces the morbid watching ; in which case, it is a small stimulus which acts as an irritating power (*t*).

N. INSTANCES of morbid sleep occur in the pre-dispositions to diseases, and the actual diseases which

(*t*) Volumes have been filled with the doctrine of irritation as a cause of morbid state, and the indications of cure and remedies to remove it have been equally tedious and laboured. In sthenic diseases, phlogistic diathesis; instead of plethora and vigour, for the belief in which two last, there might have been some foundation in that form of diseases (see above, from 131 to 134), has been the universal pathology ; and bleeding, other evacuations, and cold, the universal idea, or, as it is called, indication of cure ; and while they thought of no other method or means of cure for the asthenic form of diseases, the pathology, applied to them, was plethora with vigour, or with mobility in other cases, and, in the febrile, irritation. By irritation they explained the startings of the tendons, the restlessness, the frequency of the pulse, the typhomania or constant working, of so frequent occurrence and so noted a symptom in those diseases. But as we have proved, that the reverse of plethora and vigour is the true state of the system in every disease of debility ; so we assert with the same solidity of argument, and the same weight of proof, that irritation, as being considered, either as the cause of morbid watchfulness, or of any other symptom, is nothing that requires either evacuant, or any other debilitating remedies, to remove it. It is merely a weakened state of the system, thrown into flutterings from the slightest exertion of the ordinary functions, as when a person falls into tremors from noise, or into a sweat from walking a step or two.

depend upon sthenic diathesis, and in the ordinary state of intoxication from drinking. But all the exciting powers, when converted into hurtful ones of excessive stimulus, each in proportion to its degree of excess, have the same tendency (*u*). But, when the exciting power proceeds beyond the sleep-inviting point; or when any stimulus, still finding unwasted excitability to act upon, continues to act; in that case, the watching will be continued with bad effect (*x*).

242. INSTANCES of morbid sleep occur in all the diseases of indirect debility, and in pains which have advanced to the same degree of exhausted excitability in the scale (*y*); as in the several cases of the

(*u*) A heavy dinner, excessive fatigue from either corporeal or mental labour, a high fit of passion, and heat, are, each of them, noted for giving a disposition to sleep; which is an effect, arising from their high degree of stimulus, hurrying the excitement to that degree of waste in which the sleep-inviting point consists; and it will the more readily take place, that no exciting power, by still finding excitability to act upon, continues, therefore, to act, and prevent the sleep.

(*x*) As in the harrowing watchfulness, which is liable to accompany the phlegmasiæ, or the several sthenic diseases with inflammation of a part.

(*y*) That happens in the phlegmasiæ, where the effect, not only of the inflammatory pain, but of the whole dia-

phlegmasiæ, which arise from the violent progress of the morbid state, or the improper administration of stimulants for the cure; which is particularly exemplified in the dropsy of the breast, which often arises from peripneumony under such management. With respect to sleep from direct debility, women, who have had many deliveries, who have often suckled, as well as all lazy persons, and those, of both sexes, who are addicted to luxury, and whose custom it is to sleep too much, are all liable to fall into this sort of morbid sleep.

243. WHEN either direct or indirect debility sometimes produces sleep, which gives no refreshment (z), sometimes an ungentle, turbulent waking

thesis, and of every other symptom, as well as that of pain, is to run up into indirect debility. The last part of debility which ushers in a fit of the gout, is commonly of the direct kind; but the effect of the continuance of the pain is often sleep, the origin of which is indirect debility, its consequence an increase of the disease, and its remedy an interruption of the morbid sleep for the purpose of administering such diffusible, and other stimuli, as have the effect of removing the debility which occasions both the sleep, and other symptoms of the disease.

(z) which often happens in fevers, and many other cases of debility, besides those mentioned in the text (242), and ought never to be encouraged, but repelled by every means of exciting the patient.

state, neither of them accommodated to health ; as the debility, productive of either effect, exceeds that in which sound sleep consists ; the use of that degree of stimulus which may repel the former, and convert the latter into sleep, will remove the complaints, and serve for an illustration of the nature of both (*a*). In asthenic diseases, the watching state,

(*a*) Let the point of indirect debility, in which sleep consists, be as 15 degrees in a particular scale, and the greater debility, than that which either constitutes morbid sleep or morbid watching, be 20 degrees, or upwards, in the case of its being indirect, or 10, or downward, in the case of its being direct debility. It is evident, that, to bring on salutary watching on the one hand, or salutary sleep on the other, or to convert both into salutary sleep, if that be required by the circumstances, the deficient degree of stimulus must be administered ; that is, five degrees to bring up the excitement from 10 to 15 degrees, and as many for the purpose of renewing the worn-out excitement, by means of a new exciting power, which may still find a portion of excitability to act upon, or to remove certain stimuli, which, however slight and mild, are fatiguing and disturbing to the system in its weakened state. Accordingly, in fever, when the patient, amidst every sort of directly debilitating powers, had, besides, wanted sleep for ten days, a small portion of an opiate given him every quarter of an hour, in three hours time laid him asleep, which, in spite of an urgent cough and profuse expectoration, lasted for sixteen hours, and was followed by the most surprising relief. The continuance of this practice, with only an increase of the doses in proportion as the abundant excitability was

