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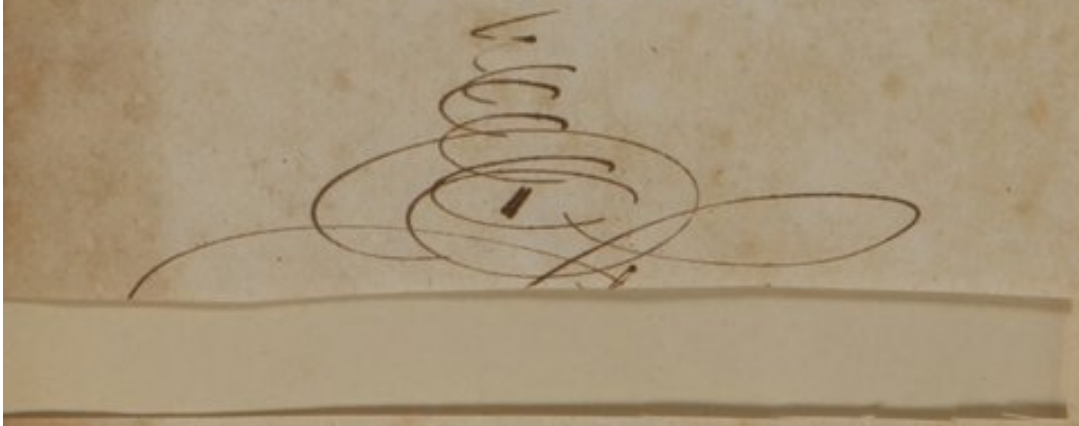

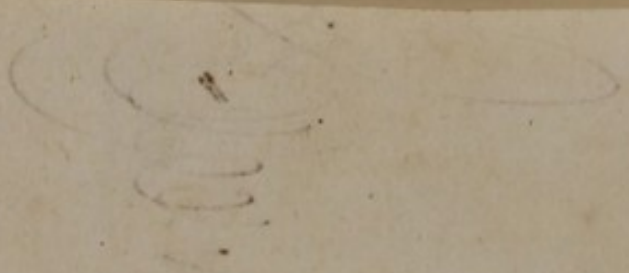

FIRST LINES

OF THE

PRACTICE OF PHYSIC.

BY

WILLIAM CULLEN, M. D.

LATE PROFESSOR OF THE PRACTICE OF PHYSIC, IN THE UNIVERSITY OF EDINBURGH, &c. &c.

WITH

NOTES AND OBSERVATIONS,

PRACTICAL AND EXPLANATORY,

AND

A PRELIMINARY DISCOURSE,

IN DEFENCE OF CLASSICAL MEDICINE,

BY

CHARLES CALDWELL, M. D.

IN TWO VOLUMES.

VOL. I.

PHILADELPHIA:

PUBLISHED BY EDWARD AND RICHARD PARKER,
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District of Pennsylvania, to wit:

SEAL. BE IT REMEMBERED, That on the twenty-ninth day of October, in the forty-first year of the Independence of the United States of America, A. D. 1816, Edward and Richard Parker, of the said district, have deposited in this office, the title of a book, the right whereof they claim as Proprietors, in the words following, to wit:

"First Lines of the Practice of Physic. By William Cullen, M. D. Late Professor of the Practice of Physic, in the University of Edinburgh, &c. &c. With Notes and Observations, Practical and Explanatory, and a Preliminary Discourse, in Defence of Classical Medicine, by Charles Caldwell, M. D. In Two Volumes. Vol. I."

In conformity to the act of the Congress of the United States, intituled, "An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned." And also to the act, entitled, "An act supplementary to an act, entitled, "An act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies during the times therein mentioned," and extending the benefits thereof to the arts of designing, engraving, and etching historical and other prints."

D. CALDWELL,
Clerk of the District of Pennsylvania.

032

CONTENTS

OF

THE FIRST VOLUME.

PAGE

DEDICATION, - - v
Preface by the Editor, - - ix
Preface by the Author, - - 1
Preliminary Discourse, by the Editor, - - 27
Introduction, - - - - - - 85

PART I.

OF PYREXIÆ, or Febrile Diseases, - - - 89

BOOK I.

OF FEVERS, - - - 90
CHAP. I. Of the Phenomena of Fevers, - 90
II. Of the Proximate Cause of Fever, - - 102
III. Of the Difference of Fevers, and its causes, - 129
IV. Of the Remote Causes of Fevers, - 138
V. Of the Prognosis of Fevers, - - 150
VI. Of the Method of Cure in Fevers, - 161
SECT. I. Of the Cure in Continued Fevers, - - 161
II. Of the Cure of Intermittent Fevers, - 204

BOOK II.

OF INFLAMMATIONS, or Phlegmasiæ, - - 213
CHAP. I. Of Inflammation in general, - 213
SECT. I. Of the Phenomena of Inflammation, - 213
II. Of the Proximate Cause of Inflammation, - 215
III. Of the Terminations of Inflammation, - 224
IV. Of the Remote Causes of Inflammation, - 231
V. Of the Cure of Inflammation, - - 232
CHAP. II. Of Inflammation, more strictly Cutaneous, - 237
III. Of Ophthalmia, or Inflammation of the Eye, - 240
IV. Of Phrensy, or Phrenitis, - - 246
V. Of the Quinsy, or Cynanche, - - 249
SECT. I. Of the Cynanche Tonsillaris, - - 249
SECT. II. Of the Cynanche Maligna, - - - 252
III. Of the Cynanche Trachealis, - - 256
IV. Of the Cynanche Pharyngæa, - - 262

PAGE

Sect. V. Of the Cynanche Parotidæa, - - 263
Chap. VI. Of Pneumonic Inflammation, - - 264
VII. Of Peripneumonia Notha, or Bastard Peripneumony, 285
VIII. Of the Gastritis, or Inflammation of the Stomach, 291
IX. Of the Enteritis, or Inflammation of the Intestines, 299
X. Of the Hepatitis, or Inflammation of the Liver, 301
XI. Of the Nephritis, or Inflammation of the Kidneys, 308
XII. Of the Rheumatism, - - 312
XIII. Of the Toothach, or Odontalgia, - - 331
XIV. Of the Gout, - - 338

BOOK III.

Of Exanthemata, or Eruptive Fevers, - - 376
Chap. I. Of the Small-Pox, - - 377
II. Of the Chicken-Pox, - - 406
III. Of the Measles, - 407
IV. Of the Scarlet Fever, - - 415
V. Of the Plague, - - 421
Sect. I. Of the Phenomena of the Plague, - 421
II. Of the Prevention of the Plague, - 425
III. Of the Cure of the Plague, - - 430
Chap. VI. Of Erysipelas, or St. Anthony's Fire, - 432
VII. Of the Miliary Fever, - - 438
VIII. Of the remaining Exanthemata:—Urticaria, Pemphigus, and Aphtha, - - 447

BOOK IV.

Of Hæmorrhagies, - - - 452
Chap. I. Of Hæmorrhagy in general, - - 452
Sect. I. Of the Phenomena of Hæmorrhagy, - 454
II. Of the Proximate Cause of Hæmorrhagy, - 457
III. Of the remote Causes of Hæmorrhagy, - 472
IV. Of the Cure of Hæmorrhagy, - - 474
Chap. II. Of the Epistaxis, or Hæmorrhagy of the Nose, 484
III. Of the Hæmoptysis, or Hæmorrhagy from the Lungs, - - 491
Sect. I. Of the Phenomena and Causes of Hæmoptysis, 491
II. Of the Cure of Hæmoptysis, - 497
Chap. IV. Of the Phthisis Pulmonalis, or Consumption of the lungs, - - 500
Sect. I. Of the Phenomena and Causes of the Phthisis Pulmonalis, - - 500
II. Of the Cure of Phthisis, - - 521
Chap. V. Of the Hæmorrhois, or of the Hæmorrhoidal Swelling and Flux, - - 535
Sect. I. Of the Phenomena and Causes of the Hæmorrhois, 535
II. Of the Cure of Hæmorrhoidal Affections, - 542

TO

NATHANIEL CHAPMAN, M. D.

PROFESSOR OF THE INSTITUTES AND PRACTICE OF MEDICINE, AND OF CLINICAL PRACTICE, IN THE UNIVERSITY OF PENNSYLVANIA.

DEAR SIR,

IN addition to the gratification which the act affords me; the highest I could experience on such an occasion; there is a peculiar propriety in my prefixing your name to the following pages.

For whatever benefit the physicians and students of medicine of the United States may derive from the part I have performed in preparing this work for the press, it is fit they should know, that they will be as much indebted to you, as to myself. Although the labour has been mine, that labour would not have been undertaken, but for your advice and proffered patronage.

Placed, moreover, at the head of that department of medicine, to which this work especially belongs, you not only possess the highest qualifications to judge of

the value of the additions I have made; but, publicly to express your opinion respecting them, will constitute a part of your official duty. Your approbation, already so flatteringly signified, by adopting the present edition, as the text book to your lectures, will be its surest passport to public favour.

But, in thus addressing you, I am actuated by other, and, to myself, more highly interesting motives.

Pleased at your advancement in prosperity and reputation, and cherishing a lively sense of the truth and steadiness of your friendship, towards myself, I embrace, with eagerness, this opportunity, of publicly expressing to you my joy at the one, and the high estimation in which I hold the other. Nor, should I either be just to my own feelings, or stand acquitted of my duty to you, were I to neglect the occasion which now presents itself, of declaring my unqualified admiration of your talents and skill, as a teacher and a practitioner, and my exalted esteem for your virtues as a man.

While delicacy towards your feelings prohibits me from saying more, a knowledge of your merit forbids me to say less. Whether I may have found the proper medium or not, of this I am confident, that no one, acquainted with you, will accuse me of dealing in exaggerated praise.

That your life may be long, illustrious, and happy, and your example, an object of honourable emulation to the physicians of America, is the sincere wish of,

Dear Sir,

Your obliged Friend, and

Obedient Servant,

CHARLES CALDWELL.

Philadelphia, November 1, 1816.

PREFACE BY THE EDITOR.

THE elaborate preface, by Dr. Cullen himself, being sufficiently explanatory of the text of his "First Lines," nothing further is incumbent on us, than to assign a reason, for the Discourse we have prefixed, and the Notes we have added. In the performance of this duty, it shall be our aim, to observe as much conciseness, as may be consistent with perspicuity.

To those, who, for the last twenty years, have been conversant with the history of medicine, in the United States, it is perfectly known, that a bold and persevering attempt was made, by the late Dr. Rush, to overthrow entirely Methodical Nosology, and erect, on its ruins, his favourite hypothesis of *the Unity of Disease*. Nor, was he altogether unsuccessful, in the pursuit of his enterprise. By a combination of popular and imposing qualities, superadded to an ascendency, derived from his station, as a public teacher, he implanted in the minds of no inconsiderable portion of the physicians of America, a disbelief in the truth and value of classical medicine.

To endeavour to counteract this evil, which, from the simplicity it appeared to have introduced into medical science, had become exceedingly seductive of indolent minds; to recal the prevalence of correct principles, touching the subdivisions and classification of disease; and, to restore to our profession, the advantages of system, constitute the object of our Preliminary Discourse.

How far we may have succeeded in our aim, it does not belong to us to determine. On this, as on all other points, the intelligent reader is honestly invited to judge for himself. We will be permitted, however, to observe, that, in our discussion of the subject, we have attempted nothing, on the influence of precedent, or by the weight of authority. Our sole reliance is on the ground of argument and legitimate analysis. Nor do we mean to arrogate any superiority to ourselves, but to our cause, in saying, that, *on that ground*, we will encounter, with a confidence of success, any opposition that can be arrayed against us.

In our very limited corrections of his nosological arrangement, we have endeavoured to tread lightly on the ashes of Dr. Cullen. His system abounds in error. We have presented a tabular view of it, for two reasons. It is, in the main, less exceptionable, than any other, now extant: and it is the system pursued in his First Lines of Practice. We have noticed only a few of its most

prominent faults, passing the minor ones without remark.

How long it may be, before a more correct scheme of nosology shall be prepared, we cannot predict. The object is practicable, and will, certainly, be achieved. Nor, are we without a lively hope, that the honour of the enterprise, will belong to our own country: for, however *strangely* the declaration may sound, in some places abroad, or *offensively*, in others, we are convinced, from an examination of evidence, to which credit seems due, that there exists, in the medical mind of the United States, a degree of boldness, originality, and vigour, which have, at present, no parallel, in the minds of the physicians of the old world. If, then, to the intellectual endowments, which a beneficent and bounteous Creator has conferred on them, and the unlimited field of observation he has given them to enjoy, the physicians of America add, what cultivation and industry are calculated to bestow, the result cannot fail to be eminently honorable to themselves and their country; and no less advantageous to the human race.

In our notes, to the present edition of Cullen's First Lines, our object has been, to elucidate obscurities, correct errors, and supply deficiencies: to bring the work, in point of principle, from the period, at which it was written, through the progressive improvement in science, up to the present time; and, by moulding it

into a system of American practice, to render it better suited to the instruction of students of medicine, and inexperienced practitioners, in the United States.

That there existed ample grounds, and cogent reasons, for such an undertaking, cannot be denied.

"The First Lines of Practice" as they came from the pen of their illustrious author, constitute a work of inequalities and contrasts; marked by excellencies, of a superior order, intermingled with imperfections both numerous and great. Like most other productions of superior intellect, their good and bad qualities are on the same scale.

The histories and descriptions of diseases, with which this work presents us, are confessedly unrivalled. Nor ought less, perhaps, to be said, of many of its expositions of the indications of cure: they, also, are clear, pertinent, and accurately drawn, beyond what is to be found in any other publication with which we are acquainted.

In addition to this, the entire work, notwithstanding its defects, is comprehensive, in its outline, and much more classical and systematic, in its plan, than any other of the kind that has hitherto appeared. With Thomas's Practice of Physic, which is nothing but a bloated and ill-digested compilation, it would be injustice to compare it.

For these reasons, the work of Cullen has been long

used, in Great Britain and America, as a text book for teachers; and has been uniformly placed in the hands of students of medicine, as their best scientific and practical guide.

But, in this country, its faults have been considered, for several years past, as counterbalancing, in some measure, its numerous excellencies.

On topics of theory, whether they relate to physiology, pathology, or therapeutics, many of its discussions are exceedingly erroneous; and its defects, with regard to remedies, and modes of cure, by no means inconsiderable. It retains not a few of the exploded notions of the humoral pathology; and, although sufficiently vigorous, perhaps, in the climate of Great Britain, where Nature seems to operate on a more limited scale, the treatment it recommends is, oftentimes, feeble and wholly inefficient, when opposed to the march of the more formidable diseases of the United States.

Nor does the imbecility of the professor's practice, constitute its only, or even its greatest, imperfection. It is marked, in many cases, with unqualified error; a fault, that must necessarily have proved, in innumerable instances, signally mischievous, in its influence on society.

From these causes, Cullen's "First Lines" without notes, is a work, dangerous, in its effects, on the inexperienced cultivators of medical science. Hence, the

late declaration of a distinguished teacher, that he "would as soon think of placing, in the hands of a student of divinity, the writings of Thomas Paine, as of recommending, to a student of physic, *Dr. Cullen's Practice, unaccompanied by the requisite corrections.*"

It is with a view to afford such "corrections," and to supply deficiencies, that our notes are annexed to the present edition.

Although, from their being principally the result of our own experience, we might be supposed to hold the additions we have made, in some estimation; yet, were that our only source of reliance, we should feel no small degree of diffidence, in submitting them to the public. But we have ample encouragement from another quarter.

After a careful perusal of what we have written, the Professor of the Institutes and Practice of Medicine, in the University of Pennsylvania, whose approbation amounts to honourable applause, has, on account of the Notes, and Preliminary Discourse, adopted our edition of Cullen's "First Lines" as the text-book to his lectures. This speaks a language, which needs no commentary; and, which the physicians of America will know how to respect.

Unwilling, however, to repose exclusively on the sanction of high authority, we think it due, as well to ourselves as our readers, to remark, that, whatever im-

perfections or faults our additions may contain, are not the result of either indolence or neglect. From the moment we engaged in the preparation of them, no exertions were wanting, on our part, to render them useful to the student, and worthy of the approbation of the experienced practitioner.

Superadded to our own personal resources, in matters of practice, we consulted the best writers, to which we could have access; availed ourselves of information from our medical correspondents; and held repeated conferences with some of the most distinguished physicians of Philadelphia. From each of these sources, we derived advantage; but, profited more abundantly, by the free and enlightened communications from the latter.

To have made known the names of the several gentlemen, to whom we are indebted, for practical information, would have afforded us pleasure: but their delicacy forbade the indulgence of our feelings. We can only beg them, therefore, to receive, each one for himself, the homage of our thanks. We must not, however, conceal the fact, that Dr. Chapman, with a frankness and liberality, peculiarly his own, threw open to us several of his manuscript lectures, permitting us, not only to consult them, but to extract from their contents whatever we thought proper. Had our leisure and limits allowed us to avail ourselves more extensively of this privilege,

we are sensible that our notes would have been, not a little, augmented in utility and value.

There is one point, which may appear to some, to require an explanation, if not an apology.

Of the remedies recommended, we have not, in general, mentioned either the doses, or the modes of exhibition. The reason is, that the insertion of numerous formulæ, besides giving a page an unsightly appearance, would have, necessarily, increased the expenses of the work, much more than it would have increased its value.

Every physician in the United States, *ought* to attend lectures on the Materia Medica; and *must* possess some work on that subject, as well as on Pharmacy. A Dispensatory, at least, is as necessary on his shelf, as a lancet is in his pocket. It is from these sources, that he must learn the doses of medicines, as well as their preparation, and modes of exhibition.

In our own estimation, therefore, an omission to swell and encumber our pages, with pharmaceutical details, is no fault; nor, can we entertain a doubt, that, on due reflection, all those, whose approbation we regard, will concur with us in opinion.

PHILADELPHIA, NOVEMBER 1, 1816.

PREFACE.

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 Dr. Boerhaave has expressed in the following passage of the preface to his Institutions: "Simul enim docendo admotus eram sensu, propriorum cogitatorum explicatione docentem plus proficere, quam si opus ab alio conscriptum interpretari suscipit. Sua quippe optime intelligit, sua cuique præ cæteris placent, unde clarior fere doctrina, atque animata plerumque sequitur oratio. Qui vero sensa alterius exponit, infelicius sæpenumero eadem assequitur; 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 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 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 Textbook, 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 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 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 ancient literature, learning was again restored in the fifteenth century; so from causes which are 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 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 here to enter into any further detail respecting the fate of those two opposite sects; for the only circumstance concerning them, which I would at present point out, is, that in the writings of both, the explanations they severally attempted to give of the phenomena

of health or sickness, turned 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. 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 show, that it neither could, nor ever can be, applied to any great extent in explaining the animal economy; 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 circumstances, it was soon perceived, that chemistry promised a much better explanation than the Galenic or Aristotellian 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 great 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 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 judgment, 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 economy of

his body. At all times, Physicians have observed, that the animal economy 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 anciently attributed, under a vague idea, to an agent in the system, which they called NATURE; and the language of a *vis conservatrix et medicatrix naturæ*, has continued in the schools of medicine from the most ancient 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 any wise 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 economy, 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 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. Stahlii medico-organicam;* and both Boerhaave and Haller, though no favorers of mate-

rialism, have mentioned 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 Therapeia 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 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 a 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 curing diseases*, the so much vaunted *Hippocratic* method of curing, has often had a 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 *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, 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 show 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 this *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 impotence 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 pathology 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 fantastical 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 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 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 no ways considerable, and no part of them now remain; and the real value of his works, beyond what I am just now going to men-

tion, rests entirely on the many facts they contain. The merit of Dr. Hoffman and of his works 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. iv. he has given his *Genealogia 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 hactenus excussis, per quam 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 œconomiam subruant ac destruant; atque hinc universa pathologia longe rectius atque facilius EX VITIO MOTUUM MICROCOSMICORUM 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 anomaliæ, 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 nimirum intestinorum et ventriculi ab œsophago ad anum canalem, totum systema vasorum arteriosorum, ductuum biliariorum, salivalium, urinariorum et subcutaneorum, sunt quoque membranæ nerveo-mus-

culares cerebri et medullæ spinalis, præsertim hæc, quæ dura mater vocatur, organis sensoriis 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 humoris illius excretio, accidit, in qua non hæ 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 agant, iisdemque noxam affiricent. Demum omnia quoque eximiæ 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.

There can be no sort of doubt that the phenomena of the animal economy 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 in perceiving this, and I think we are 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 entitled *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 775th 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 Montpelier, of some progress in the study of the affections in 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 economy, 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 a 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 parti-

cularly in his chapter *De morborum generatione ex nimia sanguinis quantitate et humorum impuritate.*

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 contemporary of both the other Systematics, and who, over all Europe, and especially in this part of the world, gained higher reputation than either of the others.

Dr. Boerhaave was a man of general erudition; and, in applying to medicine, he had carefully studied the auxiliary branches of Anatomy, 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 ancient 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 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 compare his system with that of former writers, must acknowledge that he was very 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 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 even when I came to take a Professor's chair in this university, I found that system here in its full force; and as I believe it still subsists in credit elsewhere, and that no other system of reputation had been 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 show 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 solid, has the appearance of being very clear and consistent, and was certainly considered 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 shows 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 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 somewhat better founded, but 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 Glutinoso 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 a *phlegma calidum*, are manifestly founded upon 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 imperfections of Dr. Boerhaave's doctrine with respect to the state 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 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 valued in proportion to the number of facts that it embraces and comprehends; and Mons. Quesney could not pay a higher compliment to the 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 generalization 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 universæ medicinæ*, 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 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 uninstructive kind, the place of the body which they happen to affect. His *Generalia et incertæ sedis*, have hardly any connection at all; the titles *Rheumatisms*, *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 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*, *Virum 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 symptomatologia 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 dis-*

eases: 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 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 has 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 management 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 universæ medicinæ:* 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 the species, or the circumstances to which the remedies, though of a very different and sometimes opposite nature, are particularly 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 Dyspnœa; and he himself very properly considers Asthma as a disease distinct from all the other cases of Dyspnœa. 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, *quia specifici titulo gaudeant pectoralia, vulneraria, et incidentia!* But from such lan-

guage I receive no clear idea; nor can I obtain any clear direction from the enumeration of his medicines. *Baccæ juniperi, gummi, tragacanthum vel ammoniacum, sapo aqua picea, terebinthina, &c. quæ tamen haud indiscriminatim sunt usurpanda, sed pro re nata, deluctu opus est.* Very justly indeed, *deluctu opus est;* but here, as in many other instances, he gives us no sort of assistance.

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 inopportunely 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; 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 severals.

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 uninstructive 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 affect 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 no wise 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 as a feeble and inert practice. The *hamectantia*, *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 of 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 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 measure 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 my general doctrines, both physiological and pathological; but I trust that these are only a generalization of facts, or conclusions from a cautious and full induction; and if any one shall refuse to admit, or directly shall oppose, my general doctrines, he must do it by showing 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 ap-

proved 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 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 economy, 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.

EDINBURGH, *Nov.* 1789.

PRELIMINARY DISCOURSE,

BY THE EDITOR.

WERE it not for the measures of unrelenting hostility prosecuted for years, by a late distinguished teacher in the University of Pennsylvania, for the overthrow of systematic and classical medicine, we could have no plea for wishing to occupy any portion of the time of our readers in attempting its defence. For more than a century preceding the commencement of this war of extermination, thus openly and formally declared against it, Methodical Nosology had been considered as resting on the immoveable basis of reason, experience, and the unqualified approbation of every enlightened physician of the time. It had been regarded as a branch of medicine originating in necessity, sanctioned by utility, and founded in the immutable nature of disease. But ingenuity and sophistry may become dangerous weapons in any department of practical science. When employed by ambition, and wielded by a daring spirit of innovation, they are capable of spreading darkness, for a season, around the brightest truths, and giving a temporary lustre to the wildest hypotheses.

When we recollect the high and imposing rank of the professor to whom we have just alluded, and add to this, the formidable power and extent of his means, against such opinions as he wished to destroy—placed, as a practitioner, at the head of his profession, acute and ingenious as a writer, eloquent and unusually popular as a teacher, zealous and indefatigable in his favourite pursuits, and possessing, through the medium of his lectures and writings, opportunities peculiar to himself for ensuring a wide dissemination of his doctrines—when we call to mind these considerations, and subjoin what our own observation has taught us, we can no longer doubt, that, in relation to the truth and usefulness of systematic nosology, the belief of hundreds has been seriously shaken—that dangerous heresies have been abundantly infused into the minds of many of the physicians of the United States, and that, on practical no less than scientific grounds, the interest of medicine calls for their removal. Such are the evils which, in professional science, can scarcely fail to result from the labours of distinguished individuals who unfortunately mistake alteration for improvement, and innovation for reform.

To aid, to the extent of our humble means, in the eradication of those errors, which have thus been implanted in a portion of the medical mind of our country, and in the restoration of certain rejected doctrines, of the soundness of which we have not ceased to be persuaded, and the cause of which we have never abandoned, constitutes the principal object of this discourse. To render it as conclusive as possible, and to bestow on it somewhat of an elementary and didactic character, we

shall attempt, in the course of it, an analytical view of the grounds and principles of classical arrangement.

The true basis of system and classification in science is, affinity in some points, and dissimilarity in others; their object and tendency, to facilitate the acquisition of knowledge, by compressing what is scattered, simplifying and rendering clear what is dark and intricate, and reducing to order what is irregular and confused. Such are their effects in Natural History at large, and its subordinate branches, Zoology and Botany, Geology and Mineralogy; and such are also the aids they afford in the study of Metaphysics and Chemistry, Philology and Moral Science; such, in fact, are the helps and facilities which they alone can bestow on those who are in pursuit of general knowledge.

Without the advantages of systematic arrangement, every field of research, whether natural or moral, metaphysical or literary, would remain in the condition of an uncultivated waste, marked by the footsteps of disorder and barrenness. The sunshine of real science could never quicken it, nor could the hand of industry render it fruitful. The adventurous explorer might indeed pass through it, and be, in no small degree, delighted with the novelties around him: he might even, for a time, fancy himself instructed; but every thing being blended without regularity or order, nothing would present itself to him in its true relations: hence, his recollection of all he had seen being indistinct and confused, his labours would be unprofitable to those who might follow him. He could leave behind him scarcely a track or a beacon for the direction of their course.

A branch of science under the influence of correct

classification and arrangement, resembles a stately edifice, complete in its parts, just in its proportions, harmonious in its composition, chaste in its ornaments, and capable of being compassed, in all its beauties, at a single view. Deprived of its classification, the same branch may be fitly compared to the same building shaken from its basis, and reduced to a shapeless pile of ruins, by a hurricane, an earthquake, or the operations of war. It is now a mass of confusion, in which all affinity, and every principle of association are wanting; or, if not actually wanting, incapable of being traced by the common observer: it cannot be viewed in its several parts without an examination that is painfully laborious; and, even then, it is seen only in detached parcels, to offend by its unsightliness, distract, and be forgotten.

That we may be the better understood, let Zoology be the branch of science selected to illustrate and exemplify our meaning. Within the same inclosure let us suppose to be crowded together, without order or arrangement, individuals or pairs of all the several species of animated beings that the earth contains—man and quadrupeds, birds and fishes, reptiles and insects, shells and zoophytes.

What a vast and incomprehensible scene of confusion the fancy here presents to our view! There appears to exist in it no common bond of union, nor any clue of affinity or resemblance, to lead us from a knowledge of one object to that of another, until the whole shall become familiar to us. On taking a survey of it, what observer would conceive himself capable of ever distinctly remembering, and referring to, as a source of useful

knowledge, the many thousands of jarring and heterogeneous individuals of which it is composed?

Let this living chaos, however, but feel the touch of an enlightened Naturalist—let it be divided, according to strict systematic arrangement, into the classes, orders, genera, and species of which it is composed, and each species be placed next to that to which it bears the closest resemblance—let this be done, and immediately all confusion, and difficulty of comprehension are at an end. Every little groupe of beings exhibiting now an affinity to those around it, a chain is perceived which binds together in one great alliance the whole assemblage; while a clue is presented to the inquirer, calculated to lead him, by easy and natural gradations, from the knowledge of one part to that of another, until a perfect familiarity with the whole shall be attained. He no longer examines the multitude before him by individuals: he looks at it now by families or tribes, and learns, in a short time, to compass the whole at a single glance.

It is thus that, in our progress through the rudiments of learning, we proceed from letters to syllables, from syllables to words, and from words to sentences, until a whole page is deciphered almost as soon as it meets the eye—so essential is the aid which classical arrangement affords us, in our pursuit of the knowledge of Zoology and letters. Nor is it less useful to us, as might, by analysis, be fairly demonstrated, in the study of any other branch or topic of science.

It is true that Dr. Rush, whose opposition to methodical Nosology, led us to engage in the composition of

this discourse, acknowledged the *general* utility of classical arrangement, but denied its applicability to the science of disease. It will appear, however, we apprehend, on an examination of the subject, that his reasons for this denial were without weight.

We have already observed, that the only true basis for a classical arrangement of objects, to whatever department of nature they may belong, is a permanent and perceptible affinity between them in some points, and a dissimilarity in others. We shall now add, that all objects, thus relatively characterized, are susceptible of such arrangement.

Is this definition applicable to diseases? Are the various morbid phenomena to which the system of man is liable, so marked in relation to each other, as to be plainly and uniformly similar in some points, and dissimilar in others? If so, they are, in their nature, as susceptible of a methodical arrangement, as the objects of the animal and vegetable kingdoms.

To physicians of experience, observation and thought, this topic of inquiry must be already sufficiently clear: to the inexperienced but sensible student of physic, we trust there will be found but little difficulty in rendering it so.

The human body is known to be a compound machine, consisting of various subordinate parts, which differ not a little from each other in their structure, functions, and uses. Of these parts it will be sufficient for our present purpose, to enumerate, the skin, the muscles, the brain and nerves, the heart and blood-vessels, the absorbents, the glands, the stomach and alimentary canal, and the bones.

It is further known that these subdivisions of the body are susceptible of disease either severally, in parcels, or all at once. The latter, however, is a phenomenon, which does not, perhaps, very often occur. An universal disease, in which no part of the system escapes, we have rarely witnessed.

The whole, or a great proportion of the body may be also diseased, *in a certain degree*, while *a still higher and severer complaint* exists in some one of the subordinate parts. This is more especially the case in Dr. Cullen's Order Phlegmasiæ. But the same thing is also true of all febrile diseases that are accompanied with a topical affection—of the Exanthemata, the Hemorrhagiæ, the Profluvia, and even many of the class Neuroses.

