

Surgeon Royal 1815.

FIRST LINES
OF THE
PRACTICE OF PHYSIC.

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PRACTICE OF PHYSIC.

BY

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IN FOUR VOLUMES.

WITH PRACTICAL AND EXPLANATORY NOTES,

BY

JOHN ROTHERAM, M.D.

VOL. I.

EDINBURGH:

Printed for BELL & BRADFUTE, and WILLIAM CREECH,
Edinburgh; C. G. J. & J. ROBINSONS, and
J. MURRAY, *London*.

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ADVERTISEMENT.

THE Character of DR CULLEN'S *First Lines of the Practice of Physic* is sufficiently established ; and its intrinsic value has been long acknowledged by practitioners of every denomination.

The original intention of this work was to serve as a text-book or basis for the ingenious and experienced Author's Lectures in the Practical Chair of the University of Edinburgh. But, as the Author is now deceased, and the book is sought after with avidity by students, who can no longer have an opportunity of hearing the Doctor's explanatory observations, Notes explaining

plaining abstruse points, and accommodating young practitioners with the formulæ and doses of medicine, which are mentioned in the text only in general terms, have been added to this edition.

A strict attention has been paid to print the Author's Text *verbatim* from the last edition published before his death.

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Page 18. note, line 3. *for 1793 read 1693.*

64. note, line ult. *for emollient read emollient.*

THE AUTHOR'S
P R E F A C E

TO THE LAST EDITION PUBLISHED BEFORE HIS
DEATH.

TO deliver a System of the Doctrines and Rules proper for directing the Practice of Physic, is an undertaking that appears to me to be attended with great difficulty; and, after an experience of more than forty years in that practice, as well as after much reading and reflection, it was with great diffidence that I ever entered upon such a work. It was, however, what seemed to be my duty as a Professor that induced me to make the attempt; and I was engaged in it by the same sentiments that the illustrious

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Dr Boerhaave has expressed in the following passage of the Preface to his institutions: *Simul enim docendo admotus eram sensi, propriorum cogitatorum explicatione docentem plus proficere, quam si opus ab alio conscriptum interpretari suscipit. Sua quippe optime intelligit, sua cuique prae caeteris placent, unde clarior fere doctrina, atque animata plerumque sequitur oratio. Qui vero sensu alterius exponit, infelicius saepenumero eadem acquiritur; quumque suo quisque sensu abundat, multa refutanda frequenter invenit, unde gravem frustra laborem aggravat, minusque incitata dictione utitur.* It is well known, that a Text-book is not only extremely useful, but necessary to students who are to hear Lectures: And from the same considerations that moved Dr Boerhaave, I also wished to have one for myself; while, at the same time, from some peculiar circumstances in my situation, I had some additional inducements to undertake such a work.

BEFORE I was established as a Professor of the Practice of Physic in this University, I had been employed in giving Clinical Lectures in the Royal Infirmary; and upon that occasion had delivered, what, in my own opinion, seemed most

most just with regard to both the nature and the cure of the diseases of which I had occasion to treat. But I soon found that my doctrines were taken notice of as new, and peculiar to myself; and were accordingly severely criticised by those who, having long before been trained up in the system of Boerhaave, had continued to think that that system neither required any change, nor admitted of any amendment. I found, at the same time, that my doctrines were frequently criticised by persons who either had not been informed of them correctly, or who seemed not to understand them fully; and therefore, as soon as I was employed to teach a more complete system of the Practice of Physic, I judged it necessary to publish a Text-book, not only for the benefit of my hearers, but that I might also have an opportunity of obtaining the opinion of the Public more at large, and thereby be enabled either to vindicate my doctrines, or be taught to correct them. These were the motives for my attempting the Volumes I formerly published; and now, from many years experience of their utility to my hearers, as well as from the favourable reception they have met with from the Public, I am induced to give a new edition

of this Work, not only as I hope, more correct in many parts, but also more complete and comprehensive in its general extent,

AT the first publication of this Work, it was intended chiefly for the use of those Gentlemen who attended my Lectures ; although, even then, for the reasons I have mentioned, it was rendered more full than Text-books commonly are ; and, in the repeated editions I have since had occasion to give, I have been constantly endeavouring to render it more full and comprehensive. In these respects, I hope the present Edition will appear to be rendered more fit for general use, and better calculated to afford satisfaction to all those who think they may still receive any instruction from reading on this subject.

WHILE I thus deliver my Work in its now more improved state, with the hopes that it may be of use to others as well as to those who hear my Lectures, I must at the same time observe, that it presents a system which is in many respects new ; and therefore I apprehend it to be not only proper, but necessary, that I should explain

plain here upon what grounds, and from what considerations, this has been attempted.

• IN the first place, I apprehend that, in every branch of science with respect to which new facts are daily acquired, and these consequently giving occasion to new reflections, which correct the principles formerly adopted, it is necessary, from time to time, to reform and renew the whole system, with all the additions and amendments which it has received and is then capable of. That at present this is requisite with regard to the science of Medicine, will, I believe, readily occur to every person who at all thinks for himself, and is acquainted with the Systems which have hitherto prevailed. While, therefore, I attempt this, I think it may be allowable, and upon this occasion even proper, that I should offer some remarks on the principal Systems of Medicine which have of late prevailed in Europe, and that I should take notice of the present state of Physic as it is influenced by these. Such remarks, I hope, may be of some use to those who attempt to improve their knowledge by the reading of books.

WHETHER the Practice of Physic should admit of reasoning, or be entirely rested upon experience, has long been, and may still be, a matter of dispute. I shall not, however, at present, enter upon the discussion of this; because I can venture to assert, that, at almost all times, the practice has been, and still is, with every person, founded more or less upon certain principles established by reasoning: And therefore, in attempting to offer some view of the present state of Physic, I must give an account of those systems of the principles of the science which have lately prevailed, or may be supposed still to prevail in Europe.

WHEN, after many ages of darkness, which had destroyed almost the whole of antient literature, learning was again restored in the fifteenth century; so, from causes * which are well

* At this period the medical knowledge of Europe was chiefly, and, indeed, solely, such as had been derived from the Arabians. At the conquest of Constantinople by the Turks, about the middle of the fifteenth century, several of the Greeks fled into Italy, and the people of Europe, communicating with them, found them to be intelligent, and

well known, it was the system of Galen alone that the Physicians of those days became acquainted with; and during the course of the sixteenth century, the study of Physicians was almost solely employed in explaining and confirming that system. Early, indeed, in the sixteenth century, the noted Paracelsus * had laid

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and some of them even learned men: The Europeans were thence led to study the Greek language, in order to read the valuable books which these fugitives had so much extolled; and among other works, those of Galen particularly attracted the notice of the physicians, which, to their great astonishment, contained all the medical knowledge that had been attributed to the Arabians. To the Greek writers, therefore, the physicians of those times closely applied their attention, thinking these books the only true fountains of medical knowledge; and thus it was that the Galenical doctrines became prevalent all over Europe.

* The remarkable circumstances in the life of Aureolus Philippus Theophrastus Bombastus Paracelsus de Hohenheim, as he called himself, are too numerous for insertion in the narrow limits allotted to these notes. He was born at the village of Einsiedlen, about 2 German miles from Zurich, in the year 1493. At 3 years old he was made an eunuch by an accident. He travelled all over the continent of

the foundation of a Chemical System which was in direct opposition to that of Galen; and, by the efficacy of the medicines employed by Paracelsus and his followers, their system came to be received by many: But the systematic Physicians continued to be chiefly Galenists, and kept possession of the Schools till the middle of the seventeenth century. It is not, however, necessary

of Europe, obtaining knowledge in chemistry and physics, and then travelled about the country practising what he had learned. His chief remedies were opium and mercury, and his great success increased his celebrity. He cured the famous printer Frobenius of Basil of an inveterate disease; this cure brought him acquainted with Erasmus, and made him known to the magistracy of Basil, who elected him Professor in 1527. He lectured two hours every day. While seated in his chair, he burnt, with great solemnity, the writings of Galen and Avicenna; and declared to his audience, that if God would not impart the secrets of physics, it was not only allowable, but even justifiable to consult the devil. He soon left Basil, and continued rambling about the country, generally intoxicated, and never changing his clothes, or even going to bed. He died after an illness of a few days, in an inn at Salzburg, in 1541, in his forty-eighth year, though he had promised himself that, by the use of his elixir, he should live to the age of Methusalem.

sary here to enter into any further detail respecting the fate of those two opposite sects; for the only circumstance concerning them, which I would wish at present to point out, is, that in the writings of both, the explanations they severally attempted to give of the phenomena of health or sickness, turned very entirely upon the state of the fluids of the body.

SUCH was the state of the science of Physic till about the middle of the seventeenth century, when the circulation of the blood came to be generally known and admitted; and when this, together with the discovery of the receptacle of the chyle, and of the thoracic duct, finally exploded the Galenic system. About the same period, a considerable revolution had taken place in the system of Natural Philosophy. In the course of the seventeenth century, Galileo had introduced mathematical reasoning; and Lord Bacon having proposed the method of induction, had thereby excited a disposition to observe facts, and to make experiments. These new modes of philosophising, it might be supposed, would soon have had some influence on the state of medicine; but the progress of this was slow.

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The knowledge of the circulation did indeed necessarily lead to the consideration as well as to a clearer view of the Organic System in animal bodies; which again led to the application of the mechanical philosophy towards explaining the phenomena of the animal economy; and it was applied accordingly, and continued, till very lately, to be the fashionable mode of reasoning on the subject. Such reasoning, indeed, must still in several respects continue to be applied: But it would be easy to shew, that it neither could, nor ever can be, applied to any great extent in explaining the animal oeconomy; and we must therefore look for other circumstances which had a greater share in modelling the System of Physic.

WITH this view it may be remarked, that, till the period just now mentioned, every physician, whether Galenist or Chemist, had been so much accustomed to consider the state and condition of the fluids, both as the cause of disease, and as the foundation for explaining the operation of medicines, that what we may term an HUMORAL PATHOLOGY still continued to make a great part of every system. In these
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circumstances it was soon perceived, that chemistry promised a much better explanation than the Galenic or Aristotelian philosophy had done; and, therefore, while the latter was entirely laid aside, a chemical reasoning was every where received. Lord Bacon, with his usual sagacity, had early observed, that chemistry promised a greater number of facts, and he thereby gave it credit; whilst the Corpuscularian philosophy, restored by Gassendi, readily united with the reasonings of the chemists; and the philosophy of Des Cartes readily united with both. From all these circumstances, an Humoral, and chiefly a Chemical Pathology, came to prevail very much till the end of the last century; and has indeed continued to have a great share in our systems down to the present time.

It is proper now, however, to observe, that about the beginning of the present century, when every part of science came to be on a more improved and correct footing, there appeared in the writings of STAHL, of HOFFMAN, and of BOERHAAVE, three new, and considerably different, Systems of Physic; which have ever since had a great

great share in directing the practice of it. In order, therefore, to give a nearer view of the present state of Physic, I shall offer some remarks upon these different systems; endeavouring to point out the advantages as well as the disadvantages of each, and how far they still prevail; or, according to my judgement, deserve to do so.

I SHALL begin with considering that of Dr Stahl, which I think appeared first, and for a long time after was the prevailing system in Germany.

THE chief and leading principle of this system is, that the rational soul of man governs the whole oeconomy of his body. At all times, Physicians have observed, that the animal oeconomy has in itself a power or condition, by which, in many instances, it resists the injuries which threaten it; and by which it also, on many occasions, corrects or removes the disorders induced, or arising in it. This power, Physicians very antiently attributed, under a vague idea, to an agent in the system, which they called NATURE; and the language of a *vis conservatrix et medicatrix naturae*, has continued in the schools of

of medicine from the most antient times to the present.

DR STAHL has explicitly founded his system on the supposition, that the power of nature, so much talked of, is entirely in the rational soul. He supposes, that, upon many occasions, the soul acts independently of the state of the body; and that, without any physical necessity arising from that state, the soul, purely in consequence of its intelligence, perceiving the tendency of noxious powers threatening, or of disorders anywise arising in the system, immediately excites such motions in the body as are suited to obviate the hurtful or pernicious consequences which might otherwise take place. Many of my readers may think it was hardly necessary for me to take notice of a system founded upon so fanciful an hypothesis: But there is often so much seeming appearance of intelligence and design in the operations of the animal oeconomy, that many eminent persons, as Perrault in France, Nichols and Mead in England, Porterfield and Simson in Scotland, and Gaubius in Holland, have very much countenanced the same opinion, and it is therefore certainly entitled to some regard. It
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is not, however, necessary for me here to enter into any refutation of it. Dr Hoffman has done this fully, in his *Commentarius de differentia inter Hoffmanni doctrinam medico-mechanicam et G. E. Stahlian medico-organicam*; and both Boerhaave and Haller, though no favourers of materialism, have maintained a doctrine very opposite to that of Stahl.

IN my Physiology I have offered some arguments against the same; and I shall only add now, that whoever considers what has been said by Dr Nichols in his *Oratio de Anima Medica*, and by Dr Gaubius in some parts of his Pathology, must perceive, that the admitting of such a capricious government of the animal economy, as these authors in some instances suppose, would at once lead us to reject all the physical and mechanical reasoning we might employ concerning the human body. Dr Stahl himself seems to have been aware of this; and therefore, in his Preface to Juncker's *Conspectus Therapæiæ Specialis*, has acknowledged, that his general principle was not at all necessary; which is in effect saying that it is not compatible with any system of principles that ought to govern
our

our practice. Upon this footing, I might have at once rejected the Stahlian principle : but it is even dangerous to bring any such principle into view ; for, after all Dr Stahl had said in the passage just now referred to, I find, that, in the whole of their practice, both he and his followers have been very much governed by their general principle. Trusting much to the constant attention and wisdom of nature, they have proposed the *Art of curing by expectation* ; have therefore, for the most part, proposed only very inert and frivolous remedies ; have zealously opposed the use of some of the most efficacious, such as opium and the Peruvian bark ; and are extremely reserved in the use of general remedies, such as bleeding, vomiting, &c.

ALTHOUGH these remarks, upon a system which may now be considered as exploded or neglected, may seem superfluous ; I have been willing to give these strictures on the Stahlian system, that I might carry my remarks a little farther, and take this opportunity of observing, that, in whatever manner we may explain what have been called the operations of nature, it appears to me, that the general doctrine of
Nature

Nature curing diseases, the so much vaunted *Hippocratic* method of curing, has often had a very baneful influence on the practice of physic; as either leading physicians into, or continuing them in, a weak and feeble practice; and at the same time superseding or discouraging all the attempts of art. Dr Huxham has properly observed, that even in the hands of Sydenham it had this effect. Although it may sometimes avoid the mischiefs of bold and rash practitioners, yet it certainly produces that caution and timidity which have ever opposed the introduction of new and efficacious remedies. The opposition to chemical medicines in the sixteenth and seventeenth centuries, and the noted condemnation of Antimony by the Medical Faculty of Paris, are to be attributed chiefly to those prejudices, which the physicians of France did not entirely get the better of for near an hundred years after. We may take notice of the reserve it produced in Boerhaave, with respect to the use of the Peruvian Bark. We have had lately published, under the title of *Constitutiones Epidemicæ*, notes of the particular practice of the late Baron Van Swieten; upon which the editor very properly observes, That the use of the bark,

bark, in intermitting fevers, appears very rarely in that practice; and we know very well where Van Swieten learned that reserve.

I MIGHT go farther, and shew how much the attention to the *Autocrateia*, allowed of, in one shape or other, by every sect, has corrupted the practice among all physicians, from Hippocrates to Stahl. It must, however, be sufficiently obvious, and I shall conclude the subject with observing, that although the *vis medicatrix naturæ* must unavoidably be received as a fact; yet, wherever it is admitted, it throws an obscurity upon our system; and it is only where the importance of our art is very manifest and considerable, that we ought to admit of it in practice.

To finish our remarks upon the Stahlian System, I shall shortly observe, that it did not depend entirely upon the *Autocrateia*, but also supposed a state of the body and diseases, that admitted of remedies, which, under the power and direction of the soul, acted upon the organization and matter of the body, so as to cure its diseases. Upon this footing, the Stahlian pa-

thology turned entirely upon Plethora and Cacochymy. It was with respect to the former that they especially applied their doctrine of the *Autocrateia* in a very fanatical manner; and, with respect to the latter, they have been involved in a humoral pathology as much as the systematic physicians who had gone before them, and with a theory so incorrect as not to merit now the smallest attention. After all, I ought not to dismiss the consideration of the Stahlian System, without remarking, that as the followers of this system were very intent upon observing the method of nature, so they were very attentive in observing the phenomena of diseases, and have given us in their writings many facts not to be found elsewhere.

WHILE the doctrines of Stahl were prevailing in the University of Halle, Dr Hoffman *, a professor

* Frederick Hoffman was born at Hall, in the year 1660. He graduated in physic in 1681, was made professor of physic there in 1793, and filled that chair till his death in 1742. A very remarkable circumstance of his life is, that he never took fees from his patients, but was content with his stipend. He was in high repute as a practitioner, and curing the Emperor Charles VI. and

professor in the same university, proposed a system that was very different. He received into his system a great deal of the mechanical, Cartesian, and chemical doctrines of the systems which had appeared before: But, with respect to these, it is of no consequence to observe in what manner he modified the doctrines of his predecessors, as his improvements in these respects were nowise considerable, and no part of them now remain; and the real value of his works, beyond what I am just now going to mention, rests entirely on the many facts they contain. The merit of Dr Hoffman and of his work is, that he made, or rather suggested, an addition to the system, which highly deserves our attention. Of this I cannot give a clearer account than by giving it in the author's own words. In his *Medicina Rationalis Systematica*, Tom. III. § 1. chap. 4. he has given his *Genea-*

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logia

Empress, and Frederick I. of Prussia of inveterate diseases, greatly increased his reputation. His works are collected in six volumes folio, published at different times from 1748 to 1754. They abound with many useful practical directions; but at the same time contain many frivolous remarks, and an abundance of conjectural theory.

logia morborum ex turbato solidorum et fluidorum mechanismo; and in the 47th and last paragraph of this chapter, he sums up his doctrine in the following words: *Ex hisce autem omnibus uberius hætenus excussis, perquam dilucide apparere, arbitror quod solus SPASMUS et simplex ATONIA, æquabilem, liberum, ac proportionatum sanguinis omnisque generis fluidorum motum, quibus excretionum successus et integritas functionum animi et corporis proxime nititur, turbando ac pervertendo, universam vitalem æconomiam subruant ac destruant; atque hinc universa pathologia longe rectius atque facilius EX VITIO MOTUUM MICROSMICORUM IN SOLIDIS, quam EX VARIIS AFFECTIONIBUS VITIOSORUM HUMORUM, deduci atque explicari possit, adeoque omnis generis ægritudines internæ, ad PRÆTERNATURALES GENERIS NERVOSI AFFECTIONES sint referendæ. Etenim læsis quocunque modo, vel nervis per corpus discurrentibus, vel membranosis quibusvis nervosis partibus, illico motuum anomalix, modo leviores, modo graviores, subsequuntur. Deinde attenta observatio docet, motus quosvis morbosos principaliter sedem figere et tyrannidem exercere in nervosis corporis partibus, cujus generis præter omnes canales, qui systaltico et diastaltico motu pollentes, contentos succos tradunt, universum*
nimi-

nimirum intestinorum et ventriculi ab œsophago ad ænium canalem, totum systema vasorum arteriosorum, ductuum biliariorum, salivalium, urinariorum et subcutaneorum, sunt quoque membranæ nerveo-musculares cerebri et medullæ spinalis, præsertim hæc, quæ dura mater vocatur, organis sensorii obductæ, nec non tunicæ illæ ac ligamenta, quæ ossa cingunt artusque firmant. Nam nullus dolor, nulla inflammatio, nullus spasmus, nulla motus et sensus impotentia, nulla febris aut humoris illius excretio, accidit, in qua non hæc partes patiantur. Porro etiam omnes, quæ morbos gignunt causæ, operationem suam potissimam perficiunt in partes motu et sensu præditas, et canales ex his coagmentatos, eorum motum, et cum hoc fluidorum cursum, pervertendo; ita tamen, ut sicuti variæ indolis sunt, sic etiam varie in nerveas partes agent, iisdemque noxam affricent. Demum omnia quoque eximie virtutis medicamenta, non tam in partes fluidas, earum crasin ac intemperiem corrigendo, quam potius in solidas et nervosas, earundem motus alterando ac moderando, suam edunt operationem: De quibus tamen omnibus, in vulgari usque eo recepta morborum doctrina, altum est silentium.

It is true that Dr Willis * had laid a foundation for this doctrine, in his *Pathologia Cerebri et Nervorum*; and Baglivi had proposed a system of this kind in his *Specimen de fibra motrici et morbosa*. But, in these writers, it was either not extensively applied to diseases, or was still so involved in many physiological errors, that they had attracted little attention; and Dr Hoffman was the first who gave any tolerable simple and clear system on the subject, or pointed out any extensive application of it to the explanation of diseases.

T H E R E

* This illustrious physician was born at Great Bedwin in Wiltshire in 1621. He took the degree of Master of Arts in 1642 at Oxford, where he was made professor of natural philosophy in 1660; and that same year he took the degree of M. D. His practice was extensive and successful; he was one of the first members of the Royal Society in London, whither he removed in 1666; and soon made his name as illustrious by his writings, as he had already done by his practice. His works had been often printed separately; but they were not collected till after his death, which happened on the 11th of November 1675. One edition was published at Geneva in 1676, and another at Amsterdam in 1682, both in quarto.

THERE can be no sort of doubt that the phenomena of the animal œconomy in health and in sickness, can only be explained by considering the state and affections of the primary moving powers in it. It is to me surprising that physicians were so long of perceiving this, and I think we are therefore particularly indebted to Dr Hoffman for putting us into the proper train of investigation; and it every day appears that physicians perceive the necessity of entering more and more into this inquiry. It was this, I think, which engaged Dr Kaaw Boerhaave to publish his work intitled *Impetum faciens*; as well as Dr Gaubius to give the Pathology of the *Solidum vivum*. Even the Baron Van Swieten has, upon the same view, thought it necessary, in at least one particular, to make a very considerable change in the doctrine of his master, as he has done in his Commentary upon the 755th Aphorism. Dr Haller has advanced this part of science very much by his experiments on irritability and sensibility. In these and in many other instances, particularly in the writings of Mr Barthez of Montpellier, of some progress in the study of the affections of the Nervous System, we must perceive how much

we are indebted to Dr Hoffman for his so properly beginning it. The subject, however, is difficult: The laws of the Nervous System, in the various circumstances of the animal œconomy, are by no means ascertained; and, from want of attention and observation with the view to a system on this subject, the business appears to many as an inexplicable mystery. There is no wonder, therefore, that, on such a difficult subject, Dr Hoffman's system was imperfect and incorrect; and has had less influence on the writings and practice of physicians since his time than might have been expected. He himself has not applied his fundamental doctrine so extensively as he might have done; and he has every where intermixed an Humoral Pathology, as incorrect and hypothetical as any other. Though he differed from his colleague Dr Stahl in the fundamental doctrines of his system, it is but too evident that he was very much infected with the Stahlian doctrines of Plethora and Cacochymy, as may be observed throughout the whole course of his work; and particularly in his chapter *De morborum generatione ex nimia sanguinis quantitate et humorum impuritate.*

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BUT it is needless for me to dwell any longer upon the system of Hoffman: And I am next to offer some remarks on the system of Dr Boerhaave, the cotemporary of both the other Systematics, and who, over all Europe, and especially in this part of the world, gained higher reputation than any others.

DR BOERHAAVE * was a man of general erudition;

* Voorhoot, a small village about two miles from Leyden, gave birth to this eminent physician on the last day of the year 1668. He was educated at Leyden, and took his first degree in philosophy in 1690. His thesis on this occasion was a confutation of the doctrines of Epicurus, Hobbes, and Spinoza, in which he shewed great strength of genius and argument. Although he was at this time well qualified to enter into the church, which was his father's intention, yet he was diffident of his abilities, and chose to attend the lectures of divinity longer. His patrimony was however now exhausted, and he supported himself at the university by teaching mathematics, while he prosecuted his theological studies. This conduct was much approved by the eminent men both of the university and city, and procured for Boerhaave the friendship of Mr Vandenburg the burgomaster of Leyden. Under the patronage, and at the persuasion of this gentlemen,
Boerhaave

rudition ; and, in applying to medicine, he had carefully studied the auxiliary branches of anatomy,

Boerhaave applied himself to the study of physic with great ardor and indefatigable diligence. In a short time he became a proficient in anatomy, chemistry, and the materia medica, which indeed are the bases of physic. Leaving Leyden, he went to the university of Harderwick in Guelderland, and there took his degree of Doctor of Physic in July 1693. On his return to Leyden he still persisted in his intention of entering into the ministry, which luckily, for the sake of physic, was frustrated by the following adventure : In a passage boat where Boerhaave was, a discourse was accidentally started about the doctrines of Spinoza, as subversive of religion ; and one of the passengers, with vague invectives of blind zeal, opposed this philosopher's pretended mathematical demonstration. Boerhaave calmly asked him if he had read Spinoza's work, which he had so much derided. The bigot was suddenly struck dumb, and became fired with silent resentment. As soon as he arrived at Leyden, he spread abroad a rumour that Boerhaave was become a Spinosist. Boerhaave finding these prejudices to gain ground, thought it more prudent to pursue the science of physic, than risk the refusal of a licence for the pulpit. He now joined the practice of physic to the theory. On the 18th of May 1701 he commenced his lectures on the Institutes of Physic. In 1709 he was created Professor of Medicine and Botany ; and in 1718 he succeeded Le Mort

tomy, chemistry, and botany, so that he excelled in each. In forming a System of Physic, he seems to have studied diligently all the several writings of both antient and modern physicians; and, without prejudice in favour of any former systems, he endeavoured to be a candid and genuine eclectic. Possessed of an excellent systematic genius, he gave a system superior to any that had ever before appeared. As in the great extent, and seemingly perfect consistency, of system, he appeared to improve and refine upon every thing that had before been offered; and as in his lectures he explained his doctrines with great clearness and elegance, he soon acquired a very high reputation, and his system was more generally received than any former had been since the time of Galen. Whoever will consider the merits of Dr Boerhaave, and can compare his system with that of former writers, must acknowledge that he was very
justly

Mort in the Professorship of Chemistry. In August 1722 he was seized with the gout, and was obliged to resign his professorships of Chemistry and Botany in 1729. He continued for some time to practice, but was at length obliged to quit that also; and he died on the 23d of September 1738.

justly esteemed, and gave a system which was at that time deservedly valued.

BUT, in the progress of an inquisitive and industrious age, it was not to be expected that any system should last so long as Boerhaave's has done. The elaborate Commentary of Van Swieten on Boerhaave's system of practice, has been only finished a few years ago; and though this commentator has added many facts, and made some corrections, he has not, except in the particular mentioned above, made any improvement in the general system. It is even surprising that Boerhaave himself, though he lived near forty years after he had first formed his system, had hardly in all that time made any corrections of it, or additions to it: The following is the most remarkable. In aphorism 755, the words *forte et nervosi, tam cerebri quam cerebelli cordi destinati inertia*, did not appear in any edition before the fourth; and what a difference of system this points at, every physician must perceive.

WHEN I first applied to the study of Physic, I learned only the system of Boerhaave; and
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even when I came to take a Professor's chair in this University, I found that system here in its entire and full force; and as I believe it still subsists in credit elsewhere, and that no other system of reputation has been yet offered to the world, I think it necessary for me to point out particularly the imperfections and deficiencies of the Boerhaavian system, in order to shew the propriety and necessity of attempting a new one.

To execute this, however, so fully as I might, would lead me into a detail that can hardly be admitted of here; and I hope it is not necessary, as I think, that every intelligent person, who has acquired any tolerable knowledge of the present state of our science, must, in many instances, perceive its imperfections. I shall therefore touch only upon the great lines of this system; and from the remarks I am to offer, trust that both the mistakes and deficiencies which run through the whole of his works will appear.

DR BOERHAAVE's treatise of the diseases of the simple solids, has the appearance of being very clear and consistent, and was certainly considered

sidered by him as a fundamental doctrine: But, in my apprehension, it is neither correct nor extensively applicable. Not to mention the useless, and perhaps erroneous, notion of the composition of earth and gluten; nor his mistake concerning the structure of compound membranes; nor his inattention to the state of the cellular texture; all of them circumstances which render his doctrine imperfect; I shall insist only upon the whole being very little applicable to the explaining the phenomena of health or sickness. The laxity or rigidity of the simple solid does indeed take place at the different periods of life, and may perhaps, upon other occasions, occur as the cause of disease: But I presume, that the state of the simple solid is, upon few occasions, either changeable or actually changed; and that, in ninety-nine cases of an hundred, the phenomena attributed to such a change, do truly depend on the state of the *solidum vivum*; a circumstance which Dr Boerhaave has hardly taken notice of in any part of his works. How much this shews the deficiency and imperfection of his system I need not explain. The learned work of Dr Gaubius, above referred to, as well as many other treatises
of

of late authors, point out sufficiently the defects and imperfections of Boerhaave on this subject.

AFTER Dr Boerhaave has considered the diseases of the solids, he, in the next place, attempts to explain the more simple diseases of the fluids; and there, indeed, he delivers a more correct doctrine of acid and alkali than had been given before: But, after all, he has done it very imperfectly. We have, indeed, since his time, acquired more knowledge upon the subject of digestion; and so much as to know, that a great deal more is yet necessary to enable us to understand in what manner the animal fluids are formed from the aliments taken in. And although Dr Boerhaave has fallen into no considerable error with respect to a morbid acidity in the stomach, he could not possibly be complete upon that subject; and his notion of the effects of acidity in the mass of blood seems to have been entirely mistaken, and is indeed not consistent with what he himself has delivered elsewhere.

His doctrine of alkali is some what better founded,

founded, but it is probably carried too far; and the state of alkalescency and putrefaction, as well as all the other changes which can take place in the condition of animal fluids, are particulars yet involved in great obscurity, and are therefore still subjects of dispute.

THERE is another particular, in which Boerhaave's doctrine concerning the fluids appears to me imperfect and unsatisfactory; and that is, in his doctrine *de Glutinosa spontaneo*. The causes which he has assigned for it are by no means probable, and the actual existence of it is seldom to be proved. Some of the proofs adduced for the existence of the *phlegma calidum*, are manifestly founded on a mistake with respect to what has been called the inflammatory crust, (See Van Swieten's Commentary, page 96.); and the many examples given by Boerhaave of a *glutinosum* appearing in the human body, (*Aph.* 75.) are all of them nothing more than instances of collections or concretions found out of the course of the circulation.

IF, then, we consider the imperfection of Dr Boerhaave's doctrine with respect to the state
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and various condition of the animal fluids; and if at the same time we reflect how frequently he and his followers have employed the supposition of an acrimony or lentor of the fluids, as causes of disease, and for directing the practice; we must, as I apprehend, be satisfied, that his system is not only deficient and incomplete, but fallacious and apt to mislead. Although it cannot be denied, that the fluids of the human body suffer various morbid changes; and that upon these, diseases may primarily depend; yet I must beg leave to maintain, that the nature of these changes is seldom understood, and more seldom still is it known when they have taken place: That our reasonings concerning them have been, for the most part, purely hypothetical; have therefore contributed nothing to improve, and have often misled, the practice of physic. In this, particularly, they have been hurtful, that they have withdrawn our attention from, and prevented our study of, the motions of the animal system, upon the state of which the phenomena of diseases do more certainly and generally depend. Whoever, then, shall consider the almost total neglect of the state of the moving powers of the animal body, and the

prevalence of an hypothetical humoral pathology, so conspicuous in every part of the Boerhaavian System, must be convinced of its very great defects, and perceive the necessity of attempting one more correct.

AFTER giving this general view, it is not requisite to enter into particulars : But, I believe, there are very few pages of his aphorisms in which there does not occur some error or defect ; although, perhaps, not to be imputed to the fault of Boerhaave, so much as to this, that since his time a great collection of new facts has been acquired by observation and experiment. This, indeed, affords the best and most solid reason for attempting a new system : For, when many new facts have been acquired, it becomes requisite that these should be incorporated into a system, whereby not only particular subjects may be improved, but the whole may be rendered more complete, consistent, and useful. Every system, indeed, must be valuable in proportion to the number of facts that it embraces and comprehends ; and Mons. Quesney could not pay a higher compliment to the system

system of Boerhaave, than by saying that it exhibited *La medicine collective*.

BUT here it will, perhaps, be suggested to me, that the only useful work on the subject of Physic, is the making a collection of all the facts that relate to the art, and therefore of all that experience has taught us with respect to the cure of diseases. I agree entirely in the opinion; but doubt if it can ever be properly accomplished, without aiming at some system of principles, by a proper induction and generalisation of facts: At least I am persuaded that it can be done not only very safely, but most usefully in this way. This, however must be determined by a trial. I know that the late Mr Lieutaud has attempted a work on the plan of collecting facts without any reasoning concerning their causes: And while I am endeavouring to give some account of the present state of Physic, I cannot dismiss the subject without offering some remarks upon the promising *Synopsis universae medicinae*, composed by the first physician of a learned and ingenious nation.

IN this work there are many facts and much observation from the Author's own experience,

which may be useful to those who have otherwise acquired some knowledge and discernment ; but, throughout the whole work, there is such total want of method, arrangement, system, or decision, that, in my humble opinion, it can be of little use, and may prove very perplexing to those who are yet to learn. The distinction of the genera of diseases, the distinction of the species of each, and often even that of the varieties, I hold to be a necessary foundation of every plan of Physic, whether Dogmatical or Empirical. But very little of this distinction is to be found in the work of Mr Lieutaud ; and in his preface he tells us, that he meant to neglect such *arguta sedulitas*. And indeed his method of managing his subject must certainly interrupt and retard all methodical nosology. His arrangement of diseases is according to no affinity, but that of the slightest and uninstruative kind, the place of the body which they happen to affect. His *Generalia et incertae sedis*, have hardly any connection at all ; the titles, *Rheumatismus*, *Hypochondriasis*, *Hydrops*, follow one another. When he does attempt any general doctrine, it is not till long after he has treated of the widely-scattered particulars. Under each particular title

which

which he assumes, he has endeavoured to enumerate the whole of the symptoms that ever appeared in a disease under that title; and this without aiming at any distinction between the essential and accidental symptoms, or marking the several combinations under which these symptoms do for the most part steadily appear. From the concurrence of accidental symptoms, the variety of the same disease is frequently considerable, a circumstance necessarily perplexing and distracting to young practitioners; but it seems strange to me, that an experience of thirty years, in considerable practice, could do nothing to relieve them.

MR LIEUTAUD has at the same time increased the confusion that must arise from this want of distinction, by his considering as primary diseases, what appear to me to be the symptoms, effects, and sequels, of other diseases only. Of this I think the *Æstus morbosus*, *Virium exolutio*, *Dolores*, *Stagnatio sanguinis*, *Purulentia*, *Tremor*, *Pervigilium*, *Raucedo*, *Suffocatio*, *Vomica*, *Empyema*, *Singultus*, *Vomitus*, *Dolor Stomachi*, *Tenesmus*, all treated of under separate titles, are examples. A general Symptomatology may be a

very useful work, with a view to a System of Pathology; but, with a view to practice without any System, it must have bad effects, as leading only to a palliative practice, and diverting from the proper efforts towards obtaining a radical cure. Mr Lieutaud, indeed, has endeavoured to exhibit the symptoms above mentioned as so many *primary diseases*: But he has seldom succeeded in this; and, in delivering the practice, he commonly finds it necessary to consider them as symptoms, and that not without some theory, implied or expressed, with respect to their proximate causes. His title of *Dolores* may be taken as an example of this; and from which it may be readily perceived how far such treatises can be really useful.

In establishing a proper pathology, there is nothing that has been of more service than the Dissection of morbid bodies. Mr Lieutaud has been much and most commendably employed in this way, and in this Synopsis he has endeavoured to communicate his knowledge on the subject; but, in my humble opinion, he has seldom done it in a manner that can be useful. In the same way that he has delivered the symptoms

atoms of diseases without any instructive arrangement ; so, on the subject of the appearances after death, he has mentioned every morbid appearance that had ever been observed after the disease of which he is then treating : But these appearances are strangely huddled together, without any notice taken of those which belong to one set of symptoms or to another ; and, with regard to the whole, without any attempt to distinguish between the causes of diseases and the causes of death ; although the want of such distinction is the well-known ground of fallacy upon this subject. I take for an example, the appearances mentioned as having been observed after dropsy. Here morbid appearances, found in every part of the body, in every cavity of it, and in every viscus contained in these cavities, are enumerated ; but which of these morbid states are more frequent or more rare, and which had been more particularly connected with the different causes, or with the different state of symptoms previously recited, we are not informed, nor has he enabled us to discover. In short, the dissection of morbid bodies has been, and may be, highly useful ; but in order to be so, it must be under a different manage-

ment from what we find, either in this Synopsis, or even in the *Historia Anatomico-medica*.

I CANNOT dismiss this subject without remarking, that the dissection of morbid bodies, is chiefly valuable upon account of its leading us to discover the proximate causes of diseases : And the great and valuable work of the illustrious Morgagni, is properly intitled *De sedibus et causis*. It may well seem surprising, then, that Lieutaud should find the whole of proximate causes *atra caligine mersas* ; and that he should never have thought of applying his dissections towards the ascertaining at least some of these.

BUT let me now proceed to consider the important part of every practical work, and of this *Synopsis universae medicinae* ; that is, the method of curing diseases.

HERE, again, upon the same plan as in giving the histories of disease, the method of cure is delivered by enumerating the whole of the remedies that have ever been employed in a disease under the title prefixed ; without assigning
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the species, or the circumstances to which the remedies, though of a very different and sometimes opposite nature, are peculiarly adapted. On the subject of Asthma, he very justly observes that physicians have been to blame in confounding, under this title, almost all the species of Dyspnoea; and he himself very properly considers Asthma as a disease distinct from all the other cases of Dyspnoea. Still, however, he considers Asthma as of many different species, arising from many different causes, which, till we understand better, we cannot attempt to remove. Notwithstanding all this, he proceeds to deliver a very general cure. *Parum abest*, says he, *quin specifici titulo gaudeant pectoralia, vulneraria, et incidentia!* But from such language I receive no clear idea; nor can I obtain any clear direction from the enumeration of his medicines. *Baccae juniperi, gummi tragacanthum vel ammoniacum, sapo, aqua picea, terebinthina, &c. quae tamen haud indiscriminatim sunt usurpanda, sed pro re nata, delectu opus est.* Very justly indeed, *delectu opus est*; but here, as in many other instances, he gives us no sort of assistance.