for the most part, is the consequence of direct debility, with some power acting with slight stimulant effect. The reason of which is, that the disease depends upon more debility, than that which consti-

gradually worn off, and alternating them with wine and beef soup, in ten days removed all danger. A child of three months had had no sound sleep for ten days, but had cried night and day from a complaint in his belly, which the ordinary practitioners would have called an obstruction in the mesenteric glands. A large dose of the tinctura thebaica, for the patient's age, was administered, which laid him in a profound sleep, which continued 36 hours, and at once removed the disease. Numberless are the cases of a kind similar to this, where the morbid watchfulness was partly from direct, partly from indirect debility, which have been constantly removed by the same practice. A child of seven years of age, in a fever of great direct debility, in consequence of a most rapid growth happening during the disease, which was not completely removed till near the end of seven weeks, after having been under the disease near a fortnight, was affected with the most constant disposition to sleep, so sound, that no noise, or shaking of his body could awake him. The administration of the opiate repeated in small dozes till the effect took place, kept him awake. Some time after, in the course of the same lingering disease, when he had not yet acquired any permanent strength, but was only better supported by the diffusible and other stimuli, than he had been till I was called in, his predominant symptom came to be great watchfulness, which was partly the effect of a certain, though not a great, degree of excitement which the tincture and other cordial powers had given him. It, however, in-

tutes sleep. Hence it comes about, that every thing which stimulates, every thing which raises the excitement, as it were, to that point which composes the system to sleep, produces that effect by a stimulant, not by a sedative, virtue. In a small degree of debility, where the excitement has fallen only a little below the point of sleep, a very small degree of stimulus, such as a little animal food, if the weakness had been owing to vegetable food; such as wine, or any drink of equal power, after a water regimen; such as consolation in affliction of mind; heat, when cold has been the debilitating power; gentle exercise, or gestation; or the stimulus of a pleasant train of thought, when one has been deprived of the stimulus of corporeal or mental exercise, is sufficient. In a higher degree of de-

duced too great a degree of indirect debilitating exertion for his still very weak state, and it, therefore, became necessary to give him an addition of excitement to bring him to the state of salutary and recruiting sleep, and thereby to suspend the action of a number of exciting powers, however slight their operation was, which were too much for the enfeebled state of his system. In the cases of children whose diseases are almost all asthenic, and in other diseases of high debility, the instances of such effects of the diffusible stimuli (for more than one was employed upon this as well as many other occasions), are equally numerous and surprising. In a very large practice, I am sure, I never, in the very worst cases, lost three patients.

bility (for the curative force should always be adapted to the degree of the disease (*b*); either a proportionally higher degree of the stimuli which have been mentioned, or some more powerful one, such as those which are called diffusible, should be employed.

244. IN both which cases, the virtue of opium is great. Its virtue, however, is not peculiar to it, or any other than what it possesses in common with all the other stimulant powers, differing only from the rest in the higher degree of its (*c*) virtue. Thus,

(*b*) See above, par. 44. and 92.

(*c*) The notion of some powerful remedies, as opium, mercury, the Jesuits' bark, &c. acting by an operation peculiar to each, and different from every other power in nature, was long prevalent in the schools of medicine. Those they called *specifics*; an idea, which, like many other of their vague conceptions, was altogether contrary to sound philosophy; since the more careful our enquiries into nature's operations are, the more and more reason have we to be convinced, that simplicity and uniformity pervade the whole phenomena of the universe. Accordingly, in the exciting powers which act upon the excitability of our bodies, we find only one action, that of stimulating, varying only in its degree, to take place in all animal as well as vegetable bodies, nay, in every thing which we know to possess life in the universe. We also find, to the same extent, only one property in living systems upon which it acts, that is, the excitability; and one effect produced by

in great debility, as in fevers, as in a violent fit of the gout, disturbing, with tumultuary disorder, the internal parts, and in other similar diseases of debility, in which the violence of the disease keeps off sleep ; opium often, after the watchful state has remained many days, brings on profound and sound sleep ; in which case, because the excitability is very abundant, and, therefore, can bear but a very small force of stimulus, we should, on that account, begin with the smallest degree of stimulus, and proceed gradually to more and more (*d*), till at last we arrive at the point of sleep ; which will soon happen, as it is placed much within the range of di-

the mutual relation betwixt them in that respect, to wit, the excitement. Instead of the distracted notion of vortices, or atmospheres in rapid motion, governing the motion of the planets, Sir Isaac Newton found the whole planetary systems of the universe governed in their motions by one single principle. Instead of the infinite difference of habits and temperaments, I have found every individual precisely the same as every other. Whatever produces the gout in one, will produce it in another, prepared to receive its influence. And whatever cures it in any one, cures it also in every other ; and so forth with respect to every other disease. The deeper we explore the works of nature, the more shall we be convinced of this wonderful simplicity ; so that, to a philosopher, all nature would appear the effect of one single instrument in the hand of the all-wise all-powerful Creator.