As all the subordinate parts of the body differ from each other essentially in their structure, functions and uses, it follows, of absolute necessity, that they must be subject also to different diseases. They are not organized alike; they act, and, whether sound or unsound, *must* act, in a manner corresponding to their organization; disease is the morbid action of organized parts; their diseases, therefore, cannot be alike.

Without any further reasoning to support it, this position might be assumed and rested on as a physical axiom. To the enlightened pathologist it is a self-evident truth. As well may the mechanic look for the same kind of action, whether sound or disordered, in a steam-engine and a watch, a water-mill and an orrery, however dissimilar these productions of art may be in their structure, as the physician in the different subdivisions of the body.

This point being exceedingly important to the deci-

sion, and even to the proper understanding of the present controversy, we shall, for the more satisfactory illustration of it, dwell on it further, and treat of it more in the form of analytical detail.

The structure and the healthy action and functions of the skin and muscles being radically different from each other, because they are intended to subserve, and do subserve, different purposes in the animal economy, it is physically impossible that their diseased action should be the same. Nothing short of a miracle—something, at least, subversive of the usual processes of nature—could render them so. Simply to state this position is definitively to prove it. Arguments would be wasted in an attempt to elucidate or strengthen it. No man of a sound intellect will expect to find the same disorder in the rigging of a ship and the wheels of a clock. The reason is obvious. The machinery is differently constructed, because designed for different purposes. The disorders incidental to it must be also different. So in relation to all conditions of the skin and the muscles of the human body. Their action, whether diseased or sound, cannot be alike, because the organic structure of the parts is dissimilar.

The same thing is true with respect to the heart and blood-vessels, and the brain and nerves. The organization and healthy action of these parts are utterly dissimilar; so also are their uses: it would be contrary, therefore, to every principle of reason, and every established rule of philosophizing, to allege that their diseases can be alike. They *must* be different, or nature is palpably inconsistent with herself.

Who will be so weak as to assert that the same kind of disease can prevail in the intestines and in the bones?—in an absorbent and in the optic nerve?—in a gland and in the nerve of hearing?—parts so fundamentally different from each other, not only in structure, but in all the attributes and properties of life. With equal reason and probability of success might an attempt be made to maintain the identity of a man and an elephant, or a lion and a whale.

Thus might we examine in detail the whole of the human system, and show, that from a necessity as inflexible as the principles of nature, different parts of it must be subject to different diseases. To maintain the contrary would be to pronounce causes, totally dissimilar in their principles and modes of action, capable of producing similar effects.

A disease consists in the suspension or disorder of one or more of the functions of the body. It must be widely different, therefore, in different instances, according to the function thus affected.

An unsound state of the functions of the lungs produces a disease widely different from that which arises from an unsound state of the functions of the stomach. If the functions of the liver be disordered, the disease is equally different from that which a disorder in the functions of the kidneys excites. Nor, when the functions of the eye are shattered or destroyed, will any one contend that the disease is the same with that which results from a similar affection in the functions of the ear. These are truths so nearly self-evident, that, unsupported by the weight of argument or authority, they

may be safely left to defy the devices and powers of sophistry. The extent to which they might be multiplied by a further analysis, will be readily perceived by the enlightened pathologist. They might be rendered as numerous as the several organs or parts of the body, which differ from each other in their functions and uses.

A very fertile source of difference between the diseases of the several organs of the body, arises from the different sympathies which these organs possess with the system at large. A local affection of the stomach produces a disease widely different from a similar affection of the lungs, because the sympathies of the two organs are equally different. The uterus possesses sympathies with the rest of the system different, in a high degree, from those of the liver: the affections of these two organs, therefore, cannot be alike in their nature or consequences. The same thing might be said of the kidneys and spleen, the brain and heart, and of various other organs of the body, were it necessary to enumerate them.

The diseases to which we have, as yet, had reference, must be regarded as somewhat limited in their extent. The dissimilarity between those of a more general character may be demonstrated with equal facility and certainty.

A febrile disease cannot fail to be different in its nature and character, according to the part of the system in which it is radicated, and on which it expends its principal force. A fever having its topical affection in a vascular part, is necessarily different from one which topically attacks the brain or nerves. In other words, an inflammatory is different from a nervous or typhus fever.

Equally different is a fever radicated in the stomach from that which throws the force of its action on some of the glands or the skin: while those invading the bowels, or commencing there in the form of diarrhœa, and in that portion of the Schneiderian membrane which lines the fauces and the bronchiæ, are different from both.

Thus far we have reasoned *a priori;* or, in language less technical, from first principles; and hope that our arguments have neither been unsound, nor our conclusions illegitimate.

But perhaps we might most decisively establish our position, by somewhat inverting our rule, and, instead of merely inferring the diversity of diseases from the existing diversity in the nature of their seats, prove it from the difference of their signs and symptoms.

The more clearly to demonstrate the fairness of our reasoning, we shall here premise, that, from an acknowledged inability to penetrate the nature or essence of things, we are forced to judge of them from external appearances. Nor can we pretend, in general, to the slightest knowledge of them, except what these appearances communicate. To illustrate our meaning by a familiar example.

In pursuing our studies in the science of nature, outward appearances constitute our principal, in most instances, our only guides to knowledge. We are, therefore, compelled to have recourse to their aid, and to place confidence in the truth of the information they impart. Hence it is, that where we find objects uniformly different in their external qualities, we are forbidden to doubt that they are different in themselves. While, on

the other hand, the only evidence we can possess of actual identity, is identity of appearance.

To be still more explicit on this subject. When we find two objects—vegetables, for example—the same in size, in figure, in colour, in blossom, in fruit, in habit, in smell, and in taste, we conclude, without hesitation, that they are the same in species. Nor is there any one so hardy as to call in question the correctness of our decision. The same thing is true in relation to subjects of the animal and mineral kingdoms. Identity in all their discoverable qualities is received as evidence of identity in their nature. The reverse of this rule is equally unquestionable. An invariable difference in the qualities herein specified is regarded as indicating conclusively a difference in the genera or species of animals, vegetables and minerals.

By enlightened pathologists the same rule of investigation is admitted as perfectly applicable to diseases. In common with the regular productions of nature, these morbid conditions of the body can be studied only through the medium of their phenomena or external qualities. But the only external qualities which they possess are their signs and symptoms. A sameness in these manifests a sameness of origin, while an invariable difference in them never fails, nor can it, indeed, fail, to be received as evidence, satisfactory in itself, of a radical difference in the nature of the diseases to which they belong. The same disease can no more exhibit different phenomena or characteristic symptoms, than the same plant can exhibit a difference in its own fruit and figure, its flowers and foliage.

These truths are already so clear, that, by those who are versed in the science to which they belong, an attempt to render them more so might be deemed superfluous. They are a fair and perspicuous interpretation of the language of nature, in relation to the subject whereof we are treating. But in a case where fundamental principles are concerned, nothing should be left to fancy or conjecture. We deem it our duty, therefore, to adduce a few examples illustrative, and, at the same time, confirmatory of the doctrine for which we are contending.

According to the correct rule of philosophizing, a febrile disease marked with an acute pain in the thorax, a difficulty of respiration, a violent cough, and a frothy, puriform, or sanguineous expectoration, is essentially different from a case of fever unaccompanied by such topical affection; much more does it differ from one, which, to an exemption from any local thoracic complaint, adds a general pustulous eruption on the surface of the body. For the reason why these diseases must be pronounced different no one can be at a loss. It is because their perceptible and characteristic qualities, from which alone we derive our knowledge of them, are essentially different. Nor can any thing induce us to consider them the same, unless it be some delusive hypothesis, which fairly cheats us of the testimony of our senses.

On no ground of evidence or principle of reason can a disease marked by tormina or severe gripings, a constant and distressing tenesmus, frequent mucous, puriform, or bloody discharges from the bowels, and produced by an exposure to atmospheric impurities, be considered the same with one arising from a puncture in the foot or

hand, and characterized by an immobility of the lower jaw, a stiffness of the neck, a difficulty of swallowing, a constipation of the bowels, a distressing pain in the epigastric region, and general convulsions frequently recurring, or an entire rigidity of the body and limbs. The discriminating characters of a horse and a lion, or of a serpent and a dog, are not more strikingly perceptible, nor more widely different from each other, than those which mark the distinction between these two diseases. Nothing, therefore, short of absolute ignorance in medicine, or some professional hallucination bordering on madness, can induce any one to pronounce dysentery and tetanus to be the same disease.

Observations precisely similar may be made in relation to scrophula, which is an affection of the glands, and erysipelas, which is a peculiar inflammation of the skin; diarrhœa, a complaint of the bowels, and regular gout, which is topically seated in the foot; rheumatism, a disease confined to muscular, ligamentous, or other soft parts, and rickets, which perpetrates its ravages on the bones. The peculiar marks, by which alone these several diseases can be known, are essentially different from each other. It is a disregard of evidence, therefore, amounting to a breach of moral obligation, seriously to contend that the diseases are the same.

By passing, in this manner, through the whole catalogue of diseases comprized in the systems of judicious nosologists, we might show that they are all distinguished from each other by characters sufficiently perceptible and definite, to be recognized by every one, and to answer the purposes of a classical arrangement.

Before taking leave of this head of our subject we shall further observe, that whatever set or family of morbid symptoms we find associated together with a constancy and regularity that do not belong to accident, but comport with the steadiness of a law of nature, we are bound to consider as arising from a common and distinct cause, and as constituting necessarily a separate disease. Should this association of symptoms be pyrexia, ushered in by a harsh, dry and sonorous cough, and a red and watery state of the eyes, with an occasional sneezing, and succeeded on the third or fourth day by a scarlet-coloured eruption on the skin, we give it the name of measles: if it be a preternatural dulness and disinclination to motion, heartburn, nausea and an occasional vomiting of an acid gelatinous fluid, a costive state of the bowels, an unusually light colour of the fæces, and a yellowness of the skin, accompanied at times with a troublesome itching, we regard it as constituting a different disease, and call it jaundice: and if it be a severe pain of the bowels, with a sensation of twisting or knotting in the region of the navel, marked by occasional intervals of ease, and attended by obstinate costiveness and vomiting, we term it colic. It is thus that in the animal and vegetable kingdoms, we regard certain uniform and regular combinations of the external qualities of size, form, habit, colour, odour, and taste, as constituting distinct classes and orders, genera and species.

Having, as we flatter ourselves, satisfactorily established, in relation to diseases, one branch of the basis of a classical arrangement, viz. their radical difference from each other, it belongs to us now to make a few remarks

on their affinities, which constitute, as we have already observed, the other branch. On this head of our subject it is our intention to be brief; a detailed analysis of it being altogether unnecessary for the purposes we have in view.

One circumstance which constitutes a point of strong analogy between the diseases we are considering is, that they are all incidental to the system of man. They consist, moreover, in a disorder, suspension, or entire destruction of one or more of the functions of health, and are accompanied with an increase or diminution of action and sensation, and a preternatural condition of muscular strength. Certain families or tribes of them commence with a chilliness, and an enfeebled state of the pulse, which are, in a short time, succeeded by increased arterial action, and inordinate heat. Of these, some assume a continued form; others exhibit regular periodical intermissions; some are free from any topical affection; others are marked by acute and violent pains in various parts of the body; a fifth order are accompanied with discharges of blood; and a sixth with various eruptions on the skin.

As further points of affinity between certain tribes or families of diseases, may be mentioned, preternatural discharges of fluids not sanguineous, disordered and irregular contractions of certain sets or systems of muscles, and an intumescence of various parts of the body.

Sundry other marks of affinity might be here enumerated; but the foregoing, we trust, will serve to show, that diseases are related to each other by ties sufficiently

strong and diversified, to furnish ground for an association of them under a system of classical nosology.

We might now proceed to speak of that plan of nosological arrangement which appears most natural in itself, and best comports with the character of diseases. But it will, perhaps, be expected, that we should previously take some notice of the objections urged by Dr. Rush against systematic nosology in general, and of his attempt to repudiate it from medical science.

The objections of that celebrated teacher, in relation to this subject, might seem to have been numerous: but, when considered on principle, they are reduced to a point: they all derived their origin from a single source—the belief of their author *in the unity of disease.* Had it not been for the influence of that hypothesis, the professor would never have rejected classification, and renounced nosology. He possessed too correct a knowledge of the value of system, and held in too high estimation arrangement and method, to have pursued, as the result of cool deliberation and an unbiassed judgment, a course of inflexible hostility to that, which alone brings order out of confusion and renders medicine intelligible.

But we ought, perhaps, to recall our expression. Dr. Rush did not, *in reality*, renounce nosology. His renunciation was *in words*, not *in fact.* He only exchanged one plan of nosology for another—a more simple, as we conceive, for a more complicated—a substantial for a visionary—one founded in nature, or, at least, corresponding with many of the phenomena of disease, for one which appears to have been much more the creature of fancy than of reason.

The nomenclature of diseases used by Dr. Rush, which was, in many instances, exceedingly forced and unnatural, was nothing but a substitute for a scheme of nosology. By a brief and fair analysis of the subject, this may be proved to the satisfaction of the reader.

To place this matter beyond the sphere of denial or doubt, we will here give a comparative view of a portion of the *nomenclatural* arrangement of Dr. Rush, and the corresponding part of the *nosological* arrangement of Dr. Cullen. We shall begin with the different *kinds*, or, as Dr. Rush denominates them, *states* of fever, and, for the sake of discrimination, shall affix over each arrangement the name of its author.

CULLEN.	RUSH.
1. Intermittent fever.	1. Synochus fortis.
2. Synocha.	2. Synocha.
3. Typhus mitior.	3. Synochula.
4. Typhus gravior.	4. Synochoid.
5. Typhus Icterodes.	5. Synochus mitis.
6. Synochus.	6. Intermittent.
7. Hectica.	7. Hectic.
	8. Typhoid.
	9. Febricula.
	10. Suffocated or oppressed state.
	11. Prostrate state.
	12. Gangrenous state.

Another suitable specimen of comparison may be derived from the nomenclature and arrangement of the diseases of the mind.

CULLEN.	RUSH.
VESANIÆ—THE NAME OF THE ORDER.	DISEASES OF THE MIND.
1. Amentia.	1. Seatou Mania.
2. Melancholia.	2. Allou Mania.
3. Mania.	2. General mania in its highly inflammatory state.
4. Oneirodynia.	4. Manicula.
	5. Manalgia.
	6. Fatuity.
	7. Defect and loss of memory.
	8. Dreaming.
	9. Phantasms.
	10. Absence of mind.
	11. Operations of the mind in a trance.

We shall close this comparison with a view of certain diseases deriving their names from the parts of the body they particularly affect.

CULLEN.	RUSH.
1. Gastritis.	1. Gastritic state of fever.
2. Enteritis.	2. Intestinal.
3. Hepatitis.	3. Hepatic.
4. Diabetis.	4. Diabetic.
5. Hæmorrhois.	5. Hæmorrhoidal.
6. Cystitis (Inflammation of the bladder.)	6. Cystic.
7. Ophthalmia.	7. Ophthalmic.
8. Odontalgia.	8. Odontalgic.
9. Otalgia.	9. Otalgic.
10. Apthæ.	10. Apthous.
11. Scrophula.	11. Scrophulous.
12. Scorbutus (scurvy.)	12. Scorbutic.
13. Convulsions.	13. Convulsive.
14. Hydrophobia.	14. Hydrophobic.
15. Hysteria.	15. Hysterical.
16. Hypochondriasis.	16. Hypochondrical.
	17. Cutaneous.

Of this comparative statement, the tendency and result are too obvious in themselves, to require for their illustration the slightest comment. They show with a clearness amounting to demonstration, that Dr. Rush has neither rejected, nor, in any one respect, improved, nosological arrangement. Or, if he has improved it, it is not by abridging and simplifying it, but by rendering it more complex and voluminous.

Under the order of Fevers, properly so called, Dr. Cullen has enumerated *seven* kinds and Dr. Rush *twelve*.

The latter has *eleven* different kinds or forms of diseases of the mind, and the former only *four*.

In the last instance of comparison, although the diseases on which the two professors have bestowed names are very nearly equal in number, Dr. Cullen is in no respect inferior to Dr. Rush in perspicuity of expression, and surpasses him not a little in classical brevity. His system is therefore entitled to a preference.

Doctor Rush, in his nomenclature, expressly recognized the affinity of diseases. In his hydropic state of fever, his pneumonic state, his rheumatic state, his hepatic state, his cephalic state, and many others, the affinity consists in their being all possessed of a febrile character. But he, also, as expressly recognized their differences. These consisted in the difference of their determinations or topical affections. Were they not, in this respect, different, why designate them by different names? The measure, had he believed them to be the same, would have been altogether unwarrantable; be-

cause it would have been giving sanction and currency to an error.

It is true, he professes to consider these complaints as *different forms* of disease, instead of actually different diseases. But the distinction which he here attempts to establish, consists in words, not in substance. Permanently different forms of disease, occurring under different circumstances, occupying different seats, exhibiting different symptoms, attended with different degrees of danger, and requiring different modes of treatment, are as capable of being classed, as if they were specifically different diseases. Indeed, in relation to all practical purposes, they *are* different diseases, and may, with propriety, be so denominated.

Form is a quality so striking and attractive, and, in its relationship to every thing of which we have any knowledge, so perfectly essential, that it alone is capable of constituting a radical and characteristic difference. This may be proved by innumerable examples.

In what but *form* does a triangle differ from a square, an acute angle from an obtuse, a cone from a parallelogram, or an ellipsis from a circle? In what else does a dagger differ from a sword, a bayonet from the point of a spear, or a trumpet from a French horn? In what other than form does the body of a horse differ from that of an ox, the body of a dog from that of a goat, or the body of a lion from that of a tyger?—or, more forcible still, in what but form does the body of a man differ from either? We answer, in nothing that is by any means so important as *form*. Yet all these objects are capable of being clearly discriminated from each other, and me-

thodically arranged in well defined classes, orders, and genera.

Such precisely is the case in relation to diseases. To the mind of a pathologist, what Dr. Rush calls the hepatic state of fever, presents an image very perceptibly different from that presented by his pneumonic state—an image that can be realized and felt as a distinct existence, with as much facility as can that of an oak or an eagle. With equal ease may the hydropic state of fever be discriminated from the rheumatic, the cephalic from the nephritic, and the gastritic from the ophthalmic. Had not this been the case, the doctor would have been guilty of the fault of using names without a meaning. These diseases, or, in the professor's own language, forms of disease, are, moreover, perfectly susceptible of classification and arrangement; their affinities consisting in their febrile character, and their diversities in their topical affections, and the peculiar symptoms which these affections respectively produce.

But, disregarding, for the present, his minor positions, we shall approach, at once, the strong hold of Dr. Rush's opposition to systematic nosology. This, as already stated, is his doctrine of the *unity of disease*—the conviction of his own mind, with his arguments in support of it, that *all diseases are essentially the same.*

If this main ground of his opposition, the citadel of his strength, can be taken from him, and shown to be, in its nature, utterly untenable, his posts and outworks, established for its defence, must be surrendered of course.

If we rightly understand the professor, in his attempt

to explain himself, the following is a brief of his reasoning on this subject.

I. All diseases consist in morbid excitement.

II. Morbid excitement is an unit,* because it is the product of stimuli or irritants acting on excitability.

III. Therefore all diseases are an unit.

Such we believe to be the syllogistic structure on which alone rests the doctrine of the unity of disease.

When correctly analyzed, this form of argument will be itself found to consist of two fundamental and distinct assumptions—*the unity of excitability*—and *the unity of stimuli.* These assumptions are fairly and necessarily implied in the middle proposition of the syllogism.

If it be true, that excitability is, in every part of the body, and under all circumstances the same, and that all stimulants capable of acting on it are also the same, it follows, of necessity, that the result of this action can be, in no case, dissimilar—Disease must, then, be an unit, differing from itself, under different circumstances, in no other respect than that of its force. These two assumed propositions it shall now be our business to analyze and examine.

From facts and reasonings which were submitted to the consideration of the reader, in a preceding part of

* The Brunonian doctrine on the subject of excitement, embracing, as it does, the unity of that property, is inconceivably absurd. It amounts to an extravagance of folly, which almost surpasses the limits of belief. According to this sectarian doctrine, life consists in excitement, health, in excitement, and disease, in excitement. Yet excitement is an unit: therefore life, health, and disease are the same. This is no misrepresentation, nor even exaggeration of the doctrine: it is the doctrine expounded precisely as it is maintained.

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this discourse, it is contrary to the fundamental principles of our nature, that excitability should be, in all parts of our systems, the same. The hypothesis is one of the offensive crudities of the Brunonian doctrine, and appears to be utterly repugnant to all that we know of physiological truth.

Although we do not believe that excitability derives its existence from the mere organization of matter—for it is a quality of matter not organized—we feel, notwithstanding, confident, that it is greatly modified by it. So also is the capability of action—we mean the capability of a part to assume any particular form or mode of action. These facts are of primary importance in the present discussion.

Were excitability the same in every part of the body, it would, in each, be acted on by the same stimulants, and in the same way. The fact, however, is otherwise. Light, a powerful stimulus to the eye, and indirectly to certain other parts, produces no excitement in the organ of hearing; nor does air on the organ of vision. Augment their force to any degree that is practicable, the result is still the same. Air and light, therefore, differ as stimuli, or the eye and ear differ in their excitability. In either case the argument is in our favour: for, to prove the unity of disease, the unity of stimuli as well as that of excitability must be conclusively established.

Nothing will act on the olfactory nerves but odours, nor on the nerves of taste but sapid bodies. Here again is something specific in relation either to excitability or stimuli. If there were not a radical difference in the excitability of these two sets of nerves, the same stimulants

would act, and act alike, on them both. If there were not something specific in the nature of odours, they would not be alone capable of awakening the sense of smell; nor would sapid bodies be alone capable of exciting taste, unless they were different in their nature from all other stimulants. Heat, cold, and other stimulating agents produce sensation in the tongue and nares; but not the sensation of taste or smell. These two latter sensations, therefore, can be nothing else than the result of specific stimuli acting on specific excitability. With equal correctness might similar observations be made in relation to the nerves of touch.

The organs of the five external senses, then, exhibit so many unequivocal examples of specific excitability. They, in this respect, differ from each other and from the rest of the system, as essentially and palpably, as silicious differs from argillaceous earth, an oak from an elm, or a bear from a buffaloe.

The excitability of the stomach is very strikingly, and, we believe, specifically, different from that of the lungs, the intestines, the lacteals, and the blood-vessels.

Many purgatives and other articles which pass through the stomach, if not entirely unfelt, at least, without much inconvenience, produce in the bowels the utmost disorder. Bile, the stimulus of which is necessary to the healthy and efficient action of the intestines, cannot be received into the stomach without giving rise to nausea and vomiting.

Carbonic acid gas, which is to the stomach a grateful and salutary stimulus, proves immediately fatal when applied to the lungs. This can be attributed to no other

source than a difference in the excitability of the two organs.

Such is the peculiar excitability of the lacteals, that they reject at once the undigested alimentary matter, which is received without reluctance or injury by the stomach and intestines.

'The blood appears to be the only stimulus that can be at all tolerated by the internal surface of the heart, arteries and veins: every other substance brought into contact with that extremely delicate portion of our system produces convulsions and sudden death. But if a portion of blood be received in a crude state into the stomach, it rarely fails to prove the cause of sickness and perhaps vomiting. The existence of different species of excitability can alone explain these phenomena.

The lips, the organs of generation, and the female breasts, manifest, also by incontestable evidence, the existence of specific excitability. They are each capable of being acted on by stimuli that do not at all affect the others.

Were we to embrace in this analysis the whole of the human body, and give a complete history of the excitability of every particular part of it, our work would consist of little else than a record of differences. No two portions of the body that are differently organized would be found to be alike in their excitability. Nor does it appear possible that the case can be otherwise. We should as soon expect parts differently organized to be similar in their functions as in their excitability—as soon expect the skin to act like the glands, the glands like the muscles, the muscles like the nerves, the nerves

like the blood-vessels, and the blood-vessels like the absorbents, as the whole or any two of these parts to be similar in their excitability.

It is evident, then, that one of the assumptions, on which rests the doctrine of the unity of disease, viz. the unity of excitability, is utterly unfounded. We shall proceed to a brief examination of the other, viz. the unity of stimuli.

Of the essence of stimuli we know nothing. We can judge of them only by their external qualities, their properties, and their effects. If they be alike in these, we must consider them alike in their nature; and if dissimilar in these, dissimilar in their nature. From this rule of inference it would be unphilosophical to depart. Let it be applied to the solution of the present question.

In the properties of weight and hardness, elasticity and cohesion; and in the external qualities of figure and colour, smell and taste, no two stimulants are precisely alike. In these respects, opium, alkohol and ether are unlike wine, volatile alkali, and Peruvian bark; preparations of mercury unlike preparations of steel; Glauber's salts and castor oil unlike senna and rhubarb; assafœtida and musk unlike castor and camphor; and cantharides and spirits of turpentine unlike every other substance with which we are acquainted. The same thing is true with respect to all stimulating substances, of which we have any knowledge, and the properties and external qualities of which we are capable of examining. No two of them are precisely alike. Considered in their resemblance to each other, therefore, they exhibit none of the characters of unity.

If we examine them with a view to their operation on living matter, the issue will be found in an equal degree unfavourable to the hypothesis we are opposing. When applied to the human body, whether in a diseased or a healthy condition, they are far from being marked with an identity of effect. On the other hand, out of the whole catalogue, no two can be selected that act precisely in the same way. Although they all stimulate, yet each one acts with some modifications peculiar to itself. Of this fact no physician of experience can be ignorant.

Opium and its several preparations stimulate; but, in doing this, they relieve pain in a manner superior to all other remedies, and also in a different mode. It is in vain to assert, with Brown and his followers, that they differ from wine, alkohol, and ether, only in being more powerful and diffusible in their effects. The assertion is contrary to universal experience. Opium is daily exhibited, with great advantage, in cases of topical inflammation, and other diseases, wherein wine, ardent spirits, aromatics, and all kinds of stimulating aliment and drink would be injurious. In relation to its effects on living matter, opium is a substance *sui generis*. If certain articles of materia medica resemble it, in some respects, in their mode of action, they differ from it widely and essentially in others.

Mercury stimulates; but, in its action on the salivary glands, it is altogether unique. The stories we hear, of a like salivation being produced by other substances, are either unfounded, or the effect is to be attributed to some peculiarity in the systems of those in whose cases it has occurred. The event cannot be regarded in the

light of a general and settled principle. Although many articles, when chewed, produce a temporary discharge of saliva, mercury is the only permanent sialogogue.

A further and very striking example of the specific operation of stimuli is furnished by cantharides. Other articles, when applied to the skin, produce vessication: but it may be confidently asserted, that, in its entire operation, no one exactly resembles this. It is a medicinal substance specific in its character.

The history of the external senses furnishes examples, conclusive in themselves, of the diversity of stimulants. Were the doctrine of the identity of these agents true, the different colours which objects present to the eye, would be wholly inexplicable. No one will contend, that, by any modification in its force, a blue ray of light can be made to produce on the optic nerve the sensation of redness, a red ray that of orange, or an orange ray that of yellowness. Each of these sensations, as well as those of the remaining colours, can arise only from the specific peculiarity of the stimuli that produce them.

Similar observations may be made in relation to the operations and functions of the tongue. The leading tastes of sweet, sour and bitter, with all the numerous intermediate sensations, give testimony, which nothing can resist, of the diversity of stimulants. An identity of impression can never produce them.

Nor are the innumerable and peculiar diversities of odours and sounds less pointedly in favour of the doctrine we are defending. The different kinds of organic action on which they depend, can arise only from a

corresponding difference in the stimulating agents by which they are excited.

Certain stimulating substances are, in their effects, not only different, but in direct opposition to each other. Rhubarb, aloes and gamboge stimulate and purge; saccharum saturni, opium, and Peruvian bark, stimulate also, but produce costiveness. Tartarized antimony, ipecacuana and vitriolated zinc, stimulate and excite vomiting; seltzer water, an infusion of mint, and a mixture of brandy and water also stimulate, but check vomiting. Squills and digitalis stimulate and give rise to an increased secretion of urine; opium, cicuta, hyoscyamus, and perhaps the whole family of the narcotics, stimulate in like manner, but diminish the secretion of urine.

Certain cordial articles, as wine, brandy, and savory food, when received into the stomach of a person weakened by hunger, stimulate its coats and produce an immediate augmentation of strength; but arsenic, crystalized muriate of mercury, and the juice of tobacco, stimulate also in a very high degree; yet, when taken into the stomach, they diminish strength. This difference in result must be owing to the different modes of action of the substances employed. The former class consists of salutary stimuli, which, when skilfully administered, always give vigour; the latter of deleterious ones, which, when swallowed in sufficient doses, never fail to take it away.

There is yet another source of diversity in the operation of stimuli, to which we have not heretofore sufficiently adverted. It is their peculiar fitness for acting, some on one, and some on another, of the subdivisions

of the body. An attempt has been made even to class the articles of the materia medica on this principle. Opium acts chiefly on the brain and nerves; mercury on the glands and lymphatics; wine and aromatics on the heart and blood-vessels; preparations of steel on the stomach; and squills, digitalis, and uva ursi on the kidneys.

On what but a conviction of their diversities, do writers on materia medica found their division and classification of stimulants?—representing them to consist of astringents and tonics, corrosives and antispasmodics, errhines and sialagogues, expectorants and emetics, cathartics and diuretics, diaphoretics and emmenagogues, and some others? Were all these articles the same, such a classification would be nothing but a tissue of systematized error, disingenuous in its nature and delusive in its effects. Yet, singular and inconsistent as it may appear, it was adopted by Dr. Rush in his lectures on therapeutics. Hence, in a practical point of view, that teacher supported the doctrine of the diversity of stimulants, although, theoretically, as an unitarian in pathology, he was an advocate for their identity. Against his favourite hypothesis, therefore, he leaves us the weight of his own authority.

There evidently exists, then, a twofold ground of difference in relation to the result of the operation of stimuli; a difference in the qualities of the articles themselves; and a difference in the susceptibility and structure of the parts on which they are peculiarly fitted to act. These grounds are, each in itself, unfriendly to the doctrine of the unity of disease, and, when united, necessarily fatal to it.