FROM

FROM his endeavours, though not always successful, to neglect all system, his practice is generally delivered in a very indecisive manner ; or, what has the same effect, in a way so conditional as will render it always difficult, and often impossible, for a young practitioner to follow him. Let us take, for example, his cure of Dropsy. “ The cure may be begun by blood-letting in certain conditions ; *but, in others, it cannot be employed without danger.* It gives relief in difficult breathing ; *but, after it is practised, the symptoms are aggravated, and rendered more obstinate.* It is not to be concealed that some persons have been cured by repeated blood-lettings, or spontaneous hæmorrhagies ; *but it is at the same time known, that such a remedy inopportunately employed, has in many instances hastened on the fatal event.*”

IN the same manner he treats of vomiting, purging, sweating, and the use of mineral waters : But I must confess, that he has no where removed any of my doubts or difficulties, and indeed he has sometimes increased them. He says, that hepatics, or aperients, such as the *lingua cervina, herbæ capillares, &c.* deserve commendation ;

mendation ; but that, when the disease has arisen to a certain degree, they have been, *for the most part, found to be useless*. He observes, that the powder of toads given in wine, to the quantity of a scruple or more, has succeeded with feveral.

SUCH are, commonly, the methods of cure delivered by Mr Lieutaud, *longiori et forte felicissima praxi edoctus*.

IT would be tedious to enter further into that detail, which a criticism of this immethodical and uninstruative work might lead me into ; but, if the bounds proper for this preface did not prevent me, I would particularly show that the work is far from being free from those reasonings which the author pretends to avoid, and would effect even to despise. He still holds the doctrines of the CONCOCTION and CRITICAL EVACUATION of MORBIFIC MATTER ; doctrines depending upon subtile theories, and which, in my opinion, can in nowise be ascertained as matters of fact. Mr Lieutaud likewise is still very much upon the old plan of following NATURE, and therefore gives often what I consider

der as a feeble and inert practice. The *humectantia*, *diluentia*, *demulcentia*, et *temperantia*, are with him very universal remedies, and often those which alone are to be employed.

THE mention of these medicines might lead me to take notice of Mr Lieutaud's second volume, in which, *ab insula remediorum farragine alienus*, he promises a great reformation upon the subject: But this falls so far short of the idea of British physicians, that I need not make any remarks upon it. With respect to his list of simples, or *Emporetica*, as he is pleased to term them, an English apothecary would smile at it; and with respect to his *officinalia*, I believe they are to be found no where but in the *Codex Medicamentarius* of Paris; and in his *Magistralia* his doses are generally such as the most timid practitioner in this country would hardly descend to, and such as none of our practitioners of experience would depend upon. In short, the whole of the work, both with respect to the theories with which it abounds, and to the facts which it gives, will not, in my apprehension, bear any serious criticism. But I must conclude, and shall only say further, that such as I have

have represented it, is this work, executed by a man of the first rank in the profession. It is indeed for that reason I have chosen it as the example of a work, upon the plan of giving facts only, and of avoiding the study or even the notice of the proximate causes of diseases: And with what advantage such a plan is pursued, I shall leave my readers to consider.

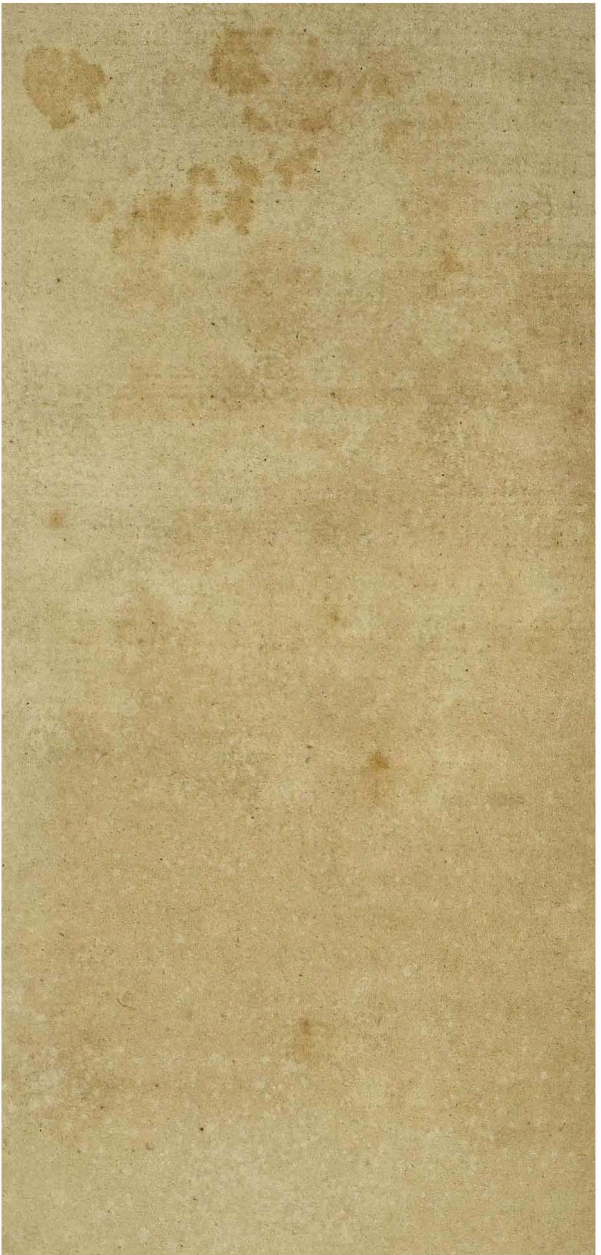
IN the following treatise I have followed a different course. I have endeavoured to collect the facts relative to the diseases of the human body, as fully as the nature of the work and the bounds necessarily prescribed to it would admit: But I have not been satisfied with giving the facts, without endeavouring to apply them to the investigation of proximate causes, and upon these to establish a more scientific and decided method of cure. In aiming at this, I flatter myself that I have avoided hypothesis, and what have been called *theories*. I have, indeed, endeavoured to establish many general doctrines, both physiological and pathological; but I trust that these are only a generalisation of facts, or conclusions from a cautious and full induction: And if any one shall refuse to admit, or directly

ly shall oppose, my general doctrines, he must do it by shewing that I have been deficient or mistaken in assuming and applying facts. I have, myself, been jealous of my being sometimes imperfect in these respects; but I have generally endeavoured to obviate the consequences of this, by proving, that the proximate causes which I have assigned are true in fact, as well as deductions from any reasoning that I may seem to have employed. Further, to obviate any dangerous fallacy in proposing a method of cure, I have always been anxious to suggest that which, to the best of my judgment, appeared to be the method approved of by experience, as much as it was the consequence of system.

UPON this general plan I have endeavoured to form a system of physic that should comprehend the whole of the facts relating to the science, and that will, I hope, collect and arrange them in better order than has been done before, as well as point out in particular those which are still wanting to establish general principles. This which I have attempted, may, like other systems, hereafter suffer a change; but I am confident,

confident, that we are at present in a better train of investigation than physicians were in before the time of Dr Hoffman. The affections of the motions and moving powers of the animal œconomy, must certainly be the leading inquiry in considering the diseases of the human body. The inquiry may be difficult; but it must be attempted, or the subject must be deserted altogether. I have, therefore, assumed the general principles of Hoffman, as laid down in the passage which I have quoted above: And if I have rendered them more correct, and more extensive in their application; and, more particularly, if I have avoided introducing the many hypothetical doctrines of the Humoral Pathology, which disfigured both his and all the other systems which have hitherto prevailed; I hope I shall be excused for attempting a system, which upon the whole may appear new.

EDIN. Nov. 1783.



PART I.

O F P Y R E X I Æ,

OR

F E B R I L E D I S E A S E S.

VOL. I.

D

THE NEW YORK

TO

THE NEW YORK

FIRST LINES

OF THE

PRACTICE OF PHYSIC.

INTRODUCTION.

1. **I**N teaching the PRACTICE of PHYSIC, we endeavour to give instructions for *discerning, distinguishing, preventing,* and *curing* diseases, as they occur in particular persons.

2. The art of DISCERNING and DISTINGUISHING diseases, may be best attained by an accurate and complete observation of their phenomena, as these occur in concurrence and in succession, and by constantly endeavouring to distinguish the peculiar

and inseparable concurrence of symptoms, to establish a METHODOICAL NOSOLOGY, or an arrangement of diseases according to their genera and species, founded upon observation alone, abstracted from all reasoning. Such an arrangement I have attempted in another work, to which, in the course of the present, I shall frequently refer.

3. The PREVENTION of diseases depends upon the knowledge of their remote* causes;

* Remote causes are of two kinds, viz. the predisposing and the exciting, or, as it is sometimes called, the occasional. The predisposing is that which renders the body liable or capable of being affected by disease when the exciting cause is applied. No disease can exist without an occasional cause; yet it is necessary, that, at the same time, the state of the body be such as to admit that cause to take effect, or act. The predisposing cause is inherent in the body; but it may nevertheless be induced or changed by an external cause still more remote. Thus plethora may be the predisposing cause of many diseases, yet that same plethora may be induced

causes; which is partly delivered in the general Pathology, and partly to be delivered in this treatise.

4. The CURE of diseases is chiefly, and almost unavoidably, founded in the knowledge of their proximate* causes. This requires an acquaintance with the Institutions of Medicine; that is, the knowledge of the structure, action, and functions of the human body; of the several changes which it may undergo; and of the several powers by which it can be changed. Our knowledge of these particulars, however, is still incomplete, is in many respects doubtful,

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ful,

induced by various causes previously acting on the body.

The prevention of diseases is to avoid the exciting cause, and to correct that state of the body, which renders it capable of being affected by the exciting cause.

* Proximate causes are those which immediately produce the disease, and whose removal cures the disease.

ful, and has been often involved in mistake and error. The doctrine, therefore, of proximate causes, founded upon that knowledge, must be frequently precarious and uncertain. It is, however, possible for a judicious physician to avoid what is vulgarly called theory, that is, all reasoning founded upon hypothesis, and thereby many of the errors which have formerly taken place in the Institutions of Medicine. It is possible also for a person who has an extensive knowledge of the facts relative to the animal œconomy in health and in sickness, by a cautious and complete induction, to establish many general principles which may guide his reasoning with safety; and while, at the same time, a physician admits, as a foundation of practice, those reasonings only which are simple, obvious, and certain, and for the most part admits, as proximate causes, those alone that are established as matters of fact rather than as deductions of reasoning, he may with great advantage establish a system

stem of practice chiefly founded on the doctrine of proximate causes. But when this cannot be done with sufficient certainty, the judicious and prudent physician will have recourse to EXPERIENCE alone; always, however, aware of the hitherto incomplete and fallacious state of Empiricism.

5. With a strict attention to these considerations in the whole of the following Treatise, I proceed to treat of particular diseases in the order of my Methodical Nosology.

PART I.

OF PYREXIÆ, OR FEBRILE DISEASES.

6. **P**YREXIÆ, or febrile diseases, are distinguished by the following appearances. After beginning with some degree of cold shivering, they shew some increase of heat, and an increased frequency of pulse, with the interruption and disorder of several functions, particularly some diminution of strength in the animal functions.

7. Of these Pyrexia I have formed a class, and have subdivided it into the five orders of FEVERS, INFLAMMATIONS, ERUPTIONS, HEMORRHAGIES, and FLUXES. See Synopsis Nosologæ Methodicæ, Edit. 3. 1780.

BOOK

B O O K I.
O F F E V E R S.

C H A P. I.

OF THE PHENOMENA OF FEVERS.

8. **T**HOSE diseases are more strictly called FEVERS, which have the general symptoms of pyrexia, without having alongſt with them any topical affection that is eſſential and primary, ſuch as the other orders of the Pyrexiaæ always have.

9. Fevers, as differing in the number and variety of their ſymptoms, have been very properly conſidered as of diſtinct genera and ſpecies. But we ſuppoſe, that
there

there are certain circumstances in common to all the diseases comprehended under this order, which are therefore those essentially necessary to, and properly constituting the nature of fever. It is our business especially, and in the first place, to investigate these; and I expect to find them as they occur in the paroxysm or fit of an intermittent fever, as this is most commonly formed.

10. The phenomena to be observed in such a paroxysm are the following: The person is affected, first with a languor or sense of debility, a sluggishness in motion, and some uneasiness in exerting it, with frequent yawning and stretching. At the same time, the face and extremities become pale; the features shrink; the bulk of every external part is diminished; and the skin, over the whole body, appears constricted, as if cold had been applied to it. At the coming on of these symptoms, some coldness of the extremities, though little
taken

taken notice of by the patient, may be perceived by another person. At length the patient himself feels a sensation of cold, commonly first in his back, but, from thence, passing over the whole body; and now his skin feels warm to another person. The patient's sense of cold increasing, produces a tremor in all his limbs, with frequent succussions or rigors of the trunk of the body. When this sense of cold, and its effects, have continued for some time, they become less violent, and are alternated with warm flushings. By degrees, the cold goes off entirely; and a heat, greater than natural, prevails, and continues over the whole body. With this heat, the colour of the skin returns, and a preternatural redness appears, especially in the face. Whilst the heat and redness come on, the skin is relaxed and smoothed, but, for some time, continues dry. The features of the face, and other parts of the body, recover their usual size, and become even more turgid. When the heat, redness, and turgescence

gence have increased and continued for some time, a moisture appears upon the forehead, and by degrees becomes a sweat, which gradually extends downwards over the whole body. As this sweat continues to flow, the heat of the body abates; the sweat, after continuing some time, gradually ceases; the body returns to its usual temperature; and most of the functions are restored to their ordinary state*.

11. This series of appearances gives occasion to divide the paroxysm into three different stages, which are called the COLD, the HOT, and the SWEATING STAGES or *Fits*.

In the course of these, considerable changes happen in the state of several other functions, which are now to be mentioned.

12.

* This description of a paroxysm is truly admirable. The symptoms are most accurately described, and the order of their succession most strictly attended to by the author.

12. Upon the first approach of languor, the pulse becomes sometimes slower, and always weaker than before. As the sense of cold comes on, the pulse becomes smaller, very frequent, and often irregular. As the cold abates, and the heat comes on, the pulse becomes more regular, hard, and full; and, in these respects, increases till the sweat breaks out. As the sweat flows, the pulse becomes softer and less frequent, till, the sweat ceasing altogether, it returns to its usual state.

13. The respiration also suffers some changes. During the cold stage, the respiration is small, frequent, and anxious, and is sometimes attended with a cough: As the hot stage comes on, the respiration becomes fuller and more free; but continues still frequent and anxious, till the flowing of the sweat relieves the anxiety, and renders the breathing less frequent and more free. With the ceasing of the sweat, the breathing returns to its ordinary state.

14. The natural functions also suffer a change. Upon the approach of the cold stage, the appetite for food ceases, and does not return till the paroxysm be over, or the sweat has flowed for some time. Generally, during the whole of the paroxysm, there is not only a want of appetite, but an aversion from all solid, and especially animal food. As the cold stage advances, there frequently comes on a sickness and nausea, which often increases to a vomiting of a matter that is for the most part bilious. This vomiting commonly puts an end to the cold stage, and brings on the hot. As the hot stage advances, the nausea and vomiting abate; and when the sweat breaks out, they generally cease altogether.

15. A considerable degree of thirst is commonly felt during the whole course of the paroxysm. During the cold stage, the thirst seems to arise from the dryness and clammyness of the mouth and fauces, but, during the hot stage, from the heat which
then

then prevails over the whole body; and, as the sweat flows, the mouth becomes moister, and the thirst, together with the heat, gradually abates*.

16. In the course of a paroxysm, there is often a considerable change in the state of the secretions. The circumstances just now mentioned shew it in the secretion of the saliva and mucus of the mouth; and it is still more remarkable with respect to the urine. During the cold stage, the urine is almost colourless, and without cloud or sediment. In the hot stage, it becomes high coloured, but is still without sediment.

After

* The thirst in the cold and hot stages of the paroxysm seems to be a provident design of nature, and has been held forth as an argument for the existence of the *vis medicatrix naturæ*. The paroxysm concludes with a profuse sweat; the production of this sweat requires an additional quantity of fluidity; and nature, by means of the thirst, seems anxious to supply the quantity of fluid matter necessary for the perspiration that is requisite to remove the disease.

After the sweat has flowed freely, the urine deposits a sediment commonly lateritious, and continues to do so for some time after the paroxysm is over.

17. Excepting in certain uncommon cases, which are attended throughout with a diarrhœa, stools seldom occur till towards the end of a paroxysm, when commonly a stool happens, and which is generally of a loose kind *.

18.

* The author's expression is here somewhat awkward; the meaning of the passage is, that stools seldom occur in the two first stages of a paroxysm, except in peculiar cases attended with diarrhœa; and if a stool happens about the end of the paroxysm, it is generally of a loose kind.

A spontaneous diarrhœa always increases the violence of the symptoms, and the obstinacy of the disease. Hence the absurd practice of prescribing purges in agues, which never fail to exacerbate the paroxysms, and prolong their continuance. If any uneasiness arises from accumulated feces in the colon or rectum, they may be removed by emolient glysters.

18. Analogous to these changes in the state of the secretions, it frequently happens, that the tumours subsisting on the surface of the body suffer, during the cold stage of fevers, a sudden and considerable detumescence ; but generally, though not always, the tumours return to their former size during the sweating stage. In like manner, ulcers are sometimes dried up during the cold stage, and return again to discharge matter during the sweating stage, or after the paroxysm is over.

19. Certain changes appear also in sensation and thought. During the cold stage, the sensibility is often greatly impaired ; but when the hot stage is formed, the sensibility is recovered, and often considerably increased.

20. With respect to the intellectual functions, when the cold stage comes on, attention and recollection become difficult, and continue more or less so during the

whole paroxysm. Hence some confusion of thought takes place, and often arises to a delirium, which sometimes comes on at the beginning of the cold stage, but more frequently not till the hot stage be formed.

21. It belongs also to this place to remark, that the cold stage sometimes comes on with a drowsiness and stupor, which often increase to a degree that may be called comatose or apoplectic.

22. We have still to add, that sometimes, early in the cold stage, a headach comes on; but which, more commonly, is not felt till the hot stage be formed, and then is usually attended with a throbbing of the temples. The headach continues till the sweat breaks out; but as this flows more freely, that gradually goes off. At the same time with the headach, there are commonly pains of the back, and of some of the great joints; and these pains have the same course with the headach.

23. These are nearly the whole, and are at least the chief of the phenomena which more constantly appear in the paroxysm of an intermittent fever ; and we have pointed out their ordinary concourse and succession. With respect to the whole of them, however, it is to be observed, that, in different cases, the several phenomena are in different degrees ; that the series of them is more or less complete ; and that the several parts or stages, in the time they occupy, are in a different proportion to one another.

24. It is very seldom that a fever consists of a single paroxysm, such as we have now described ; and it more generally happens, after a certain length of time has elapsed from the ceasing of the paroxysm, that the same series of phenomena again arises, and observes the same course as before ; and these states of FEVER and APYREXIA often continue to alternate with one another for many times. In such cases, the

length of time from the end of one paroxysm to the beginning of another, is called an INTERMISSION ; and the length of time from the beginning of one paroxysm to the beginning of another next succeeding, is called an INTERVAL.

25. When the disease consists of a number of paroxysms, it is generally to be observed, that the intervals between them are nearly equal ; but these intervals are of different lengths in different cases. The most usual interval is that of forty-eight hours, which is named the TERTIAN period. The next most common is that of seventy-two hours, and is named the QUARTAN period. Some other intervals also are observed, particularly one of twenty-four hours, named therefore the QUOTIDIAN ; and the appearance of this is pretty frequent. But all other intervals longer than that of the quartan are extremely rare, and probably

bly are only irregularities of the tertian or quartan periods *.

26. The paroxysms of pure intermittent fevers are always finished in less than twenty-four hours; and though it happens that there are fevers which consist of repeated paroxysms, without any entire intermission between them; yet in such cases it is observed, that though the hot and sweating stages of the paroxysm do not entirely

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cease

* Of the quotidian, tertian, and quartan intermittents there are many varieties and forms; as, The double tertian, having a paroxysm every day, with the alternate paroxysms similar to one another. The double tertian, with two paroxysms every other day. The triple tertian, with two paroxysms on one day, and another on the next. The double quartan, with two paroxysms on the first day, none on the second and third, and two again on the fourth day. The double quartan, with a paroxysm on the first day, another on the second, but none on the third. The triple quartan, with three paroxysms every fourth day. The triple quartan, with a paroxysm every day, every fourth paroxysm being similar.

cease before the twenty-four hours from their beginning have expired, they suffer, however, before that time, a considerable abatement or REMISSION of their violence; and, at the return of the quotidian period, a paroxysm is in some shape renewed, which runs the same course as before. This constitutes what is called a REMITTENT FEVER.

27. When in these remittents the remission is considerable, and the return of a new paroxysm is distinctly marked by the symptoms of a cold stage at the beginning of it, such fevers retain strictly the appellation of REMITTENTS. But when it happens, as it does in certain cases, that the remission is not considerable, is perhaps without sweat, and that the returning paroxysm is not marked by the most usual symptoms of a cold stage, but chiefly by the aggravation or EXACERBATION of a hot stage, the disease is called a CONTINUED FEVER.

28. In some cases of continued fever, the remissions and exacerbations are so inconsiderable as not to be easily observed or distinguished; and this has led physicians to imagine, that there is a species of fever subsisting for several days together, and seemingly consisting of one paroxysm only. This they have called a CONTINENT FEVER; but, in a long course of practice, I have not had an opportunity of observing such a fever.

29. It is, however, to be observed here, that the fevers of a continued form are to be distinguished from one another; and that, while some of a very continued form do still belong to the section of intermittents, there are others which, though still consisting of separate and repeated paroxysms, yet, as different by their causes and circumstances from intermittents, are to be distinguished from the whole of these, and are more strictly to be called and considered

as CONTINUED *. Such are most of those which have been commonly supposed to be CONTINENT; and those which by most writers have been simply named CONTINUED, and which term I have employed as the title of a section, to be distinguished from that of INTERMITTENT.

I shall here add the marks by which, in practice, these different continued fevers may be distinguished from one another.

Those fevers of a continued form, which, however, still belong to the section of intermittents, may be distinguished by their having passed from an intermittent or remittent form, to that of a continued; by their shewing some tendency to become intermittent, or at least remittent; by their being known to have been occasioned by marsh

* This passage is very obscure: The author's meaning is, that some continued fevers put on the appearance of intermittents; but, being different, in some peculiar and material circumstances, from intermittents, are not to be classed with them.

marsh miasmata ; and, for the most part, by their having but one paroxysm, or one exacerbation and remission, in the course of twenty-four hours.

On the other hand, Continued Fevers, to be more strictly so called, may be distinguished by their shewing little tendency to become intermittent or remittent in any part of their course, and especially after the first week of their continuance ; by their being occasioned by human contagion, at least by other causes than the marsh miasmata ; and by their having pretty constantly an exacerbation and remission twice in the course of every twenty-four hours. In both cases, the knowledge of the nature of the epidemic for the time prevailing, may have a great share in determining the nature of the particular fever.

30. With respect to the form, or TYPE, of fevers, this further may be observed, That the quartan, while it has the longest
inter-

interval, has, at the same time, the longest and most violent cold stage ; but, upon the whole, the shortest paroxysm : That the tertian, having a shorter interval than the quartan, has, at the same time, a shorter and less violent cold stage ; but a longer paroxysm : And lastly, that the quotidian, with the shortest interval, has the least of a cold stage, but the longest paroxysm.

31. The type of fevers is sometimes changed in their course. When this happens, it is generally in the following manner : Both tertians and quartans change into quotidians, quotidians into remittents, and these last become often of the most continued kind. In all these cases, the fever has its paroxysms protracted longer than usual, before it changes into a type of more frequent repetition.

32. From all this a presumption arises, that every fever consists of repeated paroxysms, differing from others chiefly in the
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circumstances and repetition of the paroxysms; and, therefore, that it was allowable for us to take the paroxysm of a pure intermittent as an example and model of the whole.

C H A P.

CHAP. II.

OF THE PROXIMATE CAUSE OF FEVER.

33. **T**HE proximate cause * of fever seems hitherto to have eluded the research of physicians ; and I shall not pretend to ascertain it in a manner that may remove

* The author, in this chapter, delivers his favourite doctrine of universal spasm. It is by no means new, as he himself confesses in the preface, but borrowed from Hoffman. The author, however, greatly improved the original idea, and brought the system to a greater degree of perfection than it had before. That there are weighty objections against it cannot, indeed, be denied ; it contains, however, much ingenuity ; and Dr Cullen, by introducing it into this University, raised his name high in the annals of medical fame.

remove every difficulty ; but I shall endeavour to make an approach towards it, and such as I hope may be of use in conducting the practice in this disease : While at the same time I hope to avoid several errors which have formerly prevailed on this subject.

34. As the hot stage of fever is so constantly preceded by a cold stage, we presume that the latter is the cause of the former ; and, therefore, that the cause of the cold stage is the cause of all that follows in the course of the paroxysm. See Boerh. Aph. 756.

35. To discover the cause of the cold stage of fevers, we may observe, that it is always preceded by strong marks of general debility prevailing in the system. The smallness and weakness of the pulse, the paleness and coldness of the extreme parts, with the shrinking of the whole body, sufficiently shew, that the action of the heart
and

and larger arteries is, for the time, extremely weakened. Together with this, the languor, inactivity, and debility of the animal motions, the imperfect sensations, the feeling of cold, while the body is truly warm, and some other symptoms, all shew that the energy of the brain is, on this occasion, greatly weakened; and I presume, that, as the weakness of the action of the heart can hardly be imputed to any other cause, this weakness also is a proof of the diminished energy of the brain.

36. I shall hereafter endeavour to shew, that the most noted of the remote causes of fever, as contagion, miasmata, cold, and fear, are of a sedative nature, and therefore render it probable that a debility is induced. Likewise, when the paroxysms of a fever have ceased to be repeated, they may again be renewed, and are most commonly renewed by the application of debilitating powers.

powers *. And, further, the debility which subsists in the animal motions and other functions through the whole of the fever, renders it pretty certain that sedative or debilitating powers have been applied to the body.

37. 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; and as these three states regularly and constantly succeed each other in the order we have mentioned them, it is presumed that they are in the series of cause and effect with respect to one another. This we hold as a matter of fact, even although we should not be able to explain in what manner, or by what mechanical means,

* A purge administered six or seven days after the appearance of any paroxysm, has frequently occasioned a relapse, and is a practice that ought to be carefully avoided. I have generally found that purges given in the beginning of the disease, increase the difficulty of curing it.

means, these states severally produce each other.

38. How the state of debility produces some of the symptoms of the cold stage, may perhaps be readily explained; but how it produces all of them, I cannot explain otherwise than by referring the matter to a general law of the animal œconomy, 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 seems probable, that many of the motions excited in fever are the effects of this power.

39. That the increased action of the heart and arteries, which takes place in the hot stage of fevers, is to be considered as an effort of the *vis medicatrix naturæ*, has been long a common opinion among physicians; and

and I am disposed to assert, that some part of the cold stage may be imputed to the same power. I judge so, because the cold stage appears to be universally a means of producing the hot ; because cold externally applied has very often similar effects; and more certainly still, because 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 complete solution and longer intermission. See 30.

40. It is to be particularly observed, that, during the cold stage of fever, there seems to be a spasm induced every where on the extremities of the arteries, and more especially of those upon the surface of the body. This appears from the suppression of all excretions, and from the shrinking of the external 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 symp-

toms 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 formerly constricted. Hoffman. Med. rat. System. Tom. 4. p. 1. sect. 1. cap. 1. art. 4.

41. The idea of fever, then, may be, that a spasm of the extreme vessels, however induced, proves an irritation to the heart and arteries ; and that this continues till the spasm is relaxed or overcome. There are many appearances which support this opinion ; and there is little doubt that a spasm does take place, which proves an irritation to the heart, and therefore may be considered as a principal part in the proximate cause of fever. It will still, however, remain a question, what is the cause of this spasm ; whether it be directly produced

produced by the remote causes of fever, or if it be only a part of the operation of the *vis medicatrix naturæ*.

42. I am disposed to be of the latter opinion, because, in the *first* place, while it remains still certain that a debility lays the foundation of fever, it is not obvious in what manner the debility produces the spasm, and, what seems to be its effect, the increased action of the heart and arteries; and, *secondly*, because, in almost all the cases in which an effort is made by the *vis medicatrix naturæ*, a cold fit and a spasm of the extreme vessels are almost always the beginning of such an effort. See Gaub. Pathol. Medicin. art. 750.

43. It is therefore presumed, that such a cold fit and spasm at the beginning of fever, is a part of the operation of the *vis medicatrix*; but, at the same time, it seems to me probable, that during the whole course of the fever, there is an atony sub-

sisting in the extreme vessels, and that the relaxation of the spasm requires the restoring of the tone and action of these.

44. This it may be difficult to explain; but I think it may be ascertained as a fact, by the consideration of the symptoms which take place with respect to the functions of the stomach in fevers, such as the anorexia, nausea, and vomiting, (14.)

From many circumstances it is sufficiently certain, that there is a consent between the stomach and surface of the body; and in all cases of the consent of distant parts, it is presumed to be by the connection of the nervous system, and that the consent which appears is between the sentient and moving fibres of the one part with those of the other; is such, that a certain condition prevailing in the one part occasions a similar condition in the other.

In the case of the stomach and surface of the body, the consent particularly appears by the connection which is observed
between

between the state of the perspiration and the state of the appetite in healthy persons; and if it may be presumed that the appetite depends upon the state of tone in the muscular fibres of the stomach, it will follow, that the connection of appetite and perspiration depends upon a consent between the muscular fibres of the stomach, and the muscular fibres of the extreme vessels, or of the organ of perspiration on the surface of the body.

It is further in proof of the connection between the appetite and perspiration, and at the same time of the circumstances on which it depends, that cold applied to the surface of the body, when it does not stop perspiration, but proves a stimulus to it, is always a powerful means of exciting appetite.

Having thus established the connection or consent mentioned, we argue, that as the symptoms of anorexia, nausea, and vomiting, in many cases, manifestly depend upon a state of debility or loss of tone in

the muscular fibres of the stomach ; so it may be presumed, that these symptoms, in the beginning of fever, depend upon an atony communicated to the muscular fibres, of the stomach from the muscular fibres of the extreme vessels on the surface of the body.

That the debility of the stomach which produces vomiting in the beginning of fevers actually depends upon an atony of the extreme vessels on the surface of the body, appears particularly from a fact observed by Dr Sydenham. In the attack of the plague, a vomiting happens, which prevents any medicine from remaining on the stomach : And Dr Sydenham tells us, that in such cases he could not overcome this vomiting but by external means applied to produce a sweat ; that is, to excite the action of the vessels on the surface of the body.

The same connection between the state of the stomach and that of the extreme vessels on the surface of the body, appears from

from this also, that the vomiting, which so frequently happens in the cold stage of fevers, commonly ceases upon the coming on of the hot, and very certainly upon any sweat's coming out, (14). It is indeed probable, that the vomiting in the cold stage of fevers, is one of the means employed by nature for restoring the determination to the surface of the body; and it is a circumstance affording proof, both of this, and of the general connection between the stomach and surface of the body, that emetics thrown into the stomach, and operating there, in the time of the cold stage, commonly put an end to it, and bring on the hot stage.

It also affords a proof of the same connection, that cold water taken into the stomach produces an increase of heat on the surface of the body, and is very often a convenient and effectual means of producing sweat.

From the whole we have now said on this subject, I think it is sufficiently proba-

ble, that the symptoms of anorexia, nausea, and vomiting, depend upon, and are a proof of, an atony subsisting in the extreme vessels on the surface of the body; and that this atony, therefore, now ascertained as a matter of fact, may be considered as a principal circumstance in the proximate cause of fever.

45. This atony* we suppose to depend upon a diminution of the energy of the brain; and that this diminution takes place in fevers, we conclude, not only from the debility prevailing in so many of the functions of the body, mentioned above, (35), but particularly from symptoms which are peculiar to the brain itself. Delirium is a frequent symptom of fever: And as from the physiology and pathology we learn, that this symptom commonly depends upon
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* The reader will perceive, that the whole of the doctrine delivered in this chapter is hypothetical.

some inequality in the excitement of the brain or intellectual organ ; we hence conclude, that, in fever, it denotes some diminution in the energy of the brain. Delirium, indeed, seems often to depend upon an increased impetus of the blood in the vessels of the brain, and therefore attends phrenitis. It frequently appears also in the hot stage of fevers, accompanied with a headach and throbbing of the temples. But as the impetus of the blood in the vessels of the head is often considerably increased by exercise, external heat, passions, and other causes, without occasioning any delirium ; so, supposing that the same impetus, in the case of fever, produces delirium, the reason must be, that at the same time there is some cause which diminishes the energy of the brain, and prevents a free communication between the parts concerned in the intellectual functions. Upon the same principles, also, I suppose there is another species of delirium, depending more entirely on the diminished energy of the brain,

brain, and which may therefore arise when there is no unusual increase of the impetus of the blood in the vessels of the brain. Such seems to be the delirium occurring at the beginning of the cold stage of fevers, or in the hot stage of such fevers as shew strong marks of debility in the whole system.

46. Upon the whole, our doctrine of fever is explicitly this : The remote causes (36.) are certain sedative powers applied to the nervous system, which, diminishing the energy of the brain, thereby produce a debility in the whole of the functions, (35.) and particularly in the action of the extreme vessels, (43. 44.). Such, however, is, at the same time, the nature of the animal œconomy, (38.) that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage, and spasm connected with it, (39. 40.) the action of the heart and larger arteries is increased, (40.) and
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continues so (41.) till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially overcoming the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place.

47. This doctrine will, as I suppose, serve to explain not only the nature of fever in general, but also the various cases of it which occur. Before proceeding, however, to this, it may be proper to point out the opinions, and, as I apprehend, the mistakes, which have formerly prevailed on this subject.

48. It has been supposed, that a lentor or viscosity prevailing in the mass of blood, and stagnating in the extreme vessels, is the cause of the cold stage of fevers and its consequences. But there is no evidence of
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of any such viscidities previously subsisting in the fluids; and, as it is very improbable that such a state of them can be very quickly produced, so the suddenness with which paroxysms come on renders it more likely that the phenomena depend upon some cause acting upon the nervous system, or the primary moving powers of the animal œconomy. See Van Swieten apud Boerh. Aph. 755.

49. Another opinion, which has been almost universally received, is, that a noxious matter introduced into, or generated in, the body, is the proximate cause of fever; and that the increased action of the heart and arteries, which form so great a part of the disease, is an effort of the *vis medicatrix nature* to expel this morbid matter; and particularly to change or concoct it, so as to render it either altogether innocent, or, at least, fit for being more easily thrown out of the body. This doctrine, however, although of as great antiquity as any of the records

records of phyfic now remaining, and although it has been received by almost every school of medicine, yet appears to me to reft upon a very uncertain foundation. There are fevers produced by cold, fear, and other caufes, accompanied with all the effential circumftances of fever, and terminating by fweat; but, at the fame time, without any evidence or fufpicion of morbid matter.

There have been fevers fuddenly cured by a hemorrhagy, fo moderate as could not carry out any confiderable portion of a matter diffufed over the whole mafs of blood; nor can we conceive how the morbid matter could be collected or determined to pafs by fuch an outlet as in that cafe is opened.

Even fupposing a morbid matter were prefent, there is no explanation given in what manner the concoction of it is performed; nor is it fhewn that any fuch change does in fact take place. In certain cafes it is indeed evident, that a noxious
matter

matter is introduced into the body, and proves the cause of fever: But, even in these cases, it appears that the noxious matter is thrown out again, without having suffered any change; that the fever often terminates before the matter is expelled; and that, upon many occasions, without waiting the supposed time of concoction, the fever can be cured, and that by remedies which do not seem to operate upon the fluids, or to produce any evacuation.

50. While we thus reason against the notion of fever being an effort of nature, for concocting and expelling a morbid matter, I by no means intend to deny that the cause of fever frequently operates upon the fluids, and particularly produces a putrescent state of them. I acknowledge that this is frequently the case: But, at the same time, I maintain, that such a change of the fluids is not commonly the cause of fever; that very often it is an effect only; and that there is no reason to believe

believe the termination of the fever to depend upon the expulsion of the putrid matter.

51. Another opinion which has prevailed, remains still to be mentioned. In intermittent fevers, a great quantity of bile is commonly thrown out by vomiting; and this is so frequently the case, that many have supposed an unusual quantity of bile, and perhaps a peculiar quality of it, to be the cause of intermittent fevers. This, however, does not appear to be well founded. Vomiting, by whatever means excited, if often repeated, with violent straining, seems to be powerful in emulging the biliary ducts, and commonly throws out a great deal of bile. This will happen especially in the case of intermittent fevers: For, as in the state of debility and cold stage of these fevers, the blood is not propelled in the usual quantity into the extreme vessels, and particularly into those on the surface of the body, but is accu-
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culated in the vessels of the internal parts, and particularly in the vena portarum; so this may occasion a more copious secretion of bile.

These considerations will, in some measure, account for the appearance of an unusual quantity of bile in intermittent fevers; but the circumstance which chiefly occasions the appearance of bile in these cases, is the influence of warm climates and seasons. These seldom fail to produce a state of the human body, in which the bile is disposed to pass off, by its secretories, in greater quantity than usual; and perhaps also changed in its quality, as appears from the disease of cholera, which so frequently occurs in warm seasons. At the same time, this disease occurs often without fever; and we shall hereafter render it sufficiently probable, that intermittent fevers, for the most part, arise from another cause, that is, from marsh effluvia; while, on the other hand, there is no evidence of their arising from the state of the
bile

bile alone. The marsh effluvia, however, commonly operate most powerfully in the same season that produces the change and redundance of the bile; and therefore, considering the vomiting, and other circumstances of the intermittent fevers which here concur, it is not surprising that autumnal intermittents are so often attended with effusions of bile.

This view of the subject does not lead us to consider the state of the bile as the cause of intermittents, but merely as a circumstance accidentally concurring with them, from the state of the season in which they arise. What attention this requires in the conduct of the disease, I shall consider hereafter.

52. From this view of the principal hypotheses which have hitherto been maintained with respect to the proximate cause of fever, it will appear, that fevers do not arise from changes in the state of the fluids; but that, on the contrary, almost the whole

of the phenomena of fevers lead us to believe, that they chiefly depend upon changes in the state of the moving powers of the animal system. Though we should not be able to explain all the circumstances of the disease, it is at least of some advantage to be led into the proper train of investigation. I have attempted to pursue it, and shall now endeavour to apply the doctrine already delivered, towards explaining the diversity of fevers.

CHAP.

C H A P. III.

O F T H E D I F F E R E N C E O F F E V E R S A N D
I T S C A U S E S.

53. **T**O ascertain the difference of fevers,
I think it necessary to observe,
in the first place, that every fever of more
than one day's duration, consists of repeated,
and in some measure separate, paroxysms;
and that the difference of fevers taken notice of
above (from 25. to 30.) appears to consist in the
different state of paroxysms, and in the different
circumstances of their repetition.

54. That fevers generally consist of distinct,
and, in some measure, separately repeated,

peated, paroxysms, I have alleged above to be a matter of fact; but I shall here endeavour to confirm it, by assigning the cause.