(*d*) See above, par. 107.

rect debility. And, with respect to coma, or that sleep which is not recruiting ; such is the effect both of other diffusible stimuli and of opium, that it converts morbid sleep into vigilance ; vigilance, after a certain space of time, into refreshing sleep ; and, in that way, conducts the patient safely, gently, and pleasantly, to health. But as the influence of the stimulant operation, which supports excitement, is of so great importance, and as sleep, of longer duration than to prove refreshing, may arise even from good remedies, the rule to be observed, when that happens, is, whenever any attack of sleep, upon account of too long a suspension of stimulant action, has been of less service than was expected, to shorten its next attack, and renew the operation of the stimulus.

245. IN asthenic diseases, and those arising from indirect debility, in which sleep is also kept off ; in order both to restore it, and remove the other symptoms, and bring about the healthy state, both other stimuli should be employed, according to the degree of debility requiring their use, and, when the degree of debility is very considerable, the diffusible stimuli, and, among the rest, opium, should not be omitted.

246. THESE are the times and circumstances of the body in which opium produces sleep. In all the other states, either of health or disease, it excites the functions both of body and mind, as well as of passion and emotion ; among others, it banishes sleep, and produces great activity and vigilance. Thus, if any one is under the pressure of sleep, without an evident cause, he will, by opium, be rendered surprisingly sprightly, lively, and vigilant ; it banishes melancholy, begets confidence, converts fear into boldness, makes the silent eloquent, and dastards brave. Nobody, in desperate circumstances, and sinking under a disrelish for life, ever laid violent hands on himself after taking a dose of opium, or ever will. In one word, through all the intermediate degrees of excitement, from direct to indirect debility, opium is by far the most powerful of all the agents, and, as such, must be most hurtful in sthenic diathesis ; because, when added to the other stimulant powers, it not only banishes sleep, but is liable to precipitate those diseases from the sthenic state to indirect debility, and from this last to death.

247. THAT the debility, upon which coma depends, is less than that which supports morbid vigilance, is proved, from the former being less danger-

ous, and more easily removed ; yet, when its duration is in any degree considerable, or when it resembles profound sleep, care should be taken to prevent the hurtful effect it may produce from direct debility (*e*) ; in which case, recourse should be had to the different forms of wine and opium, with the intention of raising the excitement to that degree, which repels the sleepy state, produces more strength, and facilitates the return of health (*f*).

248. IN the gout, in indigestion, of which examples have already been adduced, in diarrhœa and the colic, and many other asthenic diseases, particularly disturbing the alimentary canal, and chiefly affecting those women who are exhausted with frequent child-bearing, and long and repeated

(*e*) See above, par. 241. and the Note under it, as well as this whole chapter.

(*f*) Physicians have had a more favourable idea of coma, or the sleeping state in fevers, than it merited. Instead of deserving to be looked upon as a positively good sign, ensuring a safe return of the disease, as they did ; it was, at best, but a negative mark, implying that the slight stimuli acting upon the system in a state of high debility, and, therefore, by their operation, slight as it was, increasing the direct debility by the addition of the indirect to it, were kept off and hindered from producing that hurtful effect. Their authority in giving that judgment of it is overthrown by their extreme ignorance of its nature.

nursing ; it often happens, that there is a strong propensity to sleep, contrary to what happens to the same persons in health, and the period of sleeping attack is prolonged, without the indulgence in it bringing any alleviation of the disease. The same thing happens to those who have fallen into indirect debility from drunkenness, or any other cause. That this desire for sleep depends upon direct or indirect debility, is evident from every thing which gives further debility increasing the disease, and every thing which strengthens, removing it. Among those, all strong drink, and the preparations of opium, are peculiarly effectual, and that in proportion to their greater and more diffusible stimulant power, than that which others possess.

249. NOR is it unconnected with this explanation of the nature of sleep and watching, and of both of them being sometimes repelled, sometimes induced, by a certain degree of stimulus (*g*) ; that excessive motions, as the spasmodic and convulsive, which have been mentioned (*b*), such as the quick pulse in fevers (*i*), and other motions, are removed

(*g*) See above, par. 241. where this proposition is reduced to its exact principle.

(*b*) See above, par. 230.

(*i*) See par. 179.

by an equal force of stimuli, to that which is required to remove morbid affection without any motions. Hence it is plain, that irregular motions are not only not increased functions (*k*), depending on increased excitement, but that they are impaired functions, and consist nearly in the same degree of debility.