From what we know of Nature, we are bound to believe that she does nothing in vain. But, were all stimuli the same, where would be the use of such an extended catalogue of them as she has offered to our selection? Why should they superabound in the animal, vegetable, and mineral kingdoms? In a medical point of view, at least, this profusion would be superfluous, and even embarrassing. With one of them, as well as with the whole, might the physician fulfil every possible indication of cure. Let him take, for example, common brandy, and, by dextrously varying the strength and dose of it, his business would be done. With this article alone he might purge or sweat, puke or salivate, promote absorption or increase the action of the kidneys and other glands, according as the one or the other of these processes might be necessary. He might even, as would at times be requisite, effectuate several indications at once.

A view of things more perverted by error, or more replete with absurdity than this, can scarcely be imagined. Yet is it a correct picture of the issue to which the doctrine of the unity of stimulants necessarily leads.

Seeing, then, excitability is diversified, and stimulus diversified, and the several subdivisions and organs of the body incapable of acting alike, in consequence of the entire diversity of their structure, there exists in nature no shadow of foundation for the doctrine of the unity of disease.

Thus far we have ventured to proceed, conducted by analysis, and directed on our way by the light of first principles. There remains to be considered another

source of argument, more fatal, perhaps, to the hypothesis we are combating, than any to which we have yet had recourse. It is the doctrine of specific poisons.

With this doctrine before him, and possessing, as we think he did, a perfect knowledge of it, it is somewhat more than singular—it is truly astonishing, that Dr. Rush should ever have contended for the unity of disease—that he should have pronounced small pox and chicken pox, kine pox and lues venerea, measles and hooping-cough, the itch and the leprosy, to be the same malady!

Was it not perfectly known to Dr. Rush, and is it not as well known, at present, to his followers—if, in relation to this point, he has any followers—that, with as much certainty as a grain of wheat produces a stalk of wheat, or a grain of oats a stalk of oats, does the poison of small pox produce small pox and nothing else? the poison of kine pox, kine pox and nothing else?—and, that neither of these diseases can be brought into existence by the poison of lues venerea, the leprosy, or the itch? But causes are known by their effects; and different effects uniformly occurring under similar circumstances, arise, of necessity, from different causes.

Is it not a fact of universal notoriety, that persons who have been once affected by small pox, are not liable to it again, although their liability to other diseases remains unaltered? and does not this fact evince, by a force of evidence which nothing can resist, that small pox is different from every other complaint? If it were not different, why should the system be exempt from it alone, its susceptibility as to other maladies remaining unchanged? Were it like bilious fever, pleurisy, or rheumatism

wherefore should the system, having once experienced it, be secure from it and liable to them.

We shall illustrate this point by a familiar example. Twenty-four kinds of seeds uniformly take root and flourish in a certain soil. A twenty-fifth refuses to quicken in the same soil, but vegetates freely in every other, producing a plant that bears no resemblance to any one of the twenty-four. Is not the last seed specifically different from all the others? So plain a question admits of but one reply.—Were there no objections to the unity of disease but those which small pox furnishes, they alone would subvert the doctrine.

Again:—Disease consists in morbid action. If, therefore, disease be an unit, morbid action must be also an unit. But the several morbific poisons—those, for example, of small pox, kine pox, and lues venerea, which have been already shown to be different from each other, because they give rise to different effects—are the products of morbid action. Either, therefore, different products result from the same diseased action, or the diseased action which gives origin to these products is different. But the former branch of the proposition is unreasonable: the latter must be, therefore, admitted as correct.

As well might we expect the same kind of generative action, in the animal kingdom, to be productive of an elephant and a hippopotamus, and in the vegetable, of an oak and a cedar, as the same morbid action which produces the poison of small pox, to be productive also of that of lues venerea.

It must be regarded in the light of an axiom in patho-

logy, that there are as many kinds of morbid action—in other words, of disease—as there are of morbific poisons resulting from it; each poison being the product of a corresponding specific secretory process. As, in health, the same kind of action which secretes bile from the blood, cannot secrete saliva, nor that which secretes urine secrete also the semen masculinum; neither is it possible for that morbid action which secretes from the blood the matter of small pox, to secrete also that of lues venerea: nor that which forms the poison of kine pox, to generate also the poison of leprosy.

With all these truths—for so they must be called—arrayed against the hypothesis, it is to us, we repeat, a subject of astonishment, that Dr. Rush, or any of his followers, should have seriously contended for the unity of disease. The error appears to be as gross and gigantic, as any that is recorded in the annals of medicine. It is scarcely inferior to that fanatic delusion, which, in the days of Paracelsus, derived the contagion of pestilence from the moon. That it attracted proselytes at first, is sufficiently extraordinary: that it should retain them now, we think impossible.

Against the hypothesis of the unity of disease, Dr. Rush has himself, we think, in sundry instances, furnished us with stronger and more conclusive arguments, than any other physician whose opinions are on record.

In addition to the pulse of health, there are, as *he* assures us, *twenty diseased pulses*, each one of which is capable of being distinguished from all the others.

But a pulse is nothing else than a *state of action* in an arterial tube—a diseased pulse being of course a diseased state of action. In Dr. Rush's opinion, then, the

same artery is capable of manifesting twenty-one different kinds of action, of which *twenty are morbid.*

Is this true of a single artery, and can it be, at the same time, true of the whole system, that, complex and varied as it is in its structure, *it*, as a compound, is capable of taking on and exhibiting but one kind of action?—that a very simple and subordinate part of the machine can manifest, in its action, *the variety of twenty;* and yet, that the entire machine, consisting of at least *twenty different parts*, is capable, in its action, of nothing but *unity?*

Unequal as we ourselves are to the difficulty of the task, it is to the followers of Dr. Rush that we are authorized to look for a solution of this paradox. If *they* can make it appear, that both positions of their leader are true, viz. that a single artery can exhibit twenty kinds of action, and the whole system but one, then, indeed, is the human body, in the language of the poet, and in the true sense of the terms, the "riddle of the world!"

Thus far have we endeavoured to show, on *doctrinal grounds*, the *fallacy* of the hypothesis of the unity of disease. It is our duty to add, that, *in a practical point of view*, it is eminently *dangerous.*

On the accuracy and perfection of the discrimination of diseases, rest entirely the safety and success of the practice of physic. We must, therefore, be permitted to add, that that physician who would venture to treat *all* diseases as if they were the *same*, would be unworthy to be intrusted with the care of *any*. His practice would itself prove a source of mischief as fruitful as the complaints he might be called to attend.

Such a practitioner enters the room of a patient, labouring under apoplexy or gout in the stomach, inflammatory rheumatism or bilious colic. Misled by the delusive notion of the unity of disease, he pronounces the complaint to be the same as intermitting fever or lues venerea, and attempts its removal by bark and wine, or the exhibition of mercury. The issue of his practice we need not mention. If it be not death, the sick man will be indebted for his escape, not to the skill of his physician, but to the strength of his own constitution, or the kindness of heaven.

In a word, that physician who firmly believes in the unity of disease, and perseveringly practises in conformity to his belief, can scarcely fail to be in the daily violation of that divine precept, which forbids our being instrumental in the taking away of human life.

Having thus, as we conceive, by demonstrating the fallacy of the unity of disease, demolished the stronghold of the professor's argument against classical nosology, it would be superfluous to pursue him through the details of his opposition. When the citadel has fallen, the outworks must be surrendered as a matter of course.

We had designed, after closing this discussion, to enter on a critical examination of the merits and defects of the several systems of methodical nosology that are now extant. But the protraction of our discourse considerably beyond the limits we had assigned to it, compels us, for the present, to relinquish our intention.

We shall, therefore, content ourselves with briefly observing, that, in the main, we consider the system of Dr. Cullen as entitled to a preference over all others.

We think it more correct in its principles, more comprehensive in its outline, more perspicuous in its arrangement, and much more simple and natural in its details. To aid in restoring to medical science in the United States, by means of that system, somewhat of the classical character, which, through the writings and teachings of Dr. Rush, it has been rapidly losing, constitutes with us a leading object in becoming the editor and commentator of the present work.

But valuable as the nosological system of Dr. Cullen is, its faults are numerous, and several of them conspicuous. Were we to pass them unnoticed, we should be unfaithful to our duty. A brief consideration, therefore, of some of the most important of them shall close our discourse.

Were it our purpose to be rigid and fastidious in our critical remarks, we should not pass without condemning, what we consider as an error in Dr. Cullen's definition of the first Order of his class Pyrexia. The classical pathologist will recollect that it is the order Febres, to which we allude. The following is the Professor's definition of it.

"Prægressis languore, lassitudine, et aliis debilitatis signis, pyrexia *sine morbo locali primario.*"

The clause in this definition, which, strictly speaking, we think objectionable, is that printed in Italics. Although the Febres of Dr. Cullen exhibit no *topical affection* so strongly marked, as his Phlegmasiæ do, it is, notwithstanding, incorrect to represent them as *entirely destitute of such a character*. All fevers are, *at first*, nothing more than topical affections. They begin *at a*

point, that point being the spot first injured by the morbific cause, and extend by sympathy, until they occupy the whole system. They are truly, as Dr. Darwin represents them, diseases of association. An idiopathic fever, in the sense in which it is usually understood, is, strictly speaking, a creature of the fancy. It has no more an existence among the works of nature, than a Polypheme or a Chimæra, a Harpy or a Caliban.

Fevers may be compared to vegetables, the spot originally attacked being the root, on which the stem and branches depend for sustenance. Destroy or remove the root, the stem and branches necessarily wither. In cases of fever, heal, in an early stage, the first injury, which is the cause of all that follows, and its effects will disappear. It would seem to be essential, therefore, to the existence of the complaint, that, for a time, at least, the part originally injured should retain the character of a topical affection. This radix, or point of beginning, is, to the general disease, the "*morbus localis primarius.*"

It is true that this primary local affection does not, under the order Febres, show itself in the form of real pain. It does not on that account, however, the less certainly exist; although, to common apprehension, it may be the more difficult to prove its existence. It is an irritative, not a sensative affection, and has, as we believe, its seat in the stomach. Hence arises the difficulty of proving it to be a reality.

We have, however, in sundry instances, conclusive evidence of the existence of such an affection, and, therefore, very strong ground to infer its existence in cases where it is not so palpable to sense.

In the kine pox and the inoculated small pox, the affection of the arm is purely irritative. It produces no pain. Were it situated on some internal part, remote from sight—the stomach, for example—we should have no evidence, except its effects, to convince us of its existence. Yet does it possess a sufficiency of force to excite in the system a general commotion—to produce a fever on principles of sympathy.

The same thing may be said in relation to the topical injury in cases of tetanus arising from a punctured wound. The affection is altogether irritative. Being unaccompanied with pain, it is oftentimes forgotten even by the patient himself, before the general disease makes its appearance. Were it an internal affection its existence would never be suspected.

Hydrophobia, from the bite of a rabid animal, affords another example of an affection entirely irritative. The wound heals, gives no pain, and is forgotten. But a secret irritation lingers in the spot, which, in a short period, produces, by sympathy, a fatal malady.

In the diseases of children arising from dentition, in epilepsy, and many other complaints which we cannot now enumerate, the local affection is, in like manner, irritative. It excites no pain or strong sensation, to give notice of its presence. Yet would it be erroneous to apply to these diseases, the terms "sine morbo locali primario."

Although the fact is not necessarily connected with the present discussion, we shall, nevertheless, observe, that a mere irritative local affection is not only a reality,

but more formidable, perhaps, as a source of general disease, than an affection which is sensative.

Another ground of argument against the correctness of Dr. Cullen's definition is, that all febrile affections which we are capable of clearly tracing to their commencement, most certainly originate in a topical affection.

Thus, some arise from wounds, and are termed symptomatic; others from severe blows, sprains, or the fractures of bones, all of which are in their nature local; others from a debauch, or from improper articles of aliment, which excite a local affection of the stomach; others from the swallowing of poison, which evidently operates in the same way; and others, again, from a long continued exposure of a part of the body to dampness or cold. In this latter case, as in all the former, the part exposed being first affected with a local complaint, disorders the system through the medium of sympathy.

It is impossible for any febrile cause, with which we are acquainted, to gain access to the whole system at once. It must first, therefore, attack locally, and afterwards extend its ravages on sympathetic principles.

Such are our reasons, in part, for excepting to Dr. Cullen's definition of his order Febres. Although, in these diseases, the primary local affection does not very strongly manifest itself, we feel, notwithstanding, a conviction that it exists. It is obvious to our reason, although not to our senses. Wrong, therefore, as it might, perhaps, have been for Dr. Cullen to have embraced it in his definition, we deem a denial of its existence much more exceptionable. A qualified admission of it would have

been most consistent with the principles of correct pathology. The order might have been characterized in the following terms:

Prægressis languore, lassitudine, et aliis debilitatis signis, pyrexia sine morbo locali primario maxime evidente.

We think Dr. Cullen wrong in representing contagion as an essential characteristic of the Typhus and Synochus fevers. The contagious nature of these diseases, in the United States, is extremely questionable. We are inclined to believe that the general amount of medical testimony, as derived from experience and observation, is against it. Our own opinion, deliberately formed from these sources, is unfavourable to the doctrine.

By contagion we mean a *specific* poison—for if it be not specific it is not contagion, in as much as it is incapable of self-propagation—generated in the animal system by mordid action. In other words, we understand by it, a *secreted morbific matter*, the offspring of a peculiar diseased action, and capable of exciting action precisely similar, which will again produce a poison of the same kind. From such a matter we have no reason to believe that Typhus and Synochus fevers arise. We are much more inclined to regard them as the offspring of a poison resulting from putrefaction. In the United States, cleanliness and free ventilation prevent them from spreading. But such measures will not prevent the spreading of diseases that are truly contagious. Their insufficiency to arrest the progress of small pox is known to every one who is acquainted with the subject.

Under the genus Typhus, our author places the yel-

low fever of the West Indies and the United States. In this he is mistaken. Yellow fever is a species or variety of bilious fever, not of typhus. We do not believe the yellow fever of the United States to be a contagious disease, in as much as it will not spread beyond the limits of a vitiated atmosphere. As there exists in yellow fever an inflammation of the stomach, it belongs, perhaps, of right, to the order Phlegmasiæ.

As our nosologist appears to be himself sensible of his error in referring Hectic fever to the order Febres, *sine morbo locali primario*, it would be superfluous in us to dwell on that point. A local affection forms as essential a part of hectic fever, as it does of ophthalmia or hepatitis. The disease, therefore, belongs to the order Phlegmasiæ.

Under the order Exanthemata, Dr. Cullen includes several diseases, which, in their characters, do not correspond with his general definition. He represents this order to consist of "Morbi contagiosi, semel tantum in decursu vitæ aliquem afficientes." Comprised under it we find, Erysipelas, Miliaria, Urticaria, Pemphigus, and Aptha, neither of which is ever known to be communicated by contagion. But the error into which the professor has fallen does not terminate here. Of erysipelas and urticaria certainly, and, we believe of pemphigus also, the same individual is liable to repeated attacks. Instances are not wanting in which erysipelas is even remarkable for the frequency of its recurrence.

Pestis, or true plague, respecting the contagious nature of which we shall speak hereafter, does not belong to the order Exanthemata. Its whole history convinces

us that its proper place is under that of Febres—or, perhaps, of Phlegmasiæ. Its most natural and striking affinities are to typhus, or malignant bilious fever. There exists strong presumptive evidence that it is the same disease with the yellow fever of the United States, modified by climate, and, perhaps, other causes.

Under the order Hemorrhagiæ, Dr. Cullen places Phthisis Pulmonalis.

This arrangement is injudicious. Hæmoptysis is only an accidental symptom of pulmonary consumption. The complaint, consisting of fever connected with an inflammatory topical affection, belongs, of right, to the order Phlegmasiæ.

From the manner in which Dr. Cullen has filled it up, the order Profluvia ought to be abolished.

He has included under it but two genera, catarrh and dysentery. Every symptom and character of these diseases declare them to belong to the order Phlegmasiæ. Like phthisis pulmonalis, they consist of fever and a topical affection, which is always inflammatory. Their affinity to the Phlegmasiæ are, therefore, natural and strong.

If the order Profluvia be retained at all, with much more propriety might it be made to include, diarrhœa, diabetes, fluor albus, and, perhaps, pyrosis. Although these complaints consist also, in part, of a topical affection, it is not always of an inflammatory character.

The definition bestowed by Dr. Cullen on his class Neuroses, appears to be, in no small degree, faulty, in representing the diseases which it embraces as being "*sine morbo locali*," free from any topical affection.

Apoplexy and palsy are its two only genera, in both of which there exists a local disease—of the stomach, perhaps, in the first instance, and of the brain, by sympathy. It is to relieve the latter that we bleed, and the former that we purge so copiously in this complaint.

Our author has committed another error in considering hydrocephalus internus as a species of apoplexy. According to his own definition of it, it evidently belongs to the order Phlegmasiæ. The affection of the head is inflammatory, and the disease is marked, in its early stage, always with considerable, and sometimes with violent fever.

The disease of hydrophobia has been very rarely an object of our attention. We have seen enough of it, however, to be convinced, that it is not essentially a spasmodic affection. Even Dr. Cullen's own definition leads us, of necessity, to this conclusion. The spasm is nothing but an accidental symptom, although its occurrence in the disease must be acknowledged to be very frequent.

When we take into consideration the entire history of hydrophobia, we have no hesitation in referring it to the class Pyrexia; for it is certainly marked by febrile heat. Of this class it has, perhaps, the strongest affinity to the order Phlegmasiæ.

To the class Pyrexia, and order Phlegmasiæ, ought the tabes purulenta of Dr. Cullen to be referred, instead of being placed, as it is by that writer, under the class Cachexiæ, and order Marcores. It consists in a topical inflammatory affection accompanying a fever.

Under the class Cachexiæ and order Intumescentiæ, has our author thought proper to arrange hydrothorax.

In this again he does not appear to be altogether correct. Hydrothorax, oftentimes, at least, if not generally, commences as an inflammatory affection. It is one of the modes of termination of long continued peripneumony, asthma, catarrh, and other inflammatory complaints of the thorax, when they frequently occur. It is, in fact, the result of chronic inflammation. We are inclined to believe that its most natural affinities are to the diseases belonging to the order Phlegmasiæ.

As Dr. Cullen's "First Lines of the Practice of Physic" do not embrace his class Locales, the last in his system of Methodical Nosology, we shall decline, for the present, making any remarks on that extensive family of diseases.

TABULAR VIEW

OF

CULLEN'S SYNOPSIS.

AS we think it highly important for young gentlemen to be accustomed, from the commencement of their medical studies, to look at diseases through the medium of system; and as this can be done with most facility and advantage, when the view is reduced to a compressed form, and fairly addressed to the sense of vision; we have resolved to lay before our readers a tabular representation of Cullen's Synopsis of Methodical Nosology, exhibiting diseases systematically arranged into classes, orders, and genera; with an explanation of the terms, and the original words from which they are derived.

CLASS I.

PYREXIÆ, (*Febrile Diseases*) from πυρ, fire, and ἕξις, a habit.

ORDER I.*

FEBRES—FEVERS.

SECTION I.

Intermittentes (*Intermittents.*)

Genus 1. Tertiana (*Tertian*).

2. Quartana (*Quartan*).

3. Quotidiana (*Quotidian*).

[* We think Dr. Cullen mistaken in representing this order of diseases as exempt from any primary topical affection.—*Ed.*]

SECTION II.

Continuæ (*Continued*).

Genus 4. Synocha, (*Simple Inflammatory Fever*) from συνεχω, to continue.

5. Typhus, (*Nervous Fever*) from τυφος, stupor.†

——— Mitior, (*Mild*).†

——— Gravior, (*Malignant*).†

——— Icterodes, (*Yellow Fever*) from ικτερος, jaundice.†

[† These diseases are not contagious. The last should be placed under the order Phlegmasiæ.—*Ed.*]

Genus 6. Synochus, from συνεχω, to continue.

Hectica, (*Hectic Fever*).—[This should stand under the order Phlegmasiæ.—*Ed.*]

ORDER II.

Phlegmasiæ, (*Inflammations*) from φλεγω, to burn.

Genus 7. Phlogosis, (*Phlegmonous Inflammation*).

Apostema, (*Abscess*) from απο, from, and ιστημι, to stand.

Gangræna, (*Gangrene*) from γαγγραινα, from γραω, to eat up or consume.

Sphacelus, from σφακελος, from σφαττω, to kill.

8. Ophthalmia, (*Inflammation of the Eye*) from οφθαλμος.

9. Phrenitis, (*Inflammation of the Brain*) from φρενιτις, a frenzy.

10. Cynanche, (*Inflammation of the Throat*) from κυων, a dog, and αγχω, to strangle.

——— Tonsillaris, (*of the Tonsils*).

——— Maligna, (*Malignant*).

——— Trachealis, (*Croup*).

——— Pharyngæa, (*of the Pharynx*) from φαρυγξ, the upper part of the œsophagus.

11. Pneumonia, (*Inflammation of the Thorax*) from πνευμων, the lungs.

——— Peripneumony, from περι and πνευμων.

——— Notha, (*Bastard Peripneumony*).

——— Pleuritis, (*Pleurisy*) from πλευρα, the membrane lining the lungs.

Pneumonia Vomica (*Abscess of the Lungs*).

———— Empyema, (*Internal Abscess*) from εν, within, and πυον, pus.

Genus 12. Carditis, (*Inflammation of the Heart*) from καρδια, the heart.

13. Peritonitis, (*Inflammation of the Peritoneum*) from περιτονεον, from περιτεινω, to stretch around.

14. Gastritis, (*Inflammation of the Stomach*) from γαστηρ, the stomach.

15. Enteritis, (*Inflammation of the Intestines*) from εντερον, an intestine.

16. Hepatitis, (*Inflammation of the Liver*) from ηπαρ, the liver.

———— Acuta, (*Acute*).

———— Chronica, (*Chronic*).

17. Splenitis, (*Inflammation of the Spleen*) from σπλην, the spleen.

18. Nephritis, (*Inflammation of the Kidneys*) from νεφρος, the kidney.

19. Cystitis, (*Inflammation of the Bladder*) from κυστις, the bladder.

20. Hysteritis, (*Inflammation of the Uterus*) from υστερα, the uterus.

21. Rheumatismus, (*Rheumatism*) from ρευματιζω, to be affected with defluctions.

———— Acutus, (*Acute*).

———— Arthrodynia, (*Chronic Rheumatism*) from αρθρον, a joint, and οδυνη, pain.

22. Odontalgia, (*Tooth-ach*) or rather pain in the jaw from a carious tooth—from οδους, a tooth, and αλγος, pain.

23. Podagra, (*Gout*) from πους, the foot, and αγρα, a seizure.

———— Regular.

———— Atonic.

———— Retroceding.

———— Wandering.

24. Arthropuosis, (*Abscess in a Joint*) from αρθρον, a joint, and πυον, pus.

ORDER III.

EXANTHEMATA, (*Eruptive Diseases*) from ἐξ and ἀνθος, a flower.

Genus 25. Variola, (*Small Pox*).

——— Discreta, (*Distinct*) a mild disease.

——— Confluens (*Confluent*) a malignant disease.

——— Variolæ Vaccinæ, (*Kine Pox*) from *vacca*, a cow.

[This disease was not known to Dr. Cullen.—*Ed.*]

26. Varicella (*Chicken Pox*) the diminutive of variola.

27. Rubeola (*Measles*) from *rubeo*, to become red.

28. Scarlatina, (*Scarlet Fever*).

29. Pestis, (*Plague*).—[This belongs to the order Febres or Phlegmasiæ.—*Ed.*]

30. Erysipelas, (*An Inflammation of the Skin*).

31. Miliaria, (*Miliary Fever*) so called from the cuticular eruptions resembling millet seed.

32. Urticaria, (*Nettle Rash*) from *urtica*, a nettle.

33. Pemphigus, (*a Pustular Eruption*) from πεμφιξ, a pustule.

34. Aphtha, (*the Thrush*) from απθαι. [Most of the diseases of this order are not contagious.—*Ed.*]

ORDER IV.

HÆMORRHAGIÆ, (*Spontaneous Effusions of Blood*) from αιμορραγεω, to discharge blood—from αιμα, blood, and ῥεω, to flow.

Genus 35. Epistaxis, (*Hæmorrhagy from the Nose*) from επισταζω, to drop from.

36. Hæmoptysis, (*Spitting of Blood*) from αιμα, blood, and πτυω, to spit.

37. Phthisis, (*Consumption*) from φθισις, from φθειω, to corrupt. [This belongs of right to the order Phlegmasiæ.—*Ed.*]

38. Hæmorrhois, (*Piles*) from αιμα, blood, and ῥεω, to flow.

39. Menorrhagia, (*An Excessive Flux of the Menses*) from μηνια, the menses, and ῥηγνυμι, to break out.

Hæmatemasis, (*Vomiting of Blood*) from αιμα, blood, and εμεω, to vomit.

ORDER V.

PROFLUVIA, (*Fluxes, with Fever*) from *profluo*, to overflow.

Genus 40. Catarrhus (*Catarrh*) from καταῤῥεω, to flow down.

41. Dysenteria, (*Dysentery*) from δυς, bad or difficult, and εντερον, an intestine.—[Both the genera of this order are misplaced. They belong to the order Phlegmasiæ.—*Ed.*]

CLASS II.

NEUROSES, (*Nervous Diseases*) from νευρον, a nerve.

ORDER I.

COMATA, (*Soporose Diseases*) from κωμα, a propensity to sleep.

Genus 42. Apoplexia, (*Apoplexy*) from απο and πλησσω, to strike down.

——— Sanguinea, from blood.

——— Serosa, from serum.

——— Hydrocephalica, from water.—[This belongs to the order Phlegmasiæ.—*Ed.*]

43. Paralysis, (*Palsy*) from παραλυω, to loose.

Tremor, (*Trembling*).

ORDER II.

ADYNAMIÆ, (*Want of Power*) from α privative, δυναμις, power.

Genus 44. Syncope, (*Fainting*) from συν, and κοπτω, to cut or strike down.

45. Dyspepsia, (*Indigestion*) from δυς, bad, and πεπτω, to concoct.

46. Hypochondriasis, (*Hypochondriac Affections*) from υποχονδριακος, one who is hipped—from υπο, under, and χονδρος, a cartilage—i. e. an affection of the liver, which is situated under the cartilages of the false ribs.

47. Chlorosis, (*Green Sickness*) from χλωρος, green.—[This disease is misplaced: it belongs either to Amenorrhœa or to the order Profluvia.—*Ed.*]

ORDER III.

SPASMI, (*Spasmodic Diseases*) from σπαω, to draw.

Genus 48. Tetanus, (*General Cramp*) from τεινω, to stretch.

Genus 49. Convulsio, (*Convulsion*) from *con vello*, to pull or pluck.

50. Chorea, (*St. Vitus's Dance*) from χορεια, a dance.

51. Raphania, (*Raphany*)—so called because supposed to be produced by the seeds of the raphanus raphanistrum.

52. Epilepsia, (*Epilepsy*) from επι and λαμβαινω, to seize; because it attacks or seizes suddenly.

53. Palpitatio, (*Palpitation*, or violent and irregular beating of the heart).

54. Asthma, (*Asthma*) from ασθμαζω, to breathe with difficulty.

55. Dyspnœa, (*A Difficulty of Breathing*) from δυς, bad, and πνεω, to breathe.

56. Pertussis, (*Hooping Cough*) from *per*, much, and *tussis*, a cough.

57. Pyrosis, (*Water Brash*) from πυρωσις, a burning.

58. Colica, (*Colic*) from κολον, the largest of the intestines.

59. Cholera, (*Vomiting and Purging*) from χολη, bile, and ῥεω, to flow.

60. Diarrhœa, (*Purging*) from δια, through, and ῥεω, to flow. —[This and Cholera belong more properly, to the order Profluvia.—*Ed.*]

61. Diabetes, (*An Excessive Discharge of Urine*) from δια, through, and βαινω, to pass. [This would seem also to belong to the order Profluvia.—*Ed.*]

62. Hysteria, (*Hysteric Disease*) from υστερα, the womb.

63. Hydrophobia, (*Canine Madness*) from υδωρ, water, and φοβεω, to fear.

ORDER IV.

Vesaniæ, (*Mental Diseases*) from *vesania*, madness.

Genus 64. Amentia, (*Idiotism*) from α privative, and μενς, the mind.

65. Melancholia, (*Melancholy*) from μελας, black, and χολη, bile; because supposed to arise from a vitiated condition of the bile.

66. Mania, (*Madness*) from μαινομαι, to rage.

67. Oneirodynia, (*Disturbed Sleep*) from ονειρος, a dream, and οδυνη, pain.

CLASS III.

CACHEXIÆ, (*Cachectic Diseases*) from κακος, bad, and εξις, a habit.

ORDER I.

MARCORES, (*Universal Emaciation*).

Genus 68. Tabes, (*Consumption*).

——— Purulenta.—[This, and most of the subsequent ones, belong to the order Phlegmasiæ.—*Ed.*]

——— Renalis.

——— Hepatica.

——— e Stomacho.

——— e Pericardio.

——— Catarrhalis.

——— Scrophulosa.

——— Rachitica.

——— Venenata.

69. Atrophia, (*Atrophy*) from α, priv. and τροφη, nourishment.

ORDER II.

INTUMESCENTIÆ, (*General Swellings*).

SECTION I.

ADIPOSÆ, (*Consisting of Fat*).

Genus 70. Polysarcia, (*Corpulency*) from πολυς, much, and σαρξ, flesh.

SECTION II.

FLATUOSÆ, (*Consisting of Wind*).

Genus 71. Pneumatosis, (*An Air-Swelling*) from πνευματωσις—from πνευμα, breath, from πνεω, to breathe.

72. Tympanites, (*Tympany*) from τυμπανιζω, to sound like a drum.

73. Physometra, (*Tympany of the Womb*).

SECTION III.

AQUOSÆ sive Hydropes, (*Consisting of Water*).

Genus 74. Anasarca, (*Dropsy of the Cellular Membrane*) from ανα, along or through, and σαρξ, the flesh.

Genus 75. Hydrocephalus, (*Dropsy of the Head*) from ὑδωρ, water, and κεφαλη, the head.

76. Hydrorachitis, (*a Watery Swelling*) generally seated in the spinal marrow.

77. Hydrothorax, (*Dropsy of the Chest*) from ὑδωρ, water, and θωραξ, the chest.

78. Ascites, (*Dropsy of the Belly*) from ασκος, a sack.

79. Hydrometra, (*Dropsy of the Womb*) from ὑδωρ, water, and μητρα, the womb.

80. Hydrocele, (*Dropsy of the Tunica Vaginalis Testis*) from ὑδωρ, water, and κηλη, a swelling.

81. Physconia, (*Physcony*) an intumescence of the abdomen, from an enlargement of some of its contents.

82. Rachitis, (*Rickets*) from ραχις, the spine of the back.

ORDER III.