55. In every fever, in which we can distinctly observe any number of separate paroxysms, we constantly find that each paroxysm is finished in less than twenty-four hours; but as I cannot perceive any thing in the cause of fevers determining to this, I must presume it to depend on some general law* of the animal œconomy. Such a law seems to be that which subjects the œconomy, in many respects, to a diurnal revolution. Whether this depends upon the original conformation of the body, or upon certain powers constantly applied to it, and inducing a habit, I cannot positively determine: But the returns of sleep and

* The reader will find entertainment in admiring the ingenuity of the author, in contriving several artifices for maintaining his doctrine. One hypothesis piled on the top of another, almost without end.

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

56. It is this diurnal revolution, which, I suppose, determines the duration of the paroxysms of fevers; and the constant and universal limitation of these paroxysms, (as observed in 55.) while no other cause of it can be assigned, renders it sufficiently probable that their duration depends upon, and is determined by, the revolution mentioned. And that these paroxysms are connected with that diurnal revolution, appears further from this, that though the intervals of paroxysms are different in different cases, yet the times of the accession of paroxysms are generally fixed to one time of the day; so that quotidians come on in the morning, tertians at noon, and quartans in the afternoon.

57. It remains to be remarked, that as quartans and tertians are apt to become quotidians, these to pass into the state of remittents, and these last to become continued; and that even in the continued form, daily exacerbations and remissions are generally to be observed: So all this shews so much the power of diurnal revolution, that when, in certain cases, the daily exacerbations and remissions are with difficulty distinguished, we may still presume, that the general tendency of the œconomy prevails, that the disease still consists of repeated paroxysms, and, upon the whole, that there is no such disease as that which the schools have called a continued fever. I expect that this doctrine will be confirmed by what I shall say hereafter concerning the periodical movements observed in continued fevers.

58. It being thus proved, that every fever, of more than one day's duration, consists of repeated paroxysms; we, in the
next

next place, remark, that the repetition of paroxysms depends upon the circumstances of the paroxysms which have already taken place. From what was observed in 30. and 31. it appears, that the longer paroxysms are protracted, they are the sooner repeated ; and, therefore, that the cause of the frequent repetition is to be sought for in the cause of the protraction of paroxysms.

59. Agreeable to what is laid down in 46. and to the opinion of most part of physicians, I suppose, that, in every fever, there is a power applied to the body, which has a tendency to hurt and destroy it, and produces in it certain motions which deviate from the natural state ; and, at the same time, in every fever which has its full course, I suppose, that, in consequence of the constitution of the animal œconomy, there are certain motions excited, which have a tendency to obviate the effects of the noxious power, or to correct and re-

move them. Both these kinds of motion are considered as constituting the disease.

But the former is perhaps strictly the morbid state, while the latter is to be considered as the operation of the *vis mediatric nature*, of salutary tendency, and which I shall hereafter call the REACTION of the system.

60. Upon the supposition that these two states take place in every paroxysm of fever, it will appear to be chiefly in the time of the hot stage that the reaction operates in removing the morbid state; and therefore, as this operation succeeds more or less quickly, the hot stage of paroxysms will be shorter or longer. But as the length of paroxysm depends chiefly upon the duration of the hot stage, so the longer duration of this and of paroxysms, must be owing either to the obstinacy of resistance in the morbid state, or to the weakness of the salutary reaction; and it is probable
that

that sometimes the one and sometimes the other of these circumstances takes place.

61. It seems to be only by the state of the spasm, that we can judge of the resistance of the morbid state of fever: And with respect to this spasm I observe, that either the cause exciting it may be different in different cases; or, though the cause should be the same in different persons, the different degree of irritability in each may give occasion to a greater or lesser degree of spasm; and therefore, the reaction in fever being given, the continuance of the hot stage, and of the whole paroxysm, may be longer or shorter, according to the degree of spasm that has been formed.

62. One cause of the obstinacy of spasm in fevers may be clearly perceived. In inflammatory diseases, there is a diathesis phlogistica prevailing in the body, and this diathesis we suppose to consist in an increased tone of the whole arterial system. When,

When, therefore, this diathesis accompanies fever, as it sometimes does, it may be supposed to give occasion to the febrile spasm's being formed more strongly, and thereby to produce more protracted paroxysms. Accordingly we find, that all inflammatory fevers are of the continued kind; and that all the causes of the diathesis phlogistica have a tendency to change intermittent into continued fevers. Continued fevers, then, being often attended with the diathesis phlogistica, we conclude, that, in many cases, this is the cause of their continued form.

63. In many fevers, however, there is no evidence of any diathesis phlogistica being present, nor of any other cause of more considerable spasm; and, in such cases, therefore, we must impute the protraction of paroxysms, and the continued form of the fever, to the weakness of reaction. That this cause takes place, we conclude from hence, that, in many cases of fever, wherein

wherein the separate paroxysms are the longest protracted, and the most difficultly observed, we find the most considerable symptoms of a general debility: And therefore we infer, that, in such cases, the protracted paroxysms, and continued form, depend upon a weaker reaction; owing either to the causes of debility applied having been of a more powerful kind, or from circumstances of the patient's constitution favouring their operation.

64. Upon these principles we make a step towards explaining in general, with some probability, the difference of fevers; but must own, that there is much doubt and difficulty in applying the doctrine to particular cases. It applies tolerable well to explain the different states of intermittents, as they are more purely such, or as they approach more and more to the continued form: But several difficulties still remain with respect to many circumstances of intermittents; and more still with respect

spect to the difference of those continued fevers, which we have distinguished in our Nosology as different from intermittents, and as more especially intitled to the appellation of Continued, (see Syn. Nos. Meth. part 5. ch. 1. sect. 2.), and explained more fully above.

65. From the view given (63. and 64.) of the causes of the protraction of paroxysms, and therefore of the form of continued fevers, strictly so called, it seems probable, that the remote causes of these operate by occasioning either a phlogistic diathesis, or a weaker reaction; for we can observe, that the most obvious difference of continued fevers depends upon the prevalence of one or other of these states.

66. Continued fevers have been accounted of great diversity; but physicians have not been successful in marking these differences, or in reducing them to any general heads. The distinctions made by the ancients are not well understood; and, so far

as either they or the modern nosologists have distinguished continued fevers by a difference of duration, their distinctions are not well founded, and do not apply in such a manner as to be of any use. We think it agreeable to observation, and to the principles above laid down, (63. 64.) to distinguish continued fevers according as they shew either an inflammatory irritation, or a weaker reaction.

67. This distinction is the same with that of fevers into the INFLAMMATORY and NERVOUS; the distinction at present most generally received in Britain. To the first, as a genus, I have given the name of Synocha; to the second, that of Typhus; and, little studious whether these names be authorised by the ancient use of the same terms, I depend upon their being understood by the characters* annexed

* These characters are,

Synocha. Calor plurimum auctus; pulsus frequens,
validus,

nexed to them in our Nosology, which I apprehend to be founded on observation.

68. By these characters I think continued fevers may in practice be distinguished; and if that be the case, the principles above laid down will be confirmed.

69. Beside these differences of continued fever, now mentioned, I am not certain of having observed any other that can be considered as fundamental. But the most common form of continued fevers, in this climate, seems to be a combination of these two genera; and I have therefore given such a genus a place in our Nosology, under the title of Synochus. At the same time, I think that the limits between the
Synochus

validus, et durus; urina rubra; sensorii functiones parum turbatae.

Typhus. Morbus contagiosus; calor parum auctus; pulsus parvus, debilis, plerumque frequens; urina parum mutata; sensorii functiones plurimum turbatae; vires multum imminutae.

Synochus and Typhus will be with difficulty assigned; and I am disposed to believe, that the Synochus arises from the same causes as the Typhus, and is therefore only a variety of it.

70. The Typhus seems to be a genus comprehending several species. These, however, are not yet well ascertained by observation; and in the mean time we can perceive that many of the different cases observed do not imply any specific difference, but seem to be merely varieties, arising from a different degree of power in the cause, from different circumstances of the climate or season in which they happen, or from different circumstances in the constitution of the persons affected.

71. Some of the effects arising from these circumstances require to be particularly explained.

One is, an unusual quantity of bile appearing in the course of the disease. This
abundance

abundance of bile may possibly attend some continued fevers, strictly so called; but, for the reasons above explained, it more commonly attends intermittents, and, we believe, it might have been enumerated (29.) among the marks distinguishing the latter kind of fevers from the former. But, though an unusual quantity of bile should appear with continued fevers, it is considered in this case, as in that of intermittents, to be a coincidence only, owing to the state of the season, and producing no different species or fundamental distinction, but merely a variety of the disease. I think it proper to observe here, that it is probable that the most part of the continued fevers named Bilious, have been truly such as belong to the section of Intermittents.

72. Another effect of the circumstances occasionally varying the appearance of typhus, is a putrescent state of the fluids. The ancients, and likewise the moderns, who are in

in general much disposed to follow the former, have distinguished fevers as putrid and non-putrid: But the notions of the antients on this subject were not sufficiently correct to deserve much notice; and it is only of late that the matter has been more accurately observed, and better explained.

From the dissolved state of the blood, as it presents itself when drawn out of the veins, or as it appears from the red blood's being disposed to be effused and run off by various outlets, and from several other symptoms to be hereafter mentioned, I have now no doubt, how much soever it has been disputed by some ingenious men, that a putrescency of the fluids to a certain degree does really take place in many cases of fever. This putrescency, however, often attends intermittent, as well as continued fevers; and, of the continued kind, both the synochus and typhus, and all of them in very different degrees; so that, whatever attention it may deserve in practice, there is no fixing such limits to it as

to admit of establishing a species under the title of PUTRID.

73. Beside differing by the circumstances already mentioned, fevers differ also by their being accompanied with symptoms which belong to diseases of the other orders of pyrexia. This sometimes happens in such a manner, as to render it difficult to determine which of the two is the primary disease. Commonly, however, it may be ascertained by the knowledge of the remote cause, and of the prevailing epidemic, or by observing the series and succession of symptoms.

74. Most of our systems of physic have marked, as a primary one, a species of fever under the title of HECTIC; but, as it is described, I have never seen it as a primary disease. I have constantly found it as a symptom of some topical affection, most commonly of an internal suppuration; and
as

as such it shall be considered in another place.

75. The distinction of the several cases of intermittent fever I have not prosecuted here; both because we cannot assign the causes of the differences which appear, and because I apprehend that the differences which in fact occur may be readily understood from what is said above (25. 26. and 27.) and more fully from our Methodical Nosology, Cl. 1. sect. 1.

C H A P. IV.

[OF THE REMOTE CAUSES OF FEVER.]

76. **A**S fever has been held to consist chiefly in an increased action of the heart and arteries, physicians have supposed its remote causes to be certain direct stimulants fitted to produce this increased action. In many cases, however, there is no evidence of such stimulants being applied; and, in those in which they are applied, they either produce only a temporary frequency of the pulse, which cannot be considered as a disease; or, if they do produce a permanent febrile state, it is by the intervention of a topical inflammation, which

which produces a disease different from what is strictly called fever. (8.)

77. That direct stimulants are the remote causes of fever, seems farther improbable ; because the supposition does not account for the phenomena attending the accession of fevers, and because other remote causes can with greater certainty be assigned.

78. As fevers are so generally epidemic, it is probable, that some matter floating in the atmosphere, and applied to the bodies of men, ought to be considered as the remote cause of fevers : And these matters present in the atmosphere, and thus acting upon men, may be considered, either as **CONTAGIONS**, that is, effluvia arising directly or originally from the body of a man under a particular disease, and exciting the same kind of disease in the body of the person to whom they are applied ; or **MIAS-MATA**, that is, effluvia arising from other substances than the bodies of men, produ-

cing a disease in the person to whom they are applied.

79. Contagions have been supposed to be of great variety ; and it is possible this may be the case : But that they truly are so, does not appear clearly from any thing we know at present. The genera and species of contagious diseases, of the class of pyrexia, at present known, are in number not very great. They chiefly belong to the order of fevers, to that of exanthemata, or that of profluvia. Whether there be any belonging to the order of phlegmasia, is doubtful ; and though there should, it will not much increase the number of contagious pyrexia. Of the contagious exanthemata and profluvia, the number of species is nearly ascertained ; and each of them is so far of a determined nature, that though they have now been observed and distinguished for many ages, and in many different parts of the world, they have been always found to retain the same general character,

character, and to differ only in circumstances, that may be imputed to season, climate, and other external causes, or to the peculiar constitutions of the several persons affected. It seems, therefore, probable, that, in each of these species, the contagion is of one specific nature; and that the number of contagious exanthemata or profluvia is hardly greater than the number of species enumerated in the systems of nosology.

80. If, while the contagious exanthemata and profluvia are thus limited, we should suppose the contagious pyrexiaë to be still of great and unlimited variety, it must be with respect to the genera and species of continued fevers. But if I be right in limiting, as I have done, the genera of these fevers, (67.—70.) it will appear likely that the contagions which produce them are not of great variety; and this will be much confirmed, if we can render it probable that there is one principal, perhaps one common, source of such contagions.

81. To this purpose it is now well known, that the effluvia constantly arising from the living human body, if long retained in the same place, without being diffused in the atmosphere, acquire a singular virulence; and, in that state, being applied to the bodies of men, become the cause of a fever which is highly contagious.

The existence of such a cause is fully proved by the late observations on jail and hospital fevers: And that the same virulent matter may be produced in many other places, must be sufficiently obvious: And it is probable that the contagion arising in this manner, is not, like many other contagions, permanent and constantly existing; but that, in the circumstances mentioned, it is occasionally generated. At the same time, the nature of the fevers from thence, upon different occasions, arising, renders it probable, that the virulent state of human effluvia is the common cause of them, as they differ only in a state of their symptoms; which may be imputed to the circumstances

cumstances of season, climate, &c. concurring with the contagion, and modifying its force.

82. With respect to these contagions, though we have spoken of them as of a matter floating in the atmosphere, it is proper to observe, that they are never found to act but when they are near to the sources from whence they arise; that is, either near to the bodies of men, from which they immediately issue; or near to some substances which, as having been near to the bodies of men, are imbued with their effluvia, and in which substances these effluvia are sometimes retained in an active state for a very long time.

The substances thus imbued with an active and infectious matter, may be called *Fomites*; and it appears to me probable, that contagions, as they arise from fomites, are more powerful than as they arise immediately from the human body.

83. Miasmata are next to be considered. These may arise from various sources and be of different kinds; but we know little of their variety, or of their several effects. We know with certainty only one species of miasma, which can be considered as the cause of fever; and, from the universality of this, it may be doubted if there be any other.

84. The miasma, so universally the cause of fever, is that which arises from marshes or moist ground, acted upon by heat. So many observations have now been made with respect to this in so many different regions of the earth, that there is neither any doubt of its being in general a cause of fevers, nor of its being very universally the cause of intermittent fevers, in all their different forms. The similarity of the climate, season, and soil, in the different countries in which intermittents arise, and the similarity of the diseases, though arising in different

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rent regions, concur in proving, that there is one common cause of these diseases, and that this is the marsh miasma.

What is the particular nature of this miasma, we know not ; nor do we certainly know whether or not it differs in kind : But it is probable that it does not ; and that it varies only in the degree of its power, or perhaps as to its quantity, in a given space.

85. It has been now rendered probable, that the remote causes of fevers (8.) are chiefly contagions or miasmata, and neither of them of great variety. We have supposed that miasmata are the cause of intermittents, and contagions the cause of continued fevers, strictly so named ; but we cannot with propriety employ these general terms. For, as the cause of continued fevers may arise from fomites, and may, in such cases, be called a miasma ; and as other miasmata also may produce contagious diseases, it will be proper to distinguish the
causes

causes of fevers, by using the terms *Human* or *Marsh Effluvia*, rather than the general ones of Contagion or Miasma.

86. To render our doctrine of fever consistent and complete, it is necessary to add here, that those remote causes of fever, human and marsh effluvia, seem to be of a debilitating or sedative quality. They arise from a putrescent matter. Their production is favoured, and their power increased, by circumstances which favour putrefaction, and they often prove putrefactive ferments with respect to the animal fluids. As putrid matter, therefore, is always, with respect to animal bodies, a powerful sedative, so it can hardly be doubted, that human and marsh effluvia are of the same quality; and it is confirmed by this, that the debility which is always induced, seems to be in proportion to the other marks that appear of the power of those causes.

87. Though we have endeavoured to shew that fevers generally arise from marsh or human effluvia, we cannot, with any certainty, exclude some other remote causes, which are commonly supposed to have at least a share in producing those diseases. And I proceed, therefore, to enquire concerning these causes; the first of which that merits attention, is the power of cold applied to the human body.

88. The operation of cold on a living body, is so different in different circumstances, as to be of difficult explanation; it is here, therefore, attempted with some diffidence.

The power of cold may be considered as absolute or relative.

The *absolute* power is that by which it can diminish the temperature of the body to which it is applied. And thus, if the natural temperature of the human body is, as we suppose it to be, that of 98 degrees of Faren-

Farenheit's thermometer *; every degree of temperature less than that, may be considered as cold with respect to the human body; and, in proportion to its degree, will have a tendency to diminish the temperature of the body. But as the living human body has in itself a power of generating heat, so it can sustain its own proper heat to the degree above mentioned, though surrounded by air or other bodies of a lower temperature than itself; and it appears from observation, that, in this climate, air, or other bodies applied to the living man, do not diminish the temperature of his body, unless the temperature of the body applied be below 62 degrees. From hence it appears, that the absolute power of cold in this climate, does not act upon the living human body, unless the cold applied be below the degree just now mentioned.

It

* In every instance of our mentioning degrees of heat or cold, we shall mention them by the degrees in Farenheit's scale; and the expression of higher or lower shall always be according to that scale.—Author.

It appears also, that the human body's being surrounded by air of a lower temperature than itself, is necessary to its being retained in its proper temperature of 98 degrees : For, in this climate, every temperature of the air above 62 degrees, applied to the human body, though still of a lower temperature than itself, is found to increase the heat of it. And from all this it appears, that the absolute power of cold with respect to the human body, is very different from what it is with respect to inanimate bodies.

89. The *relative* power of cold with respect to the living human body, is that power by which it produces a sensation of cold in it ; and with respect to this, it is agreeable to the general principle of sensation, that the sensation produced, is not in proportion to the absolute force of impression, but according as the new impression is stronger or weaker than that which had been applied immediately before. Accordingly,

dingly, with respect to temperature, the sensation produced by any degree of this, depends upon the temperature to which the body had been immediately before exposed ; so that whatever is higher than this feels warm, and whatever is lower than it, feels cold ; and it will therefore happen that the opposite sensations of heat and cold may on different occasions arise from the same temperature, as marked by the thermometer.

With respect to this, however, it is to be observed, that though every degree of temperature gives a sensation of cold or heat, as it is lower or higher than the temperature applied immediately before, the sensation produced is in different cases of different duration. If the temperature at any time applied is under 62 degrees, every increase of temperature applied will give a sensation of heat ; but if the increase of temperature does not arise to 62 degrees, the sensation produced will not continue long, but be soon changed to a sensation of cold.

cold. In like manner, any temperature applied to the human body, lower than that of the body itself, gives a sensation of cold ; but if the temperature applied does not go below 62 degrees, the sensation of cold will not continue long, but be soon changed to a sensation of heat.

It will appear hereafter, that the effects of the sensation of cold will be very different, according as it is more permanent or transitory.

90. Having thus explained the operation of cold as absolute or relative with respect to the human body, I proceed to mention the general effects of cold upon it.

1. Cold, in certain circumstances, has manifestly a *sedative* power. It can extinguish the vital principle entirely, 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 effect may be said to take place from every degree of absolute cold ; and, when the heat of the body has upon any occasion been preternaturally increased, every lower temperature may be useful in diminishing the activity of the system ; but it cannot diminish the natural vigor of the vital principle, till the cold applied is under 62 degrees ; nor even then will it have this effect, unless the cold applied be of an intense degree, or be applied for some length of time to a large portion of the body.

2. It is equally manifest, that, in certain circumstances, cold proves a *stimulus* to the living body, and particularly to the sanguiferous system.

It is probable, that this effect takes place in every case in which the temperature applied produces a sensation of cold ; and this, therefore, as depending entirely on the relative power of cold, will be in proportion to the change of temperature that takes place.

It

It appears to me probable, that every change of temperature, from a higher to a lower degree, will prove more or less stimulant; excepting when the cold applied is so intense, as immediately to extinguish the vital principle in the part.

3. Beside the sedative and stimulant powers of cold, it is manifestly also a powerful *astringent*, causing a contraction of the vessels on the surface of the body, and thereby producing a paleness of the skin and a suppression of perspiration; and it seems to have similar effects when applied to internal parts. It is likewise probable, that this constriction, as it takes place especially in consequence of the sensibility of the parts to which the cold is applied, will in some measure be communicated to other parts of the body; and that thereby the application of cold proves a *tonic* power with respect to the whole system.

These effects of tonic and astringent power seem to take place both from the absolute and relative power of cold; and there-

fore every application of it which gives a sensation of cold, is, in its first effect, both astringent and stimulant, though the former may be often prevented from being either considerable or permanent when the latter immediately takes place.

91. It will be obvious, that these several effects of cold cannot all take place at the same time, but may in succession be variously combined. The stimulant power taking place obviates the effects, at least the permanency of the effects, that might otherwise have arisen from the sedative power. That the same stimulant power prevents these from the astringent, I have said above; but the stimulant and tonic powers of cold are commonly, perhaps always, conjoined.

92. These general effects of cold now pointed out are sometimes salutary, frequently morbid; but it is the latter only I
am

am to consider here, and they seem to be chiefly the following.

1. A general inflammatory disposition of the system, which is commonly accompanied with rheumatism or other phlegmasiæ.

2. The same inflammatory disposition accompanied with catarrh.

3. A gangrene of particular parts.

4. A palsy of a single member.

5. A fever, or fever strictly so called (8.) which it often produces by its own power alone; but more commonly it is only an exciting cause of fever, by concurring with the operation of human or marsh effluvia.

93. Cold is often applied to the human body without producing any of these morbid effects, and it is difficult to determine in what circumstances it especially operates in producing them. It appears to me, that the morbid effects of cold depend partly upon certain circumstances of the cold itself,

and partly on certain circumstances of the person to whom it is applied.

94. The circumstances of the cold applied, which seem to give it effect, are, 1. The intensity or degree of the cold; 2. The length of time during which it is applied; 3. The degree of moisture at the same time accompanying it; 4. Its being applied by a wind or current of air; 5. Its being a vicissitude, or sudden and considerable change of temperature, from heat to cold.

95. The circumstances of persons rendering them more liable to be affected by cold, seem to be, 1. The weakness of the system, and particularly the lessened vigour of the circulation, occasioned by fasting, by evacuations, by fatigue, by a last night's debauch, by excess in venery, by long watching, by much study, by rest immediately after great exercise, by sleep, and by preceding disease. 2. The body, or its parts, being deprived of their accustomed coverings,

ings. 3. One part of the body being exposed to cold, while the rest is kept in its usual or a greater warmth.

96. The power of these circumstances (95.) is demonstrated by the circumstances enabling persons to resist cold. These are, a certain vigour of constitution, exercise of the body, the presence of active passions, and the use of cordials.

Besides these, there are other circumstances which, by a different operation, enable persons to resist cold acting as a sensation; such as, passions engaging a close attention to one object, the use of narcotics, and that state of the body in which sensibility is greatly diminished, as in maniacs. To all which is to be added, the power of habit with respect to those parts of the body to which cold is more constantly applied, which both diminishes sensibility, and increases the power of the activity generating heat.

97. Beside cold, there are other powers that seem to be remote causes of fever; such as fear, intemperance in drinking, excess in venery, and other circumstances, which evidently weaken the system. But whether any of these sedative powers be alone the remote cause of fever, or if they only operate either as concurring with the operation of marsh or human effluvia, or as giving an opportunity to the operation of cold, are questions not to be positively answered: They may possibly of themselves produce fever; but most frequently they operate as concurring in one or other of the ways above-mentioned.

98. Having now mentioned the chief of the remote causes of fevers, it may be further observed, that these will arise more or less readily, according as miasmata and contagions are more or less prevailing and powerful, or as these are more or less favoured by the concurrence of cold and other sedative powers.

C H A P. V.

O F T H E P R O G N O S I S O F F E V E R S.

99. **A**S fevers (by 60.) consist of both morbid and salutary motions and symptoms, the tendency of the disease to a happy or fatal issue, or the prognostic in fevers, has been established by marking the prevalence of the morbid or of the salutary symptoms; and it might be properly so established, if we could certainly distinguish between the one and the other of these kinds of symptoms: But the operation of the reaction, or salutary efforts of nature in curing fevers, is still involved in so much obscurity, that I cannot explain the several symptoms of it so clearly as to apply them
to

to the establishing prognostics ; and this, I think, may be done better by marking the morbid symptoms which shew the tendency to death in fevers.

100. This plan of the prognostics in fevers must proceed upon our knowledge of the causes of death in general, and in fevers more particularly.

The causes of death, in general, are either direct or indirect.

The first are those which directly attack and destroy the vital principle, as lodged in the nervous system ; or destroy the organization of the brain immediately necessary to the action of that principle.

The second, or the indirect causes of death, are those which interrupt such functions as are necessary to the circulation of the blood, and thereby necessary to the due continuance and support of the vital principle.

101. Of these general causes, those which operate more particularly in fevers seem to be, *first*, The *violence of reaction*; which either, by repeated violent excitements, destroys the vital power itself; or, by its violence, destroys the organization of the brain necessary to the action of that power; or, by the same violence, destroys the organization of the parts more immediately necessary to the circulation of the blood.

Secondly, The cause of death in fevers may be a *poison*, that is, a power capable of destroying the vital principle; and this poison may be either the miasma or contagion which was the remote cause of the fever, or it may be a putrid matter generated in the course of the fever. In both cases, the operation of such a power appears either as acting chiefly on the nervous system, inducing the symptoms of debility; or as acting upon the fluids of the body, inducing a putrescent state in them.

102. From all this it appears, that the symptoms shewing the tendency to death in fevers, may be discovered by their being either the symptoms

Of violent reaction ;

Of great debility ;

Or, of a strong tendency to putrefaction in the fluids.

And, upon this supposition, I proceed now to mark those symptoms more particularly *.

103. The symptoms which denote the *violence of reaction*, are, 1. The increased force,

* No part of medical knowledge is so serviceable in the practice of physic as prognostics. It wonderfully assists in the cure of all diseases, but more especially fevers, and other acute disorders. The young reader, therefore, ought to be particularly attentive to this part of the work. What the author advances is very different from what has gone before. We have here no hypotheses or fancies—no suppositions unsupported by facts ; but, on the contrary, truths deduced from a careful observation of nature, and arranged in a distinct and perspicuous manner.

force, hardness, and frequency, of the pulse. 2. The increased heat of the body. 3. The symptoms which are the marks of a general inflammatory diathesis, and more especially of a particular determination to the brain, lungs, or other important viscera. 4. The symptoms which are the marks of the cause of violent reaction; that is, of a strong stimulus applied, or of a strong spasm formed, the latter appearing in a considerable suppression of the excretions.

104. The symptoms which denote a *great degree of debility*, are,

In the ANIMAL FUNCTIONS: 1. The weakness of the voluntary motions; 2. The irregularity of the voluntary motions, depending on their debility; 3. The weakness of sensation; 4. The weakness and irregularity of the intellectual operations.

In the VITAL FUNCTIONS: 1. The weakness of the pulse; 2. The coldness or shrinking of the extremities; 3. The tendency

dency to a *deliquium animi* in an erect posture ; 4. The weakness of respiration.

In the NATURAL FUNCTIONS: 1. The weakness of the stomach, as appearing in anorexia, nausea, and vomiting ; 2. Involuntary excretions, depending upon a palsy of the sphincters ; 3. Difficult deglutition, depending upon a palsy of the muscles of the fauces.

105. *Lastly*, The symptoms denoting *the putrescent state of the fluids*, are,

1. With respect to the stomach ; the loathing of animal food, nausea, and vomiting, great thirst, and a desire of acids.

2. With respect to the fluids ; 1. The blood drawn out of the veins not coagulating as usual ; 2. Hemorrhagy from different parts, without marks of increased impetus ; 3. Effusions under the skin or cuticle, forming petechiæ, maculæ, and vibices ; 4. Effusions of a yellow serum under the cuticle.

3. With respect to the state of the excretions ; fœtid breath, frequent, loose, and fœtid stools, high coloured turbid urine, fœtid sweats, and the fœtor and livid colour of blistered places.

4. The cadaverous smell of the whole body.

106. These several symptoms have very often, each of them singly, a share in determining the prognostic : But more especially by their concurrence and combination with one another, particularly those of debility with those of putrescency *.

107.

* It may not be amiss to explain this circumstance a little more fully. Coldness of the extremities may alone be sufficient to induce the practitioner to think the issue of the disease fatal ; yet if this symptom be combined with a weakness and irregularity of the intellectual operations, and these two accompanied with involuntary, loose, and fœtid evacuations of stool, and urine, death may be pronounced to be at no great distance.

107. On the subject of the prognostic, it is proper to observe, that many physicians have been of opinion there is something in the nature of fevers which generally determines them to be of a certain duration ; and therefore that their terminations, whether salutary or fatal, happen at certain periods of the disease rather than at others. These periods are called the CRITICAL DAYS ; carefully marked by Hippocrates and other antient physicians, as well as by many moderns of the greatest eminence in practice ; while at the same time many other moderns, of no inconsiderable authority, deny their taking place in the fevers of these northern regions which we inhabit.

108. I am of opinion that the doctrine of the antients, and particularly that of Hippocrates, on this subject, was well founded ; and that it is applicable to the fevers of our climate.

109. I am of this opinion, *first*, Because I observe that the animal œconomy, both from its own constitution, and from habits which are easily produced in it, is readily subjected to periodical movements. *Secondly*, Because, in the diseases of the human body, I observe periodical movements to take place with great constancy and exactness; as in the case of intermittent fevers, and many other diseases.

110. These considerations render it probable, that exact periodical movements may take place in continued fevers; and I think there is evidence of such movements actually taking place.

111. The critical days, or those on which we suppose the termination of continued fevers especially to happen, are, the *third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth, and twentieth*. We mark none beyond this last; because, though fevers are sometimes protracted beyond this

VOL. I. K period,

period, it is, however, more rarely ; so that there are not a sufficient number of observations to ascertain the course of them ; and further, because it is probable that, in fevers long protracted, the movements become less exact and regular, and therefore less easily observed.

112. That the days now mentioned are the critical days, seems to be proved by the particular facts which are found in the writings of Hippocrates. From these facts, as collected from the several writings of that author by *M. De Haen*, it appears, that of one hundred and sixty-three instances of the termination of fevers, which happened on one or other of the first twenty days of the disease, there are one hundred and seven, or more than two thirds of the whole number, which happened on one or other of the eight days above mentioned ; that none happened on the second or thirteenth day ; and upon the eighth, tenth, twelfth, fifteenth, sixteenth, eighteenth, and nineteenth,

teenth, there are but eighteen instances of termination, or one ninth of the whole.

113. As the terminations which happen on the seven days last mentioned, are, upon the whole, few; and, upon any one of them, fewer than those which happen on any of our supposed critical days; so there are therefore nine days which may be called NON-CRITICAL; while, on the other hand, the many terminations which happened on the seventh, fourteenth, and twentieth days, afford a proof both of critical days in general, and that these are the chief of them. Hereafter I shall mention an analogy that renders the power of the other critical days sufficiently probable.

114. It appears further, that as, of the terminations which were final and salutary, not a tenth part happened on the non-critical days; and of the terminations which were final and fatal, though the greater

number happened on the critical days, yet above a third of them happened on the non-critical ; so it would appear, that the tendency of the animal œconomy is to observe the critical days, and that it is by the operation of some violent and irregular cause that the course of things is sometimes turned to the non-critical.

115. What has been said, gives sufficient ground for presuming, that it is the general tendency of the animal œconomy to determine the periodical movements in fevers to be chiefly on the critical days. At the same time, we must acknowledge it to be a general tendency only ; and that, in particular cases, many circumstances may occur to disturb the regular course of it. Thus, though the chief and more remarkable exacerbations in continued fevers happen on the critical days, there are truly exacerbations happening every day ; and these, from certain causes, may become considerable and critical. Further, though
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intermittent fevers are certainly very strongly determined to observe a tertian or quartan period, we know there are circumstances which prevent them from observing these periods exactly, and which render them either anticipating or postponing so much, that the days of paroxysms come to be quite changed; and it is allowable to suppose, that the like may happen with respect to the exacerbations of continued fevers, so as thereby to disturb the regular appearance of critical days.

A particular instance of this occurs with respect to the sixth day of fevers. In the writings of Hippocrates, there are many instances of terminations happening on the sixth day; but it is not therefore reckoned among the critical days; for, of the terminations happening on that day, there is not one which proves finally of a salutary kind; the greater number are fatal; and all the rest are imperfect, and followed with a relapse. All this shews, that some violent cause had, in these cases, produced

a deviation from the ordinary course of nature; that the terminations on the sixth day are nothing more than anticipations of the seventh, and therefore a proof of the power of this last *.

116. The doctrine of critical days has been much embarrassed by some dissonant accounts of it, which appear in the writings imputed to Hippocrates †. But this
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* This idea of the general tendency of nature to preserve a regularity in the animal motions, is a most ingenious explanation of the apparent irregularities in the termination of fevers. It is perhaps one of the best defences of the critical days that ever appeared, because it explains, in a most satisfactory manner, why the termination on the sixth day should not be salutary. The violence of the disturbing cause excites motions which nature has not the power of withstanding, and which are either the immediate causes of death, or induce such morbid affections as prove ultimately fatal.

† To enter into a critical inquiry, whether the works handed down to us as the writings of Hippocrates are
really

may be justly accounted for from these writings being truly the works of different persons, and from the most genuine of them having suffered many corruptions; so that, in short, every thing which is inconsistent with the facts above laid down, may be ascribed to one or other of these causes.

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117.

really the productions of that great man, or compilations from various physicians, would be foreign to the design of this work. The style of them is, if I may be allowed the expression, homogeneous; the same provincial dialect prevails through the whole of them; and they are extremely remarkable, especially such of them as respect the critical days, for being rather a detail of observed facts, than reasonings brought to support a favourite hypothesis. It is probable, indeed, that Hippocrates, who has got the credit of the work, might have been indebted to many of his contemporaries for some of the materials that compose them; but the sameness of the style is a strong presumptive argument that they are the production of one person, or at least of their having been reduced to their present form by one and the same hand. Dr Cullen's other supposition, of their having suffered many, and, he might have added, material corruptions, seems highly probable.

117. This, further, has especially disturbed the doctrine of critical days, that Hippocrates himself attempted, perhaps too hastily, to establish general rules, and to bring the doctrine to a general theory, drawn from Pythagorean opinions concerning the power of numbers. It is this which seems to have produced the idea of odd days, and of a quaternary and septenary period; doctrines which appear so often in the writings of Hippocrates. These, however, are inconsistent with the facts above laid down; and indeed, as Asclepiades and Celsus have observed, are inconsistent with one another.

118. Upon the whole, therefore, it is apprehended, that the critical days above assigned, are truly the critical days of Hippocrates, and may be consistently explained in the following manner.

119. From the universality of tertian or quartan periods in intermittent fevers, we cannot

cannot doubt of there being, in the animal œconomy, a tendency to observe such periods; and the critical days above mentioned are consistent with this tendency of the œconomy, as all of them mark either tertian or quartan periods *. These periods, however, are not promiscuously mixed, but occupy constantly their several portions in the progress of the disease; so that, from the beginning to the eleventh day, a tertian period takes place; and, from the eleventh to the twentieth, and perhaps longer, a quartan period is as steadily observed.

120. What determines the periods to be changed about the eleventh day, we have not clearly perceived; but the fact is certain: For there is no instance of any termination on the thirteenth, that is, the tertian period next following the eleventh; where-

* The author might have added, "or periods compounded of these two."

whereas, upon the fourteenth, seventeenth, and twentieth, which mark quartan periods, there are forty-three instances of terminations, and six only on all the intermediate days between these.

This prevalence of a quartan period leaves no room for doubting that the twentieth, and not the twenty-first, is the critical day marked by Hippocrates, though the last is mentioned as such in the common edition of the aphorisms, taken from an erroneous manuscript, which Celsus also seems to have copied.

121. A consistency with the general tendency of the system, renders the series of critical days we have mentioned probably the true one; and the only remaining difficulty in finding what we have delivered to be the same with the genuine doctrine of Hippocrates, is the frequent mention of the fourth as a critical day.

It is true there are more instances of terminations happening on this day, than on
some

some of those days we have asserted to be truly critical: But its inconsistency with the more general tendency, and some other considerations, lead us to deny its being naturally a critical day; and to think, that the instances of terminations, which have really occurred on the fourth day, are to be reckoned among the other irregularities that happen in this matter.

122. I have thus endeavoured to support the doctrine of critical days, chiefly upon the particular facts to be found in the writings of Hippocrates: And although I might also produce many other testimonies of both antient and modern times; yet it must be owned, that some of these testimonies may be suspected to have arisen rather from a veneration of Hippocrates, than from accurate observation.

123. With respect to the opinions of many moderns, who deny the prevalence of critical days, they are to be little regarded:
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ed: For the observation of the course of continued fevers is known to be difficult and fallacious; and therefore the regularity of that course may have often escaped inattentive and prejudiced observers.

124. Our own observations amount to this, That fevers with moderate symptoms, generally cases of the synocha, frequently terminate in nine days, or sooner, and very constantly upon one or other of the critical days which fall within that period: But it is very rare, in this climate, that cases of either the typhus or synochus terminate before the eleventh day; and, when they do terminate on this day, it is for the most part fatally. When they are protracted beyond this time, I have very constantly found, that their terminations were upon the fourteenth, seventeenth, or twentieth day.

In such cases, the salutary terminations are seldom attended with any considerable evacuation. A sweating frequently appears,
but

but is seldom considerable; and I have hardly ever observed critical and decisive terminations attended with vomiting, evacuations by stool, or remarkable changes in the urine. The solution of the disease is chiefly to be discerned from some return of sleep and appetite, the ceasing of delirium, and an abatement of the frequency of the pulse. By these symptoms we can often mark a crisis of the disease: But it seldom happens suddenly and entirely; and it is most commonly from some favourable symptoms occurring upon one critical day, that we can announce a more entire solution upon the next following.

Upon the whole, I am persuaded, that, if observations shall be made with attention, and without prejudice, I shall be allowed to conclude with the words of the learned and sagacious Gaubius, "Fallor, ni sua constiterit HIPPOCRATI auctoritas, GALENO
"fides, NATURÆ virtus et ordo."

C H A P. VI.

OF THE METHOD OF CURE IN FEVERS.

SECTION I.

Of the CURE of CONTINUED FEVERS.

125. **A**S it is allowed, that, in every fever which has its full course, there is an effort of nature of a salutary tendency, it might be supposed that the cure of fevers should be left to the operation of nature, or that our art should be only directed

rected to support and regulate these operations, and that we should form our indications accordingly. This plan, however, I cannot adopt, because the operations of nature are very precarious, and not so well understood as to enable us to regulate them properly. It appears to me, that trusting to these operations has often given occasion to a negligent and inert practice; and there is reason to believe, that an attention to the operations of nature may be often superseded by art.