250. FROM what has been said, the analogy between watching and life, and sleep and death, and their dependence upon the same laws of nature which govern all the other functions, clearly appears; and the most solid probation has been adduced, that the most vigorous vigilance consists in the highest degree of salutary excitement; that the middle and deep period of sleep depends on the highest debility which is consistent with the healthy state; that true sleep depends on a middle degree of indirect debility; and that both morbid sleep and morbid watching are the offspring of great debility, whether of the indirect or direct kind.

(*k*) See above, 229.

CHAP. VIII.

The Cure of both the Diatheses.

251. As the cause of both the diatheses is that which has been formerly (*a*) related ; the indication of cure, therefore, to be taken from that is, in the sthenic diathesis, to diminish excessive excitement over the whole system ; in the asthenic, to increase deficient excitement likewise over all the system, till it be brought to that degree which proves the cause of health.

252. THE remedies which produce that effect in the cure of sthenic diathesis, are the powers, which, when their stimulant operation is excessive, produce that very diathesis, in this case, acting with that slight and reduced force of stimulus, by which they produce less excitement than health requires, or by which they prove debilitating (*b*).

253. THE powers which produce the same effect, in the asthenic diathesis, are those which, when

(*a*) See above; par 148.

(*b*) What follows in this paragraph goes out in the original.

their stimulus is small, produce that diathesis, in this case, exciting with that high degree of stimulus, by means of which they give more excitement, than suits the healthy state, or by means of which they stimulate.

254. IN the sthenic diathesis, that temperature (c) which is called heat, must, by all means, be avoided; and for this very good reason, that the only degree of it which proves debilitating, that is, the excessive to an extreme, cannot be carried to that height in which it debilitates, without the risk

(c) The same order is followed here, which has all along been observed, to wit, that of the enumeration of the powers in par. 11. and 12. and that of the explanation of them, when viewed as the hurtful powers producing either diathesis in Chap. I. Part II. and it will be kept to throughout the whole work. Nothing can be more simple and natural, and better suit the simplicity of the subject, while nothing is more artificial and arbitrary than the arrangements either of Systematics or Nosologists. Just order could never be expected from an erroneous and confused view of the subject to be treated; while a clear conception of the subject, as a whole, infallibly leads to a distinct distribution of the several parts which compose it; so that, what Horace says of language, equally applies to order, and the same thing applies here as to his *Verba et lucidus ordo. Rite paratam rem verba laud invita sequuntur.*

of hurtful or pernicious consequence from the excess of stimulus (*d*).

255. BUT, when the diathesis, and its cause, the increased stimulus, is gentle in the actual diseased state, there is no occasion for forbidding that degree of heat, which accompanies the operation of sweating and pediluvium (*e*); because the waste of fluids in the former, and the agreeable sensation in the latter, promise somewhat more advantage, than the moderate degree of heat, employed in this case, threatens disadvantage.

256. IN a particular manner, after the application of cold in an intense degree, must the application of heat be avoided, because its operation, from

(*d*) See above, par. 115. Though very intense heat relaxes the simple, and induces atony on the living, solids, who, in a peripneumony, would think of using it with that view? That disease, from its own violence, often mounts up so high in the scale of increased stimulus, as nearly to approach the point of indirect debility, and it sometimes actually gains that point. The addition, therefore, of more stimulus from the application of heat, would ensure that effect, and thereby occasion the conversion of the disease into a much worse one, such as hydrothorax, or the dropsy of the breast.

(*e*) Pediluvium is the warm bath of the legs and feet.

the increase of the excitability by cold, becomes more effective (*f*). And the consequence is the more to be dreaded, that, at the same time, other stimuli are usually urgent.

257. COLD is the beneficial degree of temperature in the cure of this diathesis, but it must be cold not followed by any considerable degree of heat. That mistake, therefore, in medical practice, of thinking cold hurtful in sthenic diathesis by a stimulant operation, should be corrected; and its benefit, in the small-pox, is not to be understood to arise so much from its mere debilitating degree, as from avoiding the stimulus of heat after its operation. When the same precaution is employed, the same cold, either alone, or in conjunction with other debilitating powers, has lately been found the most effectual remedy of catarrh (*g*).

258. FROM which circumstance, and because a cap of fresh dug up earth put upon the head, has been of service in phrenitis; and that degree of cold, which produces frost and snow, when applied to the naked body, has removed a synocha accom-

(*f*) See above, par. 37. θ and Note (*d*).