IMPETIGINES, (*Cutaneous Diseases*) from *in*, and *petigo*, a scab.

Genus 83. Scrophula, (*Scrofula, or King's Evil*) from *scrofula*, a swine, that animal being subject to a similar disease.

84. Syphilis, (*Venereal Disease*) from σιφλος, filthy.

85. Scorbutus, (*Scurvy*).

86. Elephantiasis, (*Leg swelled and Skin thickened like that of an Elephant*) from ελεφας, an elephant.

87. Frambœsia, (*Yaws*) from *framboise*, in French, a raspberry.

88. Lepra, (*Leprosy*) from λεπις, a scale.

89. Trichoma, (*Plica Polonica, or Plaited Hair*).

90. Icterus, (*Jaundice*) from ικτερος, the jaundice.

CLASS IV.

LOCALES, (*Local Diseases.*)

ORDER I.

DYSÆSTHESIÆ, (*Diseases of the Senses*) from δυς, bad, and αισθησις, feeling.

Genus 91. Caligo, (*Impaired Vision, from an opacity in the coats or humours of the Eye*).

Genus 92. Amaurosis, (*Gutta Serena, or Loss of Vision without any Opacity*) from αμαυρωσις, obscurity.

93. Dysopia, (*Difficult Vision*) from δυς, bad or difficult, and ωπς, an eye.

94. Pseudoblepsis, (*False Vision*) from ψευδος, false, and βλεπω, to see.

95. Dysecœa, (*Deafness*) from δυσεκοια—from δυς, bad, and ακκω, to hear.

96. Paracusis, (*Depraved Hearing*) from παρα, wrong, and ακκω, to hear.

97. Anosmia, (*Loss of Smell*) from α privative, and οζω, to smell.

98. Agheustia, (*Loss of Taste*) from α, privative, and γευομαι, to taste.

99. Anæsthesia, (*Loss of Touch*) from α privative, and αισθησις, feeling.

ORDER II.

Dysorexiæ, (*Depraved Appetites*) from δυς, bad, and ορεξις, appetite.

SECTION I.

Appetitus Erronei, (*False Appetites*).

Genus 100. Bulimia, (*Canine or Inordinate Appetite*) from βους, an ox, and λιμος, hunger.

101. Polydipsia, (*Inordinate Thirst*) from πολυς, much, and διψις, thirst.

102. Pica, (*Vitiated Appetite*).

103. Satyriasis, (*Inordinate Lust in Men*) from σατυριασις.

104. Nymphomania, (*Inordinate Lust in Women*) from νυμφα, a nymph, and μανια, madness.

105. Nostalgia, (*Home Sickness*).

SECTION II.

Appetitus Deficientes, (*Defective Appetites*).

Genus 106. Anorexia, (*Loss of Appetite*) from α, privative, and ορεξις, appetite.

107. Adypsia, (*Want of Thirst*) from α, privative, and διψα, thirst.

Genus 108. Anaphrodisia, (*Impotence*) from α, priv. and αφροδισια, venery.

ORDER III.

Dyscinesiæ, (*Depraved or Impeded Motion*) from δυς, bad, and κινεω, to move.

Genus 109. Aphonia, (*Loss of Voice*) from α, privative, and φωνη, the voice.

110. Mutitas (*Dumbness*).

111. Paraphonia, (*Harsh or Depraved Voice*) from παρα, bad, and φωνη, the voice.

112. Psellismus, (*Stammering*).

113. Strabismus, (*Squinting*) from στραβιζω, to squint.

114. Dysphagia, (*Impeded Deglutition*) from δυς, and φαγω, to eat.

115. Contractura, (*Contraction of the Joints*).

ORDER IV.

Apocenoses, (*Increased Discharges*) from αποκινεω, to move from.

Genus 116. Profusio, (*Passive Hæmorrhagy*).

117. Ephidrosis, (*Excessive and Morbid Sweating*) from εφιδροω, to sweat.

118. Epiphora, (*Profusion of Tears*).

119. Ptyalismus, (*Profusion of Saliva*) from φιω, to spit.

120. Eneuresis, (*Involuntary Discharge of Urine*).

121. Gonorrhœa, (*a Preternatural Mucous or Puriform Discharge from the Urethra in Males*) from γονη, semen, and ρεω, to flow.

ORDER V.

Epischesis, (*Obstructions*) from επισχεσις, a suppression or obstruction.

Genus 122. Obstipatio, (*Costiveness*) from *obstipo*, to stop up.

123. Ischuria, (*Suppression of Urine*) from ισχω, to restrain, and ουρον, urine.

124. Dysuria, (*Difficulty in Discharging Urine*) from δυς, difficult, and ουρον, the urine.

Genus 125. Dyspermatismus, (*An Impeded Emission of Semen*) from δυς and ψιεμα, semen.

126. Amenorrhœa, (*a Retention of the Menses*) from α, priv. μηνιαιος, monthly, and ρεω, to flow.

ORDER VI.

TUMORES, (*Tumours*) from *tumeo*, to swell.

Genus 127. Aneurisma, (*Aneurism*).

128. Varix, (*a Local Enlargement of a Vein*).

129. Ecchymoma, (*a Tumour formed by the Effusion of Blood into the Cellular Membrane*) from εξ, χεω, to pour out, and αιμα, blood.

130. Schirrus, (*An Indolent Swelling for the most part of a Gland*).

131. Cancer, (*Cancer*).

132. Bubo, (*a Swelling of a Conglobate Gland*).

133. Sarcoma, (*a Fleshy Enlargement*) from σαρξ, flesh.

134. Verruca, (*a Wart*).

135. Clavus, (*a Corn*).

136. Lupia, (*a soft moveable Tumour situated under the skin, usually in a tendinous part*).

137. Ganglion, (*a hard moveable Tumour resting on a tendon*).

138. Hydatis, (*a Watery Tumour*) from υδωρ, water.

139. Hydarthrus, (*White Swelling of the Joint*) from υδωρ, water, and αρθρον, a joint.

140. Exostosis, (*An Enlargement of a Bone*) from εξ and οστεον, a bone.

ORDER VII.

ECTOPIÆ, (*Displacements*) from εξ, from, and τοπος, a place.

Genus 141. Hernia, (*Rupture or Displacement of Soft Parts*).

142. Prolapsus, (*The Falling Down of a Part*) from *pro* and *labor*, to fall down.

143. Luxatio, (*Displacement of a Bone*).

ORDER VIII.

DIALYSES, (*Division of Parts*) from δια, and λυω, to divide or separate.

Genus 144. Vulnus, (*a Wound*) a recent division of a soft part, accompanied with a hæmorrhage.

145. Ulcus, (*An Ulcer*) a division of a soft part, accompanied by a purulent or ichorous discharge.

146. Herpes, (*Tetters*) from ἑρπω, to creep.

147. Tinea, (*Tetter among the Hair*).

148. Psora, (*The Itch*) from ψωρα, a scab.

149. Fractura, (*Division of a Bone*) from *frango*, to break.

150. Caries, (*Rottenness or Mortification of a Bone*).

FIRST LINES

OF THE

PRACTICE OF PHYSIC.

INTRODUCTION.

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

* This article contains a very clear, succinct and comprehensive view of the intellectual operations and practical duties of the physician in his intercourse with diseases. His first business is to *discern* them—i. e. to ascertain their existence, by his knowledge of the difference between the phenomena of health and those of disease. He must next *distinguish* between one disease and another. By this operation of his mind he attains a knowledge of the nature and character of the existing disease, without which he would be utterly incompetent to its treatment.

Were all diseases *an unit*, this process of discrimination would be wholly unnecessary—indeed the very attempt at it would be preposterous. In such a case, the instant the mere *existence* of disease was ascertained, the practitioner might commence his treatment without the least circumspection or choice as to the remedy to be employed. Were *disease* an unit, *practice* would be also an unit; and therefore one remedy would be just as suitable as another. If all diseases be the same, where is the necessity, or even the ground, for that vigilance of attention, which the late Dr. Rush so zealously and properly inculcated, to "the state of the system." In what but "the state of the system" does disease consist?—If all diseases be

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 concourse and in succession, and by constantly endeavouring to distinguish the peculiar and inseparable concurrence of symptoms, to establish a METHODICAL 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; which is partly delivered in the general Pathology, and partly to be delivered in this treatise.†

the same, therefore, all "states" are also the same: and hence the act of discrimination as to disease is superfluous.

In his attempts to *prevent* diseases, the physician reduces to practice his knowledge of the principles of prophylaxis, which is clearly his duty. Their treatment or *cure* constitutes his last practical process. To accomplish this, as he ought, *certò*, *citò*, *et tutò*, requires a happy combination of multifarious knowledge. He must be as thoroughly versed in the qualities and properties, the preparation, composition, and administration of remedies, as he is in the nature, character, and variations of diseases. Hence a *great* physician, in the true sense of the word, is as seldom found as a great general.

* We discern and distinguish diseases precisely as we do all other objects of nature; by a strict attention to their external qualities. But the external or only perceptible qualities of diseases, are their signs and symptoms. It is on these, therefore, that our attention must be fixed, if we wish to acquire a knowledge of their character.

† In the language of the schools, the causes of disease are divided, first, into remote and proximate. The remote causes are again divided into predisposing and exciting or occasional.

The remote *predisposing* cause is that, which, by its agency on the human body, produces in it a predisposition or strong liability to disease. The remote *occasional* cause is that, which, by its influence on the body, when thus predisposed, gives rise to actual disease.

The predisposing cause of intermitting fever is marsh miasma;

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, and has often been involved in mistake and error. The doctrine, therefore, of proximate causes, founded upon that knowledge, must be frequently pre-

the occasional or exciting cause, exposure to a shower of rain or the night air, to cold or to excessive fatigue.

The predisposing cause of influenza is an aerial poison, or something peculiarly deleterious in the condition of the atmosphere; the exciting cause, the same as in the case of intermitting fever.

Were occasional causes strictly avoided, the predisposing cause would be, in most instances, deprived of its power to injure. This, however, is not always the case. In some diseases the predisposing is also the occasional cause. This is certainly the case in small pox, kine pox, and, we believe, in every disease that is *truly contagious*. Contagion, in the strict sense of the term, is a poison which gives rise to its specific effect, independently of every auxiliary cause. It both predisposes to and excites the disease it produces. If it did not do this, it would cease to be a poison.

The chief differences between contagion and other poisonous substances is, that the former acts without any nice dependence on dose or quantity—a small dose being as capable of doing mischief as a large one—and, that it is competent to the business of self-propagation, by exciting, in living matter, such a specific state of action as reproduces itself. It is possessed of a kind of generative power, which is not the case with any other poison. Although the morbid action produced by arsenic destroys life, it does not produce arsenic as one of its results.

During the prevalence of an epidemic, which is but another name for a disease of atmospheric origin, every person is liable to an attack of it, because he is under the influence of the remote predisposing cause. His only security, therefore, consists in a strict avoidance of exciting causes.

carious 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 economy in health and 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 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.*

* The proximate cause is the effect produced by means of the predisposing and exciting causes. It is, in other words, the morbid action in which the disease itself consists. This, therefore, did we in all cases possess a full and satisfactory knowledge of it, would constitute unquestionably the best foundation on which to erect our plan of cure.

Had we unequivocal evidence that a certain disease consists in a spasm of a particular organ, and did we possess a remedy perfectly calculated to remove that spasm, the exhibition of such remedy would constitute the fulfilment of the true and only indication. Did another disease consist, with certainty, in an excess of vascular action in a particular part, and were we in possession of a remedy or mode of practice precisely calculated to reduce that action, we could be at no loss as to the measures necessary to be pursued. Did a third disease consist in a defective action of the secretory vessels of the kidneys, and had we a remedy we could confidently rely on as a diuretic, the exhibition of that remedy should constitute our

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. PYREXIÆ, or febrile diseases, are distinguished by the following appearances. After beginning with some degree of cold shivering, they show 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.*

practice. This would be treating diseases in a manner truly rational and scientific—a manner that could not fail to add to the utility, as well as to the dignity and elevation of our profession.

But we have to regret that our knowledge of the human system, whether in health or disease, is not sufficient to warrant us in the attempt to practice at all times on first principles. Although our acquaintance with the nature of diseases directs us, in part, in our mode of treating them, we must also, in part, rely on our EXPERIENCE. We apprehend that we are indebted more to the latter and less to the former source than Dr. Cullen seems willing to allow.

* In his definition of pyrexiæ or febrile diseases, our author makes use of an expression which we think too strong. "After beginning with some degree of *cold shivering*," &c.

That febrile diseases are ushered in by a sensation of coldness is true; but it is equally true, that this sensation does not, at all times, nor, perhaps, as a general rule, amount to a shivering. In many of the most violent and malignant cases of disease, the cold stage is so slight as to be scarcely perceptible.

Nor is it true that the pyrexiæ actually *begin* with a sensation of coldness. That symptom does not constitute the first link in the chain of disease. It is itself the effect of a preceding link, viz. the

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

BOOK I.

OF FEVERS.

CHAPTER I.

OF THE PHENOMENA OF FEVERS.

8. THOSE diseases are more strictly called FEVERS, which have the general symptoms of Pyrexia, without having along with them any topical affection that is essential and primary, such as the other orders of the Pyrexiæ 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 are certain circumstances in common to all the diseases comprehended under this order, which are therefore those essentially necessary to, and properly consti-

local irritation produced by the immediate agency of the febrile cause. In the whole of Dr. Cullen's order Febris, as well as in many other febrile complaints, we feel persuaded, as we have already observed, that the original topical affection takes place in the stomach. This constitutes the seat and center of the disease; whence, as from a punctum saliens, or point of action, it extends by sympathy throughout the system. Hence the importance, especially in the early stage of these complaints, of directing our attention to the state of the stomach. This subject shall be resumed and more fully considered on a sequent occasion.

tuting 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 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 successions 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 comes 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 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. 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

* It is but justice to Dr. Cullen to remark, that this and the following sections contain the most perfect picture of a paroxysm of intermitting fever that is any where to be found. Indeed his descriptions of diseases, in general, are possessed of such accuracy and excellence, as to leave the practitioner but little to wish for on that subject.

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

* In respiration the patient experiences a kind of asthmatic stricture and anxiety. This no doubt arises from a direct sympathy between the stomach and lungs, which is oftentimes, at least, if not generally, the source of real asthma. Hence, in that disease, the advantages derived from emetics and other remedies that operate on the stomach. A dose of tartar emetic has sometimes prevented a paroxysm of asthma, when exhibited as soon as the threatenings were felt.

During the cold stage of an intermittent, there appears to exist on the surface of the lungs a real spasm, at least a want of healthy action, in consequence of which that organ is disqualified for the performance of its duty in relation to the blood.

This spasm or stricture, prevailing also in the mouth, on the tongue, and in the fauces, and preventing secretion there, appears to be the cause of the troublesome thirst that is felt. It relaxes only with the relaxation of that on the surface of the body, which is manifested by the free and copious flowing of the sweat. On the occurrence of this, the thirst and difficulty of respiration cease.

The process of puking, whether it arise spontaneously or be produced by art, is known to operate favourably in exciting a sweat, and in relieving thirst and anxious respiration. This shows, we think, with sufficient clearness, that these symptoms arise from the same cause, and that they are closely associated with the state of the stomach.

On these points, the explanation we attempt is somewhat different from that of Dr. Cullen. The reader is at liberty to choose between us.

Under the present head we shall only further observe, that the limpid state of the urine, the drying up of ulcers on the surface of the body, and the detumescence of tumours, are, in our estimation, most easily and satisfactorily explained, by admitting the existence and action of spasm. By this term we mean a morbid contraction produced by immediate or sympathetic irritation.

It is owing, perhaps, to the operation of the same cause, that a mercurial salivation is suspended during a paroxysm of intermittent, but recurs on the return of a state of pyrexia. This, although not a very frequent, is a well known phenomenon.

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 increase 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 clamminess of the mouth and fauces, but during the hot stage, from the heat which 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, show 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 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, which is generally of a loose kind.

18. Analogous to these changes in the state of the

secretions, it frequently happens, that 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

* The comatose state spoken of in this section is much relieved, if not effectually removed, by the exhibition of an emetic. It arises from sympathy between the stomach and brain. In some cases of it blood-letting becomes necessary.

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 are also 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 ex-

tremely rare, and probably are only irregularities of the tertian or quartan periods.*

* We have some doubts as to the correctness of a part of this article, particularly as applied to the United States. If we be permitted to rely on our own observation, we must believe, that, instead of being a more frequent, the quartan ague is a less frequent form of the disease than the quotidian. In the southern states, quotidian intermittents are often seen, quartans more rarely: and much more rarely still does the disease assume the quartan form at its commencement. Quartans are more frequently formed out of tertians and quotidians, when unusually protracted.

Of tertian and quartan intermittents there are several varieties. The following may be enumerated as of the most frequent occurrence. The double tertian, having a paroxysm every day, with the alternate paroxysms alike. The double tertian, with two paroxysms every other day. The triple tertian, with two paroxysms on one day, and one 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. The double quartan, with a paroxysm on the first day, and 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 alike.

Under our own observation all these varieties have never fallen: but they are familiarly mentioned in the writings of authors whose experience has been ample. We are not, therefore, permitted to doubt of their existence.

The most singular circumstance in the history of intermittents, and, indeed, one of the most curious and inexplicable in any way connected with medical science, is the *periodical character* of those complaints. Why an irritation so severe as to have produced the most violent and distressing fever, should become perfectly dormant, and, having remained so for the space of twelve, thirty-six, or sixty-two hours, recur in all its original strength, to pursue again the same course? and why this order of things should continue for months, and even years? are questions which have never been satisfactorily answered.

It *has*, indeed, been said, and *may be*, perhaps, again, that the excitability of the part immediately acted on by the morbific cause, having become exhausted by the violence of impression, requires, for its restoration, the lapse of a definite period; and that this restoration is no sooner effected, than the original cause, acting again,

62. The paroxysms of pure intermittent fevers are always finished in less than twenty-four hours: and

reproduces its original train of phenomena. But this position, admitting it to be true, is nothing but a simple statement of a fact, instead of an assignment of an efficient cause. Far from affording an explanation, therefore, it is itself a subject difficult to be explained.

Some writers, in their attempts to solve the problem of the periodical nature of the intermittent, have added to the supposed effect of exhausted and renovated excitability, the influence of the solar or lunar day. Others, the influence of the earth revolving on its own axis, connected with that of electricity and gravitation, as being uniformly the same at given hours, and calculated, therefore, for the production of the same effect. Others again have attributed the phenomena to the force of habit, and the identity of impression produced by an identity of causes in us and around us at given hours. In the wildness and multifarious resources of conjecture, still further hypotheses have been attempted on this subject, the very recital of which we should deem an inadmissible consumption of time.

In the present state of medical science, we are apprehensive that all we can honestly do is, to assume the periodical nature of intermittents as an ultimate fact, and refer it to a law of our nature not yet explained. We are the more strongly inclined to this opinion, in consideration of the periodical character of many other complaints besides intermittents.

Insanity and epilepsy are periodical diseases: so, in like manner, are asthma and gout. In tetanus, the muscular spasms intermit and recur, without any apparent cause for such changes. So do the pains of colic, the gripings in diarrhœa, the tormina of dysentery, and the throes of parturiency. In these cases, more especially in tetanus, colic and the parturient process, the presence of the irritating cause is uniform, while its effects are intermitting. In them, therefore, no less than in intermittents, the suspension of the irritation takes place under the influence of the irritating cause. These, with many other kindred facts, we are forced to refer to the same original law of our nature from which we would derive the phenomena of intermittents. They are inexplicable, at present; although a single discovery may fortunately hereafter explain them all.

To the same law do we appear to be indebted for many of the most familiar phenomena of health. Of these we might mention, in

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 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

particular, the recurrence, at stated periods, of the appetites of hunger and thirst, the call to evacuate the urine and fæces, the disposition to sleep and awake, with such other actions and states of the system as are under the influence of habit.

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 from 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 showing some tendency to become intermittent, or at least remittent; by their being known to have been occasioned by marsh miasmata; and for the most part, by their having but one paroxysm, or 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 showing 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 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 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 paroxysm 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 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.

CHAPTER II.*

OF THE PROXIMATE CAUSE OF FEVER.

33. THE 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 every difficulty; but I shall endeavour to make an ap-

* In this and the following chapter, which treats of the "difference of fevers and its causes," our author has placed before us as curious a specimen of the "frost-work of fancy" as is any where to be found in the records of medicine. He has, with great labour, and not a little ingenuity, piled one hypothesis on another, each alike incapable of supporting or being supported, until he has erected a monument of conjecture altogether commensurate with his own greatness. It is thus that illustrious men oftentimes distinguish themselves not more by their virtues and excellencies, than by their errors and faults.

In all our reading we do not recollect ever to have met with a more visionary production, or a more inconclusive attempt to give shape and stability to any opinion, than that of Dr. Cullen to establish here his theory of fever. Throughout the whole course of his affected reasoning, there is nothing presented to us but one unqualified assumption after another, until, at the end, we find that every thing has been assumed and nothing confirmed—every thing asserted and nothing proved. The worst and most dangerous feature of the doctrine is, that there is thrown around it an air of plausibility and candour, exceedingly seductive of the youthful mind. In a man of years and experience, extensive learning and philosophical research, we deem it scarcely consistent with intellectual honesty and moral rectitude, thus to palm on unsuspecting youth, and that portion of feeble minded adults, who read only to believe and adopt, a tissue of errors, in which it is almost impossible he could himself have believed—which he must, at least, have considered in the nature of *postulata*, that did not promise to be readily converted into *demonstrated truths*.

Independently of the error which such hypothetical structures actually inculcate, they are, when reared by high authority, pro-

proach towards it, and such as I hope, may be of use in conducting the practice in this disease: while at the

fessional articles of pernicious tendency. Their example is contagious, and renders the process of *fancying*, instead of *experimenting* and *observing*, fashionable in medicine. They give sanction and encouragement to those indolent enquirers, whose practice it is to substitute conjecture for observation and speculation for research; and thus become the cause of a wide spreading evil.

Had we leisure to engage in it, a fair analysis of our author's theory would afford ample testimony that we do not speak of it in terms of exaggeration. His *atony* and *diminished energy of the brain*, his *sedative causes* of fever, and all his operations of the *vis medicatrix naturæ*, as *he* employs them, would appear to be as absolute fictions as any thing that gives colouring to the pages of romance.

We think there cannot be, in nature, a more preposterous hypothesis, than that which attributes to the influence of a *sedative agent* —if the expression be admissible—an augmentation of excitement in living matter—which derives an *increase of action*, whether healthy or diseased, from that which, in its nature, is acknowledged to be calculated only to *diminish action;* and which receives even its name from its supposed power to effect such diminution. When medical writers shall have learnt to deal more in matter, and less in mere words unsanctioned by reason, we feel persuaded that the term *sedative* will be erased from the nomenclature of materia medica. Strictly and philosophically speaking, we consider it as nothing but an *empty sound.*

If the term, even in common acceptation, possess any meaning at all, a sedative is that, which, by diminishing or removing existing impression, diminishes or suspends existing action. If the impression be not removed, it is a law of nature that the action will continue. But how can a substance or agent remove from living matter an impression already in existence, or suspend or alter action already going forward, otherwise than by substituting an impression and a mode of action of its own?—Such a process is impossible. A stimulant impression inducing action is a reality, and cannot be removed or in any way affected by that which is not a reality. If a reputed sedative be a reality, it must, when applied to living matter, act; and if it act, it must make an impression: this very action and impression, therefore, pronounce it to be a sedative only in name, not in fact: to be capable of acting and impress-

same time I hope to avoid several errors which have formerly prevailed on this subject.

ing, it must be a stimulant; impression being nothing but another name for stimulating action.

For the more clear and satisfactory illustration of our subject, we shall institute a comparison with certain phenomena in nature which are perfectly understood. Living action, the result of stimulation, may be aptly enough compared to a stream of water, or a moving body: it possesses a degree of impetus or force. To arrest or alter the course of a flowing stream or a body in motion, force must be opposed to it. A mere negative opposition, i. e. opposition without force, will be found insufficient. Such precisely is the case in relation to living action. It is sent forward by one impression, and can be stopt or altered only by another. A substance incapable of making an impression cannot effect it.

Again: the Will is put in action only by motive, and nothing but another motive can alter or suspend its action. That which is incapable of acting as a motive—being to it a nonentity—can have no influence on it. The same thing is true of animal action arising from stimulus: nothing short of stimulus can stop it. That which has no stimulating power stands in the same relation to it as if it had no existence. But, in a case that is so plain, we deem it superfluous to multiply words. To attribute to reputed sedatives the power of altering vital action in any other way than by means of impression, would be to assert the existence of an effect without a cause. In the strict sense of the term, a sedative is known only in the language of the schools.

To remove as far as practicable every difficulty and objection that might be thrown in our way, we shall dwell a little longer on this subject, which we deem not only interesting in itself, but essentially connected with correct views in medical science.

When we consider the human body as divided into several subordinate systems or parts, we know that a substance or agent which increases action in one of these parts, may, at the same time, diminish it in another—in other words, that the same substance which acts directly as a stimulus to the former, may be indirectly a sedative to the latter. This sedative effect, however, does not here arise from a sedative nature in the agent which produces it; it results from what Dr. Darwin calls, not improperly, the "reverse sympathies" of living matter. The substance is, as to its own qualities, a pure stimulus, because it augments the action of the

34. As the hot stage of fever is so constantly preceded by a cold stage, we presume that the latter is the

part with which it comes in immediate contact; it becomes a sedative only in consequence of the structure and associations of the body on which it acts.

A blistering plaster applied to the thorax, in a case of peripneumony, or to the head, in a case of phrenitis, increases in each case the action of the external skin; but diminishes, in the former, the action of the pleura, and, in the latter, that of the dura mater. No one, however, dreams of bestowing on cantharides the name of a sedative.

If a few grains of tartarized antimony be swallowed, they stimulate the stomach into violent action; but reduce very greatly the action of the arteries. Notwithstanding this remote sedative effect, no medical writer of the present day will venture to call this preparation of antimony any thing but a stimulus. Its sedative operation arises entirely from the sympathies of the body on which it acts. The same thing may be said in relation to oxyde of arsenic and corrosive sublimate. If swallowed in considerable quantities, they stimulate the stomach to inordinate action; but diminish, at first, in an equal degree, the action of the arteries. By no one, however, are they regarded in the light of sedatives.

Opium, although acknowledged by all to be the most powerful stimulus, operates, notwithstanding, as a sedative to the nerves. It is by this secondary mode of action that it relieves pain.

The strongest artificial caustics, and the actual cautery itself, are applied to the skin to reduce, and do reduce, the action of certain internal parts when in a state of inflammation. Even these substances, therefore, operate as sedatives through the medium of sympathy.

Thus might we examine by analysis the whole materia medica, and show, that every article which it contains, may, by the mode in which it is employed, be made to produce, on some part of the human body, a sedative effect; and yet, that each article in itself is strictly a stimulus, because it excites, in every instance, an increase of action on the part to which it is proximately applied.

That which produces excitement, say those who have the reputation of being most deeply versed in this doctrine, is a stimulus. But excitement, as applied to man, consists in motion, sensation, and thought. Whatever, therefore, produces, in man, the pheno-

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. 1756.

mena of motion, sensation and thought, or either of them, is necessarily a stimulus.

Had we leisure to examine *cold*, on the principles of the doctrine of stimulation contained in this syllogism, we should find it, in its action, to agree with them most perfectly in every respect. Heat, perhaps, alone excepted, there does not appear to exist in nature another agent, which surpasses cold in its manifestation of the characters and effects of a stimulus. It produces sensation, as the term itself implies; for the sensation of cold is as familiar an expression as that of heat. It might even, perhaps, be stated as a question, which of the two sensations is capable of being raised to the most tormenting height? intense cold being quite as painful as a severe burn. If heat be a stimulus to the nerves, therefore, so is cold: for the laws which govern them and the phenomena they exhibit are precisely alike.

But *sensation* implies *nervous motion*. In producing the former, therefore, cold cannot possibly fail to produce the latter also.

In man, motion and sensation, by a law of our nature, excite *attention;* which, being an intellectual operation, is tantamount to *thought*. Hence it is plain, that cold is capable of giving rise to the three only modes of excitement that stimuli produce—motion, sensation, and thought. Cold is, therefore, itself a stimulus.

Like other agents, cold is not capable of producing excitement in every part of our systems at once. The laws of animal sympathy prevent this. While it operates as a stimulus on one part or subdivision of our bodies, its effect on another is that of a sedative.

If water, at the temperature of forty degrees of Fahrenheit, be applied for a time to the wrists and ancles, it reduces very considerably the force and frequency of arterial action; but produces, at the same time, a strong sensation. While it is a sedative to the arteries, therefore, it cannot be denied to be a stimulus to the nerves and skin. It excites the part with which it comes in contact. It operates here, in a manner precisely analogous to ipecacuanha, digitalis, tartarized antimony, and many other substances which we need not enumerate. Those articles, when swallowed in a sufficient quantity, stimulate the stomach, but, by sympathy, act as a seda-

35. To discover the cause of the cold stage of fevers, we may observe, that it is always preceded by strong

tive to the arteries. Cold stimulates the skin, but acts as a sedative to the same parts.

We shall conclude our remarks on cold by observing, that were it practicable for us to pass, in analytical detail, through the whole doctrine respecting that agent, it would be easy to show, that every law, principle and phenomenon of stimulation are as applicable to it, as they are to heat or opium, cantharides or alkohol. Nor can there be produced a single fact, in relation to the action of cold on living matter, which is not perfectly explicable on the ground of its being possessed of stimulating powers.

Having declared our disbelief in the existence of any substance or agent strictly entitled to the denomination of a sedative, it follows, of course, that we differ from Dr. Cullen, in his opinion respecting the nature of febrile contagions. We consider these poisons as powerful stimulants. Indeed the very idea of a sedative poison involves an inconsistency, which, in our estimation, nothing can surpass. All poisons act by stimulation; and those which do not overwhelm life instantaneously, by a first impression, destroy it ultimately through the medium of inflammation.