126. The plan which to me appears to be most suitable, is that which forms the indications of cure upon the view of obviating the tendency to death; while, at the same time, the means of executing these indications are directed by a proper attention to the proximate cause of fevers.

Upon this plan, in consequence of what has been laid down above on the subject of the prognostic, we form three general indications in the cure of continued fevers; and the

the one or other of these is to be employed according as the circumstances of the fever (102.) shall direct.

The first, therefore, is, *To moderate the violence of reaction.*

The second is, *To remove the causes, or obviate the effects of debility.* And,

The third is, *To obviate or correct the tendency of the fluids to putrefaction.*

127. The first indication may be answered, that is, the violence of reaction may be moderated,

1. By all those means which diminish the action of the heart and arteries.

2. By those means which take off the spasm of the extreme vessels, which we suppose to be the chief cause of violent reaction.

128. The action of the heart and arteries may be diminished,

1. By

1. By avoiding or moderating those irritations, which, in one degree or other, are almost constantly applied to the body.

2. By the use of certain sedative powers.

3. By diminishing the tension and tone of the arterial system.

129. The irritations (128. 1.) almost constantly applied, are the impressions made upon our senses; the exercise of the body and mind; and the taking in of aliments. The avoiding these as much as possible, or the moderating their force, constitute what is rightly called the ANTIPHLOGISTIC REGIMEN, proper to be employed in almost every continued fever.

130. The conduct of this regimen is to be directed by the following rules and considerations.

1. Impressions on the external senses, as being stimulant to the system, and a chief support of its activity, should be avoided as much as possible; those especially of more

constant application, those of a stronger kind, and those which give pain and uneasiness.

No impression is to be more carefully guarded against than that of external heat; while, at the same time, every other means of increasing the heat of the body is to be shunned. Both these precautions are to be observed as soon as a hot stage is fully formed, and to be attended to during its continuance; excepting in certain cases, where a determination to sweating is necessary, or where the stimulant effects of heat may be compensated by circumstances which determine it to produce a relaxation and revulsion.

2. All motion of the body is to be avoided, especially that which requires the exercise of its own muscles; and that posture of the body is to be chosen which employs the fewest muscles, and which keeps none of them long in a state of contraction. Speaking, as it accelerates respiration, is particularly to be refrained from.

It

It is to be observed, that every motion of the body is the more stimulant in proportion as the body is weaker.

3. The exercise of the mind is also a stimulus to the body ; so that all impressions which lead to thought, and those especially which may excite emotion or passion, are to be carefully shunned.

With respect to avoiding impressions of all kinds, an exception is to be made in the case of a delirium coming on, when the presenting of accustomed objects may have the effect of interrupting and diverting the irregular train of ideas then arising in the mind.

4. The presence of recent aliment in the stomach always proves a stimulus to the system, and ought therefore to be as moderate as possible. A total abstinence for some time may be of service ; but as this cannot be long continued with safety, we must avoid the stimulus of aliment, by choosing

that kind which gives the least*. We suppose that alimentary matters are more stimulant according as they are more alkalescent; and this leads to avoid all animal, and to use vegetable food only.

As our drinks also may prove stimulant, so all aromatic and spirituous liquors are to be avoided; and, in answering the present indication, all fermented liquors, excepting those of the lowest quality, are to be abstained from †.

131.

* In addition to these directions, it may be mentioned that, if the patient have a desire for food, which is seldom the case, he ought to make very sparing and frequent meals. Much food taken at once proves a greater stimulus than the same quantity taken at several different times; especially if sufficient quantities of diluting mucilaginous drink, such as lintseed tea, barley-water, water-gruel, &c. be taken along with it.

† Thin liquors are the best in cases of this kind: Of these we may use either water alone, or weak lintseed tea, thin barley-water, toast and water, whey, currant jelly dissolved in water, with a variety of such like mucilaginous acescent drinks. They ought to be taken in small quantities, and often.

131. Beside these stimulant powers more constantly applied, there are others which, although occasional only, yet, as commonly accompanying fevers, must be attended to and removed *.

One is, the sense of thirst, which, as a powerful stimulus, ought always, in one way or other, to be removed †.

Another stimulus frequently arises from crudities, or corrupted humours, in the stomach; and it is to be removed by vomiting, by dilution, or by the use of acids ‡.

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* This passage might have been more clearly expressed thus: Besides the stimulant powers more constantly applied, others, only occasionally accompanying fevers, must be attended to and removed.

† The drinks mentioned in the former note are best adapted to this purpose.

‡ The vegetable acids are the most suitable, especially the juices of acid fruits, as the juices of oranges, lemons, currants, or apples, diluted with water. In some cases, the mineral acids have been much extolled, especially the nitrous, when united with spirit of wine. The spiritus ætheris nitrosi of the last London Pharmacopœia is used with success in these cases. It may be given in barley-water, to the quantity of 20 or 25 drops within the hour.

A third stimulus often arises from the preternatural retention of fæces in the intestines ; and ought to be removed by frequent laxative glysters *.

A fourth stimulus to be constantly suspected in fevers, is a general acrimony of the fluids, as produced by the increase of motion and heat, joined with an interruption of the excretions. This acrimony is to be obviated or removed by the taking in of large quantities of mild antiseptic liquors †.

132.

* The preference of glysters to purging medicines is obvious. The action even of the most gentle laxatives is always attended with some degree of stimulus, while glysters, especially the mild ones, seldom produce that effect. The best glyster, in these cases, is half a pint of milk, with as much water, two ounces of oil, and one ounce of brown sugar, or, what is better than sugar, two ounces of manna.

† The chief of these are the acid fruits diluted with water ; to which we may add the decoction of malt, of radix graminis (the *Triticum repens* of Linne), infusions of sage, mint, and other plants of that natural order which Linne calls *Spirantia*.

132. The avoiding of irritation in all these particulars, (130. and 131.) constitutes the antiphlogistic regimen absolutely necessary for moderating the violence of reaction ; and, if I mistake not, is proper in almost every circumstance of continued fevers ; because the propriety and safety of employing stimulants is often uncertain ; and because several of those above mentioned, beside their stimulant powers, have other qualities by which they may be hurtful.

It appears to me, that the supposed utility of stimulants, in certain cases of fever, has often arisen from a mistake in having ascribed to their stimulant what really depended upon their antispasmodic power.

133. A second head of the means (128. 2.) for moderating the violence of reaction, comprehends certain sedative powers, which may be employed to diminish the activity of the whole body, and particularly that of the sanguiferous system.

The *first* of these to be mentioned is the application of cold.

Heat is the chief support of the activity of the animal system ; which is therefore provided in itself with a power of generating heat. But, at the same time, we observe, that this would go to excess, were it not constantly moderated by a cooler temperature in the surrounding atmosphere. When, therefore, that power of the system generating heat is increased, as is commonly the case in fevers, it is necessary not only to avoid all means of increasing it further, but it seems proper also to apply air of a cooler temperature ; or at least to apply it more entirely and freely, than in a state of health.

Some late experiments in the small-pox, and in continued fevers, shew that the free admission of cool air to the body is a powerful remedy in moderating the violence of reaction ; but what is the mode of its operation, to what circumstances of fever it is peculiarly adapted, or what limitations it requires,

requires, I shall not venture to determine, till more particularly instructed by further experience.

134. A *second* sedative power which may be employed in fevers, is that of certain medicines, known, in the writings on the *Materia Medica*, under the title of *REFRIGERANTS*.

The chief of these are acids of all kinds, when sufficiently diluted ; and they are, in several respects, remedies adapted to continued fevers. Those especially in use are, the *Vitriolic* and *Vegetable* ; and, on many accounts, we prefer the latter *.

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* The *vitriolic* acid is harsh to the taste, and frequently acts as an astringent ; it is therefore not always admissible. The best vegetable acids for this purpose, are, as was said above, the natural juices of acid fruits. The acid of tartar is the best refrigerant we have : There is an excellent formula of it in the *Swedish Pharmacopoeia*, under the title *Pulvis Refrigerans*, which consists chiefly of the essential salt of tartar and sugar. The dose
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135. Another set of refrigerants are, the Neutral Salts, formed of the vitriolic, nitrous or vegetable acids; with alkalines, either fixed or volatile. All these neutrals, while they are dissolving in water, generate cold; but as that cold ceases soon after the solution is finished, and as the salts are generally exhibited in a dissolved state, their refrigerant power in the animal body does not at all depend upon their power of generating cold with water. The neutral chiefly employed as a refrigerant, is Nitre; but all the others, compounded as above mentioned, partake more or less of the same quality*.

136.

of the acid of tartar, prepared according to Scheele's prescription, is half a scruple, or fifteen grains, in the hour, largely diluted with a mucilaginous liquor.

* Nitre has been long used as a refrigerant. In too large quantities, however, it has often done harm. It may therefore be necessary to guard the young practitioner against giving nitre in a larger quantity than two drams in the twenty-four hours, nor in doses of above ten grains, well diluted with mucilaginous drink.

136. Beside these neutrals, some metallic salts also have been employed as refrigerants in fevers; and particularly the Sugar of Lead. But the refrigerant powers of this are not well ascertained; and its deleterious qualities are too well known to admit of its being freely used.

137. Under the *third* general head (128. 3.) of the means to be employed for moderating the violence of reaction, are comprehended the several means of diminishing the tension, tone, and activity, of the sanguiferous system. As the activity of this system depends, in a great measure, upon the tone, and this again upon the tension of the vessels, given to them by the quantity of fluids they contain, it is evident, that the diminution of the quantity of these must diminish the activity of the sanguiferous system.

138. The quantity of fluids contained in the sanguiferous system, may be diminished

ed most conveniently by the evacuations of blood-letting and purging.

139. Nothing is more evident than that blood-letting is one of the most powerful means of diminishing the activity of the whole body, especially of the sanguiferous system; and it must therefore be the most effectual means of moderating the violence of reaction in fevers. Taking this as a fact, I omit inquiring into its mode of operation, and shall only consider in what circumstances of fevers it may be most properly employed.

140. When the violence of reaction, and its constant attendant, a phlogistic diathesis, are sufficiently manifest; when these constitute the principle part of the disease, and may be expected to continue throughout the whole of it, as in the cases of *synocha*; then blood-letting is the principal remedy, and may be employed as far as the symptoms of the disease may seem to require,

quire, and the constitution of the patient will bear. It is, however, to be attended to, that a greater evacuation than is necessary, may occasion a slower recovery, may render the person more liable to a relapse, or may bring on other diseases.

141. In the case of *synocha*, therefore, there is little doubt about the propriety of blood-letting; but there are other species of fever, as the *synochus*, in which a violent reaction and phlogistic diathesis appear, and prevail during some part of the course of the disease; while, at the same time, these circumstances do not constitute the principal part of the disease, nor are to be expected to continue during the whole course of it; and it is well known, that, in many cases, the state of violent reaction is to be succeeded, sooner or later, by a state of debility, from the excess of which the danger of the disease is chiefly to arise. It is therefore necessary, that, in many cases, blood-letting should be avoided; and even
although,

although, during the inflammatory state of the disease, it may be proper, it will be necessary to take care that the evacuation be not so large as to increase the state of debility which is to follow.

142. From all this it must appear that the employing blood-letting, in certain fevers, requires much discernment and skill, and is to be governed by the consideration of the following circumstances:

1. The nature of the prevailing epidemic.
2. The nature of the remote cause.
3. The season and climate in which the disease occurs.
4. The degree of phlogistic diathesis present *.
5. The period of the disease.
6. The age, vigour, and plethoric state of the patient.
7. The patient's former diseases and habit of blood-letting.
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* The phlogistic diathesis is explained in Art. 247.

8. The appearance of the blood drawn out.

9. The effects of the blood-letting that may have been already practised.

143. When, after the consideration of these circumstances, blood-letting is determined to be necessary, it should be observed, that it is more effectual, according as the blood is more suddenly drawn off, and as the body is at the same time more free from all irritation, and consequently when in a posture in which the fewest muscles are in action.

144. Another evacuation whereby the quantity of fluids contained in the body can be considerably diminished, is that of Purging.

145. If we consider the quantity of fluids constantly present in the cavity of the intestines, and the quantity which may be drawn from the innumerable excretories
that

that open into this cavity, it will be obvious, that a very great evacuation can be made by purging; and, if this be done by a stimulus applied to the intestines, without being at the same time communicated to the rest of the body, it may, by emptying both the cavity of the intestines, and the arteries which furnish the excretions poured into it, induce a considerable relaxation in the whole system; and therefore purging seems to be a remedy suited to moderate the violence of reaction in fevers.

146. But it is to be observed, that, as the fluid drawn from the excretories opening into the intestines, is not all drawn immediately from the arteries, as a part of it is drawn from the mucous follicles only; and as what is even more immediately drawn from the arteries, is drawn off slowly; so the evacuation will not, in proportion to its quantity, occasion such a sudden depletion of the red vessels as blood-letting does; and therefore cannot operate so powerfully

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ly in taking off the phlogistic diathesis of the system.

147. At the same time, as this evacuation may induce a considerable degree of debility; so, in those cases in which a dangerous state of debility is likely to occur, purging is to be employed with a great deal of caution; and more especially as the due measure of the evacuation is more difficult to be applied than in the case of blood-letting.

148. As we shall presently have occasion to observe, that it is of great importance, in the cure of fevers, to restore the determination of the blood to the vessels on the surface of the body; so purging, as in some measure taking off that determination, seems to be an evacuation not well adapted to the cure of fevers.

149. If, notwithstanding these doubts, (146. 147. and 148.) it shall be asserted,
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that purging, even from the exhibition of purgatives, has often been useful in fevers; I would beg leave to maintain, that this has not happened from a large evacuation; and, therefore, not by moderating the violence of reaction, excepting in the case of a more purely inflammatory fever, or of exanthemata of an inflammatory nature. In other cases of fever, I have seen a large evacuation by purging, of mischievous consequence; and if, upon occasion, a more moderate evacuation has appeared to be useful, it is apprehended to have been only by taking off the irritation of retained fæces, or by evacuating corrupted humours which happened to be present in the intestines; for both of which purposes, frequent laxatives may be properly employed *.

150.

* Purges ought to be very cautiously administered in fevers; and such only are to be used as operate with the least irritation. In fevers, attended with local inflammation, we

150. Another set of means (127. 2.) for moderating the violence of reaction in fevers, are those suited to take off the spasm of the extreme vessels, which we believe to be the irritation that chiefly supports the reaction.

Though I have put here this indication of taking off the spasm of the extreme vessels, as subordinate to the general indication

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tion

we may be under no apprehension of danger even from the brisker purges, as Glauber's salt, given in the quantity of an ounce, or an ounce and a half; or three or four ounces of the infusum fennae, with half an ounce of Glauber's salt, and a dram or two of tincture of jalap: But in fevers where no topical inflammation appears, the purges, if necessary, must be of the mildest kind, such as manna, cassia, &c. and they must be given in small and often repeated doses. In most fevers the intestines may be sufficiently evacuated by taking half an ounce of manna, and a scruple of cream of tartar, every hour till it operates, diluting plentifully at the same time with barley-water. The phosphorated soda, lately introduced into practice by the ingenious Dr Pearson of London, is well calculated for these cases. The dose of it is an ounce or ten drams in barley-water, or broth.

tion of moderating the violence of reaction ; it is however to be observed here, that as fever universally consists in an increased action of the heart, either in frequency or in force, which in either case is supported by a spasm of the extreme vessels, so the indication for removing this is a very general one, and applicable, in almost every circumstance of fever, or at least with a few exceptions to be taken notice of hereafter.

151. For taking off the spasm of the extreme vessels, the means to be employed are either internal or external.

152. The internal means (151.) are,

1. Those which determine the force of the circulation to the extreme vessels on the surface of the body, and, by restoring the tone and activity of these vessels, overcome the spasm on their extremities.

2. Those medicines which have the power of taking off spasm in any part of the system,

system, and which are known under the title of ANTISPASMODICS.

153. Those remedies which are fit to determine to the surface of the body, are,

1. DILUENTS.
2. NEUTRAL SALTS.
3. SUDORIFICS.
4. EMETICS.

154. Water enters, in a large proportion, into the composition of all the animal fluids, and a large quantity of it is always diffused through the whole of the common mass. Indeed, in a sound state, the fluidity of the whole mass depends upon the quantity of water present in it. Water, therefore, is the proper diluent of our mass of blood; and other fluids are diluent only in proportion to the quantity of water they contain.

155. Water may be said to be the vehicle of the several matters which ought to be excerned; and in a healthy state the ful-

ness of the extreme vessels, and the quantity of excretions, are nearly in proportion to the quantity of water present in the body. In fever, however, although the excretions are in some measure interrupted, they continue in such quantity as to exhale the more fluid parts of the blood; and while a portion of them is at the same time necessarily retained in the larger vessels, the smaller and the extreme vessels, both from the deficiency of fluid, and their own contracted state, are less filled, and therefore allowed to remain in that condition.

156. To remedy this contracted state, nothing is more necessary than a large supply of water or watery fluids, taken in by drinking or otherwise; for as any superfluous quantity of water is forced off by the several excretories, such a force applied may be a means of dilating the extreme vessels, and of overcoming the spasm affecting their extremities.

157. Accordingly the throwing in of a large quantity of watery fluids has been, at all times, a remedy much employed in fevers; and in no instance more remarkably, than by the Spanish and Italian physicians, in the use of what they call the *Dieta aquea*.

158. This practice consists in taking away every other kind of aliment and drink, and in giving in divided portions every day, for several days together, six or eight pounds of plain water, generally cold, but sometimes warm. All this, however, is to be done only after the disease has continued for some time, and, at least, for a week *.

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159.

* Simply as a diluent, water is undoubtedly the best drink that can be used; but, by adding a small quantity of mucilage to it, two intentions are answered at the same time, viz. diluting and overcoming the acrimony; hence the propriety of barley-water, water-gruel, linseed tea, all made extremely weak; of very slight decoctions of malt, or bread crusts, or even the gelatinous parts

159. A second means (153. 2.) of determining to the surface of the body, is by the use of neutral salts. These, in a certain dose taken into the stomach, produce soon after a sense of heat upon the surface of the body; and, if the body be covered close and kept warm, a sweat is readily brought out. The same medicines, taken during the cold stage of a fever, very often put an end to the cold stage, and bring on the hot; and they are also remarkable for stopping the vomiting which so frequently attends the cold

parts of young animals, as calf's feet, or the more solid hartshorn shavings, &c. These animal substances must, however, be used in great moderation, and only in those cases where the patient requires nourishment. When this watery regimen is carried to a great length, the patient turns anasarctous; but this effect may be prevented by some of the neutral salts, of which the Kali acetatum of the London Pharmacopœia is most preferable, on account of its diuretic quality. The dose of it may be carried as far as half an ounce or six drams in the day. The same intention may also be answered by eating water cresses, radishes, if in season, or a little of the outer rind of turnips; all of which are diuretics.

cold stage of fevers. All this shews, that neutral salts have a power of determining the blood to the surface of the body, and may therefore be of use in taking off the spasm which in fevers subsists there.

160. The neutral most commonly employed in fevers, is that formed of an alkali with the native acid of vegetables*: But all the other neutrals have more or less of the same virtue; and perhaps some of them, particularly the ammoniacal salts, possess it in a stronger degree †.

161.

* The following is the usual dose of it every three or four hours :

℞. Sal. Absinth. ℥i.

Succ. Limon. ℥ss. vel q. s. ad saturationem ;

Adde Aq. Fontanæ ℥ifs.

Syrup. commun. ℥ii.

M. f. haust.

† The form and dose of this is the same with the foregoing, only using the volatile alkali instead of the fixed. The aqua ammonia acetata of the London
Phar.

161. As cold water taken into the stomach often shews the same diaphoretic effects with the neutral salts, it is probable that the effect of the latter depends upon their refrigerant powers mentioned above, (134.). What is the effect of the neutral salts, given when they are forming and in a state of effervescence? It is probable that this circumstance may increase the refrigerant power of these salts, and may introduce into the body a quantity of fixed air; but for these purposes it would seem proper to contrive that the whole of the effervescence should take place in the stomach*.

162.

Pharmacopœia is one of the ammoniacal salts, and may be given in doses of two drams every four hours, diluted with an ounce and a half of water.

* It is certainly extremely useful in suppressing vomitings in fevers. The method of producing the effervescence in the stomach is as follows: Let the patient take the acid first, diluted with a sufficient quantity of water, and immediately after let him swallow the alkali, also diluted. The proportion of the alkali to the acid must be learned from chemistry. If the mild fixed alkali is good, it will saturate about twelve times its weight of lemon-juice.

162. A third means (153. 3.) of determining to the surface of the body, and taking off the spasm subsisting there, is by the use of sudorific medicines, and of sweating.

163. The propriety of this remedy has been much disputed; and specious arguments may be adduced both for and against the practice.

In favour of the practice, it may be said,

1. That, in healthy persons, in every case of increased action of the heart and arteries, a sweating takes place, and is seemingly the means of preventing the bad effects of such increased action.

2. That, in fevers, their most usual solution and termination is by spontaneous sweating.

3. That, even when excited by art, it has been found manifestly useful, at certain periods, and in certain species of fever.

164. Upon the other hand, it may be urged against the practice of sweating,

1. That as in fevers a spontaneous sweating does not immediately come on, so there must be in these some circumstances different from those in the state of health, and which may therefore render it doubtful whether the sweating can be safely excited by art.

2. That, in many cases, the practice has been attended with bad consequences. The means commonly employed have a tendency to produce an inflammatory diathesis; which, if not taken off by the sweat following their use, must be increased with much danger. Thus, sweating employed to prevent the accessions of intermitting fevers, has often changed them into a continued form, which is always dangerous.

3. The utility of the practice is further doubtful, because sweating, when it happens, does not always give a final determination; as must be manifest in the case of intermittents, as well as in many continued fevers, which are sometimes in the beginning attended with sweatings that do not
prove

prove final; and, on the contrary, whether spontaneous, or excited by art, seem often to aggravate the disease.

165. From these considerations, it is extremely doubtful if the practice of sweating can be admitted very generally; but, at the same time, it is also doubtful, if the failure of the practice, or the mischiefs said to have arisen from it, have not been owing to the improper conduct of the practitioner.

With respect to this last, it is almost agreed among physicians.

1. That sweating has been generally hurtful when excited by stimulant, heating, and inflammatory medicines.

2. That it has been hurtful when excited by much external heat, and continued with a great increase of the heat of the body.

3. That it is always hurtful when it does not soon relieve, but rather increases, the frequency and hardness of the pulse, the

the anxiety and difficulty of breathing, the headach, and delirium.

4. That it is always hurtful if it be urged when the sweat is not fluid, and when it is partial, and on the superior parts of the body only.

166. In these cases, it is probable, that either an inflammatory diathesis is produced, which increases the spasm on the extreme vessels: or that, from other causes, the spasm is too much fixed to yield easily to the increased action of the heart and arteries; and, upon either supposition, it must be obvious, that urging the sweat, as ready to produce a hurtful determination to some of the internal parts, may be attended with very great danger.

167. Though the doubts started (164.) are to be attended to; and although the practices (165.) having been found hurtful, are therefore to be rejected; it still remains true.

1. That sweating has certainly been often useful in preventing the accession of fevers, when the times of this have been certainly foreseen, and a proper conduct employed.

2. That, even after fevers have in some measure come on, sweating, when properly employed, either at the very beginning of the disease, or during its approach and gradual formation, has often prevented their further progress.

3. That, even after pyrexia^e have continued for some time, sweating has been successfully employed in curing them, as particularly in the case of rheumatism.

4. That certain fevers, produced by a very powerful sedative contagion, have been generally treated, so far as we yet know, most successfully by sweating.

168. These instances (167.) are in favour of sweating, but give no general rule; and it must be left to further experience to determine how far any general rule can be
esta-

established in this matter. In the mean time, if the practice of sweating is to be attempted, we can venture to lay down the following rules for the conduct of it.

1. That it should be excited without the use of stimulant inflammatory medicines.

2. That it should be excited with as little external heat, and with as little increase of the heat of the body, as possible.

3. That, when excited, it should be continued for a due length of time, not less than twelve hours, and sometimes for twenty-four or forty-eight hours; always, however, providing that it proceeds without the circumstances mentioned (165. 3. 4.)

4. That for some part of the time, and as long as the person can easily bear, it should be carried on without admitting of sleep *.

5. That it should be rendered universal over the whole body; and, therefore, particularly,

* This direction is not always absolutely necessary.

ticularly, that care be taken to bring the sweating to the lower extremities.

6. That the practice should be rendered safer by moderate purging, excited at the same time.

7. That it should not be suddenly checked by cold any how applied to the body.

169. When attention is to be given to these rules, the sweating may be excited,
1. By warm bathing, or a fomentation of the lower extremities. 2. By frequent draughts of tepid liquors, chiefly water, rendered more grateful by the addition of a light aromatic*, or more powerful by
N that

* The light aromatics here mentioned are sage, mint, balm, &c. For the purpose of sweating, white wines answer best, especially the thin French wines; as also Rhenish wines, particularly Hock. They must be taken warm and plentifully diluted. Wine whey is also a very powerful sudorific, as are also wheys made with vinegar, cream of tartar, the juices of acid fruits, or with dulcified spirit of nitre.

that of a small quantity of wine. 3. By giving some doses of neutral salts*. 4. Most effectually, and perhaps most safely, by a large dose of an opiate, joined with a portion of neutral salts, and of an emetic †. In

* Neutral salts may be given in the quantity of two scruples or a dram; but the patient must nevertheless drink large quantities of warm water. The Tartarus tartarizatus is the neutral most frequently used for producing sweats; its dose is generally ℥i. but it may be increased to two drams.

† This is the well known Dover's powder, now called in the London Pharmacopœia, Pulvis ipecacuanhæ compositus. It consists of 8 parts of neutral salt, one of opium, and one of ipecacuanh; so that 10 grains of it are an ordinary dose: But it has been given to the quantity of a scruple without any bad consequences, and that dose repeated every two or three hours till the effect was produced. In general, however, doses of 12 or 15 grains are the most usual, and are found by experience to be the best. The Dovers powder, when given in larger quantities, often nauseates, and is rejected by vomit. In the Edinburgh Pharmacopœia, the Dovers powder consists of 9 parts of neutral salt, one of opium, and one of ipecacuanh.

In what cases may cold water, thrown into the stomach in large quantities, be employed to excite sweating? See CELSUS, Lib. III. chap. vii.—ix.

170. The fourth means (153. 1.) of determining to the surface of the body, and thereby taking off the spasm affecting the extreme vessels, is by the use of emetics.

N 2

171. Eme-

cacuanh. The dose of this, therefore, will be nearly the same as the dose of the former; eleven grains of the Edinburgh Dovers powder being equivalent to ten of the London. In administering this powder it may be necessary to observe, that the patient ought to refrain from drinking for at least an hour after taking it, because it nauseates more readily if much diluted in the stomach; and if the nausea be so great as to produce vomiting, its effects as a sudorific are considerably diminished. When however, a sweat is produced, thin diluting drinks may, and ought to be plentifully given; for, in such cases, it is evident from the effect, that the medicine has passed out of the stomach, and that no material nausea can then be produced by it.

171. Emetics, and particularly antimonial emetics, have been employed in the cure of fevers ever since the introduction of chemical medicines: But, for a long time, they were employed by chemists and chemical practitioners only; and although of late the use of them has become very general, their efficacy is still disputed, and their manner of operating is not commonly explained*.

172. Vo-

* All the antimonial emetics are violent in their effects, and are sometimes attended with disagreeable consequences. Emetic tartar is found from experience to be the safest of them; but it is not always of the same strength, unless peculiar attention be paid to the making it. The prescription for it in the last Edinburgh Pharmacopœia is preferable to that in the London. Some chemists think that it would be better to use boiling water alone, and omit the alkaline salt; alleging that the alkali renders the precipitation variable in point of strength: But this opinion is erroneous. The alkali is used in order to free the precipitate more completely from any remains of the muriatic acid, making it thereby a milder powder and a more perfect calx.

172. Vomiting is, in many respects useful in fevers ; as it evacuates the contents of the stomach ; as it emulges the biliary and pancreatic ducts ; as it evacuates the contents of the duodenum, and perhaps also of a larger portion of the intestines ; as it agitates the whole of the abdominal viscera, expedes the circulation in them, and promotes their several secretions ; and lastly, by agitating also the viscera of the thorax, it has like effects there. All these several effects are, in many cases and circumstances of fever, procured with advantage ; but do not properly fall under our view here, where we are to consider only the effect of vomiting in determining to the surface of the body.

173. This effect we do not impute to the exercise of vomiting in agitating the whole frame ; but to the particular operation of emetics upon the muscular fibres of the stomach, whereby they excite the action of the extreme arteries on the surface

of the body, so as thereby effectually to determine the blood into these vessels, remove the atony, and take off the spasm effecting them.

174. That such is the power of emetics, will appear from the several considerations mentioned above (44.); and therefore, that they are remedies well suited to the cure of fevers.

175. Emetics, for that purpose, are administered in two different ways: That is, either in such doses as may excite full and repeated vomitings; or in such doses as may excite sickness and nausea only, with little or no vomiting at all.

176. Full vomiting is best suited to the several purposes mentioned (172.); and is also well suited to determine to the surface of the body, so as thereby to obviate the atony and spasm which lay the foundation of fever. Thus vomiting, excited a little
before

before the expected accession of the paroxysm of an intermittent, has been found to prevent the paroxysm altogether. And it has been observed also, that, when contagion has been applied to a person, and first discovers its operation, a vomit given will prevent the fever, which was otherwise to have been expected. See LIND *on Fevers and Infection*.

177. These are advantages to be obtained by exciting vomiting at the first approach of fevers, or of the paroxysms of fevers; and after fevers are formed, vomiting may also be employed, to take off, perhaps entirely, the atony and spasm, or at least to moderate these, so that the fever may proceed more gently and safely.

178. It is seldom, however, that vomiting is found to produce a final solution of fevers; and, after they are once formed, it is commonly necessary to repeat the vomiting several times; but this is attended

with inconvenience, and sometimes with disadvantage. The operation of full vomiting commonly soon ceases, and the exercise of vomiting is often a debilitating power; and therefore, when the vomiting does not remove the atony and spasm very entirely, it may give occasion to their recurring with greater force.

179. For these reasons, after fevers are fully formed, physicians have thought proper to employ emetics in nauseating doses only. These are capable of exciting the action of the extreme vessels, and their operation is more permanent. At the same time they often show their power by exciting some degree of sweat, and their operation is rendered more safe, by their commonly producing some evacuation by stool.

180. Such are the advantages to be procured by nauseating doses of emetics; and it only remains to mention, what are the medicines most fit to be employed in that manner,

manner, what are the most proper times for exhibiting, and what is the best manner of administering them.

181. The emetics at present chiefly in use, are, Ipecacuanha and Antimony.

The former may be employed for every purpose of emetics, particularly those mentioned (172.). It may likewise be employed, either in larger or smaller doses, for determining to the surface of the body: But, even in very small doses, it so readily excites vomiting, as to be with difficulty employed for the purpose of nauseating only; and, however employed, there is reason to believe, that its effects are less permanent, and less powerfully communicated from the stomach to the rest of the system, than those of Antimony.

182. This, therefore, is generally preferred; and its preparations, seemingly various, may all be referred to two heads: The *one* comprehending those in which the reguline part is in a condition
to

to be acted upon by acids ; and therefore, on meeting with acids in the stomach, becomes active : And the *other* comprehending those preparations in which the reguline part is already joined with an acid, rendering it active.

183. Of each kind there are great numbers, but not differing essentially from one another. It will be enough for us to compare the Calx Antimonii Nitrata of the Edinburgh Dispensatory with the Emetic Tartar of the same. The former, as I judge, is nearly the same with what is called James's Powder*. Which of these is best suited to the cure of fevers, as above explained, seems doubtful ; but it appears to me, that, although the former may have some

* The Pulvis antimonialis of the London Pharmacopœia is intended as a substitute for, or imitation of, James's powder. The dose of it is 7 or 8 grains. It is by no means so sure in its operations as the emetic tartar ; yet it has been much extolled by several eminent modern practitioners.

some advantages from its slower operation, and may thereby seem to be more certainly sudorific and purgative, yet the uncertainty of its dose renders it inconvenient, has often given occasion to the timid to be disappointed, and to the bold to do mischief. On the other hand, the dose of the Emetic Tartar can be exactly ascertained; and I think it may be exhibited in such a manner as to produce all the advantages of the other.

184. Whichsoever of these preparations be employed, I judge the most proper time for exhibiting them, to be the time of accessions; or a little before, when that can be certainly known. In continued fevers, the exacerbations are not always very observable; but there is reason to think, that one commonly happens about noon, or soon after it, and another in the evening; and that these, therefore, are the most proper times for exhibiting emetics.

185. With

185. With respect to the manner of administration, that of the Calx Nitrata is simple, as the whole of what is judged a proper dose is given at once, and no more can properly be given till the time of the next accession *.

The administration of the Emetic Tartar is different. It is to be given in small doses, not sufficient to excite vomiting; and these doses, after short intervals, are to be repeated for several times, till sickness, nausea, and some, but not much, vomiting, come on. The difference of this administration must depend upon the dose, and the length of the intervals at which it is given. If it be intended that the medicine should certainly operate by stool, the doses are made small, and the intervals long. On the contrary, when vomiting is proper, or when much purging ought to be avoided,

* The dose is ten or twelve grains. This calx, however, is very uncertain in its operations, some times acting with great violence, and sometimes scarcely producing any perceptible effects.

ed, and therefore some vomiting must be admitted, the doses are made larger and the intervals shorter *.

186. With respect to both kinds of preparations, the repetition is to be made at the times of accession, but not very often : For if the first exhibitions, duly managed, have little effect, it is seldom that the after exhibitions have much ; and it sometimes happens

* The dose of the *Antimonium tartarifatum* should never exceed three grains. The best method of giving it is, to dissolve three grains in six ounces of water ; and of this mixture give two table spoonfuls : if no vomiting ensues within twenty minutes, repeat the dose, and continue to give a table spoonful every ten minutes till the vomiting is excited, which must be encouraged by drinking plentifully of chamomile tea, or a thin water gruel. If the Emetic tartar be intended for a sudorific, two table spoonfuls of the following solution every two or three hours will perhaps be more proper than small doses of the other.

R. *Antimonii tartarifati* gr. ii.

Aq. Cinnamom. simpl. ℥ii.

— *Font.* ℥vi.

M. F. julap.

happens that the repeated vomitings, and especially repeated purgings, do harm by weakening the patient.

187. The other set of internal medicines, (152. 2.) which I suppose may be useful in taking off the spasm of the extreme vessels, are those named Antispasmodic. How many of these may be properly employed, I am uncertain; and their mode of operation is involved in great obscurity. It is certain, however, that opium, camphor, musk, and perhaps some others, have been employed in fevers with advantage; but the circumstances in which they are especially proper and safe, I find difficult to ascertain; and therefore cannot venture here to lay down any general doctrine concerning them.

188. The external means (151.) suited to take off the spasm of the extreme vessels, are BLISTERING and WARM BATHING.

189. What

189. What are the effects of Blistering, so frequently employed in fevers, is not yet agreed upon among physicians; and many different opinions have been maintained on this subject, drawn not only from reasoning, but also from presumed experience. I must not, however, enter into controversy; but shall deliver my own opinion in a few words.

190. I am persuaded, that the small quantity of cantharides absorbed from a blistering plaster, is not sufficient to change the consistence of the mass of blood: And therefore that such a quantity can neither do good, by resolving phlogistic lentor, if it exists; nor do harm, by increasing the dissolution of the blood arising from a putrid tendency in it. I therefore neglect entirely the effects of cantharides upon the fluids.

191. The inflammation produced by the application of cantharides to the skin, affords

fords a certain proof of their stimulant power: But, in many persons, the effect of that stimulus is not considerable; in many, it is not communicated to the whole system; and, even when the effect does take place in the whole system, it seems to be taken off, very entirely, by the effusion and evacuation of serum from the blistered part. I conclude, therefore, that neither much good is to be expected, nor much harm to be apprehended, from the stimulant power of blistering, and the certainty of this conclusion is established, by the great benefit arising from the proper practice of blistering in inflammatory diseases.

192. Much has been imputed to the evacuation occasioned by blistering; but it is never so considerable as to affect the whole system; and therefore can neither, by sudden depletion, relax the sanguiferous vessels, nor, by any revulsion, effect the general distribution of the fluids.

193. The

193. The evacuation, however, is so considerable as to affect the neighbouring vessels ; and the manifest utility of blistering near the part affected, in inflammatory diseases, leads me to believe, that blistering, by deriving to the skin, and producing an effusion there, relaxes the spasm of the deeper seated vessels. I apprehend it to be in this manner that the tumour of a joint, from an effusion into the cellular texture under the skin, takes off the rheumatic pain affecting that joint.

194. Analogous to this, it may be held, that the good effects of blistering in continued fevers, arise from its relaxing the spasm of the extreme vessels, by a communication of the blistered part with the rest of the skin ; and this is illustrated by the effect of blistering in colic and dysentery.

195. It appears to me, that blistering may be employed at any period of continued fevers ; but that it will be of most

advantage in the advanced state of such fevers, when, the reaction being weaker, all ambiguity from the stimulant power of blistering is removed, and when it may best concur with other circumstances tending to a final solution of the spasm.

196. From the view of this matter given in 193. and 194. it will appear, that the part of the body to which blisters ought to be applied, is indifferent, excepting upon the suspicion of topical affection, when the blistering ought to be made as near as possible to the part affected.

197. Whether SINAPISMS, and other RUBEFACIENTIA, act in a manner analogous to what we have supposed of blistering, may be doubtful ; but their effects in rheumatism, and other inflammatory diseases, render it probable.

198. The other external means of taking off the spasm of the extreme vessels, is
Warm

Warm Bathing. This was frequently, and in various circumstances, employed by the ancients ; but till very lately has been neglected by modern physicians. As the heat of the bath stimulates the extreme vessels, and, with the concurrence of moisture, also relaxes them, it seems to be a safe stimulus, and well suited to take off the spasm affecting them.

199. It may be applied to the whole body by immersion ; but this is, in many respects, inconvenient ; and whether some of the inconveniences of immersion might not be avoided by a vapour-bath, I have not learned from experience. I know, however, from much experience, that most of the purposes of warm-bathing can be obtained by a fomentation of the legs and feet, if properly administered, and continued for a due length of time, which ought not to be less than an hour.

200. The marks of the good effects of

such a fomentation, are, the patient's bearing it easily, its relieving delirium, and inducing sleep.

201. Having now considered the several means of satisfying the first general indication in the cure of fevers, I proceed to the second, (126.), which is, *To remove the cause, or obviate the effects of debility.*

202. Most of the sedative powers inducing debility, cease to act soon after they have been first applied ; and, therefore, the removing them is not an object of our present indication. There is only one which may be supposed to continue to act for a long time ; and that is, the contagion applied : But we know nothing of the nature of contagion that can lead us to any measures for removing or correcting it. We know only its effects as a sedative power inducing debility, or as a ferment inducing a tendency to putrefaction in the fluids. The obviating the latter will be considered
under

under our third general indication, and the former alone is to be considered here.