(*g*) or the common cold in English, a name stamp'd upon it by the very blunder of which we have been speaking.

panied with delirium (*b*); and because cold is so efficacious a remedy in the small-pox; it clearly follows, that the use of cold should be extended to

(*b*) It is called the common inflammatory fever, very improperly, as being no fever, but a general pyrexia, or affection of the whole system, without inflammation or local affection, and producing heat over all and tumultuous effect upon the pulse. Its proper generic name is pyrexia. See above, par. 68. where that appellation is assigned to it; an appellation, which, to avoid mistaking its nature, should be accurately attended to. Great mischief has been occasioned by this vague term. Thus, when a person is said to be affected with a disease; when it is asked what disease it is, and the answer given, that it is a fever, immediately bleeding is thought of, though that, and every evacuation, is as hurtful in proper fever as it may be serviceable in the pyrexia. To give an example of this pyrexia, the particular appellation for which is synocha, or sthenic pyrexial disease; many years ago, a person in the Old Town of Edinburgh, labouring under it, escaped the vigilance of his nurse; flew naked out of the house, in a very keen frost with snow upon the ground, across the streets, passed over into the New Town, and from that to the fields beyond it. He soon became sensible of his state, stole into a house next to him, got some clothes thrown about him, and was carried home in a chair, perfectly cured of his disease. From which, and a prodigious number of facts to the same purpose, all concurring in the proof of the debilitating operation of cold, there can hardly arise a doubt in the mind, that in a certain high degree, if it could be conveniently used, or if there were occasion to have recourse to it for want of efficacious remedies, it would at once remove the highest de-

the whole range of predisposition, the whole circle of diseases, depending upon sthenic diathesis.

259. THAT no hurtful effect arises from the supposed astringent power of cold in the sthenic diathesis (*i*), is proved by its very high influence, when applied to the surface of the body in the small-pox, in keeping up a freedom of perspiration, in proportion to the degree of its application. And its influence in producing atony, with proportional laxity of the fibres of the vessels, is in conformity to the same observation (*k*).

gree of sthenic state which ever occurs in disease, and reduce the excitement, from the nearest approach to 70 down to 40. Nay, it might run into the opposite extreme, and go all the way to death. But, we shall, by and by, have occasion to observe, that we are so well provided with effectual remedies as not to be under any temptation of straining this to its height. And we shall also find, that a number of remedies, in a moderate degree, are preferable to any one, or to a smaller number, in a higher degree. The discovery of the principle upon which the cure of sthenic diseases turns, has enabled us to render the cure both more complete and exact, than it could have been without principle.

(*i*) I remember, when I was a young student, of hearing the old physicians in Edinburgh very gravely forbid a draught of cold water in an inflammatory pyrexia and even in a common catarrh, for fear it should produce an inflammation in the stomach.

(*k*) The fibres being relaxed describe a greater cavity;

260. FOR the removal of asthenic diathesis, the stimulus of heat is signally useful, and chiefly for the following reason; that it must be as useful in this diathesis, where the excitement is too low, as it is hurtful in the sthenic, by giving a further increase of the excitement, too much increased already. Hence, in fevers, in the gout, in dyspepsia, in the colic, in rheumatagia (*l*), and in all asthenic diseases, the system is very much cherished by heat, and debilitated by cold: Which, by its debilitating effect, is ranked among the powers which produce the disease (*m*), and is destructive in fevers.

261. As cold is hurtful in asthenic diathesis, in the proportion in which it is serviceable in the sthenic (*n*); it is accordingly, for this further reason,

and hence, the check given to the perspiration by the contrary effect of the sthenic diathesis in increasing their density and diminishing their diameters, is taken off.

(*l*) or what is improperly, as it has been said before, called the chronic rheumatism.

(*m*) No gouty person can bear the operation of much cold, and every one can endure more heat, than most other persons. And the reason is evident: So debilitating a power must, in proportion to its degree, be peculiarly hurtful in all diseases, in which the debility constituting their cause, runs high, as it naturally does in the gout, where it is increased by the advance of age and other causes, and much more so in fevers.

(*n*) See par. 258.

to be avoided in diseases of the highest debility, that, like intense heat, it relaxes the extreme vessels, and produces a putrefaction in the fluids (o).

262. THE more certainly to moderate the sthenic diathesis, while as yet it remains within the range of predisposition, a sparing use should be made of flesh, and the preparations from it, and vegetable dishes used with greater freedom. But, when the same diathesis is increased to the degree which constitutes disease, abstinence from animal food, especially in a solid form, and a free, but still not excessive, use of vegetable matter, especially in a fluid form, are the best means of removing it, as far as the management of diet goes.

263. IN that degree of this diathesis, which does not exceed predisposition, it is proper to avoid seasoning, which is destructive in sthenic diseases.

264. WATERY drink is very suitable to it, and all pure and strong drink hurtful, and that in proportion to the quantity of alkahol which it contains. The latter sort of drink, unless taken very weak, is destructive in diseases. In the number of which

(o) See above, 116.

pure water, especially with an addition of something to acidulate it, is preferable to small-beer, which a great authority admitted. But the diffusible stimuli, in this diathesis, are, above all others, hurtful (*p*).

265. SINCE the indirect stimulus of food assists the direct, that is, propagates itself over the whole body; for that reason, bounds should be set to the bulk, even of the suitable matter (*q*).