Of febrile contagions, it is much to be regretted, that, philosophically speaking, we know but little. Among the great variety that *is supposed* to exist, there are only two that we have been able to realize, take hold of, and bring completely to the test of experiment. These are, the contagion of small pox, and the contagion of kine pox. Of those two poisons, the nature cannot possibly now be a topic of controversy. Their stimulating qualities are as susceptible of demonstration, and are, indeed, as often demonstrated, as any truth in the science of physics. By the puncture of a lancet, introduce either of them beneath the cuticle, and, in a few hours, inflammation ensues. It is needless to say that this would not be the case, were they of a sedative nature.

Yet the poison of small pox, when casually introduced into the human system, produces, oftentimes, as much debility, as marks the character of even typhus gravior, cynanche maligna, or any other febrile disease: and it seems to be in consequence of their debilitating effects, that Dr. Cullen and other writers have bestowed on contagions the name of sedatives.

These poisons, say those writers, when acting on the body of man, diminish its powers: but the diminishing of power is a seda-

marks of a general debility prevailing in the system. The smallness and weakness of the pulse, the paleness

tive process; the substances in question are consequently sedatives.

This syllogism, although plausible in appearance, is utterly fallacious. By a similar mode of reasoning, there is nothing capable of seriously injuring the human body, that may not be clearly proved to be a sedative.

Thus, for example, arsenic and corrosive sublimate, vitriolated copper and opium, if taken in excessive quantities, produce extreme debility in the system. If a pint of alkohol be swallowed at a draught, it greatly debilitates, and is, perhaps, even productive of sudden death. Does it, therefore, follow that these articles are sedatives? It certainly does not: no physician of the present day will venture to call them so: they are acknowledged to be stimulants of the highest order.

A severe blow on the head, a deep and extensive burn on the surface of the body, and the passage of a bullet or a bayonet through the lungs or the stomach, are all productive of great debility: yet no one will contend that wounds, burns, and blows are sedative agents.

The production of debility by a stimulating agent is a phenomenon easily explained.

The human body is a compound of sympathizing organs. Its power depends on the harmonious action of all its parts. The healthy condition of each important subdivision is necessary to the strength of the entire machine. Of these organs or subdivisions the stomach must be regarded as one of the principal. Whatever materially injures the stomach, therefore, impairs the force of the whole system.

Of stimuli, some are deleterious in their own nature, and others are rendered so by an excess in quantity. Of the former description are arsenic and corrosive sublimate; and of the latter, wine and ardent spirits.

When by either of these articles the stomach is too powerfully acted on, its healthful harmony with the other parts of the body is, for the time, destroyed. It no longer extends to them its natural and invigorating sympathies, nor imparts to them the strength they have usually derived from it. However much, therefore, its own action may be increased by means of the stimulus within it, the action of the system at large is greatly diminished. The gene-

and coldness of the extreme parts, with the shrinking of the whole body, sufficiently show that the action of the

ral effect is that of debility; not because a real sedative is in operation on the system, but because the functions and strengthening associations of the stomach are materially impaired by the action of a stimulus. That organ, which is a governing one, and, in relation to its associates, resembles the sun in the solar system, no longer performs its destined part. The others, being deprived of the chief impulse which awakened and put them in motion, and of the power of attraction which drew together their living energies, lose, in a great measure, their efficiency and force. The centre of the confederacy being disordered, sickness and debility cannot fail to pervade the whole: the keystone of the arch being shattered and loosened, the entire structure is weakened, and in danger of falling to pieces.

The same thing is true, to a certain extent, if, by means of a stimulus, a material injury be done to the brain, the lungs, the heart, the intestines, the kidneys, the liver, the testicles, or any other important organ of the body. A general sedative effect ensues: the strength of the system is necessarily impaired, in a degree corresponding to the weight of the suffering organ and the injury it has sustained.

As we shall have occasion, hereafter, to express our sentiments somewhat fully on the subject of febrile contagions, we shall, at present, only add, that we believe these poisons to be considered by physicians as much more numerous than they really are.

With Dr. Cullen's theory of fever we have expressed ourselves dissatisfied. Viewed as a whole, we consider it an unqualified tissue of error, equalled only by that which a late distinguished American teacher so industriously laboured to erect on its ruins.

With the Edinburgh professor we confidently believe in the existence of a *vis medicatrix naturæ*—an active power, whose office is to preserve and restore the health of the body. The operations of this power are conclusively manifested in the healing of wounds, the knitting of fractured bones, the ejection of deleterious substances from the stomach, and many other processes which we cannot now enumerate. Were it not for its action and aid, recovery from disease would be absolutely impossible. Man's first malady would necessarily be his last, by a law of nature which human exertions would be unable to countervail.

No enlightened and honest physician will venture to say, that,

heart and larger arteries is, for the time, extremely weakened. Together with this, the languor, inactivity, and

by his remedies alone, he ever *gave health* to a single individual. The utmost of his services has been, to *weaken disease*, leaving to nature the final and complete *restoration of health*.

When the malady is slight—a moderate fever, for example, or a common catarrhal affection—nature, unassisted, is perfectly competent to the curative process. Hence, in such cases, medical aid is rarely solicited. In common language, the disease is said to get well of itself. This, however, is not the case. Medical science disavows the fact. As no malady can occur without the agency of a morbific cause, neither can it be removed without the aid of a curative one. But where no medicines are administered, the only curative cause that can be supposed to be in operation is necessarily the *vis medicatrix naturæ*.

In diseases so violent as to call for remedies, all that these remedies can effect is, so far to weaken morbid action, as to render it manageable by the powers of nature. A powerful malady is converted into a weak one, and nature then completes its removal. To the truth of these remarks there is no exception. A physician can no more, by his own exertions, cure a disease, than a surgeon can an incised wound. The latter places the separated parts in contact, retains them there by a suitable apparatus, recommends to his patient the necessary regimen, and leaves to nature the curative process. Nor is it in the power of the former to proceed further. If he be perfectly versed in his profession, he reduces the system of his patient to the proper state of action with regard to force, enjoins rest, prescribes the regimen which the case demands, and, for a final cure, trusts alone to the vis medicatrix. Hence it requires in a practitioner as much skill and experience to know when to withhold his remedies, as when to administer them.

Although, for the foregoing reasons, we believe in the existence of a healing power in nature, we are by no means satisfied with the exposition of its operations, which Dr. Cullen has attempted, in his theory of fever. His reasoning on the subject is forced and artificial, unsatisfactory and confused.

For the *principles* of what we consider a correct theory of fever, we cannot do better than refer our readers to Darwin's Zoonomia. We believe, with the very acute and distinguished author of that work, that fever is essentially a disease of association—that it is formed alone through the medium of sympathy. It begins, as we

debility of the animal motions, the imperfect sensations, the feeling of cold, while the body is truly warm, and

have said, in another place, at a point; and spreads throughout the system, instituting a chain of diseased associated motions, consisting of as many links as there are parts or subdivisions of the body affected.

Dr. Clutterbuck is also an advocate for the doctrine of the original locality of fever. But he places the primary irritation in the *brain*. In this he is mistaken, as it shall be, presently, our business to endeavour to prove.

To illustrate a little further. We are persuaded that most febrile diseases have their origin or first topical affection in the stomach, the skin, or that portion of the Schneiderian membrane which lines the fauces, the trachea, and the bronchiæ. We feel satisfied that all malignant fevers, in particular, have their seat in the stomach. In the blood-vessels, the nerves, the lymphatics, the brain, or the glands, they cannot originate, for the strongest of reasons: to these parts the causes producing them cannot have primary access.

Having commenced in its customary seat, the stomach, fever proceeds to invade, by sympathy, the nerves, the skin, the blood-vessels, the lymphatics, the glands, and the brain, until its chain of associated diseased action embraces, at length, the entire system. Commencing in the skin, as some, perhaps, of the phlegmasiæ and hemorrhagiæ do, it, on the same principles, pursues a similar march, until it has formed a chain of equal extent. On no other ground of explanation than this, do we consider fever as an intelligible disease.

Although we consider Dr. Darwin correct in his general principles and outline of fever, he has attempted to introduce into his exposition so much of the minutiæ of associated action, as to render it, to us, in some parts, unintelligible. Much interesting and important information, however, may be derived from his writings on this subject.

We observe that, in the medical school of New-York, there is on foot, under the auspices of our able and very distinguished friend, Dr. Hosack, an attempt to revive no inconsiderable portion of the long-exploded doctrines of the Humoral Pathology. A full and lucid exposition of what we believe to be the professor's views on this subject may be seen in Dr. Dyckman's learned and well-written Inaugural Dissertation, for the year 1814.

Against this attempt we would be understood as bearing, most

some other symptoms, all show that the energy of the brain is, on this occasion, greatly weakened; and I pre-

deliberately, our decided testimony. Sound pathology consists in the history and philosophy of the diseased action of our solids, not of the vitiated condition of our fluids. Even admitting that the humours of the body do become somewhat changed from their natural and healthy condition, it is as a consequence, not an original cause of disease—the result, not the origin of morbid action.

Although the New-York school does not appear to be an advocate for the real *putridity* of the blood during life, but contents itself with maintaining its *putrescency* only; it asserts its full and confident belief, not in the mere vitiation of that fluid by means of the several morbific poisons, but in its actual assimilation to their nature and qualities. According to the tenets of that seat of science, the matter of small pox produces in the blood a variolous taint, the matter of kine pox a vaccine taint, and the matter of measles a morbillous taint; each poison assimilating that fluid to its own character, and rendering it capable, by inoculation, of communicating the disease to which the poison appertains.

This doctrine is signally erroneous. It is contrary alike to the issue of experience, and the principles of legitimate and sound physiology.

On the ground of experiments made by ourselves, we assert that the blood of persons affected by small pox, kine pox and measles, will not communicate those diseases. We even avow our disbelief in the communicability of measles by any mode of inoculation. We have endeavoured to communicate it by every way we could devise, inserting under the cuticle of the person inoculated, the blood, the tears, the mucus secreted by the Schneiderian membrane, and even the matter of eruption of the individual diseased, but have always failed.

If the proper precautions be observed in the drawing of blood, and in the performance of the act of inoculation, we repeat, that that fluid cannot be rendered instrumental in the propagation of any contagious disease.

In a contagious fever—suppose it to be a case of casual small pox—through what channels can the poison gain admission to the blood? We answer, through two only—the lacteals or cutaneous lymphatics. Nature has provided no other; nor can art form one.

To physiologists, the nice appetency or power of selection of these organs is well known. They admit into their mouths, and

sume, that as the weakness of the action of the heart can hardly be imputed to any other cause, this weak-

convey to the thoracic duct no admixture of heterogeneous materials. To nothing will they grant admission and conveyance, until it be digested and assimilated to an uniform mass. If they take up bone or muscle, fat or glandular matter, they receive neither of them in its formal character. Each must undergo a preparatory process, by which it is divested of its specific properties, and made to assume the character of chyle or lymph.

Such must be also the case in relation to contagion. If it be taken up by the absorbents at all, it cannot enter them in its formal state. They do not receive it while armed in all its deleterious qualities. It must have laid these aside, and become one of the component parts of lymph or chyle. Thus changed, it is no longer contagion, and can produce no other than a common effect on the blood, tending to augment not to vitiate it.

But the truth is, that no febrile poison ever enters the absorbents in any form. Its very nature as a poison prevents this. It attaches itself to some spot in the system, and produces there a peculiar irritation, which is propagated by sympathy from one part to another, until the whole experiences its deleterious influence. Its action is therefore confined to the solids alone, the fluids participating in none of its qualities.

Whether we attempt an investigation of the modus operandi of contagions, in the production of fevers, or of remedies, in their cure, we must confine our attention to the solids of the body. Be it of a nature deleterious or sanative, it is through them alone that the work is effected. Our present views of physiology lead to a disbelief in the medication, no less than in the contamination, of the human fluids. Whatever enters the lacteals enters them as chyle, and, as such, is intended for nutriment; not to communicate to the blood either medicinal or morbific qualities.

The facts, that madder passes through the blood and tinges the bones of animals red; that, some time after the articles have been themselves swallowed, the odour of asparagus, spirits of turpentine, and garlic is discoverable in the urine and matter of perspiration; that the taste of certain vegetables which have been eaten becomes perceptible in the milk of females; and that in the blood of a person long accustomed to the use of soda, as a medicine, a great superabundance of that substance has been found—these facts, we say,

ness also is a proof of the diminished energy of the brain.

with various others somewhat similar, that might be easily cited, furnish no argument of weight against our opinion.

That the articles just mentioned have made their way into the blood, will not be denied. But they entered it, not in a crude and formal state, but as a digested and assimilated portion of chyle. Hence they became a component part of the blood itself, perfectly homogeneous with its other parts.

But when that fluid had lost its vitality, and become decomposed in the crucible of the chemist, the soda, which it contained in substance, not in form, was immediately revived. It is thus that both soda and potash are formed, by combustion, from plants, which contain nothing but the raw materials out of which these articles are made. Without combustion they cannot be obtained, although substantially present in the plant.

It is for a similar reason that the smell and taste of certain alimentary and medicinal matters are perceptible in the secretions and excretions of the body. These qualities are not found in the blood, that fluid retaining its usual taste and odour. They are only revived in the fluids secreted from it, by means of the chemical affinities, which, being now permitted to act, uncontrolled by the powers of assimilation, recompose the peculiar forms of matter, wherein the taste and smell of the plants existed. In the urine of a person that has eaten asparagus, the smell of that plant is revived by chemical affinity; although it is not present in the blood whence the urine is prepared; and, in the milk of a cow that has eaten garlic, both the taste and smell of that vegetable are chemically revived, while the blood of the animal is entirely exempt from them.

A very strong ground of belief that no crude unassimilated materials are ever, during life, admitted into the mass of blood, is, that if such articles be introduced into the blood-vessels, even in the greatest state of dilution, immediate and great suffering, if not actual death, is the inevitable consequence.

In treating of the causes of fevers, we feel persuaded that Dr. Cullen has fallen into a common error, attributing to contagion much more than justly belongs to it. Strictly speaking, the number of contagious febrile diseases is very limited. In our estimation, the order Febres, of our author, does not contain one. We believe they are all included under that of Exanthemata. Belonging

36. I shall hereafter endeavour to show, that the most noted of the remote causes of fever, as contagion, mias-

to this order, the number of diseases unequivocally contagious does not exceed four,—small pox, kine pox, chicken pox, and measles. Even of the two latter complaints, the contagion is by some physicians considered as doubtful.

All febrile poisons are not contagions. Those resulting from putrefaction, whether of animal or vegetable substances, ought not to be so denominated. We have already mentioned, and beg leave to repeat, that contagion is a secreted poison—the result of morbid animal action. By way of distinction, febrile poisons arising from putrefaction have been denominated infections. By the late Dr. Miller of New York, terms were applied to these two species of morbific causes, which ought not to be rejected without due consideration. If we are not mistaken they serve the purpose of accurate discrimination better than any others that have been heretofore invented.

To febrile poisons resulting from putrefaction, that writer gave the name Koino—from the Greek word κοινος, which signifies *common*—pointing out the extent and community of their origin; thus making the compound term, Koino-miasmata, common febrile poisons. On those arising from diseased secretory action he bestowed the epithet Idio—from the Greek work ιδιος, peculiar or specific—expressing thereby, at once, the peculiarity of their origin, and their specific character; and designating them by the compound term Idio-miasmata, specific febrile poisons.

Contagion being the offspring of morbid glandular action, to render its existence certain, the glands which secrete it must have themselves an existence. But of their existence we cannot be certain, unless they be visible: and how very few are the febrile diseases that are unequivocally marked by morbid glands! Small pox, kine pox, and chicken pox, constitute, perhaps, the whole amount. In measles and the other exanthemata, the existence of such bodies is far from being certain. Nor is the case different with regard to typhus, synochus and dysentery. In these diseases no morbid glands, nor any thing tantamount to them, ever appear. Hence one cause of denying them a contagious character.

There does not, perhaps, exist in medical science a point of doctrine that stands on so unstable a foundation, and is, at the same time, so loosely constructed, as that which treats of febrile contagion. On other points we require, for our satisfaction, experimental

mata, cold and fear, are of a sedative nature; and therefore render it probable that a debility is induced. Like-

demonstration: here we rest contented with the most equivocal appearances—such as scarcely lay a foundation for the feeblest probability.

A disease, marked by a few unusual symptoms, attacks at once, or in succession, a family, a neighbourhood, or an entire community. This is sufficient; nothing further respecting it is sought for. No inquiry is instituted as to its real nature. The mere circumstance of *numbers suffering from it* is deemed sufficient to fix its character. It is without hesitation pronounced to be contagious. Yet there does not exist on the persons of those who are subject to it, a single glandular body or character by which a morbid poison could be secreted. No change of moment has taken place in them except what is common to febrile diseases. Neither in their secretions nor excretions does any thing unusual or suspicious appear.

In a case like this, there is no solid ground for a belief in contagion. A disease spreads and becomes general in a neighbourhood from sundry other causes—bad water, damaged provisions; but more especially from a vitiated atmosphere. It is well known that, in consequence of atmospheric influence, even peripneumony, rheumatism, angina inflammatoria, croup, and other diseases never suspected of contagion, assume, at times, an epidemic prevalence —they run through families, and neighbourhoods, towns and cities.

We have in another place observed, that contagion, strictly so called, is a *specific substance*, else it would not *be* contagion—it would not, as it does, possess powers of self propagation. These powers, which bestow on it its character, it exercises absolutely, on all occasions, and in a specific and uniform manner, independently of season, situation, temperature, and all other adventitious circumstances. It is a positive virus, and poisons certainly, from its own qualities, whenever it is applied to a susceptible subject. This it does as well in the rigours of January, as in the heats of August; in an open, no less than in a confined situation; and in the pure and salubrious air of the country, as readily as in the vitiated atmosphere of a large city. Such is the case with the contagions of small pox, kine pox and lues venerea. Seasons, situations, and qualities of the atmosphere are totally indifferent to these poisons. They act from their own inherent powers, with as much certainty as opium or arsenic, corrosive sublimate, or any other deleterious article.

When we find a disease, therefore, that is either of a local or a

wise when the paroxysms of a fever have ceased to be repeated, they may again be renewed, and are most

temporary character—one that prevails and spreads during the summer and autumn, and in the crowded streets and alleys of a large city, but disappears on the occurrence of cold weather, and can never be propagated in open and freely ventilated situations in the country—or another which prevails during cold weather, and in towns, hamlets, and country situations, but ceases on the approach of summer, and is scarcely known in large cities.—When we find febrile diseases of this description, we should be cautious in attributing to them the qualities of contagion. We may feel confident, indeed, that their prevalence arises, not from that, but from other causes. Hence, both typhus fever, yellow fever, and even pestis vera, want characteristics sufficient to prove them to be contagious diseases. These complaints are known to be circumscribed in their prevalence, both as to place and time. Pestilence and yellow fever spread only during warm weather, and in a vitiated atmosphere; typhus fever requires also a vitiated atmosphere, but prevails most during cool weather. The miasmata of the former become sufficiently abundant to contaminate the air of a whole city; those of the latter can seldom do more than vitiate that of a single building; or perhaps only of a single apartment. Perfect atmospheric purity is as fatal to them all, as an entire want of food is to animal life—and for the same reason; it deprives them of the aliment necessary to their existence. These complaints have no power to form, by disordered vascular action, a contagion sufficient for their own propagation: unless, therefore, the poison be otherwise produced, it fails, and their course is necessarily arrested.

The accounts we have in print relative to inoculation for the plague, are entitled to no regard. The matter used for the purpose was taken from bubos or carbuncles. But these are not essential marks of the disease. In a very great majority of the cases of plague there are neither carbuncles nor suppurated bubos.

In these there can, of course, be no contagion. There must be, therefore, two species of the same complaint; one communicable and the other not. Such a supposition, however, is not admissible: it is even absurd. Plague is either contagious, in its nature, and, therefore, in every instance; or it is not contagious at all.

Again: we have no knowledge of the proper method of inoculating for plague. All poisons do not take effect on every part of the body. Arsenic and corrosive sublimate, introduced into a small

commonly renewed by the application of debilitating powers. And further, the debility which subsists in the animal motions and other functions through the whole of 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

wound in the skin, produce but little inconvenience. Brought into contact with the stomach, they are active and dangerous. The reverse is true with regard to the poison of the viper and the rattlesnake. Introduced into a wound, it is highly deleterious; whereas it may be swallowed with perfect impunity.

Something similar may be true with regard to pestis vera, even admitting the disease to be contagious. A puncture in the skin may not be the proper place for the insertion of the poison. The virus may be inefficient there, although active elsewhere. To render it effective, it may be requisite, perhaps, to bring it into contact with the stomach, or some part of the Schneiderian membrane. *Possibly* a similar mistake, as to the proper place of insertion, may be the reason why all attempts to inoculate for measles have failed.

Further: in the very few cases wherein inoculation *is said* to have produced the plague, we know nothing of the progress or particulars of the operation. We are simply told, that persons who had been inoculated were attacked by the disease; but are left at an entire loss as to the source whence it was derived—inoculation or casual infection. Did the envenomed puncture inflame and pass through such a marked and regular series of stages, as to appear manifestly to be the cause of the disease? or did the complaint succeed the inoculation without the occurrence of any such phenomena? Did the period of time that elapsed, from the *operation* to the *attack*, justify the belief that they stood related to each other as cause and effect? These are points respecting which we are totally uninformed. Yet a knowledge of them is essential to our understanding of the cases to which they relate.

For the reasons herein given we feel persuaded that the number of truly contagious diseases is much more limited than it is generally supposed to be.

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 matter of fact, even although we should not be able to explain in what manner, or by what mechanical means these states severally produce each other.

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 economy, whereby it happens, that powers which have a tendency to hurt and destroy the system, often excite such motions as are suited to obviate the effects of the noxious power. This is the VIS MEDICATRIX NATURÆ, so famous in the schools of physic; and it 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 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 symptoms often continue after the action of the heart is restored, there is reason to believe that a spasmodic constriction has taken place; that it subsists for some time, and supports the hot stage; for this stage ceases with the flowing of the sweat, and the return of other excretions, which are marks of the relaxation of vessels 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 by the remote cause 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 beginnings 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 subsisting 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 the 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 connexion which is observed 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 connexion 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 connexion 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 perspira-

tion, but proves a stimulus to it, is always a powerful means of exciting appetite.

Having thus established the connexion 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 connexion between the state of the stomach and that of the extreme vessels on the surface of the body, appears 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 connexion 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 connexion, 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 probable, 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 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 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, 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 show 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 economy, (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 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 viscidity 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 any such viscidity 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 economy. See Van Swieten apud Boerh. Aph. 775.

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 forms so great a part of the disease, is an effort of the *vis medicatrix naturæ* to expel this morbific 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 of physic now remaining, and although it has been received by almost every school of medicine, yet appears to me to rest upon a very uncertain foundation. There are fevers produced by cold, fear, and other causes, accompanied with all the essential circumstances of fever, and terminating by sweat; but, at the same time, without any evidence or suspicion of morbific matter.

There have been fevers suddenly cured by a hæmorrhagy, so moderate as could not carry out any considerable portion of a matter diffused over the whole mass of blood; nor can we conceive how the morbific matter could be collected or determined to pass off by such an outlet as in that case is opened.

Even supposing a morbific matter were present, there

is no explanation given, in what manner the concoction of it is performed; nor is it shown that any such change does in fact take place. In certain cases, it is indeed evident, that a noxious 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 morbific 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 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 too 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 accumulated 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 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.*

* Since finishing our remarks on the subject of sedatives, our attention has been attracted by the two following paragraphs in the works of Dr. Ferriar, where he is treating of remedies for the cure of Dropsy.

"The effect of fox-glove, in retarding the velocity of the pulse, as a *direct sedative*, was too striking to be long overlooked; and when its application, to diminish morbid irritation in the vascular system, was once pointed out, the consequences of the idea were easily comprehended."

"The fact," says he, in a note, referring to the word '*sedative*,' "is so decisive, that I do not hesitate to employ this term, notwithstanding the *jargon* with which the public has of late years been *abused* on the subject of sedatives."

We do not affect to know what precise meaning it was the intention of our author to affix to the terms "*jargon*" and "*abused;*" but if he meant to designate by them the practice of imposing on the public by an employment of words either destitute of a meaning, or fraught with error, then are they strictly applicable to himself, and those other writers who contend for the existence of sedatives; not to the advocates of the opposite doctrine.

Dr. Ferriar pronounces Digitalis to be a *direct sedative:* we, on the other hand, maintain that it is a direct and very powerful stimulant; and, in addition to what we have already advanced, submit, in support of our opinion, the following remarks.

Of the immediate action of an article on a part *not visible*, we can best judge, by its immediate action on parts that *are:* for it is not credible that an agent, of any description, can radically change

CHAPTER III.

OF THE DIFFERENCE OF FEVERS, AND ITS CAUSES.

53. TO 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 dif-

its own nature—be a direct sedative in one instance, and a direct stimulant in another. Let us apply this rule—to the correctness of which we are not sensible that any exception exists—to determine the nature and action of Digitalis.

If an incision be made in the hand, or a portion of skin be abraded from any part of it, and a strong decoction of digitalis applied to the wound, or denuded surface, the immediate effect is irritation, smarting, and pain; which will be ultimately succeeded by active inflammation.

If a similar decoction be dropped into the eye, severe smarting, pain, and an increased secretion of tears will be the consequence; and, in case the operation be several times repeated, inflammation will ensue.

A strong decoction of digitalis thrown into the urethra will excite irritation, and produce a puriform discharge, similar to that of actual gonorrhœa.

The same decoction, placed on the tongue, is exceedingly bitter and acrid to the taste. It certainly, therefore, stimulates the nerves of the part: for sensation, of whatever description it may be, is nothing but the result of nervous stimulation.

If, in these several instances, the volatile spirit of ammonia be used instead of a decoction of digitalis, the result will be the same—the excitement of irritation, pain, and inflammation; and every one will acknowledge that such excitement is produced by *the stimulating qualities of the spirit.*

Is it true, then, that digitalis can produce, *as a sedative*, the same effects which arise from the action of spirit of ammonia *as a stimulant?* or, that the former article can act as a *direct stimulant* to the eye, the tongue, the urethra, or a denuded portion of muscle, and yet prove a "*direct sedative*" to the stomach and blood-vessels?

ference 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 paroxysms, I have alleged above to be 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 economy. Such a law seems to be that which subjects the economy, in

Of these questions, we cannot be persuaded, that any one will venture to maintain the affirmative.

If, in the cases herein cited, spirit of ammonia produce excitement and inflammation, *as a stimulant*, digitalis must produce them *as a stimulant also:* and if this vegetable production be a stimulus to the eye and the tongue, to mucous surfaces and denuded flesh, and to every part, indeed, where its action can be examined, it follows, as an inference, which nothing, we think, but the folly or madness of hypothesis will controvert, that, when swallowed, it proves to the stomach a *direct stimulus*, and reduces the action of the vascular system through the medium of sympathy.

It is reported, moreover, that in cases of death, after the administration of large and repeated doses of digitalis, unequivocal marks of inflammation have been discovered in the stomach. This fact we state *on the ground of report alone*, having never ourselves performed a dissection, with a view to the ascertainment of truth on the subject.

To the several experiments already mentioned, as calculated to determine the nature of the action of digitalis, we might add, that if the powder of the dried leaves of this plant be taken into the nostrils, it will, like the powder of tobacco, produce irritation, and, sometimes, sneezing.

Either these facts must be reconciled to the sedative nature of digitalis—an issue which we think impossible—or the hypothesis be abandoned as false and untenable.

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 watching, of appetites and excretions, and the changes which regularly occur in the state of the pulse, show 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 shows 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 economy 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 continent 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 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. Agreeably to what is laid down in 46. and to the opinion of most 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 economy, there are certain motions excited, which have a tendency to obviate the effects of the noxious power, or to correct and remove them. But 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 medicatrix naturæ* 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 paroxysms 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 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, 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 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 tolerably 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 to the difference of those continued fevers, which we have distinguished in our Nosology as different from intermittents, and as more especially entitled to the appellation of Continued, (see Syn. Nos. Meth. P. V. Ch. I. Sect. II.) 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 show 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 Synochus; to the second, that of Typhus; and little studious whether these names be authorized by the ancient use of the same terms, I depend upon their being understood by the characters annexed 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. Besides 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 forms 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 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 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 of 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 general much disposed to follow the former, have distinguished fevers, as putrid, and non-putrid: but the notions of the ancients, on this subject, were not sufficiently correct to deserve much notice; and it is only of late that the manner 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 pyrexiæ. 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 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 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, Ch. I. Sect. I.

CHAPTER IV.

OF THE REMOTE CAUSES OF FEVER.

76. AS 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 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

* Having already dwelt somewhat in detail on this subject, we shall here simply remark, that we think the human mind can scarcely picture to itself an error surpassing, in grossness, that which derives febrile diseases from any thing but the action of stimulating causes. To attribute fever, which is an increased state of action in living matter, to the influence of a *sedative*, which means something calculated to diminish action, is precisely as absurd as it would be, to assign ice as the cause of burning, or flames of freezing. It is to deal not merely in paradoxes, but in contraries.

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 MIASMATA, that is, effluvia arising from other substances than the bodies of men, producing 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 the Pyrexiæ, at present known, are in number not very great. They chiefly belong to the order of Fevers, to that of Exanthemata, or that Profluvia. Whether there be any belonging to the order of Phlegmasiæ, is doubtful; and though there should, it will not much increase the number of contagious pyrexiæ. 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, 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 pyrexiæ 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 contagion.

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 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

* Having nothing further which we think it necessary to add, we shall only here refer the reader to what we have already said on the subject of febrile contagion.

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.*

* On the doctrine contained in this section is founded, in a great measure, the practice of quarantine. It is, therefore, of the utmost importance to commercial nations; and deserves, we think, a much more thorough and philosophical examination than it has ever undergone.

Systems of quarantine were established in Europe, if not during the dark ages, at least long before the blaze of physical knowledge, which now exists, had opened on the world.

Since that period, the principles and opinions on which they were then founded have undergone no actual revision, and but little alteration. The interests of millions are suffered to be still under the control of laws and usages established at an era of great ignorance. This is a proceeding which is neither reasonable nor just; nor is it honourable to the reputation of modern times.

In the countries of the old world, where the human mind is not a little restricted by the trammels of precedent, it is scarcely probable that this state of things will shortly undergo any material alteration. The son, *there*, feels himself almost compelled by pious duty, to walk in the path which his father has trodden. Hence the perpetuity of many an error.

But, in the United States, the case is different. If we are, in relation to some points, without the lights of Europe to conduct us to what is right; we are, with respect to others, free from those prejudices and restraints that might keep us in the wrong. Nor are these remarks inapplicable, as we think, to the present question.