203. The debility induced in fevers by contagion, or other causes, appears especially in the weaker energy of the brain ; but in what this consists, or how it may be directly restored, we do not well know. As Nature, however, does, seemingly for this purpose, excite the action of the heart and arteries, we ascribe the continuance of debility to the weaker reaction of the sanguiferous system ; so that the means to be employed for obviating debility, are immediately directed to support and increase the action of the heart and arteries ; and the remedies used are TONICS or STIMULANTS.

204. In contagious diseases, both from the effects which appear, and from dissections, it is known, that the tone of the heart and arteries is considerably diminish-

ed ; and that tonic remedies, therefore, are properly indicated.

These are to be considered as of two kinds ; the first being the power of cold, the second that of tonic medicines.

205. The power of cold, as a tonic, I have mentioned above (90.) ; and it is employed, in fevers, in two ways ; either as the cold matter is thrown into the stomach, or as it is applied to the surface of the body.

206. As it has been shown above, that the tonic power of cold can be communicated from any one part to every other part of the system ; so it will readily be allowed, that the stomach is a part as fit for this communication as any other ; and that cold drink, taken into the stomach, may therefore prove an useful tonic in fevers.

207. This the experience of all ages has
con-

confirmed : But, at the same time, it has been frequently observed, that, in certain circumstances, cold drink, taken into the stomach, has proved very hurtful ; and, therefore, that the use of cold drink in fevers requires some limitations. What these limitations should be, and what are all the circumstances which may forbid the use of cold drink, is difficult to determine ; but it seems clearly forbidden, in all cases where a phlogistic diathesis prevails in the system, and more especially when there are topical affections of an inflammatory nature.

208. The other method of employing cold as a tonic, is, by applying it to the surface of the body. The application of cold air to the surface of the body, as a refrigerant power fit to moderate the violence of reaction, I have spoken of above (133.) ; but probably it may also be considered here as a tonic, and useful in cases of debility.

209. Not only cool air, but cold water also may be applied to the surface of the body, as a refrigerant, and perhaps as a tonic. The ancients frequently applied it with advantage, to particular parts, as a tonic ; but it is a discovery of modern times, that in the case of putrid fevers, attended with much debility, the body may be washed all over with cold water.

210. This was first practised at Breslaw in Silesia, as appears from a dissertation, under the title of *Epidemia verna quæ Wratislaviam, anno 1737, afflixit*, to be found in the appendix to the *Acta Nat. Curios.* Vol. X. And from other writers we find, that the practice has passed into some of the neighbouring countries ; although in this island, so far as I know, we have hitherto had no experience of it.

211. The medicines which have been employed in fevers, as tonics, are various. If the *Saccharum Saturni* has been found
useful,

useful, it is, probably, as a tonic, rather than as a refrigerant ; and the *Ens Veneris*, or other preparations of iron which have been employed, can act as tonics only. The preparations of copper, from their effects in epilepsy, are presumed to possess a tonic power ; but, whether their use in fevers be founded upon their tonic or their emetic powers, may be uncertain. The use of arsenic and of alum, in intermittent fevers, seems manifestly to depend upon their tonic power. And, upon the whole, there may occur cases of continued fevers, which may be cured by tonics taken from the fossil kingdom : But the use of these has been rare, as well as the effects uncertain ; and physicians have employed, more commonly, the vegetable tonics.

212. A great variety of these has been employed in the cure of intermittent fevers ; but how many of them may be employed in continued fevers, or in what circumstances of these fevers, is not well ascer-

certained ; and I shall now only consider the question with respect to the most celebrated of these tonics, the Peruvian Bark*.

213. This

* When or how the inhabitants of Peru first discovered the febrifuge powers of this bark is involved in fable and uncertainty. They appear, however, to have long known its virtue, although we have no proofs of their revealing it to the Europeans before the middle of the last century. The Spaniards call the tree which produces it *Palo de Calenturas*, or fever tree. Linne calls it *Cinchona officinalis*, in memory of the Countess de Cinchon, the Spanish viceroy's Lady in Peru, who was the first European that had been cured by it. It was first brought into Italy by a Jesuit about the year 1649, and distributed through Europe by the fathers of that order ; hence the names *Cortex* and *Pulvis Jesuiticus*, *Pulvis Patrum*. By Cardinal de Lugo's influence a cargo of it was procured and brought to Rome soon after ; whence it received the name of *Pulvis Cardinalis de Lugo*.

As this bark is a medicine of considerable importance, it may not be improper to join a short description of the external qualities of the best sort. It is in concave pieces, scarcely ever exceeding the fourth part of a cylinder cut longitudinally. It breaks short, and when
broken

213. This bark has been commonly considered as a specific, or as a remedy of which

broken evidently appears to be composed of three distinct and separate coats, viz. one outer thin coat, that is somewhat rugged, often covered with moss of different kinds, and is of a reddish brown colour like cinnamon. The middle coat is considerably thicker, of a closer texture and deeper colour than the first, and is less brittle but more resinous than any other part. The third or innermost coat is woody and fibrous, and of a brightish red, at least considerably brighter than either of the others. From this description of the bark, great care must be taken in powdering it, not to leave much gross powder, but to pass the whole of it through the sieve, because the most resinous, and consequently the most effectual, part of the bark is the longest and most difficult to powder.

With respect to the two kinds of bark so much talked of and noticed a few years ago, it may be proper to observe, that they seem to be the production of the same tree. The Spaniards always selected such pieces as those above described out of the original packages, and rejected the thin, pale, and quilled sort, which the English preferred. It is certain that both the red, pale quilled, and a variety of gradation between them, all occur in the same chest as originally imported; and
it

which the operation was not understood. But it is certainly allowable to inquire into this matter ; and I apprehend it may be explained.

214. To this purpose it is to be remarked, that as, in many cases, the effects of the bark are perceived soon after its being taken into the stomach, and before it can possibly be conveyed to the mass of blood, we may conclude, that its effects do not arise from its operating on the fluids ; and must, therefore, depend upon its operating on the nerves of the stomach, and being thereby communicated to the rest of the nervous system. This operation seems to be a tonic power, the bark being a remedy in many cases of debility, particularly in
gangrene :

it is extremely improbable, that the bark of different kinds of trees should be packed together. Be this matter however as it may, experience gives the preference to what is called the red bark, and this sort ought surely to be used.

gangrene: And, as the recurrence of the paroxysms of intermittent fevers depends upon a recurrence of atony, (35. and 36.), so probably the bark, by its tonic power, prevents the recurrence of these paroxysms; and this is greatly confirmed by observing, that many other tonic medicines answer the same purpose.

215. If the operation of the bark may be thus explained, from its possessing a tonic power, it is easy to perceive why it is improper when a phlogistic diathesis prevails; and, from the same view, we can ascertain in what cases of continued fever it may be admitted. These are either after considerable remissions have appeared, when it may be employed to prevent the return of exacerbations, on the same footing that it is used in intermittent fevers: or in the advanced state of fevers, when all suspicion of an inflammatory state is removed, and a general debility prevails in the system; and its being then employed

is sufficiently agreeable to the present practice.

216. With respect to the use of the bark, it is proper to add, that good effects are to be expected from it, almost only when given in substance and in large quantity*.

217. Another set of medicines to be employed for obviating debility and its effects, are the direct stimulants (203.). These, in some measure, increase the tone of the moving fibres ; but they are different from the tonics, as more directly exciting and in-

* The doses of the bark can only be determined from the state of the patient's stomach and the violence of the disease : It is usual to give a dram of the powder at a dose, and repeat it every two or three hours, according to the exigency of the case, or the state of the patient's bowels. It frequently passes off by stool when given too liberally ; this inconvenience is obviated by giving a few drops, 8 or 12, of laudanum with each dose.

increasing the action of the heart and arteries. This mode of their operation renders the use of them ambiguous ; and when an inflammatory diathesis is present, as so often happens in the beginning of fevers, the effects of these stimulants may be very hurtful ; but it still remains probable, that, in the advanced state of fevers, when debility prevails, they may be useful.

218. What are the stimulants that may be most properly employed, I am uncertain, as the use of them in this age has been rare ; but I am disposed to believe that, of all kinds, wine is the best.

219. Wine has the advantage of being grateful to the palate and stomach, and of having its stimulant parts so much diluted, that it can be conveniently given in small dozes ; so that it may be employed with sufficient caution : But it is of little service unless taken pretty largely*.

220. It

* Wine is a valuable cordial, and is much superior
to

220. It may be supposed, and on good grounds, that wine has an operation analogous to that of opium and some other narcotic medicines. It may indeed be said, that we can distinctly mark its stimulant power only, which renders its effects in the phrenitic delirium manifestly hurtful, and, in the mild delirium, depending on debility, as remarkably useful. But in all this, the analogy with opium is still obvious; and it is probable, that both wine and opium are more useful by their sedative and antispasmodic, than by their stimulant powers.

221. These

to most other stimulants; it raises the pulse, supports the vis vitæ, promotes diaphoresis, and resists putrefaction.

With respect to the medical differences of wines, it may suffice to observe, that the effects of full bodied wines are more lasting than those of the thinner. Red wines are subastringent, and consequently possess a tonic virtue, and are hence more proper in fevers of all kinds where wine is at all admissible, than white wines are. All sweet wines are nutritive and in general more stimulating than others; but they heat much, and are apt to turn sour on the stomach,

221. These are the means of answering our second general indication (126. 2.); and I now proceed to the third, which is, *To obviate or to correct the tendency of the fluids to putrefaction.*

222. This may be done,

1. By avoiding any new application of putrid or putrescent matter.

2. By evacuating the putrid or putrescent matter already present in the body.

3. By correcting the putrid or putrescent matter remaining in the body.

4. By supporting the tone of the vessels, and thereby resisting further putrefaction, or obviating its effects.

223. The further application of putrid or putrescent matter may be avoided,

1. By removing the patient from places filled with corrupted air.

2. By correcting the air from which he cannot be removed.

3. By preventing the accumulation of the patient's own effluvia, by a constant

ventilation, and by a frequent change of bed-clothes and body-linen.

4. By the careful and speedy removal of all excremental matters from the patient's chamber.

5. By avoiding animal food, or correcting it.

224. The putrid or putrescent matter, already present in the body, may be evacuated partly by evacuating frequently the contents of the intestines*; and more effectually still, by supporting the excretions of

* The evacuants to be used in these cases are, the milder purges, such as manna, &c. Rhubarb and Senna may also be used; but we must avoid the drastic purges, such as jalap, scammony, aloes, and similar resinous purges. Calomel has been found very useful in these cases: It may be given to the quantity of 8 or 10 grains, and three ounces of the Infusum sennæ with half an ounce of Glauber's salt may be given, about 10 or 12 hours after it, to accelerate its operation.

of perspiration and urine, by the plentiful use of diluents*.

225. The putrid or putrescent matter, remaining in the body, may be rendered more mild and innocent by the use of diluents; or may be corrected by the use of antiseptics. These last are of many and various kinds; but which of them are conveniently applicable, or more particularly suited to the case of fevers, is not well ascertained. Those most certainly applicable and useful, are, acids† of all kinds,

P 2

acescent

* The diluents necessary in these cases must all be mixt with a little port wine or claret. Warm Port wine and water is the best diluent.

† Whether all kinds of acids are to be used as antiseptics is somewhat doubtful. The mineral acids, especially the vitriolic, have been much recommended; but the vegetable acids seem much more efficacious. As their mildness allows us to give them in very large quantities, and as they more easily enter into a union with the animal fluids than the fossile acids do, they seem

acescents aliments, neutral salts *, and fixed air †.

226. The

seem more suitable antiseptics in these cases. Whether there is any difference between the native vegetable acids and vinegar, with respect to their antiseptic qualities, was formerly much disputed by practitioners. Physicians, however, have now settled this question; and are generally of opinion, that, in cases of putrescence arising from fevers, the fermented acid is most proper; but, in cases of putrescence without fever, they prefer the native acid juices.

* The antiseptic power of the different neutral salts is extremely various. According to the reasoning in the foregoing note, those consisting of a vegetable acid base ought to be preferred; and indeed experience confirms the opinion. The Spiritus Mindereri would perhaps be useful, if it could be prevented from passing too hastily off by sweat and urine. In doses of a dram every two hours, it is less subject to promote sweat and urine, than when given in the usual dose of half an ounce. Lemon juice, saturated with volatile alkali, has often been successfully used in these cases; especially when they are taken either in the act of effervescence, or separately, the one immediately after the other.

† The antiseptic qualities of fixed air are much doubted

226. The progress of putrefaction may be considerably retarded, and its effects ob-

P 3

viated,

doubted by several eminent physicians. The giving it is frequently very difficult, and sometimes even impossible.

The author might have added several other antiseptics to the short list he has given : What he has mentioned, however, are such as are generally used, or approved of by practitioners. Camphor is a considerable antiseptic, but it is of too heating a quality to be given in such quantities as seem necessary. The common dose of it is from one to ten grains, and it is best exhibited in the form of a bolus ; in which form it may also be joined with some other antiseptic, as

R. Camphor. gr. viii.

Spt. Vini gutt. x.

Pulv. Rad. Contrayerv. ℥ii.

Syr. simpl. q. f.

M. f. bol.

This dose may be repeated every six hours, or oftener, especially if the pulse be low or weak. In using camphor the practitioner ought to remember that this medicine, when given in large quantities, frequently occasions delirium. Peculiar attention must therefore be paid to that symptom, and the doses of camphor regulated with caution.

viated, by supporting the tone of the vessels : And this may be done by tonic remedies ; the chief of which are, Cold, and Peruvian Bark, both sufficiently treated of above, (205. *et seq.*)

227. I have now finished the consideration of the three general indications to be formed in the cure of continued fevers ; and have mentioned most of the remedies which have been, upon any occasion, employed in this business. It was necessary, in the first place, to consider these indications and remedies separately, and to explain the operation of the latter more generally : But, from what has been now delivered, compared with what was said above, concerning the difference of fevers, and the signification of their several symptoms in forming the prognostic, I expect it will not be difficult to assign the indication, and to select and combine the several remedies mentioned, so as to adapt them to the several species and circumstances of continued fevers.

I think it may be useful for my Readers to have the whole of the cure of CONTINUED FEVERS brought under one View, as in the following TABLE.

In the Cure of CONTINUED FEVERS,
The INDICATIONS are,

I. *To moderate the violence of reaction.*

Which may be done, by

i. Diminishing the action of the heart and arteries, by

A. Avoiding or moderating those irritations which are almost constantly applied to the body ; as,

a. The impressions made upon our senses, articularly,

α . Increased heat, whether arising from

$\alpha\alpha$. External heat, or,

P 4

$\beta\beta$. The

- ββ. The accumulation of the heat of the body.
- b. The exercise of the body,
- c. The exercise of the mind,
- d. The taking in of aliment.
- e. Particular irritations arising from
 - α. The sense of thirst,
 - β. Crudities, or corrupted humours, in the stomach,
 - γ. The preternatural retention of fæces,
 - δ. A general acrimony of the fluids.
- B. Employing certain sedative powers ;
 - as,
 - a. Cold,
 - b. Refrigerants ; the chief of which are,
 - α. Acids of all kinds,
 - β. Neutral salts,
 - γ. Metallic salts.
- C. Diminishing the tension and tone of the arterial system, by
 - a. Blood-letting,
 - b. Purging.

b. Purgings.

2. Taking off the spasm of the extreme vessels, by

A. Internal means ; which are,

a. Those remedies which determine to the surface, as,

α . Diluents,

β . Neutral salts,

γ . Sudorifics,

δ . Emetics.

b. Those remedies named Antispasmodics.

B. External means ; as,

a. Blistering,

b. Warm bathing.

II. *To remove the causes, or obviate the effects, of debility, by*

1. Supporting and increasing the action of the heart and arteries, by

A. Tonics, as,

a. Cold,

b. Tonic medicines, which are either,

α . Fossile,

α . Fossil, as,

$\alpha\alpha$. Saccharum saturni, &c. or,

β . Vegetable, as,

$\alpha\alpha$. Peruvian bark.

B. Stimulants, as,

a. Aromatics, &c.

b. Wine.

III. *To obviate or correct the tendency of the fluids to putrefaction, by*

I. Avoiding the application of purid or putrescent matter, by

A. Removing the patient from places filled with corrupted air.

B. Correcting the air from which he cannot be removed.

C. Avoiding the accumulation of the patient's own effluvia, by

a. A constant ventilation,

b. Frequently changing the bed-clothes and body-linen.

D. Removing carefully and speedily all excremental matters.

E. Avoiding

- E. Avoiding animal food, or correcting it.
2. Evacuating the putrid or putrescent matter already present in the body, by
- A. Evacuating frequently the intestines.
 - B. Supporting the excretions of perspiration and urine, by
 - a. Diluents,
 - b. Neutral salts.
3. Correcting the putrid or putrescent matter remaining in the body, by
- A. Diluents,
 - B. Antiseptics,
 - C. Fixed air.
4. Resisting farther putrefaction, or obviating its effects, by
- Supporting the tone of the vessels, by
 - Tonic remedies.

S E C T. II.

Of the Cure of INTERMITTENT FEVERS.

228. It still remains to consider the cure of intermittent fevers ; and with respect to these, we form also three general indications.

1. *In the time of intermission, to prevent the recurrence of paroxysms.*

2. *In the time of paroxysms, to conduct these so as to obtain a final solution of the disease.*

3. *To take off certain circumstances which might prevent the fulfilling of the two first indications.*

229. The first indication may be answered in two ways :

1. By

1. By increasing the action of the heart and arteries some time before the period of accession, and supporting that increased action till the period of the accession be over, so as thereby to prevent the recurrence of the atony and spasm of the extreme vessels which give occasion to the recurrence of paroxysms.

2. Without increasing the action of the heart and arteries, the recurrence of paroxysms may be prevented, by supporting the tone of the vessels, and thereby preventing atony, and the consequent spasm.

230. For the purpose mentioned in (229. 1.), the action of the heart and arteries may be increased,

1. By various stimulant remedies, internally given, or externally applied, and that without exciting sweat.

2. By the same remedies, or others so managed as to excite sweating, and to support that sweating till the period of accession be for some time past.

3. By

3. By nauseating doses of emetics, given about an hour before the time of accession, thereby supporting and increasing the tone and action of the extreme vessels.

231. The tone of the extreme vessels may be supported without increasing the action of the heart and arteries (229. 2.) by various tonic medicines ; as,

1. Astringents alone.
2. Bitters alone.
3. Astringents and bitters conjoined.
4. Astringents and aromatics conjoined.
5. Certain metallic tonics.
6. Opiates.

Lastly, An impression of horror.

A good deal of exercise, and as full a diet as the condition of the patient's appetite and digestion may allow of, will be proper during the time of intermission, and may be considered as belonging to this head.

232. Of all the tonic remedies mentioned

ed (231.), the most celebrated, and perhaps the most certainly effectual, is the Peruvian bark, the tonic power of which we have endeavoured to demonstrate above (214.), and have at the same time explained its use in continued fevers.

The same observation as made in (216.) is especially proper in the case of intermittents: And further, with respect to these, the following observations or rules are offered here.

1. That the bark may be employed with safety at any period of intermittent fevers, providing that, at the same time, there be neither a phlogistic diathesis prevailing in the system, nor any considerable or fixed congestion present in the abdominal viscera.

2. The proper time for exhibiting the bark in intermittent fevers, is during the time of intermission; and where intermissions are to be expected, it is to be abstained from in the time of paroxysms.

3. In remittents, though no entire apyrexia

rexia occurs, the Bark may be given during the remissions ; and it should be given, even though the remissions be inconsiderable, if, from the known nature of the epidemic, intermissions or considerable remissions are not to be soon expected, and that great danger is apprehended from repeated exacerbations.

4. In the case of genuine intermittents, while a due quantity of Bark is to be employed, the exhibition of it ought to be brought as near to the time of accession as the condition of the patient's stomach will allow.

5. In general, in all cases of intermittents, it is not sufficient that the recurrence of paroxysms be stopped for once by the use of the bark ; a relapse is commonly to be expected, and should be prevented by the exhibition of the bark, repeated at proper intervals *.

233. Our

* The quantity of bark to be given in the intermission

233. Our second general indication for conducting the paroxysms of intermittent fevers,

sion must be as great as the stomach can possibly bear. It is very common to give two ounces during the intermission, in doses of half a dram or two scruples every hour, especially in quartans. But it has been found more successful in its operations, when we begin with small doses, viz. ℥i. in the commencement of the intermissions, and increase the doses to ℥i. towards the end of it. The bark sometimes fits better on the stomach by adding to it about an eighth or a fourth of its weight of some aromatic antiseptic. Virginian snake root answers this intention very well. An ounce of red bark and two drams of snake root taken during the intermission of a tertian, if the stomach can bear it, or if no diarrhoea comes on, generally prevents the next paroxysm. In case of diarrhoea being produced by bark, ten or twelve drops of laudanum are to be given three or four times with each dose of the bark.

The substances generally joined with the bark in prescription, seem calculated either to promote its efficacy or reduce it to the intended form, without having regard to the agreeableness of the composition. This however is a point of great consequence, as the taste of

fevers, so as to obtain a final solution of the disease, may be answered.

I. By

the bark, and the large quantity of it necessary for the cure, make the patient frequently loath it before its use ought to be discontinued. When made into an electuary or bolus with syrups, it sticks about the mouth and fauces; whence its taste remains a long while; but, when made into an electuary with mucilages, it passes down freely, scarcely leaving any taste behind it. The taste of the bark is very effectually concealed by liquorice root in a decoction, or by the extract in an electuary. The extract of logwood also conceals the taste of the bark, and an electuary made with it, and a sufficient quantity of mucilage, is a very elegant form. Decoction, infusions, and tinctures of the bark are much less efficacious than the substance.

The extract and the resin are seldom employed in the cure of intermittents, except when other forms will not sit on the stomach. The formula in the last London Pharmacopœia is the best, being a compound of both the extract and resin; for the watery extract is strong in bitterness, but weak in astringency, and the resin is strong in astringency, but weak in bitterness, and both qualities are necessary for curing intermittents.

About

1. By exhibiting emetics during the time
Q₂ of

About ten or twelve grains of the extract are equivalent to half a dram of the powder.

When a paroxysm has been stopped by the bark, it is by no means safe to abandon the use of this medicine altogether, as a relapse is always to be apprehended. The doses are to be gradually diminished, and the intervals between the times of giving them are to be increased : After tertians, we may diminish the quantity daily one half, till we arrive at two drams ; and these two drams ought to be continued in doses of two scruples thrice a day for eight days ; after which period, two scruples ought to be given night and morning for a week longer : After quartans, when the dose is reduced to two drams a day, it will be prudent to continue giving this quantity daily for a fortnight, and half a dram night and morning for a fortnight longer.

In order the more effectually to prevent a relapse, great attention must be paid to diet and regimen. Patients are generally extremely voracious after the cure of intermittents ; and indeed they require considerable nutrition to supply the waste occasioned by the fever. Small quantities of food are to be taken at once and to be
be

of the cold stage, or at the beginning of the hot.

2. By

be often repeated ; and the most nutritive, and at the same time easily digestible food, must be chosen, as broths with barley and white flesh meat, roast lamb, veal, chickens, new laid eggs, broild fresh fish, &c. Acrid, acescent, and irritating aliments, and acids are to be carefully avoided. The drink ought to be in moderate quantity, but rich and strong ; as mild ale, Port wine and water.

With respect to the regimen proper for convalescents from intermittents, it may suffice to observe, that sleep may be indulged in. Exercise without fatigue is of great use, either by walking, by riding on horse back, or in a carriage, according to the strength of the patient. But, above all, cold must be carefully avoided ; for nothing more effectually produces a relapse than an imprudent exposure to cold damp air, or a neglect in keeping the body properly clothed.

The practice of giving purges after the cure of intermittents is highly blameable, and is frequently the cause of a relapse. Should costiveness be troublesome, it may be removed by very mild emollient clysters.

2. By opiates given during the time of the hot stage *.

234. The circumstances which may especially prevent the fulfilling of those two indications, and therefore give occasion to our third, are, a phlogistic diathesis prevailing in the system, and congestions fixed in the abdominal viscera. The first must be removed by blood-letting and the antiphlogistic regimen ; the second, by vomiting and purging.

Where these measures are not immediately effectual, I hold it safer to attempt

Q₃

the

* This practice, of giving vomits in the end of the cold stage and an opiate after their operation, is old. It is mentioned by Sydenham, Boerhaave, Van Swieten, and most practical writers. It must not however be indiscriminately used. It is seldom attended with any salutary effect, except in vernal intermittents, and in the earlier periods of the disease ; and it is constantly attended with disadvantage when the disease has been of long continuance.

the cure of the disease by the means pointed out in general in (229.) rather than by those in article second of the same paragraph.

BOOK

B O O K II.

OF INFLAMMATIONS,
OR PHLEGMASIÆ.

C H A P. I.

OF INFLAMMATION IN GENERAL.

S E C T. I.

Of the PHENOMENA *of* INFLAMMATION.

235. **W**HEN any part upon the surface of the body is affected with unusual redness, heat, pain, and tumour, we name the disease an Inflammation

tion or Phlegmasia. These symptoms of inflammation are never considerable, without the whole system being, at the same time, affected with pyrexia.

236. As the external, so likewise the internal, parts may be affected with inflammation; and we judge them to be so, when, together with pyrexia, there is a fixed pain in any internal part, attended with some interruption in the exercise of its functions.

237. We judge of the presence of inflammation also from the state of the blood drawn out of the veins. When the blood, after cooling and concreting, shows a portion of the gluten separated from the rest of the mass, and lying on the surface of the crassamentum; as such separation happens in all cases of more evident phlemaisia; so in ambiguous cases, we, from this appearance, joined with other symptoms, infer the presence of inflammation. At
the

the same time, it must be observed, that as several circumstances in blood-letting may prevent this separation of gluten from taking place in blood otherwise disposed to it ; so, from the absence of such appearance, we cannot always conclude against the presence of inflammation.

238. I cannot easily give any other general history of the phenomena of inflammation than what is contained in the three preceding paragraphs ; and the variations which may take place in its circumstances will occur to be more properly taken notice of under the several heads of the particular genera and species to be hereafter mentioned. I proceed, therefore, to enquire into the proximate cause of inflammation in general.

S E C T.

S E C T. II.

Of the PROXIMATE CAUSE of INFLAMMATION.

239. The phenomena of inflammation (235.) all concur in showing, that there is an increased impetus of the blood in the vessels of the part affected; and as, at the same time, the action of the heart is not always evidently increased, there is reason to presume, that the increased impetus of the blood in the particular part is owing especially to the increased action of the vessels of that part itself.

240. The cause of this increased action in the vessels of a particular part is, therefore,

fore, what we are to inquire after, and to consider as the proximate cause of inflammation.

In many cases, we can manifestly perceive, that inflammation arises from the application of stimulant substances to the part. When the application of such stimulants, therefore, is evident, we seek for no other cause of inflammation; but as, in many cases, such application is neither evident, nor, with any probability, to be supposed, we must, in such cases, seek for some other cause of the increased impetus of the blood in the vessels of the part.

241. Many physicians have supposed, that an obstruction of the extreme vessels, any how produced, may prove a cause of inflammation; and particularly, that this may arise from an obstruction formed by a matter stopping up these vessels. But many difficulties attend this doctrine*.

1. The

* This is the Boerhaavian doctrine which the author
here

1. The opinion seems chiefly to have arisen from the appearance of the blood described in (237.) when the separated gluten was considered as a preternatural and morbid matter: But we now know very certainly, that this gluten is constantly a constituent part of the human blood; and that it is only a peculiar separation of the parts of the blood, that happens in consequence of inflammation and some other circumstances, which gives occasion to the appearance that was falsely considered as a mark of the morbid lentor in the blood.

2. There are no experiments directly in proof of a preternatural lentor prevailing in the mass of blood; nor is there any evidence of certain parts of the blood occasionally

here refutes. Many objections might be made against several parts of this refutation; but to examine it minutely, is foreign to my purpose, and would require more room than the narrow limits of these notes can possibly allow.

casionally acquiring a greater density and force of cohesion than ordinary ; neither is there any proof of the denser, or more coherent parts, being present in the mass of blood in such greater proportion than usual, as to occasion a dangerous spissitude. The experiments of Dr Browne Langrish on this subject afford no conclusion, having been made on certain parts of the blood separated from the rest, without attending to the circumstances of blood-letting, which very much alter the state of the separation and concretion of the blood drawn out of the veins.

3. The supposition of a preternatural lentor or viscosity of the blood, is not well founded ; for it is probable, that nature has specially provided against a state of the fluids, so incompatible with the exercise of the most important functions of the animal œconomy. While motion continues to prevent any separation of parts, and heat continues to preserve the fluidity of the more viscid, there seems to be always so large a proportion of water present

sent as to give a sufficient fluidity to the whole. I must own that this is not absolutely conclusive ; but I still repeat it, as giving a probability to the general argument.

4. In the particular case of inflammation, there are several circumstances which render it probable that the blood is then more fluid than usual.

5. I presume that no such general lentor, as Boerhaave and his disciples have supposed, does ever take place ; because, if it did, it must show more considerable effects than commonly appear.

6. Besides the supposition of an obstructing lentor, physicians have supposed, that an obstruction may be formed by an impermeable matter of another kind, and that such an obstruction may also be the cause of inflammation. This supposition is what is well known in the schools under the title of an *error loci* ; but it is an opinion that I cannot find to be at all probable : For the motion of the blood in the extreme
vessels

vessels is so weak and slow, as readily to admit a retrograde course of it ; and therefore, if a particle of blood should happen to enter a vessel whose branches will not allow of its passage, it will be moved backwards, till it meet with a vessel fit for transmitting it ; and the frequent ramifications and anastomoses of the extreme arteries are very favourable to this. I must own indeed, that this argument is not absolutely conclusive ; because I allow it to be pretty certain, that an *error loci* does actually upon occasion happen : But, for the reasons I have given, it is probable that it seldom happens, and is therefore rarely the cause of inflammation ; or, if it be, that it is not merely by the obstruction that it produces ; as, among other reasons, I conclude particularly from the following argument.

7. Though an obstruction should be supposed to take place, it will not be sufficient for producing the effects, and exhibiting the phenomena, that appear in inflammation. The theory that has been
commonly

commonly employed on this occasion is by no means satisfying ; and, in fact, it appears from many observations and experiments, that considerable obstructions may be formed and may subsist, without producing the symptoms of inflammation.

252. Obstruction, therefore, from a matter stopping up the vessels, *Gaub. Patbol.* 249. i. is not to be considered as the primary cause of inflammation ; but, at the same time, it is sufficiently probable, that some degree of obstruction does take place in every case of inflammation. The distension, pain, redness, and tumour, attending inflammation, are to be explained only by supposing, that the extremities of the arteries do not readily transmit the unusual quantity of blood impelled into them by the increased action in the course of these vessels. Such an obstruction may be supposed to happen in every case of an increased impetus of the blood ; but it is probable, that, in the case of inflammation, there
is

is also a preternatural resistance to the free passage of the fluids.

243. From the doctrine of fever, we are led to believe, that an increased action of the heart and arteries is not supported for any length of time by any other means than a spasm affecting the extreme vessels; and that the same spasm takes place in inflammation, seems likely, because that every considerable inflammation is introduced by a cold stage, and is accompanied with that and other circumstances of pyrexia. It seems also probable, that something analogous to this occurs even in the case of those inflammations which appear less considerable, and to be purely topical.

244. From all this, the nature of inflammation may in many cases be explained in the following manner. Some causes of inequality in the distribution of the blood may throw an unusual quantity of it upon particular vessels, to which it must necessa-

rily prove a stimulus. But, further, it is probable, that, to relieve the congestion, the *vis medicatrix nature* increases still more the action of these vessels; and which, as in all other febrile diseases, it effects by the formation of a spasm on their extremities.

245. A spasm of the extreme arteries, supporting an increased action in the course of them, may therefore be considered as the proximate cause of inflammation; at least, in all cases not arising from direct stimuli applied; and even in this case the stimuli may be supposed to produce a spasm of the extreme vessels.

246. That, in inflammation, there is the concurrence of a constriction of the extreme vessels, with an increased action in the other parts of them, seems probable, from the consideration of Rheumatism. This is a species of inflammation which is often manifestly, produced either by cold applied to over-distended vessels, or by causes

ses of an increased impetus, and over-distension in vessels previously constricted. Hence the disease especially appears at seasons liable to frequent and considerable vicissitudes of heat and cold.

To this we may add, that the parts of the body most frequently affected with inflammation, are those exposed, both to over-distension, from a change in the distribution of the fluids, and, at the same time, to the immediate action of cold. Hence, quinries, and pneumonic inflammations, are more frequent than any others.

247. That a spasm of the extreme vessels takes place in inflammation, is to be further presumed from what is at the same time the state of the whole arterial system. In every considerable inflammation, though arising in one part only, an affection is communicated to the whole system, in consequence of which an inflammation is readily produced in other parts besides that first affected. This general affection is

well known among physicians, under the name of the DIATHESIS PHLOGISTICA. It appears most commonly in persons of the most rigid fibres ; is often manifestly induced by the tonic or astringent powers of cold ; is increased by all tonic and stimulant powers applied to the body ; is always attended with a hardness of the pulse ; and is most effectually taken off by the relaxing power of blood-letting. From these circumstances, it seems probable, that the diathesis phlogistica consists in an increased tone, or contractility, and perhaps in an increased contraction of the muscular fibres of the whole arterial system. Such a state of the system seems often to arise, and subsist for some time, without the apparent inflammation of any particular part ; but such a state of the system renders it likely, that a spasm may, at the same time, readily arise in any of the extreme vessels, and a particular inflammation be there produced. It does, however, appear also, that the general diathesis frequently arises from

from inflammation begun in a particular part.

248. I have thus endeavoured, in the case of inflammation, to explain the state of the whole system, as well as that of the part more particularly affected. The latter I have considered as when in its first formation; but after it has subsisted for some time, various changes take place in the part affected; and of these I must now take notice.

S E C T. III.

OF THE
T E R M I N A T I O N S
OF
I N F L A M M A T I O N.

249. If an inflammation be cured while the state and texture of the part remain entire the disease is said to be terminated by RESOLUTION.

This happens when the previous congestion and spasm have been in a moderate degree, and the increased impetus of the blood has been sufficient to overcome the
spasm,

spasm, to dilate the vessels, and to remove the congestion, so that the part is restored to its ordinary and healthy state.

A resolution takes place also when the increased impetus of the fluids has produced an increased exhalation into the adjoining cellular texture, or an increased excretion in some neighbouring part, and has thereby relaxed the spasm, and relieved the congestion, in the vessels of the part more particularly affected.

Lastly, A resolution may take place, when the increased impetus of the blood in the whole system occasions an evacuation, which, though in a distant part, may prove sufficient to take off the phlogistic diathesis of the whole system, and thereby relieve the congestion and spasm of the particular part affected by inflammation.

250. The tumour which appears in inflammation may be imputed in part to the congestion of fluids in their proper vessels ;

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but is owing chiefly to an effusion of matter into the adjoining cellular texture ; and, accordingly, tumours seldom appear but in parts adjoining to a lax cellular texture. If, in this case, the matter effused be only a larger quantity of the ordinary exhaling fluid, this, when the free circulation in the vessels is restored, will be readily absorbed, and the state of the part will become the same as before. But, if the increased impetus of the blood in an inflamed part, dilate the exhalent vessels to such a degree, that they pour out an entire serum, this will not be so readily re-absorbed : And, from the experiments of Sir John Pringle, and especially from those of Mr Gaber, *Miscell. Taurin.* Vol. II. we learn, that the serum, under stagnation, may suffer a particular change, by having the gluten present in it changed into a white opaque, moderately viscid, mild liquor, which we name Pus. When this change takes place in the inflamed part, as it is at the same time attended with an abatement of the redness,

redness, heat, and pain, which before distinguished the inflammation, so the disease is said to be terminated by SUPPURATION; and an inflamed part, containing a collection of pus, is called an ABSCESS.

251. In inflammation, the tendency of it to suppuration may be discovered, by the long continuance of the inflammation, without the symptoms of resolution; by some remission of the pain of distension; by the pain becoming of a throbbing kind, more distinctly connected with the pulsation of the arteries; by the pulse of the arteries being fuller and softer; and often by the patient's being frequently affected with cold shiverings. The period at which this takes place is not determined, but may be sometimes sooner, sometimes later. When the tendency is determined, the time necessary to a complete suppuration is different in different cases.

When pus is completely formed, the
pain

pain in the part entirely ceases, and a weight is felt in it. If the collection be formed immediately under the skin, the tumour becomes pointed, the part becomes soft, and the fluctuation of the fluid within can commonly be perceived ; while, at the same time, for the most part, the redness of the skin formerly prevailing is very much gone.

252. In abscesses, while the pus is formed of one part of the matter which had been effused, the other and thinner parts are re-absorbed, so that, in the abscess, when opened, a pus alone appears. This pus, however, is not the converted gluten alone : For the conversion of this being the effect of a particular fermentation, which may affect the solid substance of the part, and perhaps every solid of animal bodies ; so it most readily, and particularly, affects the cellular texture, eroding much of it, which thereby becomes a part of the pus. It generally happens also, that some
of

of the smaller red vessels are eroded, and thereby some red blood often appears mixed with the pus in abscesses. Upon the whole, the internal surface of an abscess is to be considered as an ulcerated part.

253. This account of suppuration explains, why an abscess, when formed, may either spread into the cellular texture of the neighbouring parts; or, by eroding the incumbent teguments, be poured out upon the surface of the body, and produce an open ulcer.

254. We have here given the idea of an abscess as a collection of matter following inflammation; but the term has been applied to every collection of matter effused, and changed by stagnation in an inclosed cavity.

The matter of abscesses, and of the ulcers following them, is various, according to the nature of what is effused, and which may be,

1. A matter thinner than serum.
2. An entire and pure serum.
3. A quantity of red globules.
4. A matter furnished by particular glands seated in the part.
5. A mixture of matters from different sources, changed by peculiar fermentation.

It is the second only which affords a proper pus ; the effusion whereof, whether in suppurating parts or ulcers, seems to be the peculiar effect of an inflammatory state of the vessels ; and for this reason it is, that, when ulcers do not produce a proper pus, a circumstance always absolutely necessary to their healing, we, in many cases, bring the ulcers to a state of proper suppuration, by the application of stimulants exciting inflammation, such as balsams, mercury, copper, &c.

255. When the matter effused into the cellular texture of an inflamed part, is tainted

ted with a putrid ferment, this produces, in the effused matter, a state approaching more or less to that of putrefaction. When this is in a moderate degree, and affects only the fluids effused, with the substance of the cellular texture, the part is said to be affected with GANGRENE; but if the putrefaction affect also the vessels and muscles of the part, the disease is said to be a SPHACELUS.