266. IN every degree of asthenic diathesis, vegetable food should be avoided, and recourse had, as soon as possible, to that which consists of meat and animal matter. And, as that can seldom be executed immediately, upon account of the weakness of the stomach, the diffusible stimuli should therefore be used; such as, the different forms of wine when the debility is moderate, and opiates when it is greater. And, at the same time, from the very beginning, rich soups should be given in great quantity upon the whole, and a gradual transition made to the use of more solid matter.

(*p*) The last line is an addition in these words, “Ante
“omnia stimuli diffusibiles in hac diathesi nocent.”

(*q*) See above, par. 127.

267. As it is animal matter, in this case, which is of service ; so, the degree of stimulus which seasoning adds to it, improves its effect (*r*).

268. DURING the predisposition to asthenic diseases, watery, cold, acid, fermenting (*s*) drink, is hurtful, and that proportion of pure strong liquor, which the degree of debility requires, is beneficial. But, after the diseases have actually taken place, and have now attained a high degree of vehemence, the same strong drink becomes so indispensably necessary, that, excepting the soups, and the still more diffusible stimuli, it is the only support required for a long time. There is no occasion for any dread of the indirect stimulus of food, when the matter, which chiefly affords it, that is, vegetable matter, is guarded against (*t*).

269. FOR the purpose of diminishing the stimulus, which an over-proportion of chyle and blood (*u*), directly applied to a great extent of the body,

(*r*) See above, par. 125.

(*s*) There is an addition, to the original, in the words, "frigida, acida, fermentiscens."

(*t*) Compare this with what was lately said in paragraph 265.

(*u*) The chyle is the alimentary matter, which has undergone a preparation in the stomach, and an after one in the

produces ; the over-proportion, when it is very great, should be removed by abstinence, bleeding, and purging. When it is more moderate, but yet adequate to the effect of producing diseases, the directions lately given (*x*), respecting a moderate diathesis, ought to be observed ; that is, we should adhere to the practice of vomiting (*y*), and purging from time to time, and to a sparing diet. But blood should not be let. And if, upon any occasion, the patient should give way to a little fullness in his use of food, he should use vegetable matter, abstinence, gentle and frequent exercise, and sweating, and thereby keep up a full perspiration.

270. THE same are the means of cure for an excess in the velocity of the blood (*z*), in so far as it

upper part of the intestinal canal, which, so prepared, or in part digested, is taken up by the mouths of a number of small vessels which open into the intestines ; these carry it to a great trunk, in which all these vessels, called lacteal, unite, and through that trunk, to be afterwards mixed, first with the venous, and then with all the other blood in succession. Such is the nourishing matter of animals.

(*x*) See above, par. 255.

(*y*) An addition in MS.

(*z*) See above, par. 131. †o 134.

depends upon an over-proportion. When the velocity depends upon violent motion of the body, the means of lessening it, when the diathesis is so moderate as only to produce predisposition, or a gentle degree of actual disease, are, an abatement of exercise, more indulgence in rest, and a reduction of other stimuli. In the very great diathesis, that which occasions severe diseases, in order to retard the motion of the blood, a point must be made to avoid the stimulus of all the exciting powers, and blood must be taken profusely. Here it is superfluous to lay down a rule for the observance of keeping the body in a state of rest; as rest, even in spite of the patients, is unavoidable (*a*).

271. WITHDRAWING the powers which occasion an over-proportion of the secreted fluids in the excretory ducts, is the best method of removing the stimulus, which that over-proportion, by its distending energy, produces (*b*). The cure, therefore, con-

(*a*) It would be ridiculous to require of a patient in the rage of peripneumony not to run a race, when his real state is, that he cannot move or turn himself in the bed without pain.

(*b*) In par. 136. you will find, that the secreted fluids, here alluded to, are the milk, the semen, and the perspirable fluid. As the distention occasioned by the overabundance produces the morbid stimulus, so the subduc-

sists in more frequent coition, drawing off the milk, taking in food of a less nourishing nature, and in restoring the perspiration, by removing the sthenic diathesis upon the external surface.

272. To remove the debility, or atony and laxity, of the vessels, which is occasioned by a penury of chyle and blood over a very great extent of the system (*c*), first, the strength must be gradually

tion of the fluids must, of course, take it off, and give the desired relief.

(*c*) How great the space or extent of the system, which, in the sthenic diathesis, receives the stimulus of an overabundance of blood; and, in the asthenic diathesis is subjected to the debilitating power of an under-proportion of the same fluid, may easily be conceived from the well known fact, that there is not a soft part in the whole system, into which the insertion of the point of the finest needle will not draw blood; consequently, the stimulus arising from an overabundance of blood, as well as the debility arising from too small a quantity, must be the most considerable of all others. Every circumstance here concurs to render the one the greatest sthenic, and the other an equal asthenic, hurtful power. If the force of every stimulus, of every exciting power, be in proportion, first, to the degree of it applied; secondly, to the sensibility of the part on which it acts; and, thirdly, to the extent of that part, it will be no wonder, that these two powers should prove the most formidable of all others. Hence it is, that, in the curative part, bleeding is the most powerful remedy of sthenic, and filling the vessels an equal one, of asthenic, diathesis.

brought back by diffusible stimuli (*d*) and soups; next, we should gradually use the latter more sparingly, and solid matter more plentifully; lastly, to give the whole system still more strength, it should be fortified by exercise, and the rest of the durable stimuli; but no further use should be made of the diffusible, than to employ them so long as considerable debility remains (*e*).