With us, systems of quarantine being of recent origin, the principles on which they are erected have not as yet become inflexible with age—have not degenerated into immutable canons. Would it not be well, therefore, while they still may be changed,

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. This 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 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.*

to inquire, with more strictness than has been hitherto practised, into their truth and consequent fitness, to preserve the health of those whose commercial interests they so seriously affect?

Without asserting that the doctrine of Fomites is entirely unfounded, we feel persuaded that it is replete with error.

Would it not be an act worthy of the government of the United States, to institute, by authority, a thorough revision of it? We are convinced, that the science of legislation, as well as that of medicine, would be benefited by the project.

* We have long thought it probable, that the miasmata which produce yellow fever differ from those that give rise to intermit-

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 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.*

tents, somewhat as the nitric does from the nitrous, and the sulphuric from the sulphureous acids. We know not on what other ground to attempt an explanation of the difference of their effects.

* For a refutation of the doctrine of putridity, as applied to the fluids of living animals, we cannot do better than refer the reader to an excellent Inaugural Dissertation, by Dr. Seybert, published first in the year 1793, and republished in a volume of Select Medical Theses, by Thomas and William Bradford, for the year 1805. We

87. Though we have endeavoured to show 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 Fahrenheit'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

shall, in the mean time, only observe, that a quantity of matter actually putrid, introduced into the blood-vessels of living animals, would prove as certainly and almost as suddenly fatal as an equal amount of boiling water.

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

the temperature of his body, unless the temperature of the bodies 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 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, 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

* Our author's view of cold, as a cause of fever, is exceedingly laboured, obscure, and unsatisfactory. That agent gives rise to fever on the same principles with every other. On the part to which it is applied, it produces an irritation. That irritation spreading by sympathy from one organ or subdivision of the system to another, forms a chain of morbid action in which the whole becomes ultimately involved. A wound, the matter of small pox, marsh miasmata, an excessive dose of arsenic or corrosive sublimate, and all other febrile causes act in the same way.

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 change 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. 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 vigour 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 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. Besides 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 therefore 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 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. 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. Besides 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.

CHAPTER V.

OF THE PROGNOSIS OF FEVERS.

99. AS 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 kind 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 the establishing prognostics; and this, I think, may be done better, by marking the morbid symptoms which show 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.†

* Although it may be and very probably is true, that all fevers consist of a mixture of *morbid* and *salutary* motions, it is equally so that we have not yet learnt to discriminate with accuracy between them. Nothing would be more dangerous, therefore, than an attempt to establish our prognosis *on that ground.*

Indeed the doctrine or rather practice of prognosis is one in which all practitioners, but especially young ones, ought to deal with the utmost caution. Although it is both natural and right for them to exercise their penetration and sagacity in endeavouring to form some opinion as to the probable termination of every case of disease, prudence and a due regard to their own reputation require of them not to be very liberal in the communication of that opinion to others. One false prediction may do them an injury which ten correct ones will not remedy. Let their prognosis, therefore, rest with themselves, until the case be so clear that they cannot be deceived.

† Under this head our author might have added another set of causes, viz. *those which deeply disorder the functions of the stomach.* In the malignant bilious or yellow fever, no symptom is of more fatal prognosis than an obstinate vomiting. Indeed such is the importance of the stomach, as a seat and centre of sympathy, that

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 showing 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 re-*

in every case wherein it is very seriously affected, life must be considered as somewhat endangered.

* It is much to be regretted that this doctrine of putrescency corrupts the whole of our author's reasonings. Fortunately, however, it does not injuriously affect his practice—or, if at all, but very slightly. The remedies which he administers to prevent or correct putrefaction, are such, in general, as, on sound principles, the case requires.

action, are, 1. The increased 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, and 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: I. The weakness of the voluntary motions; II. The irregularity of the voluntary motions, depending on their debility; III. The weakness of sensation; IV. The weakness and irregularity of the intellectual operations.

In the VITAL FUNCTIONS: I. The weakness of the pulse; II. The coldness and shrinking of the extremities; III. The tendency to a *deliquium animi* in an erect posture; IV. The weakness of respiration.

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

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

I. With respect to the stomach; the loathing of ani-

* Our author's enumeration of the symptoms on which he founds his prognosis in fevers, although it might, we think, be somewhat extended, is one of the most judicious portions of his work. As far as it goes, it is the result of correct observation, and a profound knowledge of the human system. It merits, therefore, the particular attention of those who are in pursuit of practical medicine.

mal food, nausea, and vomiting, great thirst, and a desire of acids.

II. 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.

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

IV. 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. 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 ancient physicians, as well as by moderns of the greatest eminence in practice; whilst 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.*

* In addition to the professor's remarks on the Hippocratic doctrine of CRITICAL DAYS, which, in the main, we believe, has a foundation in nature, we shall only observe, that we think there is scarcely a position in medicine more clearly established, than that

108. I am of opinion that the doctrine of the ancients, 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 economy, 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 period, it is, however, more rarely; so that there are not a sufficient number of observations to as-

regular intermittents are marked by hebdomadal periods. If attended to at the commencement, they may be brought to a *perfect* termination, almost with certainty, at the end of a week—seldom, perhaps, in a much shorter period—and, if any improper exposure be sustained by the patients, they will be likely to recur about the expiration of the next or the second week. As an excellent practical rule, therefore, let preventive remedies be employed until the end of a fortnight after the termination of these diseases.

The best preventives are, suitable clothing, a careful avoidance of exciting causes, a generous diet, regulated, however, by the state of the system, and the use of the bark, or strong infusions of camomile, centaury, quassia, or other bitters.

A due attention to these precautions could not fail to render relapses much less frequent than they usually are.

certain 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, 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 one of our supposed critical days; so there are therefore nine days which may be called NONCRITICAL; 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 economy 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 economy 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 intermittent fevers are certainly very strongly determined to observe a tertian or quartan period, we know there are certain 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 the rest are imperfect, and followed with a relapse. All this shows, that some violent cause had, in these cases, produced a deviation from the ordinary course of na-

ture; 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 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.

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 doubt of there being, in the animal economy, a tendency to observe such periods; and the critical days above mentioned are consistent with this tendency of the economy, 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 dis-

case; 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; 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 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 ancient 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, 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 the 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 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 common-

ly 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."

CHAPTER VI.*

OF THE METHOD OF CURE IN FEVERS.

SECT. I.—*Of the Cure of Continued Fevers.*

125. AS 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 operations of nature, or that our art should be only directed to support and regulate these operations, and that we should form the indications accordingly. This plan, however, I cannot adopt, because the operations of nature are very precarious, and not so

* This chapter, being intended to develope the general principles of practice in febrile diseases, is one of the most important in the whole work. From the pupil, therefore, who is true to himself, it will receive a corresponding degree of attention. If not actually committed to memory, it should, at least, be studied with such labour and fidelity of research, that every principle of it may be accurately retained.

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

* Although it is doubtless true, that the practitioner of medicine should be cautious not to trust too far to the operations of Nature, he may notwithstanding derive, at times, from that source, some of his most important indications of cure. Instead of neglecting Nature, therefore, or, in the emphatical language of a late medical teacher, "turning her out of doors," let him patiently and studiously watch her movements.

In the commencement of an epidemic disease, she is sometimes his best, if not his only instructor. She makes an obvious effort to relieve the sick through some of the emunctories. He will be safe, for the most part, in following her example. If the effort be made through the bowels, let him purge; if through the skin, let him encourage a perspiration; and if, as is sometimes the case, hemorrhagies appear in an early stage of the disease, venesection may be generally employed with advantage.

Some of the physicians of Philadelphia must well recollect to have seen these positions abundantly confirmed in the epidemic fever which they so often witnessed between the years 1793 and 1805.

A strong desire for wine and acids, in cases where those articles are essential as remedies, constitutes another instance in which Nature assists the practitioner in forming correct indications of cure.

That physician who, in the treatment of diseases, renders his labours at all times faithfully ancillary to those of nature, acquits himself of a very important branch of his duty.

down above on the subject of the prognostic, we form three general indications in the cure of continued fevers; and 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 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 dimishing 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.*

* In conducting the sick through a strict course of antiphlogistic regimen, the two greatest difficulties with which physicians have to contend, is a desire in their patients to take improper exercise, and in their nurses and attendants that they should take improper food. The latter, in particular, is oftentimes a source of great mischief. In febrile diseases of high action, nothing should be received into the stomach that is not in a liquid state; as sago, panado, tapioca, water gruel, or some such mild vegetable nutriment. Solid food is totally inadmissible. The stomach being unable to master and digest it, it acts on that organ like an extraneous and insoluble substance, producing in it great irritation, which, through the medium of sympathy, is, in a short time, communicated to the whole system. In cases where convalescence had already commenced, a few mouthfuls of solid food, particularly animal food, has frequently produced relapses dangerous and even fatal.

The only drinks that are compatible with the antiphlogistic regimen, are such as are thin, mild, and diluting. Simple water, toast water, lemonade, lintseed tea, barley water, apple water, a solution of gum arabic in water, currant jelly dissolved in water, with other similar articles, are most suitable.

Where the object is to remove severe thirst, which, in cases of fever, operates as a powerful and injurious irritant, acidulated drinks are most efficacious. In preparing them the native vegetable acids should be preferred. Vinegar and the mineral acids act too powerfully on the stomach, and are, therefore, improper. In febrile cases of violent reaction, we think them always injurious. In typhus they are more admissible. The juice of limes and lemons, oranges and apples, currants and grapes, is grateful and beneficial.

It is, in many instances, of great importance to remove the irritation of retained fæces, by injections, as our author proposes, rather than by purgatives. The latter disorder the stomach, and, through that medium, the whole system; while the former merely carry off the offending matter, without producing any distressing or injurious commotion. Besides, injections by being well prepared and skilfully administered, may be made to operate with great force. It is not true, as is usually observed, that they act only on the lower intestines. Under proper management, and when frequently repeated, they evacuate effectually the whole canal.

Mild injections may consist of tepid water alone, milk and wa-

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 the 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.

ter, or molasses and water, either with or without the addition of a little sweet oil. To render them more active, add a table spoonful or two of muriate of soda, or sulphate of soda, and castor oil instead of sweet oil. The amount of the oil may be about two ounces; and of the whole injection, if for an adult, at least a pint, or even more in case a powerful effect be required.

From twelve to fifteen or twenty grains of tartarized antimony, dissolved in a suitable medium and thrown up the rectum, operate very powerfully in evacuating the bowels. This preparation extends its influence to the stomach itself. In cases of colic, it is sometimes very effectual in dissolving the spasm which prevents the peristaltic motion of the intestines.

Injections of *cold water* have been found to be productive of a similar effect.

But, perhaps the most powerful injection that can be prepared is a decoction of tobacco. Into a quart of water put a drachm of the leaves of that plant, and boil it down to a pint. This forms an injection which scarcely any obstinacy of stricture or constipation can resist.

In general, moderately stimulating injections are most suitable in cases of fever. The more drastic ones are rarely called for except in colic, strangulated hernia, and other instances of obstinate costiveness or dangerous spasm.

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 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 also is 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 proves always 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. Besides these stimulant powers more constantly applied, there are others which, although occasionally

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.

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 and antisceptic liquors.

132. The avoiding of irritation in all these particulars, (130. and 131.) constitutes the antiphlogistic regimen absolutely necessary for moderating the violence of re-action; 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, show 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 is it peculiarly adapted, or what limitations it requires, I shall not venture to determine, till more particularly instructed by further experience.*

* Cold, as an antiphlogistic remedy, should never be applied in so high a degree as to produce a disagreeable sensation. If it be, it will certainly irritate and prove injurious. When so employed as gradually to evacuate caloric from the system, and remove the distressing sensation of heat, it does good.

In the treatment of febrile diseases, the air of bed-chambers should be always kept at a moderate temperature—so as to be perfectly grateful to the feelings of the sick—not so as to produce chilliness. When the febrile heat is high and burning, and the skin dry, the continued application of cold water to the hands, wrists, and temples, and sometimes also to the feet and ankles, proves exceedingly pleasant, and is, at the same time, highly efficacious in moderating the excess of arterial action. The water may be applied either by means of wet cloths, frequently renewed, or by repeated affusions. In this case particularly great caution is requisite, lest some degree of chillness result from the operation.

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.

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.*

Having but little experience in the practice of either general affusion, or sponging the body and extremities with cold water, in febrile diseases, we do not feel authorised to offer, on that subject, any remarks. From the reports, however, of practical writers of high standing, we are not permitted to doubt of their efficacy.

* The addition of tartarized antimony to nitre, when not forbidden by the condition of the stomach, or some other particular cause, increases very greatly its febrifuge powers.

Ten or twelve grains of the nitre combined with the sixth or eighth of a grain of the antimony—in some cases with the fourth of a grain—and administered every two hours, or oftener, if the stomach can bear it, is an active remedy in the reduction of fever.

Some practitioners prefer to the tartarized antimony, the addition of a grain or two of ipecacuanha to each dose of the nitre.

In these cases, the salutary effect is rarely, if ever, produced, unless some degree of nausea be experienced from the remedy. The stomach then sympathizes with the vascular system, and moderates its action.

136. Besides 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 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 principal part of the dis-

* Sugar of lead, exhibited in combination with opium, proves useful in cases of febrile hemorrhagy; but we have never known it to be administered with advantage as a mere febrifuge. From two to five grains of the sugar, in combination with half a grain of opium, may be given with safety at a dose, and repeated as often as circumstances require.

case, and may be expected to continue throughout the whole of it, as in the case 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, 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, 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 habits of blood-letting.

8. The appearance of the blood drawn out.

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

* There are in medicine but few points that are attended with greater difficulty, than to give abstract rules for the practice of blood-letting. In relation to this remedy, every case of disease resembles precisely a case in equity—it must be governed by its own circumstances; and, it is needless to add, that there are very few cases exactly alike.

Of the nine precautions which our author has here given, on the subject of blood-letting, there are four, which, for correctness and weight, cannot rank with his precepts in general. They are

1st. "The nature of the remote cause."

We are at a loss to perceive what material influence this can have in relation to blood-letting. Our practice is to be directed, not by the *remote*, but by the *proximate* causes of disease. This the professor has himself, in another place, expressly acknowledged. "The cure of diseases," says he, "is chiefly, and almost unavoidably, founded in the knowledge of their *proximate* causes." Whence is it, then, that he here attaches so much importance to the remote cause? It is certainly to the proximate cause or nature of the disease, as far as it can be discovered, that all our remedies ought to be suited.

2d. "The season and climate in which the disease occurs."

These are considerations, which, with the experienced physician, have but little weight when he is making up his mind on the subject of blood-letting. If other circumstances call for it, he will bleed in August as readily as in January, and beneath the equator with as little hesitation as within the polar circles. He will be governed in his practice by neither circumstance, but exclusively by the state of his patient's system.

3d. "The period of the disease."

This consideration has some weight; but by no means so much as is usually claimed for it. As a general rule, the early stages of fever are those in which blood-letting is most safe and efficacious:

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 can be drawn from the innumerable excretories 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.

but its utility, as a remedy, is not confined exclusively to these. It is oftentimes employed with great advantage in an advanced stage.

4th. "The age, vigour, and plethoric state of the patient."

Whatever weight these considerations may have in determining the *quantity of blood* that ought to be drawn, they can have exceedingly little in settling the question as to the propriety of the operation.

The diseases of childhood and old age call for blood-letting no less imperiously than those of manhood; and it is well known, that the lean and delicate are oftentimes subject to the most inflammatory complaints.

Regardless, therefore, of age and habit, we say again, let the physician attend with strictness to the state of his patient's system, and he will rarely err as to the practice of blood-letting.

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 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 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,

* In bilious fevers, and all others where there is an excess of action in the viscera of the abdomen, copious purging is an indispensable remedy. Besides removing the irritation of the fæces, it acts like topical depletion, by cups or leeches, on an inflamed part.

† The caution inculcated in this section is very important. In cases of great debility, plentiful purging is a dangerous process, unless where the debility arises, as it sometimes does, from a morbid irritation in the stomach or bowels. In such a case the removal of the irritation augments the strength.

Towards the close of fevers, when the strength of patients is greatly exhausted, severe purging has been known to be productive of death from syncope. This, however, has been more particularly the case, when, instead of remaining in a recumbent posture, and making use of a bed-pan, the sick have risen up, and made improper exertions in going from the bed to the close-stool. In the Influenza of 1815, a patient under our own care, who had passed in safety through the disease, lost his life in this way. He took a saline purgative, but was directed not to leave his bed. He neglected the advice, made an attempt to go to the close-stool, fainted, and never recovered. In cases of great debility, such a practice should be rigidly prohibited.

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, 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. 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.*

* Cutaneous secretion, or, as it is more commonly termed, perspiration, is a natural function; and, as it is checked or suspended in most cases of fever, ought to be restored; which is, perhaps, all that, in reality, Dr. Cullen meant by "taking off the spasm of the extreme vessels." So far, therefore, his indication is correct and natural. Nor have we any material fault to find with his means of effecting it; but his reasoning as to their *modus operandi* is altogether mechanical and unsatisfactory.

The excitement of perspiration is a vital sympathetic process; not a gross mechanical one, depending on a mere distention of the

Though I have put here this indication of taking off the spasm of the extreme vessels, as subordinate to the general indication 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, may overcome the spasm on their extremities.

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

blood-vessels. The articles exhibited for the purpose act on the stomach, and produce an associated action of the cutaneous capillaries. By a plentiful draught of some warm liquid, when the body is cool, or of cold water alone, when it is heated, a perspiration is oftentimes produced too instantaneously, to be explicable otherwise than on principles of sympathy.

Balm and sage, mint and camomile teas, taken in plentiful draughts, frequently repeated, and of a temperature as high as may be agreeable to the sick, are exceedingly useful in promoting a perspiration; the more so, perhaps, on account of the slight aroma which they contain.

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 fulness 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 *Diæta 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.

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 stage of fevers. All this shows, 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.*

* Our author here alludes most probably to the neutral mixture formed by the vegetable alkali saturated with lime juice, and to the spiritus Mindereri. The former of these may be made to consist of the following proportions of the ingredients:

℞. Alkali. Vegetabil. ℈i.
Succ. Limon. ℥ss.
Aquæ Font. ℥iss.
M. f. haust.

This,

161. As cold water taken into the stomach, often shows the same diaphoretic effects with the neutral salts, it is probable that the effect of the latter depends upon their refrigerent 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. 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 this practice.*

This, if swallowed while in the act of effervescence, and repeated at proper intervals—say every hour or oftener if necessary—is more remarkable for its anti-emetic than its sudorific effects.

The Spts. Mindereri consists of a saturated solution of muriate of ammonia in distilled vinegar. When administered every two hours, in half-ounce doses diluted in water, it is deemed efficacious in the excitement of a perspiration. Compared, however, with certain others, we believe it to be a weak and inefficient remedy. It is therefore that we have rarely employed it in practice. If, during the use of it, the body be kept cool, it has the reputation of proving an active diuretic. To produce any medicinal effect, it must be taken in such doses as to be felt in the stomach: for, like other internal remedies, it operates only through the sympathies of that organ.

* A forced sweat but rarely does good, and is oftentimes productive of much exhaustion and distress. To be really useful it must flow somewhat spontaneously; at least with facility. If the practitioner, therefore, find much difficulty in exciting a sweat, he had better, for the time, relinquish the attempt. His persevering efforts will exhaust his patient rather than the disease.

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 a 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 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 ge-

nerally; 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 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 pyrexiæ 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 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

* To continue a sweat for "forty-eight hours," permitting the patient to sleep but very little during that period, as must necessarily be the case, would be an unreasonable, harsh, and injurious practice. Such a measure will not, we believe, find, at present, a single advocate.

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, 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 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 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.

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. 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 evacu-

ates 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, as 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.*

* Our author's observations on emetics are pertinent and proper. The effects of these remedies, in procuring a solution of fever, is oftentimes obvious.

We do not believe, however, with the professor, that their action on the stomach is confined chiefly to its "muscular fibres." It seems probable, that they act more particularly on *its nerves.* It is certain, at least, that their operation on that organ does not consist in their mere evacuation of its contents; but, that by severely stimulating it, they act on the skin and other parts of the system, through the medium of its sympathies. The extent and suddenness of their effects admit of no explanation on any other principle.

When administered only in nauseating doses, they produce their general effects in the same way. Our author's remarks on this mode of exhibiting them are judicious and worthy of attention. So are his remarks on the kinds of these remedies that may be most advantageously employed.

In the United States, Dover's and James' powders are not much used. They do not operate with so much certainty as tartar emetic or ipecacuanha, under proper management.

To produce a nausea, the former of these may be administered in doses varying from the sixteenth to the fourth of a grain, according to the age, and state of the stomach, of the patient; and repeated every hour.

Of the former, from half a grain to two grains may be exhibited at the same intervals; and, when combined with a little opium and prepared chalk, we have not found its emetic quality particularly troublesome.

If the object be to produce the nauseating effect of tartar

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 affecting 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 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 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.*

emetic; it may be usefully exhibited under the following formula.

℞ Antimonii Tartarisati gr. ij.
Aquæ Cinnamom. simpl. ℥ij.
Aquæ font. ℥vj.
M. f. Julep.

Of this, one or two table spoonfuls may be given to an adult every hour, or oftener, according to circumstances. To children the dose must be less in proportion to their age.

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 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, 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 be acted upon by the acids; and therefore, on meeting with the 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 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 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 accession, 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 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, 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 that the repeated vomitings, and especially repeated purges, 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 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 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 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, affect the general distribution of the fluids.

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.*

* The mere quantity of the serous evacuation produced by blisters, can have no influence in their *general effects*. These, like other remedies, operate entirely through the medium of sympathy, resulting from a peculiar local impression. They *specifically* stimulate the skin, on the spot to which they are applied, and from that, as a point of beginning, forming a new chain of associated actions, tend to dissolve the morbid one already existing. It is probable that blisters affect first, by what writers denominate continuous sympathy, the whole, or a considerable portion of the skin; while that organ, by a very extensive and powerful range of sympathies, which it is known to possess, more especially with the stomach, intestines and lungs, communicates somewhat of its own condition to the whole system.

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.

* Blisters cannot be applied with advantage nor even with safety "at any period of continued fevers." If they be applied during an early period, when the morbid action is highly inflammatory, they cannot fail to do mischief. They simply add the amount of their own stimulation to that under which the system is already labouring; and, by that means, augment the force of febrile action. In cases of inflammatory fever, the lancet should have nearly completed *its* duty, before blisters are called to *theirs*.

† The sentiment contained in this paragraph is not correct. In cases where there is no apparent local affection, there exists, notwithstanding, a clear choice, as to the parts of the body on which blisters should be applied. The skin of the upper and lower extremity, especially, of the wrists and ancles, appears to sympathize more strongly with the whole system than that of any other part of the body. As a general rule, therefore, on these situations, in continued fevers, let blisters be applied. We feel also persuaded that blisters applied along the spine, act with peculiar energy on the system in general.

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

*A vapour bath, formed simply by wetting hot bricks with vinegar or water, and placing them under the bedclothes, has a powerful influence in exciting a perspiration; which is all that our author can mean, by a removal of the spasm from the cutaneous vessels.

ture 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 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 de-

* For a knowledge of our sentiments on sedatives and putridity, the reader is referred to what we have said on former occasions. We shall, at present, only add, that what is usually considered as a putrescent state of the blood, preventing that fluid from coagulating when drawn from the veins, is nothing more than its possessing too little vitality to enable it to contract as it does when in a healthy condition. Its escape from the small veins, forming petechiæ, vibices and maculæ, far from bespeaking in it any unusual thinness, arises from the want of a sufficiency of the *vis vitæ* in those vessels to qualify them to retain it. Instead of inspissants, therefore, or any kind of correctives of the blood, the only proper remedies here, are tonics, or such articles as communicate vital strength to the solid fibre.

The question, in this case, is not, whether the blood, when drawn from the veins of a patient covered with vibices, will putrefy sooner than it does when taken from a person in health? This it will certainly do, owing to its destitution of the necessary stock of the vital principle, which is the most powerful and efficient antiseptic in nature. The pathological point to be settled is, whether that fluid, when circulating in its proper vessels, be infected by any degree of a putrid taint? This we positively deny, and have already referred to the authority (Dr. Sybert's Inaugural Dissertation) on which, in part, our opinion is founded.

bility, 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 diminished; 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 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.*

* In relation to cold drinks, we believe that they never prove in-

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, it is, probably, as a tonic, rather than as a refrigerant; and the Ens Veneris, or other

jurious in febrile diseases, unless when taken at a temperature so low, or in quantities so copious, as to produce a sensation of chilliness. If an effect like this result from them, no matter whether the phlogistic or antiphlogistic diathesis mark the disease, their use ought to be immediately discontinued. But if, on the other hand, their employment be productive of pleasurable sensations, the continuance of them will be not only safe but advantageous. In this point of view, they may be considered as a tonic in fevers of a typhous character, and a refrigerant in inflammatory ones.

preparations of iron which have been employed, ca 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 ascertained; and I shall now only consider the question with respect to the most celebrated of these tonics, the Peruvian Bark.

213. This bark has been commonly considered as a specific, or as a remedy of which the operation was not understood. But it is certainly allowable to in-

* Preparations of copper and arsenic do not act as *tonics* in the cure of intermitting fever. They act as irritants or morbific stimuli. They produce a diseased impression on the stomach, stronger than that of marsh miasmata. It is an impression, however, which will terminate in health, as soon as the cause which gives rise to it is withheld.

If we understand the word *tonic*, it means a medicine that adds strength to healthy action. Such, however, is not the effect of copper or arsenic. As far as our experience extends, these articles, instead of increasing healthy action, never remove intermitting fever, until they have first very materially disordered the stomach. Arsenic, in particular, produces a disease of that organ perfectly *sui generis*, which entirely obliterates, for the time, the irritation resulting from the cause of the malady it is intended to cure.

quire into this matter; and I apprehend it may be explained.

214. To this purpose it may be remarked, that as, in many cases, the effects of the bark are perceived soon after its being taken in 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; 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.*

* The Peruvian bark is, perhaps, the most perfect, pure, and powerful tonic belonging to the materia medica. It is never given, therefore, without doing mischief, in cases where the phlogistic diathesis prevails.

We believe, with Dr. Cullen, that in curing fever, its immediate effects are confined to the stomach. Were it to enter the lacteals, it would be as chyle; were it to be carried into the blood-vessels, it would be in the form of blood. In neither case would it be capable of producing a medicinal effect. A medicine, in the true sense of the word, is something which the stomach cannot digest. This is the case with regard to the Peruvian bark. That organ cannot prepare it for the purposes of nourishment.

The bark, although it does not, like arsenic, greatly disorder the stomach, produces in it, notwithstanding, a degree or mode of action peculiar to itself. It is, in its effects, as perfect a specific, as mercury or cantharides, assafœtida or opium. By its operation on the stomach, it changes entirely the condition of that viscus, and obliterates the effect produced on it by the febrile cause.

We consider it as a position almost self-evident, that those fe-

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 increasing the ac-

brile diseases which are particularly removed by the exhibition of the bark, have their original seat in the stomach. It is because this local affection is in that organ, and is not of an inflammatory character, that the remedy we are considering is calculated for its cure.

Provided the stomach will retain it, the bark should be always given in substance. The second best preparation is the extract; and next to that the decoction. The tincture is not a very efficient remedy, and has often proved injurious by inducing a fondness for ardent spirits.

Bark finely pulverized may be given in doses of a drachm weight, or a heaped tea-spoonful, to be repeated every hour, or oftener according to circumstances. To those who prefer it in that way, it may be given in the form of pills to the same amount.

tion 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 doses; so that it may be employed with sufficient caution; but it is of little service, unless taken pretty largely.

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

* The physicians of Europe, especially of Great Britain, speak in high terms of the efficacy of nitro-muriatic acid gas in the purification of an infectious or contagious atmosphere. It may be formed by pouring the nitric acid on common salt. Having had no experience in the use of this article, we are unable to speak of it from our own knowledge. We believe that several physicians of the United States, who have employed it for depurating the atmosphere of ships of war, have been pleased with its effects. Lime, in the way of white-washing, is much used for the same purpose.

We are inclined to think, that nature's own method, consisting in cleanliness and free ventilation, constitutes the best purifying process. Wherever it may be practicable, therefore, its adoption is recommended.

† As great prostration of strength constitutes one of the symp-

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, acescent aliments, acids of all kinds, neutral salts and fixed air.

226. The progress of putrefaction may be considerably retarded, and its effects obviated, 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, (250. *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.

toms of what is denominated putrid fever, purges should be used cautiously, lest debility be injuriously increased. Injections and the milder purgatives ought to be chiefly employed. In many instances of typhus fever no inconsiderable advantage is supposed to be derived from producing a constipation of the bowels by the use of opium.

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,

1. 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, particularly,
       - α. Increased heat, whether arising from
         - αα. External heat, or
         - ββ. The accumulation of the heat of the body.
     - b. The exercise of the body,
     - c. The exercise of the mind,
     - d. 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.

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. Fossil, as,

αα. Saccharum saturni, &c. or,

β. Vegetable, as,

αα. Peruvian Bark.

B. Stimulants, as,

a. Aromatics, &c.

b. Wine.

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

1. Avoiding the application of putrid or putrescent matter, by

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

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

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 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.

Sect. 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.

* This section contains an excellent outline of the principles of practice in intermitting fever. The indications of cure are judiciously laid down, and the general modes of fulfilling them stated with great correctness and skill. A brief exposition of one or two points which our author has omitted, and a little further detail as to

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

particular remedies, and the times and circumstances of their administration, is all, perhaps, that the article wants, and all that our limits as an annotator permits us to subjoin.

We have already stated our belief, that intermitting fever has its seat in the stomach. It arises from an irritating impression on that organ. Whatever, therefore, during the state of apyrexia, makes, on the same organ, a counter-impression sufficiently powerful, and continues it until after the period at which the next paroxysm should commence, will prevent that paroxysm. This it will do by its effect on the stomach alone, independently of its action on the skin, the blood-vessels, or any other part of the system. It shatters and destroys the very root of the disease, and hence the branches must necessarily wither. It is in this way that all emetic articles act, as well as the preparations of copper, arsenic, and opium. It is in the same way that spirits of turpentine act, which, when given in large doses during the intermission, has often proved effectual in checking intermittents; and it is thus, also, that the bark itself acts; for that remedy is known to produce little or no alteration in the state of the blood-vessels.