256. A gangrene, and its consequences, may arise from a putrid ferment diffused in the mass of blood, and poured out with the serum effused, which it operates upon more powerfully while the serum is stagnant, and retained in the heat of the body: But it may also arise from the peculiar nature of the matter effused being disposed to putrefaction; as particularly seems to be the case of the red globules of the blood effused in a large quantity. In a third manner also, a gangrene seems frequently to arise from the violent excitement of the inflammation

mation destroying the tone of the vessels ; whereby the whole fluids stagnate, and run into putrefaction, which taking place in any degree, destroys still further the tone of the vessels, and spreads the gangrene.

257. In inflammation, the tendency to gangrene may be apprehended from an extreme violence of pain and heat in the inflamed part, and from a great degree of pyrexia attending the inflammation.

The actual coming on of gangrene may be perceived, by the colour of the inflamed part changing from a clear to a dark red ; by blisters arising upon the part ; by the part becoming soft, flaccid, and insensible ; and by the ceasing of all pain while these appearances take place.

As the gangrene proceeds, the colour of the part becomes livid, and, by degrees, quite black ; the heat of the part entirely ceases ; the softness and flaccidity of the
part

part increase ; it loses its consistence, exhales a cadaverous smell, and may then be considered as affected with sphacelus.

258. Gangrene is thus a *third* manner in which inflammation terminates : And the schools have commonly marked a *fourth* termination of inflammation ; which is, by a scirrhus, or an indolent hardness of the part formerly affected with inflammation. This, however, is a rare occurrence, and does not seem to depend so much upon the nature of inflammation, as upon the circumstances of the part affected. It is in glandular parts chiefly that scirrhoty is observed ; and it is probably owing to the parts readily admitting a stagnation of the fluids. I have observed, that inflammation seldom induces scirrhus ; but that this more commonly arises from other causes ; and when inflammation supervenes, which it is sooner or later apt to do, it does not so commonly increase as change the scirrhoty into some kind of abscess.

abscess. From these considerations, it does not seem necessary to take any further notice of scirrhus as a termination of inflammation.

259. There are, however, some other terminations of inflammation not commonly taken notice of, but now to be mentioned.

One is, by the effusion of a portion of the entire mass of blood, either by means of rupture or of anastomosis, into the adjoining cellular texture. This happens especially in inflammations of the lungs, where the effused matter, by compressing the vessels, and stopping the circulation, occasions a fatal suffocation; and this is perhaps the manner in which pneumonic inflammation most commonly proves fatal.

260. Another kind of termination, is that of certain inflammations on the surface of the body, when there is poured out
under

under the cuticle a fluid, which being too gross to pass through its pores, therefore separates it from the skin, and raises it up into the form of a vesicle containing the effused fluid; and by which effusion the previous inflammation is taken off.

261. Besides these already mentioned, I believe there is still another manner in which inflammation terminates. When the internal parts are affected with inflammation, there seems to have been almost always upon their surface an exudation, which appears partly as a viscid concretion upon their surface, and partly as a thin serous fluid effused into the cavities in which the inflamed viscera are placed. Though we have become acquainted with these appearances only, as very constantly accompanying those inflammations which have proved fatal; it is however probable, that like circumstances may have attended those which were terminated by resolution, and may have contributed to that event. It is

in favour of this supposition that there are instances of pneumonic inflammation terminating in a hydrothorax.

S E C T.

SECT. IV.

OF THE
REMOTE CAUSES
OF
INFLAMMATION.

262. The remote causes of inflammation may be reduced to five heads.

1. The application of stimulant substances; among which are to be reckoned the action of fire, or burning.

2. External violence operating mechanically in wounding, bruising, compressing, or overstretching the parts.

3. Extraneous substances lodged in any part of the body, irritating by their chemical acrimony or mechanical form, or compressing by their bulk or gravity.

4. Cold, in a certain degree, not sufficient immediately to produce gangrene.

5. An increased impetus of the blood determined to a particular part.

It will not be difficult to understand how these remote causes, singly, or in concurrence, produce the proximate cause of inflammation.

263. It does not appear that, in different cases of inflammation, there is any difference in the state of the proximate cause, except in the degree of it; and, though some difference of inflammation may arise from the difference of the remote causes, yet this is not necessary to be taken notice of here; because the different appearances which attend different inflammations may be referred, for the most part, to the difference

ence

ence of the part affected, as will appear when we shall consider the several genera and species marked in the Nosology. When I come to treat of these, I shall find a more proper occasion for taking notice of the different states of the proximate, or of the differences of the remote cause, than by treating of them in general here.

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S E C T.

S E C T. V.

O F T H E

C U R E

O F

I N F L A M M A T I O N.

264. The indications of cure in inflammation are different, according as it may still be capable of resolution, or may have taken a tendency to the several other terminations above-mentioned. As the tendency to these terminations is not always immediately evident, it is always proper, upon the first appearance of inflammation,

to attempt the cure of it by resolution. For this purpose, the indications of cure are,

1. To remove the remote causes, when they are evident, and continue to operate.

2. To take off the phlogistic diathesis affecting either the whole system, or the particular part.

3. To take off the spasm of the particular part, by remedies applied either to the whole system, or to the part itself.

265. The means of removing the remote causes will readily occur, from considering the particular nature and circumstances of the different kinds. Acrid matters must be removed, or their action must be prevented, by the application of correctors or demulcents *. Compressing and over-

* If the matter causing the inflammation be an acid, then

overstretching powers must be taken away ; and, from their several circumstances, the means of doing so will be obvious.

266. The means of taking off the phlogistic diathesis of the system, are the same with those for moderating the violence of reaction in fever, which are mentioned and treated of from (127. to 149.), and therefore need not be repeated here. I only observe, that, in the use of those remedies, there is less occasion for any reserve than in many cases of fever ; and, more particularly,

then the application of an alkaline substance will be proper : If, on the contrary, the inflammation be produced by an alkali, then an acid must be applied.

In many cases, however, the acrid substances causing inflammation are neither alkaline nor acid ; and, in such cases, or when we cannot find a proper corrector, we must use demulcents, which, by their obtunding quality, sheath the acrimony, or defend the parts to which they are applied from being irritated or corroded.

particularly, that topical bleedings * are here particularly indicated and proper.

267. The means of taking off the spasm of the particular part are nearly the same as those mentioned above, for taking off the spasm of the extreme vessels in the case of fever, and which are treated of from (150. to 200.). Only it is observed here, that some of them are here especially indicated, and that some of them are to be directed more particularly to the part especially affected; the management of which will

* The advantages of topical bleedings, in most cases of local inflammation, are very great. They may be performed by cupping, or, what is in many cases more preferable, by leeches. Cupping acts sometimes as a stimulus, especially on parts that are tendinous or fleshy, or where the cellular substance is thin, and thus frequently increases the inflammation which we would wish to resolve.

will be more properly considered when we shall treat of particular inflammations *.

268.

* The resolution of an inflamed part is considerably assisted by the application of discutients; and, in most cases, when the general system is not affected, these discutients alone frequently succeed in dissolving an incipient phlegmon.

Solutions of lead in vinegar are the applications which the best modern practitioners generally approve. Goulard's Extract was supposed by the vulgar to be a *new* remedy; and his panegyric on it tended, in a considerable degree, to render the use of lead more universal than it had been before his time. There are, however, many weighty objections against the formula used by that gentleman; the chief one is, that, on account of the different strength of the vinegar employed, and of the degree of heat used in the process, we can never accurately ascertain the quantity of lead dissolved in the acid; and consequently the efficacy of this preparation must be uncertain. The Saccharum Saturni, which is always of the same strength, is therefore preferable to Goulard's Extract; and as vinegar is a powerful discutient itself, it has been usual to add a quantity of vinegar to the solution of the sugar of lead

268. When a tendency to suppuration (251.) is distinctly perceived, as we suppose

lead in distilled water. The following proportions have been found in general to be the best :

R. Sacchar. Saturn. \mathfrak{z} i.

Acet. gallic. opt. \mathfrak{z} iv.

Aq. font. distillatae \mathfrak{z} xxxii.

M.

In the application of this solution, it is of great consequence that the parts affected should be continually moistened with it. Poultices made of fresh bread crumb, and as much of the above solution as is necessary, are in general preferable to any other mode of applying it ; but it sometimes happens that the inflamed part is so extremely painful and tender, as not to bear the great weight of a poultice ; and in such cases we must have recourse to pieces of soft linen, moistened with the solution. Both these applications, viz. poultices, or wet pledgets, must always be applied cold, and be frequently renewed when they become warm, hard, or stiff.

This is the most approved method of applying lead for the purpose of resolving inflammations ; yet it frequently

pose it to depend upon the effusion of a fluid which cannot be easily reabsorbed, so it becomes necessary that this fluid be converted into pus, as the only natural means of obtaining its evacuation : And, as the effusion is, perhaps, seldom made without some rupture of the vessels, to the healing of which a pus is absolutely necessary ; so, in

quently happens that practitioners meet with patients whose prepossessions for a popular remedy are so great, that there is no persuading them from using it. The method of making Goulard's Extract and Vegeto-Mineral Water are therefore subjoined :

Take Litharge of Gold one pound,
French White-wine Vinegar a quart,

Boil them in an earthen vessel, on a slow fire, for an hour and an half, constantly stirring them with a wooden spathula, and, when cold, pour off the clear liquor, which must be kept in well stopped glass phials.

The Vegeto-Mineral Water is made by adding a hundred drops of the above Extract to a quart of water, and four tea-spoonfuls of French brandy.

in the case of a tendency to suppuration, the indication of cure always is, to promote the production of a perfect pus as quickly as possible.

269. For this purpose, various remedies, supposed to possess a specific power, have been proposed ; but I can perceive no such power in any of them ; and, in my opinion, all that can be done is, to favour the suppuration by such applications as may support a proper heat in the part, as, by some tenacity, may confine the perspiration of the part, and as, by an emollient quality, may weaken the cohesion of the teguments, and favour their erosion *.

270.

* Poultices of various kinds have been recommended for this purpose. It is, however, of little consequence what their ingredients are, provided they be emollient, and applied warm. The white bread poultice is in common use, and answers in general very well ; the addition of a little oil keeps it from becoming

270. As, in the case of certain effusions, a suppuration is not only unavoidable, but desirable,

ming hard, and is at the same time serviceable as an emollient. A poultice of bruised lintseed well boiled with milk and water is strongly recommended by some writers, and indeed not without reason, on account of its very great emollient quality.

As heat is absolutely necessary for the production of matter in tumors, it is of great consequence that the poultices should not be suffered to cool on the part, and that they should be often renewed. Mr Bell has given excellent directions for applying poultices, with the intention of promoting suppuration.

‘ Warm fomentations and poultices,’ says that rational practitioner, ‘ are the means usually employed for the application of heat to an inflamed part ; and, when these are regularly and frequently renewed, nothing, it is probable, can more effectually answer the purpose. But, in the ordinary manner in which they are applied, and as the cataplasms are renewed only once, or, at most, twice a-day, they must always, it is imagined, do more harm than good. For, as soon as the degree of heat, they at first possessed, is dissipated, the moisture kept up by them, with the consequent evaporation

desirable, it may be supposed, that most of the means of resolution formerly mentioned should be avoided ; and accordingly our practice is commonly so directed. But, as we observe, on the one hand, that a certain

‘ poration that ensues, must always render the part
‘ much colder than if it had been merely wrapped up
‘ in flannel, without the use of any such application.

‘ In order to receive all the advantage of such remedies, the part affected should be well fomented with
‘ flannels, pressed out of any warm emollient decoction, applied as warm as the patient can easily bear
‘ them, continued at least half an hour at once, and repeated four or five times a-day.

‘ Immediately after the fomentation is over, a large
‘ emollient poultice should likewise be applied warm,
‘ and renewed every second or third hour at farthest.
‘ Of all the forms recommended for emollient cataplasms, a common bread and milk poultice, with a
‘ due proportion of butter or oil, is perhaps the most
‘ eligible ; as it not only possesses all the advantages of
‘ the others, but can at all times be more easily procured.’—*Treatise on Ulcers*, Edition of 1787, p. 67.

tain degree of increased impetus, or of the original circumstances of inflammation, is requisite to produce a proper suppuration; so it is then especially necessary to avoid those means of resolution that may diminish too much the force of the circulation. And as, on the other hand, the impetus of the blood, when violent, is found to prevent the proper suppuration; so, in such cases, although a tendency to suppuration may have begun, it may be proper to continue those means of resolution which moderate the force of the circulation.

With respect to the opening of abscesses, when completely formed, I refer to the writings on surgery *.

271. When an inflammation has taken a tendency to gangrene, that event is to be prevented

* For a particular account of knowing when abscesses are completely formed, at what period they ought to be opened, and the manner of opening them, the reader can consult no author preferable to Mr Bell.

prevented by every possible means ; and these must be different, according to the nature of the several causes occasioning that tendency, as may be understood from what has been already said of them. After a gangrene has, in some degree, taken place, it can be cured only by the separation of the dead from the living parts. This, in certain circumstances, can be performed by the knife, and always most properly when it can be so done.

In other cases, it can be done by exciting a suppuratory inflammation on the verge of the living part, whereby its cohesion with the dead may be every where broken off, so that the latter may fall off by itself. While this is doing, it is proper to prevent the further putrefaction of the part, and its spreading wider. For this purpose, various antiseptic applications have been proposed : But it appears to me, that, while the teguments are entire, these applications can hardly have any effect ; and, therefore, that the fundamental procedure

must be to scarify the part, so as to reach the living substance, and, by the wounds made there, to excite the suppuration required. By the same incisions also, we give access to antiseptics, which may both prevent the progress of the putrefaction in the dead, and excite the inflammation necessary on the verge of the living part *.

272.

* The author mentioned in the preceding note treats this subject in his usual rational manner, and with no less perspicuity than judgment. Contrary to the opinion of all former writers on gangrene, he disapproves of scarifications, and the subsequent application of antiseptics and stimulants. Mr Bell's reasoning against this practice is to the following purport : The degree of inflammation requisite, and indeed necessary, for the separation of the dead parts, is only very slight, and, when too violent, it fails to produce the desired effect. Scarifications, and the subsequent application of stimulants, which increase the inflammation too much, are therefore hurtful. Again, in scarifying, there is a considerable risk of wounding large blood-vessels, nerves, or tendons ; besides the disadvantage of allowing the putrescent fluids of the
gangrene

272. When the gangrene proceeds from a loss of tone ; and when this, communicated to the neighbouring parts, prevents that inflammation which, as I have said, is necessary to the separation of the dead part from the living ; it will be proper to obviate

gangrene to enter more freely the sound parts, by increasing the surface of the wound. With respect to the application of antiseptics, it is justly remarked, that, although these medicines have the quality of preserving *dead* animal substances from corruption, they by no means produce the same effect on *living* animal substances. But the concluding argument is of much greater weight, viz. that, in a long course of extensive practice, no advantages ever accrued from scarification.

These objections against promiscuous scarification were first proposed by Mr Bell in his Treatise on Ulcers, about twelve years ago ; and the novelty of the opinion excited the attention of almost every practitioner. At present, however, it is universally adopted, and would, of itself, independent of the many improvements Mr Bell has made in surgery, perpetuate his justly acquired fame.

viate this loss of tone by tonic medicines given internally ; and, for this purpose, the Peruvian bark has been found to be especially effectual. That this medicine operates by a tonic power, I have endeavoured to prove above (214.) ; and, from what is said in (215.), the limitations to be observed in employing it may also be learned. When the gangrene arises from the violence of inflammation, the bark may not only fail of proving a remedy, but may do harm : And its power as a tonic is especially suited to those cases of gangrene which proceed from an original loss of tone, as in the case of palsy and œdema ; or to those cases of inflammation where a loss of tone takes place, while the original inflammatory symptoms are removed *.

273.

* The bark must be given in these cases in large quantities ; and, as the pulse is, in general, very small, Port wine must be used along with it. Beside the use of these remedies, a good nourishing diet is absolutely requisite,

273. The other terminations of inflammation either do not admit of any treatment, except that of preventing them by the means of resolution ; or they belong to a treatise of surgery, rather than to this place.

Having thus, therefore, delivered the general doctrine, I proceed now to consider the particular genera and species of inflammation.

It has been hinted above, (263.), that the difference of inflammation arises chiefly from the difference of the part affected : I have therefore arranged them, as they
are

requisite, with such a quantity of strong generous wine as is fully sufficient to keep up the pulse, and induce the necessary slight degree of inflammation. When, indeed, the patient is extremely languid, and much reduced, the warm stimulating cardials, as camphire, confectio cardiaca, spiritus aromaticus volatilis, &c. may be used with advantage.

are CUTANEOUS, VISCERAL, or ARTICULAR ; and in this order they are now to be considered.

C H A P.

CHAP. II.

OF INFLAMMATION, MORE STRICTLY
CUTANEOUS.

274. **C**UTANEOUS inflammations are of two kinds, commonly distinguished by the names of PHLEGMON and ERYSIPELAS.

Of the latter there are two cases, which ought to be distinguished by different appellations. When the disease is an affection of the skin alone, and very little of the whole system, or when the affection of the system is only symptomatical of the external inflammation, I shall give the
disease

disease the name of ERYTHEMA ; but, when the external inflammation is an exanthema, and symptomatical of an affection of the whole system, I shall then name the disease ERYSIPELAS *.

275. It is the erythema only that I am to consider here.

For the distinction between Erythema and Phlegmon, I have formerly referred to the characters given of them in our Nosology. See *Synops. Nosolog. Meth.* Vol. II. p. 85. gen. vii. spec. 1. and 2. But I think it proper now to deliver the characters of them more fully and exactly here, as follows.

A Phlegmon is an inflammatory affection of the skin, with a swelling, rising
generally

* The Erysipelas is particularly described in Articles 696. et seq.

generally to a more considerable eminence in the middle of it; of a bright red colour; both the swelling and colour being pretty exactly circumscribed; the whole being attended with a pain of distension, often of a stounding or throbbing kind, and frequently ending in suppuration.

An Erythema, Rose, or St Anthony's Fire, is an inflammatory affection of the skin, with hardly any evident swelling; of a mixed and not very bright red colour, readily disappearing upon pressure, but quickly returning again; the redness of no regular circumscription, but spreading unequally, and continuing almost constantly to spread upon the neighbouring part; with a pain like to that from burning; producing blisters, sometimes of a small, sometimes of a larger size; and always ending in a desquamation of the scarf-skin, but sometimes in gangrene.

This subject I am not to prosecute here, as properly belonging to surgery, the business

ness of which I am seldom to enter upon in this work; and shall therefore observe only as necessary here, that the difference of these appearances seems to depend on the different seat of the inflammation. In the phlegmon, the inflammation seems to affect especially the vessels on the internal surface of the skin communicating with the lax subjacent cellular texture; whence a more copious effusion, and that of serum convertible into pus, takes place. In the erythema, the inflammation seems to have its seat in the vessels on the external surface of the skin, communicating with the rete mucosum, which does not admit of any effusion, but what separates the cuticle, and gives occasion to the formation of a blister, while the smaller size of the vessels admits only of the effusion of a thin fluid, very seldom convertible into pus.

Besides these differences in the circumstances of these two kinds of inflammation, it is probable that they also differ
with

with respect to their causes. Erythema is the effect of all kinds of acrids externally applied to the skin ; and, when arising from an internal cause, it is from an acrimony poured out on the surface of the skin under the cuticle. In the phlegmon, an acrimony is not commonly evident.

276. These differences in the seat and causes of the phlegmon and erythema being admitted, it will be evident that, when an erythema affects any internal part, it can take place in those only whose surfaces are covered with an epithelion, or membrane analogous to the cuticle.

277. The same distinction between the seat and causes of the two diseases will, as I judge, readily explain what has been delivered by practical writers, with respect to the cure * of these different cutaneous inflammations.

* The method of curing an erysipelas is delivered in articles 708. et sequent.

flamations. But I shall not, however, prosecute this here, for the reason given above (275.); and, for the same reason, shall not say any thing of the variety of external inflammation, that might otherwise be considered here *.

* The cure of erythema is chiefly effected by the antiphlogistic regimen already sufficiently described. Although bleeding, purging, and the general remedies for resolving an inflammation, will, in most cases, cure an erythema, yet, as it is a disease frequently depending on a peculiar acrimony, we shall always find great advantage from the external use of emollients applied cold, or mucilaginous diluents taken internally. The disease however, is seldom dangerous, and generally terminates favourably.

C H A P.

C H A P. III.

O F

O P H T H A L M I A,

O R

I N F L A M M A T I O N O F T H E E Y E.

278. **T**H E inflammation of the eye may be considered as of two kinds ; according as it has its seat in the membranes of the ball of the eye, when I would name it OPTHALMIA MEMBRANARUM ; or, as it has its seat in the sebaceous glands placed in the tarsus, or edges of the eye-lids, in which case it may be termed OPTHALMIA TARSI.

These

These two kinds are very frequently combined together, as the one may readily excite the other ; but they are still to be distinguished according as the one or the other may happen to be the primary affection, and properly, as they often arise from different causes.

279. The inflammation of the membranes of the eye, affects especially, and most frequently, the adnata, appearing in a turgescence of its vessels ; so that the red vessels which are naturally there, become not only increased in size, but there appear many more than did in a natural state. This turgescence of the vessels is attended with pain, especially upon the motion of the ball of the eye ; and this, like every other irritation applied to the surface of the eye, produces an effusion of tears from the lachrymal gland.

This inflammation commonly, and chiefly, affects the adnata spread on the anterior

rior part of the bulb of the eye ; but usually spreads also along the continuation of that membrane on the inside of the palpebræ ; and, as that is extended on the tarsus palpebrarum, the excretories of the sebaceous glands opening there are also frequently affected. When the affection of the adnata is considerable, it is frequently communicated to the subjacent membranes of the eye, and even to the retina itself, which thereby acquires so great a sensibility, that the slightest impression of light becomes painful.

280. The inflammation of the membranes of the eye is in different degrees, according as the adnata is more or less affected, or according as the inflammation is either of the adnata alone, or of the subjacent membranes also ; and, upon these differences, different species have been established, and different appellations given to them. But I shall not, however, prosecute the consideration of these, being of opinion
that

that all the cases of the ophthalmia membranarum differ only in degree, and are to be cured by remedies of the same kind more or less employed.

The remote causes of Ophthalmia are many and various; as,

1. External violence, by blows, contusions, and wounds, applied to the eyes; and even very slight impulses applied, while the eye lids are open, to the ball of the eye itself, are sometimes sufficient for the purpose.

2. Extraneous bodies introduced under the eye-lids, either of an acrid quality, as smoke and other acrid vapours *, or of a bulk sufficient to impede the free motion of the eye-lids upon the surface of the eyeball.

3. The

* Hence chemists, when much employed in processes where copious noxious vapours arise, ought to be extremely careful to avoid them as much as possible.

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

4. The application of much heat, and particularly of that with moisture.

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

6. Frequent intoxication.

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

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

9. A change in the distribution of the blood, whereby either a more than usual quantity of blood, and with more than usual force, is impelled into the vessels of the head, or whereby the free return of the venous blood from the vessels of the head is interrupted.

10. A certain consent of the eyes with the other parts of the system, whereby, from a certain state of these parts, either a

simultaneous, or an alternating affection of the eyes, is produced.

281. The proximate cause of Ophthalmia is not different from that of inflammation in general ; and the different circumstances of Ophthalmia may be explained by the difference of its remote causes, and by the different parts of the eye which it happens to affect. This may be understood from what has been already said ; and I shall now therefore proceed to consider the CURE.

282. In the Cure of Ophthalmia, the first attention will be always due to the removing of the remote causes, and the various means necessary for this purpose will be directed by the consideration of these causes enumerated above.

The Ophthalmia membranarum requires the remedies proper for inflammation in general ; and, when the deeper seated
membranes

membranes are affected, and especially when a pyrexia is present, large general bleedings may be necessary. But this is seldom the case ; as the Ophthalmia, for the most part, is an affection purely local, accompanied with little or no pyrexia. General bleedings, therefore, from the arm or foot, have little effect upon it ; and the cure is chiefly to be obtained by topical bleedings, that is, blood drawn from vessels near the inflamed part ; and opening the jugular vein or temporal artery, may be considered as in some measure of this kind. It is commonly sufficient to apply a number of leeches * round the eye ; and it is perhaps better still to draw blood from the temples, by cupping and scarifying †. In

U 2

many

* Ten or twelve may be applied at once, and, when many are employed together, they generally produce a better effect, than if fewer be employed repeatedly : That is, twelve at once are more efficacious than three at a time repeated four times a-day.

† Cupping and scarifying the temples ought to be per-

many cases, a very effectual remedy is, that of scarifying the internal surface of the inferior eye-lid ; and more so still, is cutting the turgid vessels upon the adnata itself *.

283.

performed with very great caution, because of the numerous ramifications of considerable branches of arteries in those places.

* These operations require great nicety. For the particular method of performing them, the reader is referred to the writers on surgery.

Much harm ensues from these operations when injudiciously performed ; they ought therefore to be refrained from, except when a very skilful and expert surgeon can be procured. They are seldom serviceable, except they be repeated several times.

Cutting the vessels of the adnata is perhaps the best preventative of an opacity of the cornea that we know ; and, wherever there appears the least tendency towards an opacity, the practice should be put in execution. The operation ought to be repeated daily for two, three, or four weeks, or even longer, if a cure is not accomplished sooner.

283. Besides blood-letting, purging, as a remedy suited to inflammation in general, has been considered as peculiarly adapted to inflammations in any of the parts of the head, and therefore to Ophthalmia; and it is sometimes useful: But, for the reasons given before with respect to general bleeding, purging in the case of Ophthalmia does not prove useful in any degree in proportion to the evacuation excited.

284. For relaxing the spasm in the part, and taking off the determination of the fluids to it, blistering near the part has commonly been found useful *.

U 3

285.

* The part where blisters are usually applied in Ophthalmia are behind the ear, or the nape of the neck. The blisters ought to be kept open by the subsequent application of the mild blistering ointment, if they assume appearances of healing.

Setons in the neck are sometimes recommended; but,

285. Electrical sparks taken from the eye will often suddenly discuss the inflammation of the adnata ; but the effect is seldom permanent, and even a frequent repetition seldom gives an entire cure.

286. Ophthalmia, as an external inflammation, admits of topical applications. All those, however, that increase the heat, and relax the vessels of the part, prove commonly hurtful ; and the admission of cool air to the eye, the proper application of cold water immediately to the ball of the eye, and the application of various cooling and astringent medicines, which at the same time do not produce much irritation, prove generally useful : Even spirituous liquors,
employed

but, where speedy relief is required, they are of little service, because they seldom begin to discharge till the expiration of a few days ; besides, they are extremely troublesome to the patient ; and, if the phlogistic diathesis be considerable, they sometimes become so exceedingly inflamed as to produce many disagreeable circumstances that might have been avoided.

employed in moderate quantity, have often been of service *.

U 4

287.

* A solution of a scruple of sugar of lead in four ounces of distilled water is a very effectual application; some authors recommend equal parts of white vitriol and sugar of lead dissolved in distilled water. These collyria, as they are called, do infinite mischief if they are too strong.

If, therefore, the patient complain of the least smarting on their application, it will be necessary to dilute them with the addition of more distilled water. They ought to be applied cold, and pledgets moistened with them ought to be frequently renewed when they grow hot or dry. An additional direction may be added, viz. that the solution of saccharum saturni be always made in distilled water, especially when it is to be used as a collyrium, because the least impregnation of any mineral acid, howsoever combined, decomposes the sugar of lead.

Cold poultices of rasped raw potatoes or turnips are sometimes very efficacious. They may be applied in a fine muslin bag, and ought to be renewed whenever they grow warm.

287. In the cure of Ophthalmia, much care is requisite to avoid all irritation, particularly that of light ; and the only safe and certain means of doing this is by confining the patient to a very dark chamber.

288. These are the remedies of the Ophthalmia membranarum ; and, in the Ophthalmia tarfi, so far as it is produced by the Ophthalmia membranarum, the same remedies may be necessary. As, however, the Ophthalmia tarfi may often depend upon an acrimony deposited in the sebaceous glands of the part, so it may require various internal remedies according to the nature of the acrimony in fault ; for which I must refer to the consideration of scrophula, syphilis, or other diseases with which this Ophthalmia may be connected : And, when the nature of the acrimony is not ascertained, certain remedies, more generally adapted to the evacuation of acrimony,

mony, such, for instance, as mercury, may be employed *.

289. In the Ophthalmia tarfi, it almost constantly happens that some ulcerations are formed on the tarsus. These require the application of mercury or copper, either of which may by itself sometimes entirely cure the affection; and these may even be useful when the disease depends upon a fault of the whole system.

290. Both in the Ophthalmia membranarum, and in the Ophthalmia tarfi, it is
necessary

* If the Ophthalmia be venereal, mercury is the only remedy, and external applications have little effect. If scrophula is the cause, relief is often speedily procured by an application of the coagulum a luminis, or the unguentum citrinum, now called unguentum hydrargyri nitratum in the London Pharmacopœia. The unguentum tutiæ has been used in many cases with advantage, as has also the unguentum cerussiæ acetatæ. But these topical applications never effect a permanent cure.

necessary to obviate that gluing or sticking together of the eye-lids which commonly happens in sleep ; and this may be done by insinuating a little of any mild unctuous medicine, of some tenacity, between the eye-lids before the patient shall go to sleep *.

* Hog's lard, fresh pressed lintseed oil, or oil of almonds, answer this intention very well, or the unguentum spermatis ceti of the London Pharmacopœia.

C H A P.

C H A P. IV.

O F

P H R E N S Y,

O R

P H R E N I T I S.

291. **T**HIS disease is an inflammation of the parts contained in the cavity of the cranium ; and may affect either the membranes of the brain, or the substance of the brain itself. Nosologists have apprehended, that these two cases might be distinguished by different symptoms, and therefore

therefore by different appellations : But this does not seem to be confirmed by observation and dissection ; and therefore I shall treat of both cases under the title of Phrensy, or Phrenitis.

292. An idiopathic phrensy is a rare occurrence, a sympathetic more frequent ; and the ascertaining either the one or the other is, upon many occasions, difficult. Many of the symptoms by which the disease is most commonly judged to be present have appeared, when, from certain considerations, it was presumed, and even from dissection it appeared, that there had been no internal inflammation ; and, on the other hand, dissections have shown, that the brain had been inflamed, when few of the peculiar symptoms of phrensy had before appeared *.

293.

* This sentence is very obscure ; the Author meant to say, that the diagnostic symptoms of this disease are uncertain.

293. The symptoms by which this disease may be most certainly known, are, a vehement pyrexia, a violent deep-seated head-ach, a redness and turgescence of the face and eyes, an impatience of light or noise, a constant watching, and a delirium impetuous and furious. Some nosologists have thought these symptoms peculiar to an inflammation of the membranes, and that the inflammation of the substance of the brain was to be distinguished by some degree of coma attending it. It was for this reason, that, in the Nosology, I added the Typhomania to the character of Phrenitis : But, upon farther reflection, I find no proper foundation for this ; and, if we pass from the characters above delivered, there will be no means of fixing the variety that occurs.

I am here, as in other analogous cases, of opinion, that the symptoms above mentioned of an acute inflammation always mark inflammations of membranous parts ;
and

and that an inflammation of the paronchyma or substance of viscera exhibits, at least commonly, a more chronic affection.

294. The remote causes of phrensy are all those which directly stimulate the membranes or substance of the brain; and particularly all those which increase the impetus of the blood in the vessels of the brain. Among these, the exposure of the naked head to the direct rays of a very warm sun, is a frequent cause. The passions of the mind, and certain poisons, are amongst the remote causes of phrensy; but, in what manner they operate, is not well understood *.

295.

* Practitioners have in general admitted two kinds of phrensy, viz. the idiopathic or true phrensy, and the symptomatic. The former is what the Author describes in the text; and, as he has omitted to describe the latter, which, in Article 292. he acknowledges to be the more frequent of the two, I shall enumerate its symptoms.

The

295. The cure of phrensy is the same with that of inflammation in general ; but, in

The symptomatic phrensy is constantly preceded by some very acute inflammatory fever. Its approach may be suspected by a suppression of the excretions, by colourless stools, by a black, dry, and rough tongue, by pale and watery urine, which sometimes has black or dark brown clouds floating in it, by a desire but inability to sleep, by picking the bed-clothes, by the eyes appearing fierce, and the vessels of the albuginea becoming turgid, and by a few drops of blood distilling from the nose.

When most of these symptoms appear in inflammatory fevers, we justly apprehend an attack of the phrensy, and ought to have immediate recourse to such remedies as will lessen its violence, or altogether prevent its access. Large bleedings, if the pulse permits, must be made on the lower extremities, emollient glysters are to be frequently injected, laxatives administered, fomentations applied to the feet and legs, cupping glasses applied on the thighs, and the patient must be forced to drink plentifully, for he is seldom thirsty in these cases, although his tongue be parched. Beside these general remedies, peculiar attention must be paid to the primary ;

in phrensy, the most powerful remedies are to be immediately employed. Large and repeated blood-letting is especially necessary; and the blood should be drawn from vessels as near as possible to the part affected. The opening of the temporal artery has been recommended, and with some reason: But the practice is attended with inconvenience; and I apprehend that opening the jugular veins may prove more effectual;

ry disease; and the treatment of the symptomatic phrensy will vary according to the nature of the disease by which it is produced.

No part of the practice of physic requires more judgment and sagacity in the practitioner, than ascertaining the proper mode of treating the symptomatic phrensy in different fevers. To enter fully into the subject, would require more room than these notes allow. I can therefore only recommend the young practitioner to pay great attention to it. He will find many useful practical directions for the treatment of these cases, in most of the medical writers, both antient and modern, especially Sydenham and Van Swieten.

effectual; but, at the same time, it will be generally proper to draw blood from the temples by cutting and scarifying.

296. It is probable that purging, as it may operate by revulsion, may be of more use in this than in some other inflammatory affections.

For the same purpose of revulsion, warm pediluvia are a remedy; but, at the same time, somewhat ambiguous. The taking off the force of the blood in the vessels of the head by an erect posture, is generally useful.

297. Shaving of the head is always proper and necessary for the admission of other remedies. Blistering is commonly useful in this disease, but chiefly when applied near to the part affected*.

298.

* It has been usual to apply a large blistering plaster

298. Every part of the antiphlogistic regimen is here necessary, and particularly the admission of cold air. Even cold substances, applied close to the head, have been found safe, and highly useful ; and the application of such refrigerants as vinegar is certainly proper *.

299.

ter over the whole head, and suffer it to remain on for eight and forty hours. This, however, hinders the application of other very powerful remedies. Shaving the head of a frantic patient is always a troublesome operation ; but the very great benefit arising from it renders it absolutely necessary in all cases ; and the physician ought therefore to advise it on the first suspicion of an approaching phrensy.

* Many eminent practitioners have dissuaded the use of these refrigerant applications to the newly shaven head ; the immediate relief which the mere shaving generally procures seems to indicate the propriety of the practice ; and experience has not discovered any material disadvantages attending it, but, on the contrary, much benefit accruing from it.

299. It appears to me certain, that opiates are hurtful in every inflammatory state of the brain ; and it is to be observed, that, from the ambiguity mentioned in (292.) the accounts of practitioners, with regard to the juvantia and laedentia in this disease, are of very uncertain application.

CHAP. V.

OF THE

QUINSY,

OR

CYNANCHE.

300. **T**HIS name is applied to every inflammation of the internal fauces; but these inflammations are different, according to the part of the fauces which may be affected, and according to the nature of the inflammation. In the Nosolo-

gy, therefore, after giving the character of the Cynanchè as a genus, I have distinguished five different species, which must here likewise be separately considered.

X 3

S E C T.

SECT. I.

OF THE

CYNANCHE TONSILLARIS.

301. This is an inflammation of the mucous membrane of the fauces, affecting especially that congeries of mucous follicles which forms the tonsils, and spreading from thence along the velum and uvula, so as frequently to affect every part of the mucous membrane.

302.

302. The disease appears by some tumour, sometimes considerable, and by a redness of the parts ; is attended with a painful and difficult deglutition ; with a pain sometimes shooting into the ear ; with a troublesome clamminess of the mouth and throat ; with a frequent, but difficult excretion of mucus ; and the whole is accompanied with a pyrexia.

303. This species of quinzy is never contagious. It terminates frequently by resolution *, sometimes by suppuration, but hardly ever by gangrene ; although, in this disease, some floughy spots, commonly supposed to be forerunners of gangrene, sometimes appear upon the fauces.

304. This disease is commonly occasioned by cold externally applied, particularly a-

X 4

bout

* As the most frequent termination of this disease is by resolution, this mode of cure must always be attempted, and will seldom fail of proving successful.

bout the neck. It affects especially the young and sanguine, and a disposition to it is often acquired by habit ; so that, from every considerable application of cold to any part of the body, this disease is readily induced. It occurs especially in spring and autumn, when vicissitudes of heat and cold frequently take place. The inflammation and tumour are commonly at first most considerable in one tonsil ; and afterwards, abating in that, increase in the other.

305. In the cure of this inflammation, some bleeding may be proper ; but large general bleedings will seldom be necessary. The opening of the ranular veins seems to be an insignificant remedy ; and leeches set upon the external fauces are of more efficacy.

306. At the beginning of the disease, full vomiting has been frequently found to be of great service*.

307.

* The formula of an emetic may be seen in the note at page 205.

307. This inflammation may be often relieved by moderate astringents, and particularly by acids applied to the inflamed parts *. In many cases, however, nothing has been found to give more relief than the vapour of warm water received into the fauces by a proper apparatus.

308. The other remedies of this disease are rubefacient or blistering medicines, applied externally to the neck; and, with these, the employment of antiphlogistic purgatives †, as well as every part of the anti-

* Various have been the opinions of physicians respecting the kind of gargles proper in these cases. A pint of tincture of roses, with two drams of honey, has often been found serviceable. The following gargle is frequently used with success. Boil an ounce of oak-bark, bruised in a quart of water, till half is evaporated, and to the strained liquor add an ounce of honey of roses, and a dram of alum. Sage tea, with honey, is in common use, and frequently answers every purpose.

† Glauber's salts answer the end of purges in these cases

antiphlogistic regimen, excepting the application of cold.

309. This disease, as we have said, often terminates by resolution, frequently accompanied with sweating; which is therefore to be prudently favoured and encouraged *.

310.

cases very well, especially if the patient drinks copiously during the operation.

* Dover's powder is an excellent sudorific in these cases. The method of giving it has been described in a former note, see page 194. Many other sudorifics, however, are found to answer tolerably well, as wine-whey, whey made with dulcified spirit of nitre, vinegar whey, sage tea, with several other drinks of a similar kind. The following bolus is often very efficacious, especially when the patient drinks largely of sage or balm tea.

R. Camphor.

310. When this disease shall have taken a tendency to suppuration, nothing will be more useful, than the frequent taking into the fauces the steams of warm water *. When the abscess is attended with much

℞ Camphor. gr. viii.

Opī pur. gr. i.

Tart. vitriolat. ℥i.