(*d*) which act by giving vigour to the whole system, and more especially to the stomach, with which they come into actual contact. Hence digestion, and the conversion of the matter taken in into good chyle and blood; and hence, at last, the fulness of the vessels first indicated. The process of emptying the vessels in the cure of sthenic diathesis, has the advantage of being the first in order; and hence is it that the cure of sthenic diseases is more quickly effected than that of the asthenic; it being, over all nature, much more easy to take away, than replace. See and compare par. 126. and 130. and subjoined Notes, and a little above, par. 266.

(*e*) The sole use, and a great one, of the diffusible stimuli is, in great weakness, where they are only required, to support the system, while it cannot be supported by the ordinary durable stimuli; and, after the excitement is so far restored, that the ordinary supports *are* now sufficient, to lay aside the extraordinary; the continuance of which would now be hurtful, and to manage the convalescent, and restored, state of health by the powers employed in health. When the diffusible are continued longer, they are equally hurtful, and a cause of disease, as they are serviceable when disease requires their support; analogous

273. IN a weak state, both of the vessels and of the rest of the body, every motion of the body, any way considerable, and all other stimuli which quicken the motion of the blood, and bring on an indirect temporary debility, should be withheld. But, in a case of slighter debility, such motion as does not prove fatiguing, but acts as an agreeable stimulus, and recruits, should not be avoided. When a person is recovering from a disease, he should be gradually brought back to his usual plan of life ;

to wine, they bring about the system in a weakened state to be sustained by its natural and ordinary supports ; but, analogous to it in another respect, when the strength of the system requires not their additional stimulus, they carry it up into indirect debility, and prove the cause of diseases and death. In one word, whatever has been said against the propriety of the use of excessive, and ultimately excessive stimulant powers, the former producing sthenic diathesis, and the latter indirect debility, all that applies, with propriety, for the discontinuance of the use of diffusible stimuli, when the durable are now sufficient for the purposes of the system. And another argument which still remains against the superfluous use of both the diffusibles and strong drink, when debility requires not their use, is, that, independent of death, or even diseases, being their immediate consequence, predisposition to diseases must ; consequently, as the system must at last be worn by stimuli, all the unnecessary, that is, all which do not contribute to that middle vigour, in which sound health consists, should be avoided.

nor should it be forgot, that, till that is done, the health is never completely restored.

274. The debility, which an under-proportion of secreted fluids, or a degenerate, though plentiful state of them, produces in the excretory ducts, is removed by the stimulant plan of cure which has just now been mentioned (*f*), not by an antiseptic one (*g*).

275. THE suitable remedy of that sort of stimulus, which arises from either violence or assiduity of thinking, is an abatement in the degree of thinking, or that high stretch of the intellectual function, whether its degree, or frequent repetition, be regarded, which, by wasting the excitability, proves, at last, indirectly debilitating: Which is a rule, however it may suit the state of predisposition, that is by no means safe, after the disease has once made its appearance, and especially if it is a violent one; because there is no access to any benefit from it, but through the intermediate degrees of that stimulant range, which, by increasing the

(*f*) See above, 272.

(*g*) See above, 117. and 118.

excitement, already too great, would do mischief (*b*).

276. IN order to cure a slight sthenic diathesis, such as occurs in predisposition, and to prevent disease, habitual passion should be avoided; but the removal of actual disease requires, that every first gust of passion should be prevented. The ultimate excess of passion, upon account of the intermediate danger of stimulating too much, is by no means to be thought of.

277. IN so far as debility depends upon excess in mental exertion, or upon a languid state of that faculty, the excess should be diminished, and the languor removed, and an agreeable train of thinking set on foot; without which latter, however much all the other stimulant powers may have been employed, it may be depended upon, that perfect health, in every respect, will not be brought about (*i*).

(*b*) See above, 254.