Indeed, it is necessarily in the same way that every internal remedy operates in the cure of intermittents. Medicines that act on the bowels are not very useful in those diseases; and whatever enters the lacteals is a medicine no longer. Being completely subdued by the powers of digestion and assimilation, it can be regarded only as an article of nutriment; and, as such, aids in continuing, not in altering the existing state of things.

When the subject is properly considered, the space in the human system on which medicines, correctly so called, immediately act, is not very extensive. It consists of the alimentary canal, the skin, the lungs, and that portion of the Schneiderian membrane which lines the nares. To no other parts can medical substances have immediate access. On these alone, therefore, they act, and communicate their influence to other portions of the body through the medium of sympathy.

It is true, that light stimulates the optic, and sound the auditory nerves: and, in that way, operate somewhat as medicinal substances.

It is also true, that venesection acts immediately on the blood-vessels: but this is a surgical operation, not a medicinal substance. It produces an unnatural state of things; penetrating through the skin

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 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

by mechanical force, in order to reach the parts that lie beneath it. Nor has venesection the slightest tendency to show that any articles can carry their medicinal qualities into the blood or humours of the body. Still, therefore, the truth recurs, that all medicinal substances, in common with all morbific ones, produce their first effect in the form of a local impression on the skin, the alimentary canal, the lungs, or the nares, and extend their influence through the medium of sympathy.

Impressions made on the stomach very soon reach the skin; a truth which we see daily confirmed by the occurrence of flushes, sweating, and eruptions; while those made on the latter organ as soon make their way to the former, giving relief to sickness, nausea, and vomiting.

Conscious that our views of the operation of medicines differ not a little from those of many other writers, we have deemed it expedient to be thus explicit in the statement of them, both in relation to the cure of intermitting fever and other diseases.

excite sweating, and to support that sweating till the period of accession be for some time past.

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.*

* If an intermittent prove intractable to other remedies, let the patient, if an adult, take from two to three grains of opium, either alone or combined with two grains of ipecacuanha, or a quarter of a grain of tartar emetic, about two hours before the commencement of an expected paroxysm. Let him, further, go immediately to bed, and attempt the excitement of a sweat by the application of heated bricks, or bottles of warm water, to his feet and legs, and repeated draughts of sage or balm tea, or some other warm and grateful beverage. If a copious sweat appear, which rarely fails to be the case, let it be continued until the expiration of the third or fourth hour after the time at which the paroxysm should have commenced. By this process we have very seldom failed to prevent the paroxysm, which leads with certainty to a removal of the disease.

If horror be the remedy employed, it is of very little consequence in what manner it is excited. Ignorant persons and children have been cured of their complaint by being shut up in a dark

232. Of all the tonic remedies mentioned (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 inter-

room, in a house believed to be haunted, and assailed by certain unusual sounds, for the space of an hour before and after the time of an expected paroxysm.

A slave, some years ago, was cured of intermitting fever in the state of Delaware, by being taken to a certain spot to dig for money believed to have been deposited there by the pirate Blackbeard. A negro was reported to have been buried alive by the pirate along side of the chest, with orders to keep watch over it and its contents until he should reclaim them.

Our patient, while digging, was under a constant apprehension of seeing this sentinel start from the ground in defence of the treasure confided to his keeping. Such were the impressions of horror which he experienced from this fancy, that the expected paroxysm of his intermittent was prevented.

The same effect has been obtained by inducing patients of the same description to lie down on a tomb-stone, and muttering over them pretended ceremonies of incantation.

It is on the same principle that charms, of whatever kind they may be, operate to the cure of intermitting fever. They forcibly impress the mind: this, through the medium of the brain, communicates its impression to the stomach; and thus the morbid irritation on that organ, which constitutes the root of the disease, is counteracted.

mittent 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 occurs, the bark may be given during the remissions; and it should be given, 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 exacerbation.

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 bark; a relapse is commonly to be expected, and should be prevented by the exhibition of the bark repeated at proper intervals.*

* The propriety of giving an emetic, as preparatory to the administration of the bark, is a practical question, which, however, frequently agitated, does not appear to be definitively settled.

The measure, although not in all cases essential to a cure, we believe to be in most instances highly useful. Besides their tendency to remove from the stomach the topical affection, which we consider as the source of intermitting fever, emetics discharge from that organ all such adhesive matters as might interpose between the bark and its internal surface. They procure for that article a more immediate access to its villous coat, and thereby add to the efficacy of its action. By exciting, moreover, the necessary action on the surface of the body, they render the bark a safer remedy: for, to administer that medicine when the skin is dry, is a practice that is not warranted by experience.

On the whole, therefore, although many cases of intermitting fever are cured by the bark alone, without the previous administration of an emetic, we are inclined to believe, that, as a general rule, te reverse is the safer and more efficacious practice.

233. Our second general indication for conducting the paroxysms of intermittent fevers, so as to obtain a final solution of the disease, may be answered,

A few doses of the vegetable alkali are said to be an excellent substitute for an emetic. This article is supposed to dissolve the mucus adhering to the internal surface of the stomach, which an emetic would eject, and in that way to bring the bark into immediate contact with its villous coat.

In the treatment of intermitting fever, all agree that the bark must be administered during the period of apyrexia: but there exists a difference of opinion as to the particular time of that period, at which it should be given in the largest quantity. Dr. Cullen says, towards the close—as near as possible to the commencement of the next expected paroxysm.

In this mode of practice we confess their appears to be not a little reason. By means of it the strongest impressions would seem to be made by the bark on the stomach at that point of time when it is best calculated to keep off the irritation which causes the disease. As opium is known to prevent a paroxysm with most certainty when administered only a short time before its commencement, why is not the same thing true with regard to the bark?

Alibert, on the other hand, in his excellent treatise on "Malignant Intermittents," asserts, that the bark should be given at as great a distance of time as possible from the next expected paroxysm. His practice was, therefore, to exhibit it in large and frequent doses at the commencement of the apyrexia, instead of the close; and, according to his own account, his success was signal.

This mode of practice is not without both argument and example in its favour.

The bark is not what is denominated a diffusible stimulus. It does not operate so speedily as opium; and, therefore, to produce the necessary effect, must be given at a greater length of time before its highest degree of action is wanted. Hence, although opium prevents a paroxysm, when administered only two hours before the time of its expected occurrence, bark, to produce the same effect, may require to be given at a much earlier period—twelve, perhaps even twenty-four hours before the time of the anticipated attack. Besides, it is very well known, that the preparations of iron, copper, and arsenic, must be exhibited a very considerable time before they produce the full amount of their action on the system.

To avail ourselves of every advantage, our own practice with the

1. By exhibiting emetics during the time of the cold stage, or at the beginning of the hot.

bark has been, to give it from the beginning to the close of the apyrexia, in doses as large and as frequently repeated as the stomach will retain. In some cases we have administered, with perfect success, from a drachm to a drachm and a half every hour, until three ounces have been used.

Alibert and others have practised in a manner still bolder. To that physician's treatise on "Malignant Intermittents," we refer our readers for much useful information respecting those complaints.

When the bark disagrees with the stomach, or fails to cure the disease, it may be advantageously combined with certain spices, or other aromatic and stimulating substances. In such cases, cloves, ginger, pepper, particularly Cayenne pepper, and Virginia snake-root, finely pulverised, have been found particularly useful. Of the four first articles, from three to six, and of the last from ten to fifteen grains may be added to each dose of the bark. Five or six drops of the elixir of vitriol may be also added with the same intention.

Does the bark purge? combine with each dose of it five drops of laudanum. Does it create costiveness? add to each dose an equal number of grains of rhubarb.

If, under every form of preparation, the bark fail to cure, give of white arsenic the sixteenth of a grain, combined with a grain or two of ginger, four or five times a day; or, of the same article, in the form of Fowler's solution, about six drops as often repeated.

Cuprum vitriolatum and cuprum ammoniacum, in doses of one fourth of a grain, repeated three or four times a-day, have been also found successful in cases of intermittents that had resisted other remedies.

It is in the treatment of the quartan ague, that these three last remedies have been most successfully employed.

A remedy now becoming fashionable in Great-Britain, in the cure of this complaint, and said to be efficacious beyond all others, is the *spider's web*, in doses of from two to four grains. If taken during the paroxysm, it shortens it; if before it, prevents it.

It is said that no intermittent resists more than two or three repetitions of it. It is usually administered in the form of a pill, a short time previously to the expected attack. The species of spider whose web is most efficacious we are unable to designate.

Another article which, in the cure of intermittents, has received

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 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.

considerable reputation abroad, and has also been successfully used, in some instances, in this country, is finely powdered charcoal. The dose for an adult is a table spoonful, to be repeated several times a-day.

The application of tourniquets on the thigh and arm of the opposite sides, obstructing the circulation of the blood, some time before the period of the expected paroxysm, is said to prove effectual in its prevention. In this practice we have had no experience.

In the treatment of this disease, some of our own indigenous remedies are worthy of more attention than they usually receive.

Of these, we may mention, in particular, the Virginia snake-root, the herb centaury, the bark of the dogwood, (both species,) the bark of the willow, and that of the root of the liriodendron tulipifera, commonly denominated the American poplar.

These articles are sometimes used in the form of decoction: But they are most efficacious when administered in substance in the same mode, and in nearly the same doses, with the Peruvian bark.

In some parts of the country, these remedies are much used by the inhabitants, without medical advice: and, unless where the disease proves uncommonly obstinate, rarely fail to effect its removal.

Cases of intermittents that had baffled every thing else, have yielded, at length, to a change of situation, climate, or season, or a change in the constitution of the patient in his advancement in years.

BOOK II.

OF INFLAMMATIONS,

OR PHLEGMASIÆ.

CHAPTER I.

OF INFLAMMATION IN GENERAL.

SECT. I.—*Of the Phenomena of Inflammation.*

235. WHEN any part upon the surface of the body is affected with unusual redness, heat, pain, and tumour, we name the disease an Inflammation 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 phlegmasia; so, in ambiguous cases, we, from this appearance, joined with other symptoms, infer the presence of inflammation. At 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.*

* Blood exhibits an inflammatory or sizy covering, somewhat in proportion to the slowness of its coagulation. If it coagulate very slowly, this covering will be conspicuous; if less slowly, less conspicuous; and if it coagulate rapidly, it will not be formed at all.

Blood, again, coagulates with a rapidity somewhat proportioned to the slowness with which it is drawn from the vein. If it be drawn off in a very small stream, but more especially by drops, it coagulates almost as soon as it falls into the vessel in which it is received. But if it be made to flow in a full and bold stream, it does not coagulate for a considerable time. Other circumstances, therefore, being alike, it may, in the latter case, exhibit a sizy covering, but not in the former.

In general, blood drawn guttatim, or in a very small stream, rarely exhibits a thick inflammatory coat; whereas that which flows in a free stream exhibits it frequently.

The form of the vessel also, in which blood is received, makes no inconsiderable difference in the appearance of the coagulum. If it be wide, flat, and shallow, the blood coagulates rapidly, and throws up very little buff; but if deep and narrow, it coagulates slowly, and throws up more.

The blood of a person in perfect health, by being drawn in a free stream, received into a narrow vessel, and placed in an atmosphere of a low temperature, may be made to coagulate so slowly, as to exhibit a sizy coat of considerable thickness: while, on the contrary, that of a patient labouring under an inflammatory disease, by being differently treated, will manifest no size.

The theory of the formation of the sizy covering of blood appears to be as follows.

That fluid is known to consist of three parts, the coagulating lymph, the serum, and the red globules, of which the latter are the heaviest in proportion to their bulk.

If the blood coagulate immediately after being drawn from the vein, the coagulating lymph, in contracting, arrests the red globules, and holds them so intimately mingled with itself, as to exhibit an appearance uniformly florid. But if it be longer in coagu-

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 inquire into the proximate cause of inflammation in general.

Sect. 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

lating, the red globules, being the weightiest portion, sink towards the bottom of the vessel, while the blood is yet liquid, leaving the white or buff coloured lymph at the top. This lymph coagulating forms the sizy covering of which we are speaking.

* Dr. Cullen's theory of inflammation is confused and unsatisfactory. Being much of it conjectural, and, as a whole, altogether incompetent to explain the phenomena of the disease; it is now, we believe, abandoned by every pathologist. Instead, therefore, of a useless display of argument against an hypothesis which no longer misleads the minds of physicians, we think it better to lay before our readers as succinct a view, as possible, of what appears to us to be the least objectionable theory of inflammation. We say the *least objectionable*, for it must be acknowledged that there still exist objections to every theory.

Instead of being "increased," it appears from experiment, and we think also from reason, that the "impetus of the blood" in an inflamed part is necessarily *diminished*. On no other ground can the leading and characteristic phenomena be explained.

A congestion of blood in the vessels of the part affected, constitutes an essential condition of every inflammation. It is a fundamental symptom, without which the disease can have no existence, in as much as it operates as the cause of other symptoms.

But without a *diminished* impetus—a remora or obstruction of some kind—no topical congestion can take place; much less can it occur under an *increased* impetus. Were the impetus in

time, the action of the heart is not always evidently increased, there is reason to presume, that the increased

every part of the vessels the same, the blood would be equally diffused throughout the whole: were it in any part increased, the blood would appear in that part in a diminished proportion. From the very nature of the case, the impetus and the quantity of blood in any given part, must always maintain towards each other an inverse ratio: if the impetus be preternaturally great, the quantity will be preternaturally small, and the reverse.

For the illustration of our position we will resort to a comparison. The current of the blood through the veins is aptly enough represented by the current of a river within its banks. They both consist of a fluid in motion. In what part of a river, then, are we accustomed to find an accumulation of its waters? Surely not at its rapids, where the impetus of the water is increased, and the stream, of course, preternaturally shallow; but at some flat and level spot, where their impetus is weak and their movement sluggish: it is there alone, that, within a given space, the waters exist in a superabundant quantity.

But as well might we expect to find an accumulation of water within the declivity of the rapids of a river, as a congestion of blood in any portion of the vessels where its impetus is increased.

Thus far does reason support us in our position. Nor is the result of experiment and observation less favourable to us. When examined with a microscope, the movement of the blood through the vessels of an inflamed part is found to be preternaturally slow. In cases of great violence it is scarcely perceptible. So stagnant does the blood become in these instances, as to exchange its arterial for a venous character, communicating to the part affected somewhat of a purple instead of a florid colour. So far is the impetus of the blood, then, from bearing a direct proportion to the violence of inflammation, that the reverse is true—the inflammation is high in proportion as the remora is great and obstinate. Hence a purplish appearance, in topical inflammation, gives reason to apprehend an approaching gangrene.

Again: the nature of the causes which induce inflammation, is such as convinces us that they diminish rather than increase the powers of action in the part affected. As far as we know and can speak of them with certainty, they are cold, mechanical violence, and chemical irritants. Under the latter head we include burning, or the action of fire.

But

impetus of the blood in the particular part is owing especially to the increased action of the vessels of that part itself.

But neither of these can produce inflammation until it has so far injured the part affected, as necessarily and very obviously to diminish its powers. On no principles whatever can the long continued application of intense cold, a severe contusion, or a wound, be supposed to add to the powers of action in the injured part. On the other hand, the patient himself is sensible, at the time, of the reduction of these powers—sensible that the functions of the part are weakened. The same thing may be said with regard to the application of fire. More promptly and certainly, perhaps, than any thing else, does it diminish the powers of action. For the truth of this, we cannot do better than refer to the experience of those who have been subject to the injuries of which we are speaking. Besides, had we a wish to invigorate the powers of action in any part of the body, would we, for the purpose, apply to that part intense heat or cold, mechanical violence or strong chemical irritants? It is scarcely necessary to reply that we would not. The agents we would employ would be of a different description. It may be laid down as a physical axiom, that whatever gives severe pain tends to diminish power in the part affected. It exhausts the vital energy, which is itself the source of both action and power.

Had we leisure to examine analytically the nature and operation of the remedies best adapted to the cure of topical inflammation, we should find them to be such as are calculated to increase, not to diminish, the action of the vessels. With the exception of blood-letting local and general, they are all of a stimulating character. Cold and heat, blistering and spirits of turpentine, are included in the number. In this case, even blood-letting itself would seem to operate as an indirect stimulant. Besides relieving the vessels of the inflamed part from the irritation of a portion of super-abundant blood, it leaves them at liberty to contract by taking off that fulness and tension, which, by inducing in them a paralysis, prevents their action.

Were we ourselves to attempt to lay down a theory of inflammation, it would be somewhat as follows:

We would, as a preliminary, observe, what every physiologist already knows, that the circulation of the blood through the capillary vessels, instead of depending on the impetus communicated

240. The cause of this increased action in the vessels of a particular part is, therefore, what we are to consider as the proximate cause of inflammation.

to it by the heart, is effected, if not entirely, at least in a great measure, by the action of the vessels themselves. Hence a paralysis or want of power in any portion of them, produces, of necessity, in that portion, a stagnation of the blood.

By the operation of some irritating agent, the presence of which we cannot always discover, this paralysis or want of the power of action takes place in the capillaries of a certain organ or part. The consequence is, a stagnation of the blood in that part, because there is nothing to keep it in motion. But the evil does not terminate here. The action of the heart and larger arteries continuing, and being even augmented by means of the existing irritation, what was at first a mere stagnation in the capillaries, becomes an accumulation, in consequence of the blood that is constantly thrown into them. This blood is perceived to be arterial. Hence the redness, tension, pain and swelling, which constitute the leading phenomena of inflammation. To remove these phenomena, provided the disease be local, nothing is necessary but the excitement of action in the affected vessels, by means of which the blood may be forced along in its usual channels. If the disease be general, and the vis a tergo increased, blood-letting is requisite.

In case the inflammation be phlegmonous, and the natural action of the vessels cannot be restored, in time to prevent their own rupture or the death and mortification of the part, they assume, by the powers of nature, a new action, in order to free themselves from their superabundant contents. They put on a glandular character, and secrete pus. In this way they discharge by secretion the blood which, had they been capable of action, would have passed through them by ordinary circulation.

From the foregoing representations it appears, that, to produce local inflammation, nothing is necessary but an irritation connected with a want of the power of action in a portion of the capillary vessels, the force of the circulation throughout the system remaining unaltered. To render this inflammation general, the impetus of the circulation, and consequently the force of the vis a tergo, in relation to the topical affection, must be increased.

Dr. Cullen, convinced himself that a remora or obstruction to the free and rapid passage of the blood through the vessels of an

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 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 a 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 acquiring a greater density and force of cohesion than ordinary; neither is there any proof of the

inflamed part does take place, has attributed this phenomena to the influence of spasm. In his view, therefore, of the mere mechanism of inflammation, he appears to have been right; in that of its proximate cause, we think he was wrong.

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 viscidity 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 economy. 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 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 mo-

tion of the blood in the extreme 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 *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 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.

242. Obstruction, therefore, from a matter stopping up the vessels, (*Gaub. Pathol.* 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 tumor, 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 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 necessarily prove a stimulus. But, further, it is probable, that, to relieve the congestion, the *vis medicatrix naturæ* 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 of an increased impetus, and over-distention 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-distention, from a change in the distribution of the fluids, and, at the same time, to the immediate action of cold. Hence, quinsies, 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 beside 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 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.

Sect. III.—*Of the Terminations of Inflammation.*

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, 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 neighboring 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; 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 exhalant vessels to such a degree, that they pour out an entire serum, this will not be so readily reabsorbed; 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, 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.*

* Pus is not produced by a mere change in an effused and stagnant portion of fluid. It is now known to be the result of morbid glandular action. It is as genuine a secretion from the blood as bile or urine, saliva or the pancreatic juice. As already intimated, it is formed by the glandular action of the capillaries, which nature, in her wisdom and resources, enables them to assume, in order that they may relieve themselves from the superabundance of blood which oppresses them.

For a correct theory of the formation of pus, we are indebted to an American physician—the late Dr. Morgan of Philadelphia. For

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 distention; by the pain becoming of a throbbing kind, more distinctly connected with the pulsation 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 in the part entirely ceases, and a weight is felt in it. If the collection be formed immediately under the skin, the tumor 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 reabsorbed, 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 effects 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

the Doctor's views on this subject, see his excellent Inaugural Dissertation published in Edinburgh, in the Latin tongue, in the year 1765. For the honour of American medical literature, this essay ought to be republished, and every physician of our country should qualify himself to read it in the language in which it appears.

it, which thereby becomes a part of the pus. It generally happens also, that some 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 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 enclosed 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

* In cases of suppuration there occurs no erosion of the solid parts by means of either a fermentation, or the action of an acrimonious fluid produced. The removal of the solid matter which takes place in ulceration is to be attributed entirely to the action of the absorbents.

We might here remark, that there does not exist a more plain and striking manifestation of the sanative powers of nature, than that of internal ulceration always travelling towards the surface of the body, so as to discharge the contents of abscesses through the skin.

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 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 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.*

* It is to a *want of sufficient vitality in the solids*, and not to any "putrid ferment" in the blood, that we are to look as the sourceof gangrene and sphacelus. We repeat, for the last time in our annotations, that no putrid ferment ever exists in the blood.

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

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 scirrhosity 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 scirrhosity into some kind of 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 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 have 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.*

* *Real Dropsy* may be safely represented as one of the modes in which inflammation occasionally terminates. Perhaps hydrotho-

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 procure 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

rax seldom arises from any other source. To the same cause may we attribute ascites, in every instance, where the fluid effused is gelatinous and viscid; and in many where it is perfectly serous, the character of the disease is evidently inflammatory. Hydrocele is also the result of inflammation.

* Our author had better, perhaps, have said, in general terms, that inflammation is produced by the operation of certain irritants—*it being impossible for it to arise from any other source*—and then proceeded to enumerate and classify these irritants, according to their affinities. In his present arrangement there is confusion and tautology, certain articles included under his second and third heads being substantially the same.

In his exposition of his fifth head he is lame and defective. If there exist "an increased impetus of the blood determined to a particular part," it must be necessarily as the result of some irritating agent. To allege the contrary, would be to admit the existence of an effect without a cause.

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 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.*

Sect. V.—*Of the Cure of Inflammation.*

264. The indications of cure in inflammation are different, according as it still may 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

* Inflammations differ materially in their character according to the causes that produce them. Those arising from the action of fire and frost, while they are unlike all others, are also marked by a very striking difference between themselves. Burns and chilblains may be regarded in the light of specific affections. They put on appearances and require modes of treatment different from those of other inflammations. They produce, also, in those affected by them, different sensations.

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 and demulcents. Compressing and 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, 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 these 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 be more properly considered, when we shall treat of particular inflammations.

268. When a tendency to suppuration (251.) is distinctly perceived, as we suppose it to depend upon the effusion of a fluid which cannot be easily reabsorbed, so

* If the irritating cause be of an alkaline nature, neutralize it by an acid; and if of an acid character, neutralize it by an alkali. But if it be neither acid nor alkaline, diluents and demulcents may be employed with the prospect of advantage.

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 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. As, in the case of certain effusions, a suppuration is not only unavoidable, but 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 degree of increased impetus, or of the original circumstances of inflammation, is requisite to produce a proper suppuration; so it is then

* The mode of practice best calculated to promote suppuration, is the application and frequent renewal of large, soft, and warm poultices, composed of materials retentive of heat. Oily and mucilaginous substances should enter largely into the composition of these articles. No better poultice, perhaps, can be formed, than that which consists of proper proportions of light bread and milk, flaxseed and olive oil or fresh lard. The diet and regimen must be suited to the state and habits of body of the diseased—generous and free, if great debility prevail; and the reverse, in cases of general inflammatory action.

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 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. 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 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 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

* The separation between the dead and living parts, in cases of gangrene, is effected by ulcerative inflammation—in other words, it results from the action of the absorbents. Solid living matter is never melted down nor wasted away, either by a putrid, or any other kind of ferment.

inflammation arises chiefly from the difference of the part affected: I have therefore arranged them as they are CUTANEOUS, VISCERAL, or ARTICULAR; and in this order they are now to be considered.

CHAPTER II.

OF INFLAMMATION, MORE STRICTLY CUTANEOUS.

274. CUTANEOUS 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 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. 5. 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 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, sometimes in gangrene.

This subject I am not to prosecute here, as properly belonging to surgery, the business 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 upon the different seat of the inflammation. In the phlegmon the inflammation seems to effect 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 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 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. 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 difference between Phlegmon and Erythema we believe to be, that the former originates in the skin, or cellular membrane, and is literally, therefore, a cutaneous disease; while the latter has its origin in the stomach, and affects the skin secondarily by sympathy. Hence, erythema is necessarily the more serious disease. In Erythema the best topical application is a blister. Spirits of turpentine are said to be useful; but we have never seen them applied.

CHAPTER III.

OF OPHTHALMIA, OR INFLAMMATION OF THE EYE.

278. THE 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 OPHTHALMIA MEMBRANARUM; or as it has its seat in the sebaceous glands placed in the tarsus, or edges of the eyelids, in which case it may be termed OPHTHALMIA TARSI.

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 thesurfac e of the eye, produces an effusion of tears from the lachrymal gland.

This inflammation commonly, and chiefly, affects the adnata spread on the anterior 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 mem-

branes 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 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 eyelids upon the surface of the eyeball.

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 eyelids.

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 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 the vessels near the inflamed part; and opening the jugular vein or the temporal artery, may be considered as in some measure of this

kind. It is commonly sufficient to apply a number of leeches around the eye; and it is perhaps better still to draw blood from the temples by cupping and scarifying. In many cases, a very effectual remedy is, that of scarifying the internal surface of the inferior eyelid; and more so still, is cutting the turgid vessels upon the adnata itself.*

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

* In one sentiment which our author advances in this paragraph we cannot altogether concur. We have seen several, we think many, cases of ophthalmia purely local—wherein, at least, no marks of general febrile action were manifested—in which topical evacuations by cups and leeches being altogether insufficient for the purposes of a cure, general blood-letting was copiously and very advantageously employed. In these instances it was necessary to enforce the antiphlogistic regimen with the utmost strictness, and to carry it to a great extent. The entire exclusion of light and the prevention of all conversation are alike essential to successful practice.

In cases where fever does prevail, there are none of the phlegmasiæ that require more copious evacuations, or a more vigorous treatment than ophthalmia. Until the disease be completely cured relapses are very easily produced. All indulgences, therefore, and every exposure should be strictly prohibited.

The repeated division of the turgid vessels of the adnata is a remedy useful, perhaps, in all cases; but indispensable where opake spots appear on the cornea. There exists, we believe, no other method whereby such spots can be so completely removed; that which is here recommended destroying the channels that convey to them their nourishment.

off the determination of the fluids to it, blistering near the part has commonly been found useful.

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 in moderate quantity, have often been of service.*

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 tarsi, so far as it is produced by Ophthalmia membranarum, the same remedies may be necessary. As, however, the Ophthalmia tarsi may often depend upon an acrimony deposited in

* When the eye is *highly inflamed*, cold applications to it are injurious. They should never be employed, therefore, until, by other remedies, the inflammation is considerably reduced. Under the erroneous belief that cold is a *sedative*, we are persuaded that its premature application in the treatment of Ophthalmia has done much mischief. So has the too early use of solutions of saccharum saturni, white vitriol, and other astringent lotions. When inflammation is violent, such remedies are inadmissible. An excellent application to an inflamed eye is, the fine mucus produced by infusing the pith of sassafras in water.

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 scrofula, 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, such, for instance, as mercury, may be employed.*

289. In the Ophthalmia tarsi, 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 tarsi, it is necessary to obviate that gluing or sticking together of the eyelids which commonly happens in sleep; and this may be done by insinuating a little of any mild unctuous medicine, of some tenacity, between the eyelids before the patient shall go to sleep.

* In this description of Ophthalmia, we have often, with great relief and permanent advantage to our patients, prescribed the use of the unguentum citrinum. The unguentum tutiæ, and the unguentum cerussæ acetatæ are also serviceable. For the proper time of using them, the practitioner must rely on his own judgment.

In chronic Ophthalmia, laudanum in water, or a mixture of a watery solution of opium, and an infusion of Spanish galls, is a very useful remedy.

CHAPTER IV.

OF PHRENSY, OR PHRENITIS.

291. THIS 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 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.*

* Unless where it arises from mechanical violence, we believe that cerebral inflammation has always its original seat in the stomach—at least in some part of the alimentary canal. Hence the advantages of copious purging. Where no mechanical violence has been offered, we do not perceive how the brain can be originally assailed. Besides, tracts of country wherein bilious fever prevails, are most remarkable for phrenitic affections.

The coup de soleil, or stroke of the sun, is not an original affection of the brain. It is a form of gastric disease—i. e. bilious fever. The brain is too well guarded to be primarily affected by the rays of the sun. Those agents, subtle and penetrating as they are, can reach it only through the medium of sympathy.

293. The symptoms by which this disease may be most certainly known, are a vehement pyrexia, or a violent deep-seated headach, a redness and turgescence of the face and eyes, an impatience of light and 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 further 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 that an inflammation of the parenchyma 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 phrenzy; but in what manner they operate is not well understood.

295. The cure of phrensy is the same with that of inflammation in general; but 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; but at the same time, it will be generally proper to draw blood from the temples by cupping 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 the part affected.†

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.‡

* Profuse purging is highly useful in phrenitic affections. The most active and even drastic purges should be employed.

† That they may produce their full effect, blisters should be permitted to remain on the head at least forty-eight hours, or even longer.

‡ The most convenient and effectual method of applying cold to phrenitic patients, is to cover the head by bladders filled with pounded ice. When permanently applied, this proves a remedy of great effect.

Digitalis, in substance or tincture, taken until it has produced its peculiar effect on the pulse, is said to be highly useful in phrenitis.

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 lædentia in this disease, are of very uncertain application.

CHAPTER V.

OF THE QUINSY, OR CYNANCHE.

300. THIS 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 Nosology, therefore, after giving the character of the Cynanche as a genus, I have distinguished five different species, which must here likewise be separately considered.

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. 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 clammi-

ness 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 quinsy is never contagious. It terminates frequently by resolution, sometimes by suppuration, but hardly ever by gangrene; although in this disease some sloughy spots, commonly supposed to be forerunners of gangrene, sometimes appear upon the fauces.

304. This disease is commonly occasioned by cold externally applied, particularly about 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. This inflammation may be often relieved by moderate astringents, and particularly by acids applied to

* Some of the most excrutiating affections of the ear we have ever witnessed have arisen from this complaint. A blister on the throat has rarely failed to afford relief.

We believe that the pain in the ear, from which many children suffer so much, is almost uniformly connected either with a carious tooth or an inflammation of the tonsils. To these sources, therefore, practioners will do well to direct their attention.

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 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. 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 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.