Tere in mortario marmorio ; et adde

Confect. cardiac. ℥i. vel q. s. ut fiat bolus.

Small doses of tartar emetic taken in such quantities as to produce a slight nausea, without vomiting, are also good sudorifics. Two table-spoonfuls of the following julep may be taken every half-hour till the effect be produced, drinking, at the same time, plentifully of some warm diluent.

℞ Tartar emetic. gr. iii.

Aq. font. ℥vii.

Syr. Papaveris rubri, ℥i.

M. f. julep.

* Very convenient apparatus for this purpose are made by most tin-workers.

Beside

much swelling, if it break not spontaneously, it should be opened by a lancet; and this does not require much caution, as even the inflammatory state may be relieved by some scarification of the tonsils. I have never had occasion to see any case requiring bronchotomy.

Beside the steam of warm water here recommended, external applications to the throat and sides of the neck have a considerable effect in forwarding the supuration, as warm poultices, fomentations, &c.

S E C T.

S E C T. II.

O F T H E

CYNANCHE MALIGNA.

311. This is a contagious disease, seldom sporadic, and commonly epidemic. It attacks persons of all ages, but more commonly those in a young and infant state. It attacks persons of every constitution when exposed to the contagion, but most readily the weak and infirm.

312. This disease is usually attended with a considerable pyrexia ; and the symptoms

toms of the accession of this, such as frequent cold shiverings, sickness, anxiety, and vomiting, are often the first appearances of the disease. About the same time, a stiffness is felt in the neck, with some uneasiness in the internal fauces, and some hoarseness of the voice. The internal fauces, when viewed, appear of a deep red colour, with some tumour; but this last is seldom considerable, and deglutition is seldom difficult or painful. Very soon a number of white or ash-coloured spots appear upon the inflamed parts. These spots spread and unite, covering almost the whole fauces with thick sloughs; which falling off, discover ulcerations. While these symptoms proceed in the fauces, they are generally attended with a coryza, which pours out a thin acrid and fetid matter, excoriating the nostrils and lips. There is often also, especially in infants, a frequent purging; and a thin acrid matter flows from the anus, excoriating this, and the neighbouring parts.

313. With these symptoms, the pyrexia proceeds with a small, frequent, and irregular pulse; and there occurs a manifest exacerbation every evening, and some remission in the mornings. A great debility appears in the animal functions; and the sensorium is affected with delirium, frequently with coma.

314. On the second day, or sometimes later, efflorescences appear upon the skin, which are sometimes in small points hardly eminent; but, for the most part, in patches of a red colour, spreading and uniting so as to cover the whole skin. They appear first about the face and neck, and in the course of some days spread by degrees to the lower extremities. The scarlet redness is often considerable on the hands and extremities of the fingers, which feel stiff and swelled. This eruption is often irregular, as to the time of its appearance, as to its steadiness, and as to the time of its duration. It usually continues four days, and
goes

goes off by some desquamation of the cuticle: but, neither on its first appearance, nor on its desquamation, does it always produce a remission of the pyrexia, or of the other symptoms.

315. The progress of the disease depends on the state of the fauces and of the pyrexia. When the ulcers on the fauces, by their livid and black colour, by the fetor of the breath, and by many marks of acrimony in the fluids, shew a tendency to gangrene, this takes place to a considerable degree; and, the symptoms of a putrid fever constantly increasing, the patient dies, often on the third day, sometimes later, but for the most part before the seventh. The acrimony poured out from the diseased fauces must necessarily, in part, pass into the pharynx, and there spread the infection into the œsophagus, and sometimes through the whole of the alimentary canal, propagating the putrefaction,

tion, and often exhausting the patient by a frequent diarrhoea.

The acrid matter poured out in the fauces being again absorbed, frequently occasions large swellings of the lymphatic glands about the neck, and sometimes to such a degree as to occasion suffocation.

It is seldom that the organs of respiration escape entirely unhurt, and very often the inflammatory affection is communicated to them. From dissections it appears, that, in the Cynanche maligna, the larynx and trachea are often affected in the same manner as in the Cynanche trachealis; and it is probable, that, in consequence of that affection, the Cynanche maligna often proves fatal by such a sudden suffocation as happens in the proper Cynanche trachealis; but there is reason to suspect, that, upon this subject, dissectors have not always distinguished properly between the two diseases.

316. These are the several fatal terminations of the *Cynanche maligna* ; but they do not always take place. Sometimes the ulcers of the fauces are of a milder nature ; and the fever is more moderate, as well as of a less putrid kind. And when, upon the appearance of the efflorescence on the skin, the fever suffers a remission ; when the efflorescence continues for three or four days, till it has spread over the whole body, and then ends by a desquamation, giving a further remission of the fever ; this often entirely terminates by gentle sweats, on or before the seventh day ; and the rest of the disease terminates in a few days more, by an excretion of sloughs from the fauces ; while sleep, appetite, and the other marks of health, return.

From what is said in this, and the preceding paragraph, the prognostics in this disease may be readily learned.

317. In the cure of this disease, its sceptic

tic tendency is chiefly to be kept in view. The debility, with which it is attended, renders all evacuation by bleeding and purging improper, except in a few instances where the debility is less, and the inflammatory symptoms more considerable. The fauces are to be preserved from the effects of the acrid matter poured out upon them, and are therefore to be frequently washed out by antiseptic gargles * or injections ;

Y 2

jections ;

* When the violence of the symptoms is moderate, and when the ulceration is slight, sage tea, or tea made of rose leaves, or both together, may be sufficient. A gargle made of a pint of sage and rose tea, three spoonfuls of vinegar, and one spoonful of honey, has been found as efficacious as any of the sharper antiseptics with the mineral acids. Dr Fothergill's gargle is,

R. Decoct. pectoral. ℥xii. cui inter coquendum,
adde

Rad. contrayerv. contus. ʒss.

Liquori colato admisce,

Acet. vin. alb. ʒii.

Tinct. myrrh. ʒi.

Mel. opt. ʒvi.

But

jections; and the sceptic tendency of the whole system should be guarded against and corrected by internal antiseptics, especially by the Peruvian bark given in substance, from the beginning, and continued through the course of the disease *. Emetics,

But he often used it with a dram of the Mel Egyptiacum dissolved in two ounces of it.

The Mel Egyptiacum is a very harsh application, and ought to be cautiously used. If the sloughs cast off so slowly as to require a powerful application, it is better practice to touch them with Mel Egyptiacum by means of an armed probe, than to use gargles, in which it is an ingredient. In this disease, a strict attention must be given to the use of gargles and injections for the throat, because the cure seems to depend in part on procuring a discharge from the glands of the fauces which these gargles induce, and also because they are the only means of retarding the progress of the ulcers.

* The quantity of bark given ought to be very considerable, viz. as much as the stomach and intestines can possibly bear; half a drachm or two scruples every hour,

tics, both by vomiting and nauseating, prove useful, especially when employed

Y 3

early

hour, with a glass of good Port wine. A scruple of *confectio cardiaca*, joined with each dose of the bark, has a double effect of making the bark less nauseous, and of preventing, in some measure, a tendency to a diarrhœa; but opium is a sovereign remedy for removing this symptom when it is actually present.

In administering the bark, great care must be taken to avoid a diarrhœa, which is a very dangerous symptom in any period of the disease, but especially after the third or fourth day, when the patient is in a considerable state of debility.

Children are more frequently attacked with this disease than adults; and it is sometimes extremely difficult to prevail on them to take a sufficient quantity of this necessary and valuable, though nauseous medicine. In these cases, glysters with powdered bark have been used with very great success. Two drachms of the fine powder may be given in five or six ounces of barley-water, every three or four hours, to very young children, and half an ounce, or six drachms, to children of 8 or 10 years old, in three quarters of a pint of
barley

early in the disease. When any considerable tumour occurs, blisters applied externally will be of service, and, in any case, may be fit to moderate the internal inflammation *.

barley-water. If the first glyster comes away too speedily, two or three grains of opium may be added to the subsequent glysters.

* In addition to the method of cure here delivered, it may be proper to observe, that, as the cure depends much on the removal of every thing putrid from the patient, it is absolutely necessary to have the room well ventilated, but not with cold air. The reason for this precaution is, that the patient always complains of the least admission of cold air, becoming sick and oppressed, probably in consequence of the sudden disappearance of the efflorescence which always accompanies the disease. The linen ought frequently to be changed, the patient kept clean, the mouth and throat frequently washed, and great plenty of liquid vegetable nutriment must be given, with generous wine.

A hemorrhage from the nose, mouth, or ears, very frequently occurs in the later stages of a malignant sore throat.

throat. This discharge is by no means critical, but always a dangerous symptom, and must be stopped with the utmost expedition. It is the consequence of some arterial branch being corroded by the mortification. If the hemorrhage withstands the usual means of tents dipt in vinegar, or a solution of alum, &c. recourse must be had to opium and bark; and the Port wine must be given sparingly.

In the advanced stages, a diarrhœa frequently appears, especially in children; it proceeds from the putrid and acrid matter of the ulcers being received into the intestines. It can only be prevented, or effectually removed, by a careful attention to keep the mouth as clean as possible.

S E C T. III.

O F T H E

CYNANCHE TRACHEALIS*.

318. This name has been given to an inflammation of the glottis, larynx, or upper

* This disease has been supposed to be new, and confined chiefly to infants. It is, however, described by many of both the antient and modern writers. Boerhaave describes it in his 801st and 802d Aphorism. It is, indeed, uncommon in adults, and most frequent in infants. It was never rightly understood, however, till Dr Home, the Professor of the Materia Medica in this University, investigated its nature, and pointed out the only effectual method of cure,

per part of the trachea, whether it affect the membranes of these parts, or the muscles adjoining. It may arise first in these parts, and continue to subsist in them alone ; or it may come to affect these parts from the Cynanche tonsillaris or maligna spreading into them.

319. In either way it has been a rare occurrence ; and few instances of it have been marked and recorded by physicians. It is to be known by a peculiar ringing sound of the voice, by difficult respiration, with a sense of straitening about the larynx, and by a pyrexia attending it.

320. From the nature of these symptoms, and from the dissection of the bodies of persons who had died of this disease, there is no doubt of its being of an inflammatory nature. It does not, however, always run the course of inflammatory affections, but frequently produces such an obstruction of
the

the passage of the air, as suffocates, and thereby proves suddenly fatal.

321. If we judge rightly of the nature of this disease, it will be obvious, that the cure of it requires the most powerful remedies of inflammation, to be employed upon the very first appearance of the symptoms. When a suffocation is threatened, whether any remedies can be employed to prevent it, we have not had experience to determine.

322. The accounts which books have hitherto given us of inflammations of the larynx, and the parts connected with it, amount to what we have now said ; and the instances recorded have almost all of them happened in adult persons ; but there is a peculiar affection of this kind happening especially to infants, which till lately has been little taken notice of. Dr Home is the first who has given any distinct account of it ; but, since he wrote, several other
authors

authors have taken notice of it, (see MICHAELIS *de Angina Polyposa five membranaceo, Argentorati* 1778); and have given different opinions with regard to it. Concerning this diversity of opinions, I shall not at present inquire; but shall deliver the history and cure of this disease, in so far as they have arisen from my own observation, from that of Dr Home, and of other skilful persons in this neighbourhood.

323. This disease seldom attacks infants till after they have been weaned. After this period, the younger they are, the more they are liable to it. The frequency of it becomes less as children become more advanced; and there are no instances of children above twelve years of age being affected with it. It attacks children of the midland countries, as well as those who live near the sea. It does not appear to be contagious; and its attacks are frequently repeated in the same child. It is often
manifestly

manifestly the effect of cold applied to the body ; and therefore appears most frequently in the winter and spring seasons. It very commonly comes on with the ordinary symptoms of a catarrh ; but sometimes the peculiar symptoms of the disease show themselves at the very first.

324. These peculiar symptoms are the following : A hoarseness, with some shrillness and ringing sound, both in speaking and coughing, as if the noise came from a brazen tube. At the same time, there is a sense of pain about the larynx, some difficulty of respiration, with a whizzing sound in inspiration, as if the passage of the air were straitened. The cough which attends it is commonly dry ; and, if any thing be spit up, it is a matter of a purulent appearance, and sometimes films resembling portions of a membrane. Together with these symptoms, there is a frequency of pulse, a restlessness, and an uneasy sense of heat. When the internal
fauces

fauces are viewed, they are sometimes without any appearance of inflammation : but frequently a redness, and even swelling appear : And sometimes in the fauces there is an appearance of matter like to that rejected by coughing. With the symptoms now described, and particularly with great difficulty of breathing, and a sense of strangling in the fauces, the patient is sometimes suddenly taken off.

325. There have been many dissections made of infants who had died of this disease ; and almost constantly there has appeared a preternatural membrane lining the whole internal surface of the upper part of the trachea, and extending in the same manner downwards into some of its ramifications. This preternatural membrane may be easily separated, and sometimes has been found separated in part, from the subjacent proper membrane of the trachea. This last is commonly found entire, that is, without any appearance of erosion or ulceration ;

ration ; but it frequently shows the vestiges of inflammation, and is covered by a matter resembling pus, like to that rejected by coughing ; and very often a matter of the same kind is found in the bronchiæ, sometimes in considerable quantity.

326. From the remote causes of this disease ; from the catarrhal symptoms commonly attending it ; from the pyrexia constantly present with it ; from the same kind of preternatural membrane being found in the trachea when the cynanche maligna is communicated to it ; and, from the vestiges of inflammation on the trachea discovered upon dissection ; we must conclude, that the disease consists of an inflammatory affection of the mucous membrane of the larynx and trachea, producing an exudation analogous to that found on the surface of inflamed viscera, and appearing partly in a membranous crust, and partly in a fluid resembling pus.

327. Though this disease manifestly consists of an inflammatory affection, it does not commonly end either in suppuration or gangrene. The peculiar and troublesome circumstance of the disease seems to consist in a spasm of the muscles of the glottis, which, by inducing a suffocation, prevents the common consequences of inflammation.

328. When this disease terminates in health, it is by a resolution of the inflammation, by a ceasing of the spasm of the glottis, by an expectoration of the matter exuding from the trachea, and of the crusts formed there ; and frequently it ends without any expectoration, or at least with such only as attends an ordinary catarrh.

329. When the disease ends fatally, it is by a suffocation ; seemingly, as we have said, depending upon a spasm affecting the glottis ; but sometimes, probably, depending
upon

upon a quantity of matter filling the bronchia.

330. As we suppose this disease to be an inflammatory affection, so we attempt the cure of it by the usual remedies of inflammation, and which, for the most part, I have found effectual. Bleeding, both general and topical *, has often given immediate relief ; and, by being repeated, has
entirely

* The topical bleeding is best performed by leeches. Three or four may be applied at once on each side of the trachea, or on the trachea itself. Notwithstanding this recommendation of topical bleeding, previous general bleeding is absolutely necessary in every case, and ought never to be omitted. It frequently produces relief even while the blood is flowing from the vein ; but, in these cases, it is imprudent to stop the evacuation, even on the total removal of the symptoms. As much blood must be drawn as the infant can bear to lose, and leeches ought moreover to be applied, as above directed ; for it frequently happens, that, when all the symptoms suddenly disappear, the disease returns in a few hours with redoubled violence, and speedily puts an end to the child's life.

entirely cured the disease. Blistering also, near to the part affected, has been found useful. Upon the first attack of the disease, vomiting, immediately after bleeding, seems to be of considerable use, and sometimes suddenly removes the disease. In every stage of the disease, the antiphlogistic regimen is necessary, and particularly the frequent use of laxative glysters *. Though we suppose that a spasm affecting the glottis is often fatal in this disease, I have not found antispasmodic medicines to be of any use.

* Laxative glysters are to be carefully distinguished from purging glysters, which generally irritate too violently, and thus increase the inflammatory diathesis. It is of little consequence what the compositions of glysters be, provided they contain some Glauber's or Epfom salt, and are sufficiently large. The common glyster with milk and water, and a little Epfom salt, answers sufficiently well.

S E C T. IV.

O F T H E

CYNANCHE PHARYNGÆA.

331. IN the Cynanche tonsillaris, the inflammation of the mucous membrane often spreads upon the pharynx, and into the beginning of the œsophagus, and thereby renders deglutition more difficult and uneasy; but such a case does not require to be distinguished as a different species from the common Cynanche tonsillaris; and only requires that blood-letting, and other remedies, should be employed with greater diligence than in ordinary cases. We have
never

never seen any case in which the inflammation began in the pharynx, or in which this part alone was inflamed : But practical writers have taken notice of such a case ; and to them, therefore, I must refer, both for the appearances which distinguish it, and for the method of cure.

SECT. V.

OF THE

CYNANCHE PAROTIDÆA.

332. THIS is a disease known to the vulgar, and among them has got a peculiar appellation, in every country of Europe*; but has been little taken notice of by medical writers. It is often epidemic, and manifestly contagious. It comes on with the usual symptoms of pyrexia, which is soon

* It is called here, and in many parts of Great Britain, *The Mumps*.

soon after attended with a considerable tumour of the external fauces and neck. This tumour appears first as a glandular moveable tumour at the corner of the lower jaw ; but the swelling soon becomes uniformly diffused over a great part of the neck, sometimes on one side only, but more commonly on both. The swelling continues to increase till the fourth day ; but from that period it declines, and in a few days more passes off entirely. As the swelling of the fauces recedes, some tumour affects the testicles in the male sex, or the breasts in the female. These tumours are sometimes large, hard, and somewhat painful ; but, in this climate, are seldom either very painful, or of long continuance. The pyrexia attending this disease is commonly slight, and recedes with the swelling of the fauces ; but sometimes, when the swelling of the testicles does not succeed to that of the fauces, or when the one or the other has been suddenly repressed, the pyrexia becomes more

considerable, is often attended with delirium, and has sometimes proved fatal.

333. As this disease commonly runs its course without either dangerous or troublesome symptoms, so it hardly requires any remedies. An antiphlogistic regimen, and avoiding cold, are all that will be commonly necessary. But when, upon the receding of the swellings of the testicles in males, or of the breasts in females, the pyrexia comes to be considerable, and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the swelling; and, by vomiting, bleeding, or blistering, to obviate the consequences of its absence.

C H A P.

C H A P. VI.

O F

P N E U M O N I A,

O R

PNEUMONIC INFLAMMATION.

334. **U**NDER this title I mean to comprehend the whole of the inflammations affecting either the viscera of the thorax, or the membrane lining the interior surface of that cavity : For neither do our diagnostics serve to ascertain exactly

the seat of the disease ; nor does the difference in the seat of the disease exhibit any considerable variation in the state of the symptoms, nor lead to any difference in the method of cure.

335. Pneumonic inflammation, however various in its seat, seems to me to be always known and distinguished by the following symptoms : Pyrexia, difficult breathing, cough, and pain in some part of the thorax. But these symptoms are, on different occasions, variously modified.

336. The disease almost always comes on with a cold stage, and is accompanied with the other symptoms of pyrexia ; though, in a few instances, the pulse may not be more frequent, nor the heat of the body increased beyond what is natural. Sometimes the pyrexia is from the beginning accompanied with the other symptoms ; but frequently it is formed for some hours before the other symptoms become
con-

considerable, and particularly before the pain be felt. For the most part, the pulse is frequent *, full, strong, hard, and quick †; but, in a few instances, especially in the advanced state of the disease, the pulse is weak and soft, and at the same time irregular.

337. The difficulty of breathing is always present, and most considerable in inspiration; both because the lungs do not easily admit of a full dilatation, and because

* A frequent pulse is when there is a great number of strokes in a given time.

† A quick pulse is when the stroke itself is quick, although the number in a given time be not very great.

It is therefore no tautology to mention both *frequent* and *quick*, as they are really distinct, and may be both present at once; but, if the pulse be above an hundred in a minute, the physician must have a very nice sense of feeling to distinguish between a quick and a slow beat.

cause the dilatation aggravates the pain attending the disease. The difficulty of breathing is also greater when the patient is in one posture of his body rather than another. It is generally greater when he lies upon the side affected; but sometimes the contrary happens. Very often the patient cannot lie easy upon either side, finding ease only when lying on his back; and sometimes he cannot breathe easily, except when in somewhat of an erect posture.

338. A cough always attends this disease; but, in different cases, is more or less urgent and painful. It is sometimes dry, that is, without any expectoration, especially in the beginning of the disease; but more commonly it is, even from the first, moist, and the matter spit up various, both in consistence and colour, and frequently it is streaked with blood*.

339.

* Young practitioners should not be alarmed at this symptom;

339. The pain attending this disease is, in different cases, felt in different parts of the thorax, but most frequently in one side. It has been said to affect the right side more frequently than the left ; but this is not certain ; while, on the other hand, it is certain that the left side has been very often affected. The pain is felt sometimes as if it were under the sternum ; sometimes in the back between the shoulders ; and, when in the sides, its place has been higher or lower, more forward or backward : But the place of all others most frequently affected is about the sixth or seventh rib, near the middle of its length, or a little more forward. The pain is often severe and pungent ; but sometimes more dull and obtuse, with a sense of weight

symptom ; nor should they suppose it a dangerous one : it is, on the contrary, a salutary symptom, and ought not to be restrained, either by too rigorous an adherence to the antiphlogistic regimen, or by the use of styptics and other astringents.

weight rather than of pain. It is most especially severe and pungent when occupying the place last mentioned. For the most part, it continues fixed in one place ; but sometimes shoots from the side to the scapula on one hand, or to the sternum and clavicle on the other.

340. The varying state of symptoms now mentioned does not always ascertain precisely the seat of the disease. To me it seems probable that the disease is always seated, or at least begins, in some part of the pleura ; taking that membrane in its greatest extent, as now commonly understood ; that is, as covering not only the internal surface of the cavity of the thorax, but also as forming the mediastinum, and as extended over the pericardium, and over the whole surface of the lungs.

341. There is, therefore, little foundation for distinguishing this disease by different appellations taken from the part
which

which may be supposed to be chiefly affected. The term *Pleurisy* might with propriety be applied to every case of the disease ; and has been very improperly limited to that inflammation which begins in, and chiefly affects, the *pleura costalis*. I have no doubt that such a case does truly occur : But, at the same time, I apprehend it to be a rare occurrence ; and that the disease much more frequently begins in, and chiefly affects, the pleura investing the lungs, producing all the symptoms supposed to belong to what has been called the *Pleuritis vera*.

342. Some physicians have imagined, that there is a case of pneumonic inflammation particularly entitled to the appellation of *Peripneumony* ; and that is, the case of an inflammation beginning in the parenchyma, or cellular texture of the lungs, and having its seat chiefly there. But it seems to me very doubtful, if any acute inflammation of the lungs, or any disease
which

which has been called Peripneumony, be of that kind. It seems probable, that every acute inflammation begins in membranous parts ; and, in every dissection of persons dead of peripneumony, the external membrane of the lungs, or some part of the pleura, has appeared to have been considerably affected.

343. An inflammation of the pleura covering the upper surface of the diaphragm, has been distinguished by the appellation of *Paraphrenitis*, as supposed to be attended with the peculiar symptoms of delirium, risus sardonius, and other convulsive motions : But it is certain, that an inflammation of that portion of the pleura, and affecting also even the muscular substance of the diaphragm, has often taken place without any of these symptoms ; and I have not met with either dissections, or any account of dissections, which support the opinion, that an inflammation of the pleura covering the diaphragm is attended with
delirium

delirium more commonly than any other pneumonic inflammation.

344. With respect to the seat of pneumonic inflammation, I must observe further, that, although it may arise and subsist chiefly in one part of the pleura only, it is however frequently communicated to other parts of the same, and commonly communicates a morbid affection through its whole extent.

345. The remote cause of pneumonic inflammation is, commonly, cold applied to the body, obstructing perspiration, and determining to the lungs; while, at the same time, the lungs themselves are exposed to the action of cold. These circumstances operate especially when an inflammatory diathesis prevails in the system; and, consequently, upon persons of the greatest vigour; in cold climates; in the winter season; and particularly in the spring, when vicissitudes of heat and cold are frequent.

The

The disease, however, may arise in any season when such vicissitudes occur.

Other remote causes also may have a share in this matter ; such as, every means of obstructing, straining *, or otherwise injuring †, the pneumonic organs.

Pneumonic inflammation may happen to persons of any age, but rarely to those under the age of puberty ; and most commonly it affects persons somewhat advanced in life, as those between forty-five and
sixty

* Violent exertions in speaking, singing, playing on wind instruments, running up hill, or in short any exercise that increases the action of the lungs.

† Receiving noxious vapours into the lungs is sometimes the cause of pneumonic inflammation ; especially corrosive or other acrid poisonous vapours, as the fumes of arsenic, of sulphur, of the muriatic acid, and similar caustic and destructive exhalations. Chemists, therefore, in making experiments, or artists who work on substances yielding such vapours, should be careful to avoid them.

sixty years ; those, too, especially of a robust and full habit.

The pneumonic inflammation has been sometimes so much an epidemic, as to occasion a suspicion of its depending upon a specific contagion ; but I have not met with any evidence in proof of this.—See Morgagni de causis et sedibus morborum, epist. xxi. art. 26.

346. The pneumonic, like other inflammations, may terminate by resolution, supuration, or gangrene ; but it has also a termination peculiar to itself, as has been hinted above, (259.) ; and that is, when it is attended with an effusion of blood into the cellular texture of the lungs, which soon interrupting the circulation of the blood through this viscus, produces a fatal suffocation. This, indeed, seems to be the most common termination of pneumonic inflammation, when it ends fatally ; for, upon the dissection of almost every person

dead of the disease, it has appeared that such an effusion had happened.

347. From these dissections also we learn, that pneumonic inflammation commonly produces an exudation from the internal surface of the pleura ; which appears partly as a soft viscid crust, often of a compact, membranous form, covering every where the surface of the pleura, and particularly those parts where the lungs adhere to the pleura costalis, or mediastinum ; and this crust seems always to be the cement of such adhesions.

The same exudation shows itself also by a quantity of a serous whitish fluid, commonly found in the cavity of the thorax ; and some exudation or effusion is usually found to have been made likewise into the cavity of the pericardium.

348. It seems probable, too, that a like effusion is sometimes made into the cavity
of

of the bronchiæ : For, in some persons who have died after labouring under a pneumonic inflammation for a few days only, the bronchiæ have been found filled with a considerable quantity of a serous and thickish fluid ; which, I think, must be considered rather as the effusion mentioned, having had its thinner parts taken off by respiration, than as a pus so suddenly formed in the inflamed part.

349. It is, however, not improbable, that this effusion, as well as that made into the cavities of the thorax and pericardium, may be a matter of the same kind with that which, in other inflammations, is poured into the cellular texture of the parts inflamed, and there converted into pus ; but, in the thorax and pericardium, it does not always assume that appearance, because the crust covering the surface prevents the absorption of the thinner part. This absorption, however, may be compensated in the bronchiæ by the drying power of the

A a 2

air ;

air ; and therefore the effusion into them may put on a more purulent appearance.

In many cases of pneumonic inflammation, when the SPUTA are very copious, it is difficult to suppose that the whole of them proceed from the mucous follicles of the bronchiæ. It seems more probable that a great part of them may proceed from the effused serous fluid we have been mentioning ; and this, too, will account for the sputa being so often of a purulent appearance. Perhaps the same thing may account for that purulent expectoration, as well as that purulent matter found in the bronchiæ, which the learned Mr de Haen says he had often observed, when there was no ulceration of the lungs : And this explanation is at least more probable than Mr de Haen's supposition of a pus formed in the circulating blood.

350. To conclude this subject, it would appear that the effusion into the bronchiæ, which

which we have mentioned, often occurs with the effusion of red blood in occasioning the suffocation, which fatally terminates pneumonic inflammation; that the effusion of serum alone may have this effect; and that the serum poured out in a certain quantity, rather than any debility in the powers of expectoration, is the cause of that ceasing of expectoration which very constantly precedes the fatal event. For, in many cases, the expectoration has ceased, when no other symptoms of debility have appeared, and when, upon dissection, the bronchiæ have been found full of liquid matter. Nay, it is even probable, that, in some cases, such an effusion may take place, without any symptoms of violent inflammation; and, in other cases, the effusion taking place may seem to remove the symptoms of inflammation which had appeared before, and thus account for those unexpected fatal terminations which have sometimes happened. Possibly this effusion

may account also for many of the phenomena of the Peripneumonia Notha.

351. Pneumonic inflammation seldom terminates by resolution, without being attended with some evident evacuation. An haemorrhagy from the nose happening upon some of the first days of the disease, has sometimes put an end to it; and it is said, that an evacuation from the hemorrhoidal veins, a bilious evacuation by stool, and an evacuation of urine with a copious sediment, have severally had the same effect: But such occurrences have been rare and unusual.

The evacuation most frequently attending, and seeming to have the greatest effect in promoting resolution, is an expectoration of a thick white or yellowish matter, a little streaked with blood, copious, and brought up without either much or violent coughing.

Very frequently the resolution of this
disease

disease is attended with, and perhaps produced by, a sweat, which is warm, fluid, copious over the whole body, and attended with an abatement of the frequency of the pulse, of the heat of the body, and of other febrile symptoms.

352. The prognostics in this disease are formed from observing the state of the principal symptoms.

A violent pyrexia is always dangerous.

The danger, however, is chiefly denoted by the difficulty of breathing. When the patient can lie on one side only ; when he can lie on neither side, but upon his back only ; when he cannot breathe with tolerable ease, except the trunk of his body be erect ; when, even in this posture, the breathing is very difficult, and attended with a turgescence and flushing of the face, together with partial sweats about the head and neck, and an irregular pulse ; these circumstances mark the difficulty of

breathing in progressive degrees, and consequently, in proportion, the danger of the disease.

A frequent violent cough aggravating the pain is always the symptom of an obstinate disease.

As I apprehend that the disease is hardly ever resolved, without some expectoration, so a dry cough must be always an unfavourable symptom.

As the expectoration formerly described marks that the disease is proceeding to a resolution ; so an expectoration which has not the conditions there mentioned must denote at least a doubtful state of the disease ; but the marks taken from the colour of the matter are for the most part fallacious.

An acute pain, very much interrupting inspiration, is always the mark of a violent disease ; though not of one more dangerous than an obtuse pain, attended with very difficult respiration.

When

When the pains, which at first had affected one side only, have afterwards spread into the other ; or when, leaving the side first affected, they entirely pass into the other, these are always marks of an increasing, and therefore of a dangerous, disease.

A delirium coming on during a pneumonic inflammation, is constantly a symptom denoting much danger.

353. When the termination of this disease proves fatal, it is on one or other of the days of the first week, from the third to the seventh. This is the most common case ; but, in a few instances, death has happened at a later period of the disease.

When the disease is violent, but admitting of resolution, this also happens frequently in the course of the first week ; but, in a more moderate state of the disease, the resolution is often delayed to the second week.

The

The disease, on some of the days from the third to the seventh, generally suffers a remission; which, however, may be often fallacious, as the disease does sometimes return again with as much violence as before, and then with great danger.

Sometimes the disease disappears on the second or third day, while an erysipelas makes its appearance on some external part; and, if this continue fixed, the pneumonic inflammation does not recur.

354. Pneumonia, like other inflammations, often ends in suppuration or gangrene*.

355.

* As this termination of Pneumonia is always fatal, it is highly necessary that the physician should be able to know when a gangrene is to be suspected, that he may take the proper means for preventing it; or, when it is absolutely formed, that he may save his reputation, by informing the patient's relations of the impending danger, and the fatal consequences with which such a termination is attended: I shall therefore add some

355. When a pneumonia, with symptoms neither very violent nor very slight, has continued

some of the more remarkable diagnostics of an incipient gangrene in this disease.

A purulent spitting, streaked with deep coloured blood, or with a blackish matter; a fetid breath; a rattling in the throat; a dejected countenance; a dim eye; a languid quick pulse; the blood drawn from a vein void of the inflammatory cruit; fetid green stools in abundance; urine of a bright flame colour, or depositing a black sediment of a scaly appearance.

More symptoms of this fatal termination are unnecessary; for, if most of those above mentioned be present, the physician has no other duty to perform than warn the friends of the patient that death may be soon expected.

It may be farther remarked, that, when a gangrene is begun, the patient is considerably freed from pain, and both himself and his attendants have great hopes of his recovering; a few hours, however, soon undeceives them, and raises the reputation of the physician, who has pronounced a true prognosis.

See some other diagnostics of gangrene in the notes on Article 359.

continued for many days, it is to be feared it will end in a suppuration. This, however, is not to be determined precisely by the number of days : For, not only after the fourth, but even after the tenth day, there have been examples of a pneumonia ending by a resolution ; and, if the disease has suffered some intermission, and again recurred, there may be instances of a resolution happening at a much later period from the beginning of the disease, than that just now mentioned.

356. But, if a moderate disease, in spite of proper remedies employed, be protracted to the fourteenth day without any considerable remission, a suppuration is pretty certainly to be expected ; and it will be still more certain, if no signs of resolution have appeared, or if an expectoration which had appeared shall have again ceased, and the difficulty of breathing has continued or increased, while the other symptoms have rather abated.

357. That, in a pneumonia, the effusion is made, which may lay the foundation of a suppuration, we conclude from the difficulty of breathing becoming greater when the patient is in a horizontal posture *, or when he can lie more easily upon the affected side.

358. That, in such cases, a suppuration has actually begun, may be concluded from the patient's being frequently affected with slight cold shiverings, and with a sense of cold felt sometimes in one and sometimes in another part of the body. We form the same conclusion also from the state of the pulse, which is commonly less frequent and softer, but sometimes quicker and fuller, than before.

359.

* In all Pneumonic affections, the breathing is generally more difficult when the patient lies in an horizontal posture; it cannot therefore be admitted as a diagnostic of an effusion.

359. That a suppuration is already formed, may be inferred from there being a considerable remission * of the pain which had before subsisted, while, alongst with this, the cough, and especially the dyspnœa, continue, and are rather augmented. At the same time, the frequency of the pulse is rather increased †; the feverish state suffers considerable exacerbations every evening,

* The young physician must be on his guard with respect to this symptom; for it is also a symptom of an incipient, or an already formed gangrene; he ought therefore to be peculiarly attentive to the concomitant symptoms which the author enumerates, viz. the continuance or augmentation of the difficulty of breathing and the cough, both of which either totally disappear, or are considerably lessened on the supervention of gangrene.

† The increased frequency of the pulse is also a symptom of a gangrene being formed; but, if that increased frequency be attended with febrile exacerbations in the evenings, then and then only can the physician be sure that the disease has terminated in suppuration, and not in gangrene.

ing, and by degrees a hectic, in all its circumstances, comes to be formed.

360. The termination of Pneumonia by gangrene is much more rare than has been imagined ; and, when it does occur, it is usually joined with the termination by effusion (346.) ; and the symptoms of the one are hardly to be distinguished from those of the other.

361. The cure of pneumonic inflammation must proceed upon the general plan (264.) ; but the importance of the part affected, and the danger to which it is exposed, require that the remedies be fully, as well as early, employed.

362. The remedy chiefly to be depended upon, is that of bleeding at the arm ; which will be performed with most advantage in the arm of the side affected, but may be done in either arm, as may be most convenient for the patient or the surgeon.

The

The quantity drawn must be suited to the violence of the disease, and to the vigour of the patient ; and generally ought to be as large as this last circumstance will allow. The remission of pain, and the relief of respiration, during the flowing of the blood, may limit the quantity to be then drawn ; but, if these symptoms of relief do not appear, the bleeding should be continued till the symptoms of a beginning syncope come on. It is seldom that one bleeding, however large, will prove a cure of this disease ; and, although the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms commonly, and after no long interval, recur ; often with as much violence as before. In the event of such recurrence, the bleeding is to be repeated, even in the course of the same day, and perhaps to the same quantity as before.

Sometimes the second bleeding may be larger than the first. There are persons, who,

who, by their constitution, are ready to faint even upon a small bleeding ; and, in such persons, this may prevent the drawing so much blood at first as a pneumonic inflammation might require ; but, as the same persons are frequently found to bear after-bleedings better than the first, this allows the second and subsequent bleedings to be larger, and to such a quantity as the symptoms of the disease may seem to demand.

363. It is according to the state of the symptoms that bleedings are to be repeated ; and they will be more effectual when practised in the course of the first three days than afterwards ; but they are not to be omitted, although four days of the disease may have already elapsed. If the physician shall not have been called in sooner ; or if the bleedings practised during the first days shall not have been large enough, or even although these bleedings shall have procured some remission ; yet,

upon the recurrence of the urgent symptoms, the bleeding should be repeated at any period of the disease, especially within the first fortnight ; and even afterwards, if a tendency to suppuration be not evident, or if, after a seeming solution, the disease shall have again returned.

364. With respect to the quantity of blood which ought, or which with safety may be taken away, no general rules can be delivered, as it must be very different, according to the state of the disease, and the constitution of the patient. In an adult male of tolerable strength, a pound of blood avoirdupois is a full bleeding. Any quantity above twenty ounces is a large, and any quantity below twelve a small, bleeding. A quantity of from four to five pounds, in the course of two or three days, is generally as much as such patients will safely bear ; but, if the intervals between the bleedings and the whole of the time during which the bleedings have been employed

played have been long, the quantity taken upon the whole may be greater *.

365.

* Bleedings produce the best effect when the blood is drawn off as quickly as possible in a large full stream; and, in order to prevent syncope, the patient ought to be laid horizontally, or even with his head lower than his trunk.

With respect to the quantity of blood to be drawn at once, or in the whole course of the disease, no general directions can be given; it must depend entirely on the circumstances of the disease and of the patient. In general, it is usual to continue the discharge until the patient can either breathe more freely, or feels a considerable abatement of the pain. If, however, the pain does not abate while the blood continues to flow, but signs of fainting appear, the blood must then be immediately stopped.

If the pain and other symptoms continue violent, or return after the first bleeding, it will then be necessary to have recourse to the operation; and it must be repeated frequently through the course of the disease; avoiding, however, so large an evacuation at once as may induce fainting. The reason of this precaution

is

365. When a large quantity of blood has been already taken from the arm, and when it is doubtful if more can with safety be drawn in that manner, some blood may still be taken by cupping and scarifying. Such a measure will be more particularly proper, when the continuance or recurrence of pain, rather than the difficulty of breathing, becomes the urgent symptom ; and then the cupping and scarifying should be made as near to the pained part as can conveniently be done.

366. An expectoration takes place sometimes very early in this disease : But if, notwithstanding that, the urgent symptoms should still continue, the expectoration must not supersede the bleedings mentioned ; and, during the first days of the disease,

is evident, viz. that, while the motion of the heart is suspended during fainting, the blood stagnates in the right side of the heart, and is afterwards thrown with greater impetuosity through the lungs.

ease, its solution is not to be trusted to the expectoration alone. It is in a more advanced stage only, when the proper remedies have been before employed, and when the symptoms have suffered a considerable remission, that the entire cure may be trusted to a copious and free expectoration.

367. During the first days of the disease, I have not found that bleeding stops expectoration. On the contrary, I have often observed bleeding promote it; and it is in a more advanced stage of the disease only, when the patient, by large evacuations and the continuance of the disease, has been already exhausted, that bleeding seems to stop expectoration. It appears to me that even then bleeding does not stop expectoration so much by weakening the powers of expectoration, as by favouring the ferrous effusion into the bronchiæ (348.), and thereby preventing it.