(*i*) The state of the intellectual function has a great influence upon that of excitement; and, often, when all other stimuli have been applied in due proportion, the deficiency of that single stimulus will point out a want in the proper measure of excitement. There is not a finer stimulus than the pleasurable feeling arising from a happy

278. IN every degree of debility, that high force of the passions, which produces indirect debility, must be avoided ; and it must not be forgot, that a very small degree of them is sufficient for that

train or flow of thinking ; hence the high delight, which arises from a flight of wit, or from a pleasant vein of humour ; hence all the fine feelings of the belles lettres ; hence, in youth, the ardent keenness to be acquainted with the learning, wisdom, and elegant productions of the ancients, as well as of those, who have made a distinguished figure in later times ; hence the enthusiasm, so natural to the human feelings, to out-strip others in every mental excellency : The arts, the sciences, every department of human knowledge, are all the effects of that intellectual propensity. How happy would it be for mankind were this noble stimulus duly cherished ! What benefits, which society is deprived of, would not accrue from a proper cultivation of it ! How fine was that feeling in Julius Cæsar Scaliger, when he declared he would rather be the author of Horace's few stanzas of Lydia and Telephus, than accept of the crown of Arragon ! What must have been the delight of Pythagoras, when he found out the 47th proposition of the first book of the mathematical elements, commonly called Euclid's ? He jumped about in an ecstasy, crying out *Ευρηκα*, and was so much more substantial than some of his few brother discoverers, as to possess the means of offering a sacrifice of an hundred fat bullocks to the gods. See Observations on the Principles of the Old Systems of Physic, from page 9 to 15 of the Introduction. How delightful must the feelings of Horace have been, in whose works every ode is an effort of the most beautiful, and, frequently, of the most sublime, conceptions of hu-

effect : We are not to give loose reins to agreeable passions (*k*).

279. WHEN there is a deficiency in the force of any of the passions, as in sadness, grief, fear, terror,

man genius ! What must have been the fire and force of Milton's soul, in the description that he gives of the appearance of the Son of God in his celestial panoply, "*his countenance too severe to be beheld !*" How towering that soul, how exalted that intellect, which the great Marquis of Montrose displayed in a stratagem, which converted into a glorious victory a blunder in one of his officers, which might have proved fatal to both his cause and his glory ! When it was whispered to him, standing in the centre of his army, that one of his wings was overpowered, he shouts out to the commander in the other : " My Lord Aboyn ! shall you and I stand here doing nothing, and M'Donald carry off all the honour of the day ?"

(*k*) See above, par. 43. and 141. Recollect the method prescribed in the 43d paragraph of this work, for preventing the fatal catastrophe of the Roman woman, when her son, whom she had counted upon, for certain, in the number of the dead, was, contrary to every expectation, presented to her in perfect health. The danger and fatality of her state was, that her excitability was too accumulated, with respect to the stimulus of exciting passion, to bear such a strong impression as that which the presence of her son, in life and health, had made. She was in the state of a famished person, whose accumulated excitability is overpowered by a single morsel of food, or of a person, who had long been affected with thirst, where the smallest indulgence in drink may prove fatal ; or of a person, near starved to death by cold, in whom a rash approach to

and despair, which are only lesser degrees of gladness, confidence, and hope, and imply only a diminution of exciting passions ; such deficiency, or diminution, must be expelled, and the exciting degree of passion recalled ; hope and assurance must be infused, and the patient gradually carried up to feelings of joy.

II. FOR there is only a sum total of the passions, which act in the same manner as all the other stimuli, that is, by stimulating, either in excess, or in due, or in deficient, proportion ; nay, like the rest, as often as any one is deficient, it, by accumulating the excitability, has the effect of making the other stimuli act more powerfully (*l*). Take, for instances, the terror of an army before the sound of trumpet for the onset of battle, and the courage with which they are afterwards inspired, from the consciousness of their bravery, the general's speech to animate them, or, perhaps, his commemoration of their former brave deeds.

heat, might induce the same fatal effect ; all which are precisely upon the same footing, and equal instances of an excitability too accumulated to bear any degree of stimulus.

(*l*) See above, par. 37. and the Note annexed to it.

P. AN ultimately excessive voluptuousness in the exercise of the senses, as well as the effect of disagreeable objects, presented to them, in asthenic diathesis, should equally be avoided; and, in the sthenic diathesis, their turbulent force should be guarded against (*m*).

Σ. NOTHING is better accommodated to the asthenic state, than purity of air; which, either alone, or conjoined with exercise, must consequently be of the greatest benefit to convalescents.

T. SINCE the matter of contagion, in so far as it has any tendency to produce general disease, produces either sthenic (*n*), or asthenic diathesis (*o*), and acts by an operation similar to that of the general hurtful powers; the inference to be drawn from which is, that in the cure, general remedies should be employed; and debilitating ones opposed to sthenic, stimulant ones to asthenic, diathesis (*p*).

(*m*) See par. 143. and 144.

(*n*) as in the small-pox and measles.

(*o*) as the contagious typhus, the gangrenous sore throat, dysentery, and the plague.

(*p*) Par. 147. and 175.

280. THESE powers, the same in kind with those which produce the diatheses, differing only in degree, and, in that respect, diametrically opposite, remove the diatheses seldomer, and less successfully, one by one; oftener, and more effectually, when several co-operate; but, best of all, if all of them be taken together, especially when there is occasion for great assistance.

END OF VOL. II.