368. While the bleedings we have mentioned shall be employed, it will be necessary to employ also every part of the antiphlogistic regimen (130.—132.), and particularly to prevent the irritation which might arise from any increase of heat. For this purpose, it will be proper to keep the patient out of bed, while he can bear it easily; and, when he cannot, to cover him very lightly while he lies in bed. The temperature of his chamber ought not to exceed sixty degrees of Fahrenheit's thermometer; and whether it may be at any time colder, I am uncertain.

369. Mild and diluent drinks, moderately tepid, at least never cold, given by small portions at a time, ought to be administered plentifully. These drinks may be impregnated with vegetable acids *. They may be properly accompanied also with
nitre,

* See the note pag. 165.

nitre, or some other neutrals *; but these salts should be given separately from the drink †.

It has been alledged, that both acids and nitre are ready to excite coughing ; and in some persons they certainly have this effect ; but, except in persons of a peculiar habit, I have not found their effects in exciting cough so considerable or troublesome as to prevent our seeking the advantages otherwise to be obtained from these medicines.

370. Some practitioners have doubted if
purgatives can be safely employed in this
B b 4 disease ;

* See the note pag. 185.

† These salts generally render the drink nauseous; and, as plentiful dilution is absolutely necessary in these cases, so far from rendering the patient's common drink nauseous, by impregnating it with ill flavoured medicines, we ought, by every possible means, to endeavour to make it as agreeable as we can, that he may be the more easily prevailed on to take it plentifully.

disease; and indeed a spontaneous diarrhoea occurring in the beginning of the disease has seldom proved useful: But I have found the moderate use of cooling laxatives * generally safe; and have always found it useful to keep the belly open by frequent emollient glysters.

371. To excite full vomiting by emetics, I judge to be a dangerous practice in this disease: But I have found it useful to exhibit nauseating doses; and, in a somewhat advanced state of the disease, I have found such doses prove the best means of promoting expectoration †.

372.

* The cooling laxatives are, salts, manna, &c.; but, in these cases, three or four ounces of infusum fennæ, with half an ounce of Glauber's salt may be given without danger.

† The tartar emetic is the medicine generally employed for this purpose. The dose of it in these cases must

372. Fomentations and poultices applied to the pained part have been recommended, and may be useful ; but the application of them is often inconvenient, and may be entirely omitted for the sake of the more effectual remedy, blistering *.

Very early in the disease, a blister should be applied as near to the pained part as possible. But as, when the irritation of a blister is present, it renders bleeding less effectual ;

must be very small, and well diluted, as in the following formula :

R. Antimon. tartarizat. gr. ii.
Aq. font. ℥viiss.
Syr. papaveris rubr. ℥fs.
M.

The dose of this mixture ought not to exceed 3 table spoonfuls, when given with this intention.

* The application of a blister to the part affected ought to be the first prescription in all complaints of the thorax, except some remarkable or urgent cause forbid the practice, because it is a most efficacious remedy, and is as necessary as bleeding.

effectual; so the application of the blister should be delayed till a bleeding shall have been employed. If the disease be moderate, the blister may be applied immediately after the first bleeding; but, if the disease be violent, and it is presumed that a second bleeding may be necessary soon after the first, it will then be proper to delay the blister till after the second bleeding, when it may be supposed that any farther bleeding may be postponed till the irritation arising from the blister shall have ceased. It may be frequently necessary in this disease to repeat the blistering: And, in that case, the plasters should always be applied somewhere on the thorax*; for, when applied to more distant parts, they have little effect. The keeping the blistered parts open, and making what is called a perpetual blister, has much less effect than a fresh blistering.

373.

* They ought, however, to be applied as near to the pained part as possible.

373. As this disease often terminates by an expectoration, so, various means of promoting this have been proposed: But none of them appear to be very effectual; and some of them, being acrid stimulant substances, cannot be very safe.

The gums usually employed seem too heating: Squills seem to be less so; but they are not very powerful, and sometimes inconvenient, by the constant nausea they induce *.

The

* All the liquid forms of squills which we have in the shops are nauseating. Pills made of the dry powder, with any electuary or conserve, or honey, is the form in which squills affect the stomach least. The dose is 4 or 5 grains of the dry powder; 10 grains generally, if not constantly, produce vomitings. To prevent the nauseating effect of squills, the addition of some grateful aromatic is of material use. The *pilulæ siliticæ* of the Edinburgh Pharmacopœia is a good formula, except that the dose of it must be large, in order to take a sufficient quantity of the squills, ten grains of it, containing

The volatile alkali may be of service as an expectorant ; but it should be reserved for an advanced state of the disease.

Mucilaginous and oily demulcents appear to be useful, by allaying that acrimony of the mucus which occasions too frequent coughing ; and which coughing prevents the stagnation and thickening of the mucus, and thereby its becoming mild.

The receiving into the lungs the steams of warm water impregnated with vinegar, has often proved useful in promoting expectoration *.

But

ing only one grain of dry squills, supposing no syrup to be used in making the mass. One convenience, indeed, attends this formula, viz. that we can give small doses with more precision than if we use the powder alone. The gum ammoniac is an expectorant ; and therefore, when given along with the squills in these pills, may render a less dose of the squills necessary. If the extract of liquorice be omitted, the proportion of the squills to the whole will be increased.

* Some practitioners propose the steam of vinegar alone ;

But of all other remedies, the most powerful for this purpose, are antimonial medicines, given in nauseating doses, as in (179). Of these, however, I have not found the kermes mineral more efficacious than emetic tartar, or antimonial wine; and the dose of the kermes is much more uncertain than that of the others.

374. Though a spontaneous sweating often proves the crisis of this disease, it ought not to be excited by art, unless with much caution. At least, I have not yet found it either so effectual or safe, as some writers have alledged. When, after some remission of the symptoms, spontaneous sweats of a proper kind arise, they may be
encou-

alone; but it proves in general too irritating. The same objection may be made against using the steam of wine, which some practitioners have recommended instead of the steam of vinegar. Plain water is the best, as the warm vapour only acts by relaxing the internal surface of the lungs.

encouraged ; but it ought to be without much heat, and without stimulant medicines. If, however, the sweats be partial and clammy only, and a great difficulty of breathing still remain, it will be very dangerous to encourage them.

375. Physicians have differed much in opinion with regard to the use of opiates in pneumonic inflammation. To me it appears, that, in the beginning of the disease, and before bleeding and blistering have produced some remission of the pain and of the difficulty of breathing, opiates have a very bad effect, by their increasing the difficulty of breathing, and other inflammatory symptoms. But, in a more advanced state of the disease, when the difficulty of breathing has abated, and when the urgent symptom is a cough, proving the chief cause of the continuance of the pain, and of the want of sleep, opiates may be employed with great advantage and safety. The interruption of the expectoration,
which

which they seem to occasion, is for a short time only, and they seem often to promote it, as they occasion a stagnation of what was by frequent coughing dissipated insensibly, and therefore give the appearance of what Physicians have called Concocted Matter.

C H A P.

C H A P. VII.

O F T H E

P E R I P N E U M O N I A N O T H A,

O R

BASTARD PERIPNEUMONY.

376. **A** DISEASE under this name is mentioned in some medical writings of the sixteenth century; but it is very doubtful if the name was then applied to the same disease to which we now apply it. It appears to me, that, unless some

some of the cases described under the title of Catarrhus Suffocativus be supposed to have been of the kind I am now to treat of, there was no description of this disease given before that by Sydenham, under the title I have employed here.

377. After Sydenham, Boerhaave was the first who in a system took notice of it as a distinct disease; and he has described it in his aphorisms, although with some circumstances different from those in the description of Sydenham. Of late, Mr Lieutaud has with great confidence asserted, that Sydenham and Boerhaave had, under the same title, described different diseases; and that, perhaps, neither of them had, on this subject, delivered any thing but hypothesis.

378. Notwithstanding this bold assertion, I am humbly of opinion, and the Baron Van Swieten seems to have been of the same, that Sydenham and Boerhaave did

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C^c

describe,

describe, under one and the same title, one and the same disease. Nay, I am further of opinion, that the disease described by Mr Lieutaud himself, is not essentially different from that described by both the other authors. Nor will the doubts of the very learned but modest Morgagni, on this subject, disturb us, if we consider that, while very few describers of diseases either have it in their power, or have been sufficiently attentive in distinguishing between the essential and accidental symptoms of disease; so, in a disease which may have not only different, but a greater number of symptoms, in one person than it has in another, we need not wonder that the descriptions of the same disease by different persons should come out in some respects different. I shall, however, enter no farther into this controversy, but endeavour to describe the disease as it has appeared to myself; and, as I judge, in the essential symptoms, much the same as it has appeared to all the other authors mentioned.

379. This disease appears at the same seasons that other pneumonic and catarrhal affections commonly do ; that is, in autumn and in spring. Like these diseases also, it is seemingly occasioned by sudden changes of the weather from heat to cold. It appears also, during the prevalence of contagious catarrhs ; and it is frequently under the form of the Peripneumonia Notha that these catarrhs prove fatal to elderly persons.

This disease most commonly attacks persons somewhat advanced in life, especially those of a full phlegmatic habit ; those who have before been frequently liable to catarrhal affections ; and those who have been much addicted to the large use of fermented and spirituous liquors.

The disease commonly comes on with the same symptoms as other febrile diseases ; that is, with alternate chills and heats ; and the symptoms of pyrexia are sometimes sufficiently evident ; but in most ca-

ses these are very moderate, and in some hardly at all appear. With the first attack of the disease, a cough comes on ; usually accompanied with some expectoration, and, in many cases, there is a frequent throwing up of a considerable quantity of a viscid opaque mucus. The cough often becomes frequent and violent ; is sometimes accompanied with a rending headach ; and, as in other cases of cough, a vomiting is sometimes excited by it. The face is sometimes flushed ; and some giddiness or drowsiness often attends the disease. A difficulty of breathing, with a sense of oppression, or straitening in the chest, with some obscure pains there, and a sense of lassitude over the whole body, very constantly attend this disease. The blood drawn in this disease shows a buffy surface, as in other inflammatory affections.

The disease has often the appearance only of a more violent catarrh, and after the employment of some remedies is entirely relieved

relieved by a free and copious expectoration. In other cases, however, the feverish and catarrhal symptoms are at first very moderate, and even slight ; but, after a few days, these symptoms suddenly become considerable, and put an end to the patient's life when the indications of danger were before very little evident.

380. From the different circumstances in which this disease appears, the pathology of it is difficult. It is certainly often no other at first than a catarrhal affection, which, in elderly persons, is frequently attended with a large afflux of mucus to the lungs ; and it was on this footing that Sydenham considered it as only differing in degree from his *Febris Hyemalis*. A catarrh, however, is strictly an affection of the mucous membrane and follicles of the bronchiæ alone : But it may readily have, and frequently has, a degree of pneumonic inflammation joined to it ; and in that case may prove more properly the peculiar dis-

case we treat of here. But, further, as pneumonic inflammation very often produces an effusion of serum into the bronchiæ (348.), so this, in elderly persons, may occur in consequence of a slight degree of inflammation; and, when it does happen, will give the exquisite and fatal cases of the peripneumonia notha.

381. After this attempt to establish the pathology, the method of cure in the different circumstances of the disease will not be difficult.

In case the fever, catarrhal and pneumonic symptoms are immediately considerable, a blood-letting will certainly be proper and necessary: But, where these symptoms are moderate, a blood-letting will hardly be requisite; and, when an effusion is to be feared, the repetition of blood-letting may prove extremely hurtful*.

In

* The intention of bleeding in this disease is merely
to

In all cases, the remedies chiefly to be depended upon are vomiting * and blistering †. Full vomiting may be frequently repeated ; and nauseating ‡ doses ought to be constantly employed.

C c 4

Purging

to facilitate the circulation through the lungs, and to relieve the oppression in the breast. When this intention is therefore answered, and when the shortness of breath and oppression about the breast are removed, there is no farther need of the lancet.

As this disease chiefly attacks elderly persons, and such as are of a phlegmatic habit, much harm may be done by repeated bleedings, which always increase debility, and retard the cure.

* Vomiting in this disease has been thought by many practitioners to be a doubtful remedy. The action of vomiting always oppresses the breast, and sometimes even increases the symptoms of the disease.

† This is the chief remedy ; and the blisters ought to be applied as near the part affected as possible.

‡ In several of the former notes we have fully described

Purging may perhaps be useful ; but, as as it is seldom so in pneumonic affections, nothing but gentle laxatives are here necessary *.

In

scribed the method of giving the emetic tartar in nauseating doses. Their principal effect is to procure a perspiration ; and, when this effect is produced, the patient must drink largely of any diluent or attenuating liquor, as thin barley-water, with the addition of the juice of some of the acid fruits, or infusions of some of the gentle aromatics, as sage, balm, mint, &c. or even a thin wine whey,

* Purging is surely hurtful in this disease, by inducing too great a state of debility ; the intestines, however, are to be emptied in the beginning of the disease, which is best done by a purging glyster, and kept open by the subsequent use of gentle laxatives, or by repetitions of mild emollient glysters. The purging glyster may be made as follows :

℞. Aq. font. ℔. i.

Fol. fenn. ʒss.

Coque leniter, et colaturæ adde

Sal. cathart. amar. ʒi.

Mel. ʒii.

M. f. Enema.

The

In all the circumstances of this disease, the antiphlogistic regimen is proper : Cold is to be guarded against ; but much external heat is to be carefully avoided.

382. If a person sweats easily, and it can be brought out by the use of mild tepid liquors only, the practice may in such persons be tried. See MORGAGNI *De Sed. et Caus.* Epist. xiii. Art. 4.

383. I might here, perhaps, give a separate section on the Carditis and Pericarditis, or the inflammations of the heart and Pericardium ; but they scarcely require a particular

The subsequent glysters ought to consist of nothing more than simple barley water, or milk and water. The laxatives, if they are used, should be very gentle and mild ; as cream of tartar whey, manna, tamarinds, &c. Half an ounce of manna dissolved in half a pint of cream of tartar whey, makes an agreeable opening mixture ; half a tea-cupful of it may be taken three or four times a day, so as to procure at least two or three stools in the twenty-four hours.

particular consideration. An acute inflammation of the pericardium is almost always a part of the same pneumonic affection I have been treating of; and is not always distinguished by any different symptoms; or, if it be, does not require any different treatment. The same may be said of an acute inflammation of the heart itself; and, when it happens that the one or other is discovered by the symptoms of palpitation or syncope, no more will be implied than that the remedies of pneumonic inflammation should be employed with greater diligence.

From dissections, which show the heart and pericardium affected with erosions, ulcerations, and abscesses, we discover, that these parts had been before affected with inflammation; and that in cases where no symptoms of pneumonic inflammation had appeared: It may therefore be alledged, that those inflammations of the heart and pericardium should be considered as diseases independent of the pneumonic. This
indeed

indeed is just : But the history of such cases proves, that those inflammations had been of a chronic kind, and hardly discovering themselves by any peculiar symptoms ; or, if attended with symptoms marking an affection of the heart, these were, however, such as have been known frequently to arise from other causes than inflammation. There is, therefore, upon the whole, no room for our treating more particularly of the inflammation of the heart or pericardium.

C H A P.

C H A P. VIII.

OF THE GASTRITIS, OR INFLAMMATION
OF THE STOMACH.

384. **A**MONG the inflammations of the abdominal region, I have given a place in our Nosology to the Peritonitis; comprehending under that title, not only the inflammations affecting the peritonæum lining the cavity of the abdomen, but also those affecting the extensions of this membrane in the omentum and mesentery. It is not, however, proposed to treat of them here,

here, because it is very difficult to say by what symptoms they are always to be known; and farther, because, when known, they do not require any remedies beside those of inflammation in general. I proceed, therefore, to treat of those inflammations which, affecting viscera of peculiar functions, both give occasion to peculiar symptoms, and require some peculiarities in the method of cure: and I shall begin with the inflammation of the stomach.

385. The inflammation of the stomach is of two kinds, Phlegmonic, or Erythematic*. The first may be seated in what is called the Nervous Coat of the stomach, or in the peritonæum investing it. The second is always seated in the villous coat and cellular texture immediately subjacent.

386.

* This is a new term; but whoever considers what is said in 274. will, I expect, perceive the propriety, and even the necessity, of it.—Author.

386. The phlegmonic inflammation of the stomach, or what has been commonly treated under the title of Gastritis, is known by an acute pain in some part of the region of the stomach, attended with pyrexia, with frequent vomiting, especially upon occasion of any thing being taken down into the stomach, and frequently with hickup. The pulse is commonly small and hard; and there is a greater loss of strength in all the functions of the body, than in the case of almost any other inflammation.

387. This inflammation may be produced by various causes, as, by external contusion; by acrids of various kinds taken into the stomach; frequently by very cold drink taken into it while the body is very warm; and sometimes by over-distension, from the having taken in a large quantity of food of difficult digestion. All these may be considered as external causes; but the disease sometimes arises also from internal causes not so well understood. It may
arise

arise from inflammations of the neighbouring parts communicated to the stomach, and is then to be considered as a symptomatic affection only. It may arise also from various acrimonies generated within the body, either in the stomach itself, or in other parts, and poured into the cavity of the stomach. These are causes more directly applied to the stomach; but there are perhaps others originating elsewhere, and affecting the stomach only sympathetically. Such may be supposed to have acted in the case of putrid fevers and exanthematic pyrexia; in which, upon dissection, it has been discovered that the stomach had been affected with inflammation.

388. From the sensibility of the stomach, and its communication with the rest of the system, it will be obvious, that the inflammation of this organ, by whatever causes produced, may be attended with fatal consequences. In particular, by the great debility which such an inflammation suddenly

ly produces, it may quickly prove fatal, without running the common course of inflammations.

When it lasts long enough to follow the ordinary course of other inflammations, it may terminate by resolution, gangrene, or suppuration. The schirrhosities which are often discovered affecting the stomach, are seldom known to be the consequences of inflammation.

389. The tendency of this disease to admit of resolution, may be known by its having arisen from no violent cause; by the moderate state of the symptoms, and by a gradual remission of these, especially in consequence of remedies employed in the course of the first, or at farthest the second, week of the disease.

390. The tendency to suppuration may be known by the symptoms continuing, in a moderate degree, for more than one or two weeks; and likewise by a considerable remission

remission of the pain, while a sense of weight and an anxiety still remain.

When an abscess has been formed, the frequency of the pulse is at first abated; but soon after, it is again increased, with frequent cold shiverings, and with marked exacerbations in the afternoon and evening, followed by night-sweatings, and other symptoms of hectic fever. These at length prove fatal, unless the abscess open into the cavity of the stomach, the pus be evacuated by vomiting, and the ulcer soon heal.

391. The tendency to gangrene may be suspected from the violence of the symptoms not yielding to the remedies employed during the first days of the disease: and that a gangrene has already begun, may be known from the sudden remission of the pain, while the frequency of the pulse continues, and at the same time becomes weaker, accompanied with other marks* of an increasing debility in the whole system.

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D d

392.

* A delirium is one of the most general concomitants

392. From the dissection of dead bodies it appears, that the stomach very often has been affected with inflammation, when the characteristic symptoms of it (386.) had not appeared; and therefore it is very difficult to lay down any general rules for the cure of this disease.

393. It is only in the case of phlegmonic inflammation, as characterised in 386. that we can advise the cure or resolution to be attempted by large and repeated bleedings employed early in the disease: and we are not to be deterred from these by the smallness of the pulse; for, after bleeding, it commonly becomes fuller and softer. After bleeding, a blister ought to be applied to the region of the stomach; and the cure will be assisted by fomentations of the whole abdomen, as well as by frequent emollient and laxative glysters.

394.

tants of the increasing debility of the system, and may be considered as a diagnostic.

394. In this disease, the irritability of the stomach will not admit of any medicines being thrown into it; and, if any internal medicines can be supposed necessary, they must be exhibited in glysters. The giving of drink may be tried; but it ought to be of the very mildest kind, and in very small quantities at a time *.

395. Opiates, in whatever manner exhibited, are very hurtful during the first days of the disease; but when its violence shall have abated, and when the violence of the pain and vomiting recur at intervals only, opiates given in glysters may be cautiously tried, and sometimes have been employed with advantage.

D d 2

396.

* Chicken broth is extremely mild; it may be taken in small quantities, with about eight or ten grains of nitre in every pint of it. Lintseed tea is also a very mild drink; and, if the inflammation be owing to the presence of any acrid matter irritating the stomach, it is of great service by its sheathing quality.

396. A tendency to suppuration, in this disease, is to be obviated by the means just now proposed. After a certain duration of the disease, it cannot be prevented by any means whatever; and, when actually begun, must be left to nature; the business of the physician being only to avoid all irritation.

397. A tendency to gangrene can be obviated in no other way than by the means suggested 393. employed early in the disease; and, when it does actually supervene, admits of no remedy.

398. Erythematic inflammations of the stomach, are more frequent than those of the phlegmonic kind. It appears, at least, from dissections, that the stomach has often been affected with inflammation, when neither pain nor pyrexia had before given any notice of it; and such inflammation I apprehend to have been chiefly of the erythematic kind. This species of inflammation
also,

also, is especially to be expected from acrimony of any kind thrown into the stomach; and would certainly occur more frequently from such a cause, were not the interior surface of this organ commonly defended by mucus exuding in large quantity from the numerous follicles placed immediately under the villous coat. Upon many occasions, however, the exudation of mucus is prevented, or the liquid poured out is of a less viscid kind, so as to be less fitted to defend the subjacent nerves; and it is in such cases that matters even of moderate acrimony, may produce an erythematic affection of the stomach.

399. From what has been said, it must appear that an erythematic inflammation of the stomach may frequently occur; but will not always discover itself, as it sometimes takes place without pyrexia, pain, or vomiting.

400. There are cases, however, in which it may be discovered. The affection of the stomach sometimes spreads into the œsophagus, and appears in the pharynx, as well as on the whole internal surface of the mouth. When, therefore, an erythematic inflammation affects the mouth and fauces, and when at the same time there shall be in the stomach an unusual sensibility to all acrids, with a frequent vomiting, there can be little doubt of the stomach being affected with the same inflammation that has appeared in the fauces. Even when no inflammation appears in the fauces, yet if some degree of pain be felt in the stomach, if there be a want of appetite, an anxiety, frequent vomiting, an unusual sensibility with respect to acrids, some thirst, and frequency of pulse, there will then be room to suspect an erythematic inflammation of the stomach; and we have known such symptoms, after some time, discover their cause more clearly by the appearance of the inflammation in the fauces or mouth.

Erythematic

Erythematic inflammation is often disposed to spread from one place to another on the same surface; and, in doing so, to leave the place it had first occupied. Thus, such an inflammation has been known to spread successively along the whole course of the alimentary canal, occasioning in the intestines diarrhœa, and in the stomach vomitings; the diarrhœa ceasing when the vomitings come on, or the vomitings upon the coming on of the diarrhœa.

401. When an erythematic inflammation of the stomach shall be discovered, it is to be treated differently, according to the difference of its causes and symptoms.

When it is owing to acrid matters taken in by the mouth, and when these may be supposed still present in the stomach, they are to be washed out by throwing in a large quantity of warm and mild liquids, and by exciting vomiting. At the same time, if the nature of the acrimony and its proper

corrector be known, this should be thrown in; or if a specific corrector be not known, some general demulcents should be employed.

402. These measures, however, are more suited to prevent the inflammation, than to cure it after it has taken place. When this last may be supposed to be the case, if it be attended with a sense of heat, with pain and pyrexia, according to the degree of these symptoms, the measures proposed in 393. are to be more or less employed.

403. When an erythematic inflammation of the stomach has arisen from internal causes, if pain and pyrexia accompany the disease, some bleeding, in persons not otherwise weakened, may be employed: but, as the affection often arises in putrid diseases, and in convalescents from fever, so, in these cases, bleeding is inadmissible; all that can be done being to avoid irritation, and to throw into the stomach what quantity

tity of acids, and of acedcent aliments, it shall be found to bear.

In some conditions of the body, in which this disease arises, the Peruvian bark and bitters may seem to be indicated; but an erythematic state of the stomach does not commonly allow of them.

CHAP.

CHAP. IX.

OF THE

ENTERITIS,

OR

INFLAMMATION OF THE INTESTINES.

404. **T**HE inflammation of the intestines, like that of the stomach, may be either phlegmonic, or erythematic: But, on the subject of the latter, I have nothing to add to what has been said in the last chapter; and shall here therefore treat of the phlegmonic inflammation only.

406 *. This inflammation may be known to be present, by a fixed pain of the abdomen, attended with pyrexia, costiveness, and vomiting. Practical writers mention the pain in this case as felt in different parts of the abdomen, according to the different seat of the inflammation; and so, indeed, it sometimes happens; but very often the pain spreads over the whole belly, and is felt more especially about the navel.

407. The Enteritis and Gastritis arise from like causes; but the former, more readily than the latter, proceeds from cold applied to the lower extremities, or to the belly itself. The enteritis has likewise its own peculiar causes, as supervening upon the spasmodic colic, incarcerated hernia, and volvulus.

408. Inflammations of the intestines have the same terminations as those of the stomach; and, in both cases, the several
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* The articles were thus numbered in the last edition.

tendencies are to be discovered by the same symptoms (389.—391.).

409. The cure of the enteritis is, in general, the same with that of the gastritis (393. et seq.); but, in the enteritis, there is commonly more access to the introduction of liquids, of acid, acescent, and other cooling remedies, and even of laxatives *. As, however,

* In this disease, we ought to be extremely cautious in the administration either of medicines or diluents. The reason is evident from the following considerations. In every case of inflammation of a canal, the bore of that canal is diminished, and frequently quite shut. A quantity of any kind of ingesta being forced against this obstruction, must necessarily increase the irritation, and consequently aggravate all the symptoms. The same reason may be given for the caution necessary in prescribing laxatives, which always irritate; for their action generally depends upon the irritation they produce.

Large bleedings, emollient glysters frequently repeated,

however, a vomiting so frequently attends this disease, care must be taken not to excite

peated, fomentations, the warm bath, and small anodyne glysters occasionally injected, are the most effectual remedies in the first stage of this violent disease.

When the pain remits, and the violence of the symptoms abates, mild diluents may then be admitted, as chicken broth, thin lintseed tea, &c. ; and, if such liquors be retained without aggravating the symptoms, we may then venture to give an ounce of manna every three or four hours, till it procures a passage.

The internal use of opium has been extolled by several practitioners in these cases ; but experience shews that it generally does harm in every case of inflammation, especially in the early stages of it.

The anodyne glyster is the safest method of using opium ; but glysters of this kind are said to obstruct : This objection is, however, ill founded ; for, by diminishing the irritation, they evidently tend to resolve the inflammation. The following formula of an anodyne glyster is generally used :

cite that vomiting by either the quantity or the quality of any thing thrown into the stomach.

The same observation, with respect to the use of opiates, is to be made here as in the case of gastritis.

410. Under the title of Enteritis, it has been usual with practical writers to treat of the remedie proper for the colic *, and its higher degree named *Ileus*: But, although it be true that the enteritis and colic do frequently accompany each other, I still hold
them

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Opii puri gr. iv.

M.

In these glysters, particular care must be taken to avoid every thing that has the least tendency to irritate.

If a gangrene be formed before the physician be called, as is too frequently the case, then all remedies are in vain.

* See Art. 435.

them to be distinct diseases, to be often occurring separately, and accordingly to require and admit of different remedies. I shall therefore delay speaking of the remedies proper for the colic, till I shall come to treat of this disease in its proper place.

What might be mentioned with respect to the suppuration or gangrene occurring in the enteritis, may be sufficiently understood from what has been said on the same subject with respect to the gastritis.

C H A P.

CHAP. X.

OF THE

HEPATITIS,

OR

INFLAMMATION OF THE LIVER.

412. **T**HE inflammation of the liver seems to be of two kinds ; the one acute, the other chronic.

413. The acute is attended with pungent pain ; considerable pyrexia ; a frequent,

quent, strong, and hard pulse ; and high-coloured urine.

414. The chronic hepatitis very often does not exhibit any of these symptoms ; and it is only discovered to have happened, by our finding in the liver, upon dissection, large abscesses, which were presumed to be the effect of some degree of previous inflammation. As this chronic inflammation is seldom to be certainly known, and therefore does not lead to any determined practice, we omit treating of it here, and shall only treat of what relates to the acute species of the hepatitis *.

415. The acute hepatitis may be known by a pain more or less acute in the right hypochondrium, increased by pressing upon the part. The pain is very often in such a part of the side as to make it appear

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like

* It is doubtful whether this chronic hepatitis ever exists.

like that of a pleurisy ; and frequently, like that, too, is increased on respiration. The disease is, in some instances, also attended with a cough, which is commonly dry, but sometimes humid ; and, when the pain thus resembles that of a pleurisy, the patient cannot lie easily except upon the side affected.

In every kind of acute hepatitis, the pain is often extended to the clavicle, and to the top of the shoulder. The disease is attended sometimes with hickup, and sometimes with vomiting. Many practical writers have mentioned the jaundice, or a yellow colour of the skin and eyes, as a very constant symptom of the hepatitis ; but experience has shown, that it may often occur without any such symptom *.

416.

* This symptom generally appears, however, after the disease has continued for three or four days ; perhaps, indeed, it might have been present in the beginning ;

416. The remote causes of hepatitis are not always to be discerned, and many have been assigned on a very uncertain foundation. The following seem to be frequently evident. 1. External violence from contusions or falls, and especially those which have occasioned a fracture of the cranium. 2. Certain passions of the mind 3. Violent summer heats. 4. Violent exercise. 5. Intermittent and remittent fevers. 6. Cold applied externally, or internally; and therefore, in many cases, the same causes which produce pneumonic inflammation, produce hepatitis, and whence also the two diseases are sometimes joined together. 7. Various solid concretions or collections of liquid matter, in the substance of the liver, produced by unknown causes. Lastly, The acute is often induced by a chronic inflammation of this viscus.

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417.

ning, for it is frequently so slight as to escape observation.

417. It has been supposed that the hepatitis may be an affection either of the extremities of the hepatic artery, or of those of the vena portarum ; but of the last supposition there is neither evidence nor probability.

418. It seems probable, that the acute hepatitis is always an affection of the external membrane of the liver ; and that the parenchymatic is of the chronic kind. The acute disease may be seated either on the convex or on the concave surface of the liver. In the former case, a more pungent pain and hickup may be produced, and the respiration is more considerably affected. In the latter, there occurs less pain, and a vomiting is produced, commonly by some inflammation communicated to the stomach. The inflammation of the concave surface of the liver, may be readily communicated to the gall bladder and biliary ducts ; and this perhaps is the only case of idiopathic hepatitis attended with jaundice.

419. The hepatitis, like other inflammations, may end by resolution, suppuration, or gangrene; and the tendency to the one or the other of these events may be known from what has been delivered above.

420. The resolution of hepatitis is often the consequence of, or is attended with, evacuations of different kinds. A hemorrhagy, sometimes from the right * nostril, and sometimes from the hemorrhoidal vessels, gives a solution of the disease. Sometimes a bilious diarrhœa contributes to the same event; and the resolution of the hepatitis, as of other inflammations, is attended with sweating, and with an evacua-

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tion

* And the left also. It was a fancy of Galen's that inflammatory fevers were only resolved by such hemorrhagies as flowed from the side affected: Thus, an hemorrhage from the right nostril resolved an inflammation of the liver; but a discharge from the left, an inflammation of the spleen. •

tion of urine depositing a copious sediment. Can this disease be resolved by expectoration? It would seem to be sometimes cured by an erysipelas appearing in some external part.

321. When this disease has ended in suppuration, the pus collected may be discharged by the biliary ducts; or, if the suppurated part does not anywhere adhere closely to the neighbouring parts, the pus may be discharged into the cavity of the abdomen: But if, during the first state of inflammation, the affected part of the liver shall have formed a close adhesion to some of the neighbouring parts, the discharge of the pus after suppuration may be various, according to the different seat of the abscess. When seated on the convex part of the liver, if the adhesion be to the peritonæum lining the common teguments, the pus may make its way through these, and be discharged outwardly: Or, if the adhesion should have been to the diaphragm, the

the pus may penetrate through this, and into the cavity of the thorax, or of the lungs; and, through the latter may be discharged by coughing. When the abscess of the liver is seated on its concave part, then, in consequence of adhesions, the pus may be discharged into the stomach or the intestines; and into these last, either directly, or by the intervention of the biliary ducts.

422. The prognostics in this disease are established upon the general principles relating to inflammation, upon the particular circumstances of the liver, and upon the particular state of its inflammation.

The cure of this disease must proceed upon the general plan; by bleeding, more or less, according to the urgency of pain and pyrexia; by the application of blisters; by fomentations of the external parts in the usual manner, and of the internal parts by frequent emollient glysters; by frequently opening the belly by means of

gentle laxatives, and by diluent and refrigerant remedies.

423. Although, in many cases, the chronic hepatitis does not clearly discover itself; yet, upon many occasions, it may perhaps be discovered, or at least suspected, from those causes which might affect the liver (316.) having been applied; from some fulness and some tenseness of weight in the right hypochondrium; from some shooting pains at times felt in that region; from some uneasiness or pain felt upon pressure in that part; from some uneasiness from lying upon the left side; and lastly, from some degree of pyrexia, combined with more or fewer of these symptoms.

When from some of these circumstances a chronic inflammation is to be suspected, it is to be treated by the same remedies as in the last paragraph, employed more or less, as the degree of the several symptoms shall more distinctly indicate.

424. When from either kind of inflammation a suppuration of the liver has been formed, and the abscess points outwardly, the part must be opened, the pus evacuated, and the ulcer healed, according to the ordinary rules for cleansing and healing such abscesses and ulcers.

425. I might here consider the Splenitis, or inflammation of the spleen ; but it does not seem necessary, because the disease very seldom occurs. When it does, it may be readily known by the character given in our Nosology ; and its various termination, as well as the practice which it requires, may be understood from what has been already said with respect to the inflammations of the other abdominal viscera.

CHAP. XI.

OF THE

NEPHRITIS,

OR THE

INFLAMMATION OF THE KIDNEYS.

426. **T**HIS disease, like other internal inflammations, is always attended with pyrexia; and is especially known from the region of the kidney being affected by pain, commonly obtuse, sometimes pungent. This pain is not increased by the motion of the trunk of the body, so much as a pain of the rheumatic kind affecting

fecting the same region. The pain of the nephritis may be often distinguished by its shooting along the course of the ureter; and is frequently attended with a drawing up of the testicle, and with a numbness of the limb on the side affected; although, indeed, these symptoms most commonly accompany the inflammation arising from a calculus in the kidney or in the ureter. The nephritis is almost constantly attended with frequent vomiting, and often with costiveness and colic pains. Usually the state of the urine is changed; it is most commonly of a deep red colour, is voided frequently, and in small quantity at a time. In more violent cases, the urine is sometimes colourless.

427. The remote causes of this disease may be various, as external contusion; violent or long continued riding; strains of the muscles of the back incumbent on the kidneys; various acrids in the course of the circulation conveyed to the kidneys; and
perhaps

perhaps some other internal causes not yet well known. The most frequent is that of calculous matter obstructing the tubuli uriniferi, or calculi formed in the pelvis of the kidneys, and either sticking there, or falling into the ureter.

428. The various event of this disease may be understood from what has been delivered on the subject of other inflammations.

429. Writers, in treating of the cure of nephritis, have commonly at the same time treated of the cure of the Calculus Renalis: But, though this may often produce nephritis, it is to be considered as a distinct and separate disease; and what I have to offer as to the mode of treating it, must be reserved to its proper place. Here I shall treat only of the cure of the Nephritis Vera or Idiopathica.

430. The cure of this proceeds upon the
general

general plan, by bleeding, external fomentation, frequent emollient glysters, antiphlogistic purgatives, and the free use of mild and demulcent liquids *. The application of blisters is hardly admissible; or, at least, will require great care, to avoid any considerable absorption of the cantharides †.

431.

* These have all been enumerated in some of the preceding notes.

† This is a very necessary caution. Blisters generally affect the urinary organs and vessels, occasioning much irritation, and consequently increasing the inflammation.

As the Author is rather short in his directions for the cure of this very troublesome inflammation, it may be proper to add some particular directions for regulating our practice in these cases.

An ulcer in the kidneys is extremely difficult to heal; we ought therefore always to attempt the cure of nephritis by resolution. The general remedies for answering this intention have been frequently enumerated,

431. The Cystitis, or inflammation of the bladder, is seldom a primary disease ; and

ted, especially in the notes on Art. 130. and 131. The particular remedies more peculiarly adapted to this disease are demulcent drinks of the softest nature, and such as are least apt to irritate the parts ; as lint-seed tea, decoction of marsh mallows, &c. Nitre has been recommended among the general antiphlogistic remedies ; but, in nephritis, its use is doubtful, on account of its passing quickly by the kidneys, and irritating them.

A difficulty of making water is one of the symptoms of this disease, and some practitioners recommend heating diuretics. This practice, however, is extremely hurtful, and ought to be carefully avoided, because these warm medicines, as turpentine, balsams, &c. always increase the irritation, especially in the urinary passages.

As the colon presses immediately on the kidneys, especially on the right one, we should be peculiarly careful to keep it empty, which is best done by glysters. Beside the use of glysters in evacuating the contents of the colon, they act as a fomentation to the inflamed part ; we ought therefore, in these cases, to prescribe them larger than usual, and repeat them often. They ought

and therefore is not to be treated of here.

The treatment of it, so far as necessary to
be

ought to be extremely emollient, and void of every ingredient that is any way stimulating. A quart of thin barley-water or lint-seed tea answers the purpose as completely as any of the more compound emollient glysters of the Pharmacopœias.

With respect to diet and regimen, we may observe that lenient nourishment is highly proper; for every thing acrid naturally forces itself off by the urine, and consequently increases the irritation. A total abstinence from food is by no means advisable, because, from abstinence, little urine is secreted, and the smaller the quantity secreted it is generally the more acrid, and consequently noxious.

The patient ought to be made to sit up as much as possible. Warm soft beds, which are always improper in all inflammatory diseases, are peculiarly hurtful in nephritis, especially if the patient lies on his back; for in this position the kidneys are kept very warm, and are at the same time pressed by the superincumbent weight of the abdominal viscera, all which will contribute to increase the inflammation. Although lying much in bed be disapproved, the patient ought by no means to
be

be explained, may be readily understood from what has been already delivered.

432. Of the visceral inflammations, there remains to be considered the inflammation of the uterus: But I omit it here, because the consideration of it cannot be separated from that of the diseases of child-bearing women.

be over fatigued with sitting too long. The room should be moderately cool, and the bed springy, but not soft.

In addition to what was said above respecting blisters in this disease, it may be necessary to observe, that other vesicants besides cantharides may be used, such as mustard poultices, commonly called sinapisms, a poultice of the fresh leaves of the ranunculus acris, and other acrid plants.

END OF THE FIRST VOLUME.