* Simple water, or sage tea, acidulated with vinegar and sweetened with honey, makes an excellent gargarism in this disease. The addition of alum or nitre is thought to render the remedy more efficacious.

Decoctions of oak bark, and solutions of carbonate of ammonia are also recommended; whatever increases the secretion from the part affected, by exciting action in the vessels, appears to be useful: for, here, as in other cases of topical inflammation, there exists a remora in the fluids, occasioned by a deficiency of vascular action.

† We have never perceived much advantage to be derived from sweating in this disease. In the treatment of topical inflammation, the discharge by the skin is a feeble remedy, and should never be suffered to stand in the way of such as are active.

Bleeding, generally and locally, purging, gargling and blistering are the remedies on which, in their treatment of this disease, practitioners of experience principally rely.

I have never had occasion to see any case requiring bronchotomy.*

Sect. II.—*Of the 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 of the accession of this,

* In addition to the steams of warm water, which may be conveniently received from Mudge's or any other inhaler, warm poultices and fomentations applied externally to the region of the fauces, are recommended as useful in promoting the suppuration of the tonsils. Nor are they without their effect in relieving pain. Their employment, therefore, ought not to be neglected.

† From such observations as we have had an opportunity of making, we have no ground to consider cynanche maligna as a contagious disease. Its attacking a number of persons at once or in succession, in the same family or neighborhood, affords no proof that it is so; yet this is all the evidence that can be collected on the subject.

We believe it to be entirely an atmospheric complaint; and that it prevails as an epidemic, because all persons hold intercourse with the atmosphere, the source through which its poison is diffused, and from which it is received into the human body.

We are persuaded that its original seat is in the stomach, and that the ulceration of the throat is but a secondary affection. Hence the importance of emetics, administered in the early stages of the disease.

Cuticular eruptions accompanied with fever, proceed almost uniformly from a disordered stomach. Besides, in the treatment of cynanche maligna, it is to the stomach alone that the principal and most important remedies are directed. Those applied to the throat are, at best, but palliative.

such as frequent cold shiverings, sickness, anxiety, and vomiting, are often the first appearances of this 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 neighboring 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 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 color, by the fetor of the breath, and by many marks of acrimony in the fluids, show 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, and often exhausting the patient by a frequent diarrhœa.

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.*

* This is a mistake. The progress of the disease *corresponds* with "the state of the fauces," but *depends* on that of the stomach,

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 septic tendency is chiefly to be kept in view. The debility, with which it is attended, renders all evacuations 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; and the septic tendency of the whole system should be guarded against and corrected

which regulates both the pyrexia and every other symptom appertaining to the complaint.

Although the matter discharged from the ulcers in the throat must, if swallowed, necessarily tend to aggravate the disease, it is not to be regarded as the cause of the diarrhœa, which frequently marks its latter stages. That affection more properly arises from the injury done to the stomach and bowels, by the poison that originally produces the complaint. In the mean time, however, great care should be taken that the ulcerous matter from the throat do not find its way into the œsophagus.

by internal antiseptics, especially by the Peruvian bark, given in substance, from the beginning, and continued through the course of the disease. Emetics, both by vomiting and nauseating, prove useful, especially when employed 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.*

Sect. III.—*Of Cynanche Trachealis.*

318. This name has been given to an inflammation of the glottis, larynx, or upper part of the trachea whether

* For the treatment of this disease the indications are plain. They are, to keep clean the alimentary canal, to give strength and tone to the system, and to determine to the skin. The first of these is to be answered by emetics and purgatives, so far as they may be used with safety, and by gargles: the second, by bark, wine, the mineral acids, and other articles stimulating and cordial: and the third, by sudorifics and blisters.

In addition to this, perfect cleanliness ought to be preserved, by frequently changing the bed and body clothes, ventilating the chamber, but not with cold or damp air, removing from it promptly all excrementitious matters, and diffusing occasionally through its atmosphere the fumes of vinegar, or portions of nitrous or muriatic acid gas.

Children and young people being more frequently the subjects of this disease than adults, it is impracticable, for the most part, to induce them to swallow a sufficient quantity of the bark. In such cases, that remedy should be administered in the form of injection, suspended in mucilage of gum arabic, and united with laudanum, or a watery solution of opium, to prevent it from being discharged.

It is scarcely necessary to observe, that, to produce a given effect, the quantity of any medicine administered by injection, must be nearly fourfold that which would be administered by the mouth.

Great care should be taken to keep in check by opiates and astringents, the diarrhœa which is apt to prove troublesome towards the close of this disease.

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 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 con-

* We believe Cynanche Trachealis to be *always an original disease*, and *never* produced by any irregularities in Cynanche tonsillaris, or Cynanche maligna.

It is not, as our author alleges, a disease of "rare occurrence." In the United States, at least, it occurs very frequently. It is described by Dr. Boerhaave, in Aphorisms 801 and 802. Dr. Home, of Edinburgh, as Dr. Cullen observes, was the first who gave us a correct idea of its nature.

nected 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 have taken notice of it, (see MICHAELIS *De angina polyposa sive membranacea, 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 these 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 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.*

* It may, perhaps, be true, that Cynanche trachealis is more incidental to children after they are weaned than before; but it attacks them frequently at every period, from the age of three months to that of six or seven years. At a later period we have rarely seen it.

Although this disease often, perhaps always, when in a sporadic form, arises from improper exposure to cold or humidity, and

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 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

is, therefore, connected with changes in the weather; it, notwithstanding, like other diseases, prevails, at times, as an epidemic, without any apparent dependence on the sensible qualities of the atmosphere.

This appears to have been the case in the neighbourhood of Alexandria, in Virginia, in the year 1799, the period at which General Washington fell a victim to it; and it was certainly the case in Philadelphia in the winter of 1809–10, when the disease was productive of considerable mortality. On the latter occasion, we know, from observation, that the weather was regular and pleasant for the season; yet, for several weeks, the croup prevailed with the character of an epidemic; and we are informed on authority, which we cannot question, that the same thing is true in relation to the former.

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; 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

* In the dissections made in this country—and they have been numerous—this preternatural membrane in the trachea and bronchiæ has rarely been found. In many, perhaps a majority of cases, but very little even of common mucus, or of any thing else that marks inflammation, has been found in the neighbourhood of the seat of the disease. We have the high authority of our very able and distinguished friend, the present professor of the theory and practice of medicine in the university of Pennsylvania, to say, that such has been the result of his experience. Such has been, in like manner, the result of our own. Yet the disease is, for the most part, if not always, of an inflammatory character, and we are bound to believe, that the membrane does occasionally exist.

We are persuaded that, in some of the worst cases, the local disease consists principally in a violent spasmodic affection of the muscles of the glottis and those in their neighbourhood. This spasm arises from the increased irritability of these muscles, in consequence of the inflammation with which they are affected. In such instances, were mucus secreted into the trachea, the complaint would be relieved, as occurs in catarrh, pneumonia, and other diseases of an inflammatory type.

the vestiges of inflammation on the trachea discovered upon dissection; we must conclude, that the disease consists in 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 in an inflammatory affection, it does not commonly end either in suppuration or gangrene. The peculiar and troublesome circumstance of the disease seems to consist in a spasm of the muscles of the glottis, which by inducing a suffocation, prevents the common consequences of inflammation.

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 a quantity of matter filling the bronchiæ.

330. As we suppose the 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 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.*

Sect. IV.—*Of 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

* The remedies for this disease are, blood-letting, carried sometimes to a very considerable extent, severe and repeated vomiting, purging and blistering. Although these are all proper and necessary, vomiting we consider as the most important; and tartarized antimony the most suitable article by which it can be produced. Besides diminishing arterial action, and thereby weakening the existing spasm, it determines to the skin, and discharges such troublesome and offending mucus as may be collected in the trachea. To excite puking in this disease, Coxe's Hive Syrup (for which see his Dispensatory) is an efficacious remedy. Tincture of Digitalis, given so as to produce sickness and nausea, is recommended as useful. We have never witnessed its effects.

We usually exhibit in this disease, and, as we think, with great advantage, tartarized antimony combined with calomel, that the stomach, skin, and bowels, the three principal seats of excitement and sympathy, may be acted on at once. Of antimony given in nauseating doses, we have never witnessed the good effects.

In protracted cases, where debility is great, and vomiting, therefore, inadmissible, we have administered, with success, a strong decoction of the Seneca root.

Blisters applied to the throat should be kept open during the continuance of the disease. When managed in this way they are useful.

cases. We have 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 almost every country in 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 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.*

* In relation to Cynanche Parotidæa we have only to observe,

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.

CHAPTER VI.

OF PNEUMONIA, OR PNEUMONIC INFLAMMATION.

334. UNDER this title I mean to comprehend the whole of the inflammations affecting either the viscera

that we consider it an atmospheric and epidemic, rather than a contagious disease. Like other epidemics, it pervades families, towns, and tracts of country; but we have nothing to convince us that it passes by contagion from the sick to the well. We have seen but few cases of it that actually required medical aid. In these few, the remedies we have employed have been such as are usual in inflammatory complaints—blood-letting and purging, and occasional puking and blistering, with the rigid enforcement of an antiphlogistic regimen.

We have never witnessed an instance of mortality from this disease; nor have we seen many cases wherein was experienced any serious inconvenience by a translation of the inflammation to the testicles in males, or the breasts in females. As often as this accident has occurred in our practice, it has been in the persons of adults. It calls for a strict observance of the antiphlogistic regimen; and generally yields to that without difficulty.

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 parts 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 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 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

* In a great majority of cases the pain is felt before the pyrexia, but is seldom very severe until the pyrexia occurs.

A pulse is *frequent*, when the strokes are numerous in a given time; *quick*, when each stroke is performed in a very short time. In the phrase "a quick and frequent pulse" therefore, there is no tautology.

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. 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

* The reason of this alternate increase and diminution of difficulty in breathing is obvious. In inspiration the inflamed membrane or part is distended, but in exspiration relaxed: and, we well know that, whether in the thorax or elsewhere, distention is laborious and painful and relaxation comparatively easy and grateful, to every part where inflammation prevails.

† In cases where the mucus discharged from the lungs is mixed with blood, the practitioner cannot be too prompt in emptying the blood vessels by means of venesection, as far as the other circumstances of the disease and the state of the system will admit. For, a rupture of even the smallest blood-vessel, in the lungs, ought to be suffered to heal as speedily and completely as possible.

length, or a little more forward. The pain is often severe and pungent; but sometimes more dull and obtuse, with a sense of 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 parts 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 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 *Pleurit is 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 be very doubtful, if any acute inflammation of the lungs, or any disease 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 sardonicus, 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, which support the opinion, that an inflammation of the pleura covering the diaphragm, is attended with 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.

* The proximity of the diaphragm to the stomach, and the probability of its disordering that viscus, is the only reason, we apprehend, why an inflammation of it should have any influence in the production of delirium. Between the diaphragm and the brain *directly*, we do not believe that much sympathy subsists: but, between the stomach and the brain, the sympathy is not only direct but powerful.

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 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 in 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 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. xx. art. 26.*

* Cold and humidity applied to the body act as the remote exciting cause of peripneumony. But, inasmuch as this disease sometimes prevails as an epidemic, it must have also a remote *predisposing* cause. This we must look for in the insensible qualities of the atmosphere; not in any vicissitudes of its temperature or humidity. It is to be found in a peculiar atmospheric constitution, creating an unusual liability to pneumonic inflammation.

Of the occasional existence of such a constitution we have abundant evidence: and it is *it*, not *contagion*, that spreads peripneumony through families and neighbourhoods. During its prevalence, vicissitudes in the weather, and other causes, which, in common times would do no mischief, excite the disease in numerous in-

346. The pneumonic, like other inflammations, may terminate by resolution, suppuration, or gangrene; but

stances. Such a constitution, in whatever it may consist, is to peripneumony, what an atmosphere replete with marsh miasmata is to intermitting fever: it creates a predisposition to it, leaving nothing necessary but an exciting cause to call it into action. Under the former constitution, the same cause gives rise to a peripneumony, which, under the latter, excites an intermittent.

To others of the phlegmasiæ similar remarks may be applied. They too prevail as epidemics, and, under such circumstances, depend on a peculiar predisposing constitution of the atmosphere. By this constitution the seed is sown in a suitable soil, and nothing is wanting but the necessary excitement to awaken it into life.

Such is the case with influenza, scarlatina, hooping cough, and several other complaints.

The doctrine of atmospheric constitutions is curious and interesting; and has never yet been thoroughly investigated. It constitutes the philosophy of epidemics, without which the principles of their propagation, and the laws that govern them can never be well understood.

To every epidemic, the constitution producing it, stands related, as the autumnal atmosphere of a marshy country does to the various forms of bilious fever; as one of the essential conditions of its existence.

Peripneumony, when *epidemic*, is more malignant and dangerous than when only *sporadic*. The reason is obvious. In the latter case it is brought into existence by a *single cause;* in the former, by the combined and more powerful operation of *two*. Besides, in every epidemic peripneumony we have witnessed, the topical affection, instead of being strictly confined to the thorax, has extended to some of the abdominal viscera; more especially the stomach and liver. Hence it oftentimes receives the denomination of *bilious pleurisy*. But it is well known, that, as a general rule, abdominal inflammations are much more malignant and dangerous, than those that affect only the viscera of the thorax.

Among the exciting causes of peripneumony may be enumerated, violent exertions in speaking, singing, playing on wind instruments of music, or any kind of exertion that gives inordinate action to the lungs. To these may be added, the breathing of air adulterated by an admixture of deleterious vapours; such as

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 the bronchiæ: for, in some persons who have died after labouring under a pneumonic inflammation for a few days only, the bronchiæ

the fumes of arsenic, of sulphur, or of the muriatic acid. Let chemists, therefore, in their experiments, and artists in their daily employments, beware of inhaling these ærial poisons.

* Dropsical effusion, in the form of hydrothorax or hydrops pericardii, constitutes another mode in which pneumonic inflammation is known to terminate.

† The appearances mentioned in this paragraph are nothing but those of adhesive inflammation—another mode in which pneumonic inflammation often terminates.

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 thinnest part 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 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 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 mucus 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 M. de Haen's supposition of a pus formed in the circulating blood.*

* Nothing can be more replete with error, than our author's hypothesis of the formation of pus, as stated in this paragraph. Indeed, for a man of an observing, sound, and discriminating mind, most of his hypotheses are exceedingly wild.

350. To conclude this subject, it would appear, that the effusion into the bronchiæ which we have mentioned, often concurs 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 hæmorrhagy 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 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

* Bilious evacuations by stool, and an evacuation of urine with a copious sediment, are concomitants, not causes of the resolution of pneumonic inflammation.

A secretion of mucus from the bronchiæ shows, that the inflamed vessels, which had been in a paralytic or powerless state, are now beginning to act, and to relieve themselves of the superabundant portion of fluids which had oppressed them.

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 the pains, which at first had affected one side only, have afterwards spread into the other; or when leaving the side first effected, 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 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

* In his prognosis generally, our author is correct, and well worthy of being attentively studied. But we cannot agree with him, that, when pneumonic pains, "leaving the side first affected, pass entirely into the other," this circumstance "marks a dangerous and increasing disease."

We think we have generally found a shifting of pneumonic pains to furnish evidence of a manageable disease.

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. When a pneumonia, with symptoms neither very violent nor very slight, have 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,

* The pathognomonic symptoms of incipient gangrene, are, relief from pain, a purulent spitting streaked with deep coloured blood, or with a blackish matter; a fetid breath; a rattling in the throat; a dejected and languid countenance; a dim eye; a feeble, quick, and frequent pulse; green, fetid stools; and urine of a bright flame colour, or depositing a blackish flaky sediment.

† When a physician is called in within twenty-four, or even thirty-six hours after the commencement of peripneumony, it is disgraceful to him if he suffers it to terminate in suppuration. By proper evacuations, such an event may be easily, and, we think we may add, with certainty, prevented.

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. That a suppuration is already formed, may be inferred from there being a considerable remission of the pain which had before subsisted, while along 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, 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 most affected, but may be done in either arm, as may be most convenient

for the patient or the surgeon. The quantity drawn must be suited to the violence of the disease, and to the vigor 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, 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 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 have been long, the quantity taken upon the whole may be greater.

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

* As long as the pain, cough, difficulty of breathing, and hardness of the pulse remain, the physician may with safety continue to bleed, entirely regardless of the period of the disease. In his repetitions of venesection, he must be governed entirely by the effects produced. If circumstances call for it, three times in twenty-four hours are quite admissible. In some cases three pints of blood have been drawn in a day with evident advantage. Such instances, however, do not very frequently occur.

To prevent syncope, let the patient lie in a horizontal posture; or even with his head lower than his body. Fainting sometimes occurs on the first act of venesection, but at no subsequent repetition of it.

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 thould still continue, the expectoration must not supersede the bleedings mentioned; and during the first days of the disease, 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 favoring the serous 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 par-

* Our author's sentiments, as expressed in this and the next paragraph, respecting blood-letting and expectoration, are correct. The former does not injuriously check the latter, but often promotes it.

ticularly 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 Farenheit'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, or some other neutrals; but these salts should be given separately from the drinks.

It has been alleged, 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 disease; and indeed a spontaneous diarrhœa 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.

* The patient ought not to be "kept out of bed," but may be lightly covered in it. He should be kept where he will be most at at his ease; which is certainly in bed.

† Barley water, flax seed tea, bran tea, toast and water, or lemonade, are suitable drinks: so is a mixture of molasses or currant jelly in water. These may be taken, in general, ad libitum.

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. 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, 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 further 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

* As a nauseating medicine, and, at the same time, to produce a diaphoresis, administer every hour, or oftener, the sixth of a grain of tartarized antimony, combined with ten or twelve grains of nitre. This constitutes also an excellent expectorant.

Although copious purging is not requisite, nor, perhaps, proper, in peripneumony, yet the bowels should be kept perfectly free from irritating fæces. This purpose may be answered by injections and gentle laxatives.

Our author erroneously represents peripneumony as a disease confined to an advanced period of life. Some of the severest attacks we have ever witnessed have been in young persons—a few of them even under the age of puberty.

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. 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 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, 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

* It is worse than useless—it is injurious, to apply blisters in peripneumony, before the pulse has been considerably reduced by means of blood-letting. But when, by the previous treatment, the febrile action has been sufficiently weakened, blistering becomes an invaluable remedy. The plaster should be applied as near as possible to the part affected, and the blister kept open until the pain be removed.

the kermes mineral more efficacious than emetic tartar, or antimonial wine; and the doses 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 found it either so effectual or safe, as some writers have alleged. When, after some remission of the symptoms, spontaneous sweats of a proper kind arise, they may be 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

*As an expectorant, the decoction of Seneka may be usefully employed. From the exhibition of squills, we have never derived much advantage in this disease. Partly as an expectorant, and partly as a diaphoretic, an infusion of the Virginia snake root may be administered with good effect.

Mulcilaginous demulcents are useful; but oily ones, injurious. The latter produce too much excitement.

We place no reliance on the inhalation of steams of any description. If our patient be weak, the practice is inconvenient; and if not, other things may be resorted to that are more advantageous. The best medium that can be respired, is atmospheric air free from impurities.

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 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.*

CHAPTER VII.

OF THE PERIPNEUMONIA NOTHA, OR BASTARD PERIPNEUMONY.†

376. A DISEASE under this name is mentioned in some medical writings of the sixteenth century; but it

* Opiates should not be administered in this disease, until the symptoms of pyrexia are greatly weakened. To allay pulmonary irritation, and procure rest, they then become an invaluable remedy. We think them most effectual, when combined with the mucilage of gum arabic.

In protracted cases of peripneumony, the cure may be accelerated, and, at the same time, rendered more certain and complete, by gently touching the mouth with mercury. To effect this, a grain of calomel may be added to each of the nitro-antimonial powders; and, if requisite, a few drops of laudanum given occasionally, to prevent them from purging.

In the treatment of peripneumony, it is of the utmost importance that the disease be completely and radically cured. If any remnant of the cough be left, it facilitates a relapse, or endangers, perhaps, consumption. This symptom is most certainly removed, by carrying blood-letting to the proper extent. For that remedy nothing else can serve as a substitute.

† Our author's description of this disease is excellent; and to what he has said respecting the treatment of it, we have but little

is very doubtful if the name was then applied to the same disease to which we now apply it. It appears to

to add. We are convinced that, in many cases, we believe, generally, blood-letting may be carried further than he is willing to admit. In relation to this remedy, however, the state of the pulse and other symptoms, which it belongs to the practitioner to examine for himself, must always govern. In a few instances, we have advantageously repeated blood-letting several times. The appearance of the blood, and the effect produced by drawing it, can seldom fail to give correct information as to the propriety of repeating the operation.

We are of opinion, that a principal reason why such cautions are usually enjoined, with regard to blood-letting in peripneumonia notha is, because it is a disease of elderly persons. But that circumstance furnishes no solid ground of objection against a liberal use of the remedy. In many instances, the diseases of such persons are known to call for blood-letting to a great extent.

Peripneumonia notha being, in fact, a kind of apoplexy of the lungs, we do not perceive how it can be effectually treated without the free use of the lancet.

We have been told, that much relief, and even permanent advantage, have been derived in this disease, from breathing the fumes of rosin, and the steams of warm water. Of these remedies, however, we have had no experience.

Although we would not hesitate to repeat "full vomiting" several times in this disease, if called for by a continuance of unfavourable symptoms, we think that circumspection is necessary, as to repeating it very "*frequently.*" It sometimes debilitates more than blood-letting.

As an expectorant in peripneumonia notha, the decoction of seneka has been advantageously employed. So has syrup of squills.

Blistering and sweating are cardinal remedies in it. No expedient should be omitted that is in any measure calculated to determine to the surface. Small doses of ipecacuanha repeatedly exhibited, are highly useful.

When, notwithstanding every effort to break its force, the disease continues obstinate, and great weakness begins to ensue, recourse must be had to stimulants and cordials. Of these, wine whey, musk, and volatile alkali, may be mentioned as among the most efficacious. They must be given in liberal and repeated doses.

The ventilation of the patient's chamber should be free; but cold air must be cautiously excluded.

me, that unless some of the cases described under the 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 the 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 describe under 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 further 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 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 attacks most commonly 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 cases 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 viscid opaque mucus. The cough often becomes frequent and violent; is sometimes accompanied with a rending head-ach; 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 reme-

dies is entirely 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 mucus 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 disease 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 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 extremeful hurtful.

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.

Purging may perhaps be useful; but as it is seldom so in pneumonic affections, nothing but gentle laxatives are here necessary.

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 as 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 hardly require a 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 the 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 abcesses, 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 alleged, that those inflammations of the heart and pericardium should be considered as diseases independent of the pneumonic. This indeed is just; but the history of such cases proves that those inflammations had been of a chronic kind, and hardly discovering them-

selves 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.

CHAPTER VIII.

OF THE GASTRITIS, OR INFLAMMATION OF THE STOMACH.*

384. AMONG the inflammations of the abdominal region, I have given a place in our Nosology to the Pe-

* Our experience in gastritis, strictly so called, has been but limited. The cases we have seen have arisen from the drinking of cold water, from mechanical injuries, or from the intemperate use of ardent spirits, one from corrosive sublimate, swallowed by mistake, and another from an excessive dose of the spirits of turpentine. In all of them the symptoms have been the same—pyrexia, with a small, but frequent, quick, hard, and corded pulse, a sensation of agony in the epigastric region, soreness to the touch, a perceptible degree of tension, such a morbid irritability of stomach as led to the rejection of every thing that was swallowed, and a prostration of strength greater than we have witnessed in any other of the Phlegmasiæ. This prostration manifests conclusively the powerful sympathies that exist between the stomach and the other parts of the system.

The practice pursued in these cases was, blood-letting to a considerable extent—not in large quantities at once, but frequently repeated, blistering very extensively on the region of the part affected, and purging by means of active injections. By the mouth nothing was exhibited but drinks, and those very sparingly. The liquids that answered best for this purpose were, simple water, a

ritonitis; 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, 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 requires 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

very thin mucilage of gum arabic, two-milk whey, and sweet milk, diluted with about twice its quantity of water. Although these articles were frequently rejected, they occasioned less distress, and were longer and more generally retained than any thing else.

Anodyne injections gave a considerable respite from suffering, and procured for the sick some rest during the night, without adding to the pyrexia, or being productive, in any respect, of injurious effects. They were, therefore, considered as an important remedy: for, when labouring under gastritis, sleep is the only restorative the unfortunate patient is permitted to enjoy. Each injection was composed of three grains of opium, dissolved in a small quantity of water, and mixed with a gill of the mucilage of gum arabic.

In this complaint it is of the utmost moment to keep up the peristaltic motion of the bowels, as it carries off from the stomach such secreted and other matters, as might prove offensive and injurious irritants. It operates somewhat like a topical evacuation, reducing the inflammatory excitement of the part.

* 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. CULLEN.

seated in the villous coat and cellular texture immediately subjacent.

386. The phlegmonic inflammation of the stomach, or what has been commonly treated of 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-distention, 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 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.*

* The inflammation which appears in the stomach in malignant,

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 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 scirrhosities 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 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 of the pain, while a sense of weight and an anxiety still remain.

When an abscess has been formed, the frequency of

or, what our author calls, "putrid fevers, and exanthematic pyrexia," shows clearly, as we have heretofore stated, that those diseases have their primary seat in that organ. It is produced, not by any "acrimonies generated in the body, and poured into the cavity of the stomach," but by the original poisons of those diseases making their way into that organ, and perpetrating on it locally their deleterious effects.

If the disease arise from the action of any poison that can be easily neutralized, and which has not yet been evacuated,—an acid or an alkali, for example—let its opposite, or neutralizer, be immediately thrown into the stomach.

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.

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. 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.

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 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 quantities 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 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 at 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 vomiting came 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 of acids, and of acescent 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.

CHAPTER IX.

OF THE ENTERITIS, OR INFLAMMATION OF THE INTESTINES.*

404. THE 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

* As far as we may rely on our own experience, we think that the principal difference between the treatment of this and the preceding disease is, that here there is somewhat more room to operate on the stomach, and blood-letting may be carried to a greater extent.

In the first stages of enteritis, however, it is unsafe to throw purgative medicines into the stomach, in as much as they are likely to be either rejected, or to remain and fail of their effect; in either of which cases their irritation does mischief. The bowels must be moved, therefore, by means of injections; and it is important that they be frequently and effectually cleared of their irritating contents. Injections of cold water, besides being grateful and refreshing to the patient, are usually productive of a purgative effect. They are, perhaps, therefore, on the whole, the most useful that can be employed; particularly if they be quickened in their action by an addition of Epsom or Glauber's salts.

Should these, however, fail in opening the bowels, the antimonial injection will probably succeed. This consists of twenty grains of tartarized antimony dissolved in a pint of water, or an equal quantity of the mucilage of gum arabic. If carefully thrown into the rectum, it rarely fails in procuring a speedy and copious evacuation.

When the bowels have been thoroughly emptied, the anodyne injection may be used here with nearly the same advantage as in inflammation of the stomach.

But it is unnecessary to dwell any longer on this complaint. The physician who understands the treatment of gastritis, cannot fail in that of enteritis.

to what has been said in the last chapter; and shall here, therefore, treat of the phlegmonic inflammation only.

405. 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.

406. 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.

407. Inflammations of the intestines have the same terminations as those of the stomach; and, in both cases, the several tendencies are to be discovered by the same symptoms (389. 391.)

408. 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 a vomiting so frequently attends this disease, care must be taken not to excite 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.

409. Under the title of Enteritis, it has been usual with practical writers to treat of the remedies 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 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.

410. 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.

CHAPTER X.

OF THE HEPATITIS, OR INFLAMMATION OF THE LIVER.*

411. THE inflammation of the liver seems to be of two kinds; the one acute, the other chronic.

412. The acute is attended with pungent pain; consi-

* Although the contents of this chapter cannot be denied to be correct and judicious, as far as they go, we find no ground to conclude from them, that Dr Cullen had ever much experience in inflammations of the liver: We are almost compelled, on the other hand, to believe the reverse.

The doubts which the professor expresses, and the want of knowledge he manifests, on the subject of chronic hepatitis, are to be attributed, we presume, to his having always lived and practised in a healthy country, where that form of disease but rarely made its appearance. Here, and in warm climates, the complaint is almost as well known and as easily distinguished, as small pox or measles, cholera morbus or intermitting fever.

In acute hepatitis, properly so called, the symptoms of which our author has very accurately enumerated, the mode of treatment differs in no material point from that which we pursue in other violent cases of phlegmasiæ. As the disease is obstinate and unusually rapid in its progress towards suppuration, it calls for practice of

derable pyrexia; a frequent, strong, and hard pulse; and high coloured urine.

413. The chronic hepatitis very often does not exhibit any of these symptoms; and it is only discovered to have

great energy. Blood-letting, in particular, must be carried, in a given time, to an extent not common, and scarcely warranted in other complaints. From a robust and vigorous subject, we have known nearly four pounds of blood to be taken in a day, not only with safety, but evident advantage. We have reason to believe that a smaller quantity would have been altogether below the exigency of the disease. While the pulse remains full and strong, and the pain in the side pungent, blood-letting is the only remedy on which we can rely. In the mean time, however, it should be aided by copious purging with calomel, quickened in its action by jalap and a strong infusion of senna. The infusion of senna, with nearly as much of Glauber's or Epsom salts as it will hold in solution, constitutes also an excellent purge.

While these operations are going forward, cups or leeches, or both, should be liberally applied to the region of the liver, and a large blister laid on the same as soon as the febrile action is sufficiently reduced. But if blistering be resorted to at too early a period, besides standing in the way of topical blood-letting, it can scarcely fail on other grounds to be productive of mischief.

These remedies, connected with a rigid enforcement of the antiphlogistic regimen, constitute our reliance in acute hepatitis. The minor aids deemed necessary may be varied according to the judgment and experience of the practitioner. After the inflammation has been sufficiently reduced, it will be the safest practice, to remove the disease entirely by a gentle mercurial ptyalism, to be continued for some time.

In chronic hepatitis venesection is also essential; but must not be pushed to the same extent in a given time. There exists, however, scarcely any complaint in the course of which so large a quantity of blood has been taken from the patient with advantage, as in some cases of that which we are now considering. But, as the disease is *chronic*, such must be the remedies, *gradually, but firmly and perseveringly employed.*

Here also the application of cups to the region of the liver is highly useful: but the most important topical remedy is a perpetual blister; or, what is better still, a caustic or a seton. From the

happened, by our finding in the liver, upon dissection, large abscesses, which are presumed to be the effect of some degree of previous inflammation. As this chronic inflammation is seldom to be certainly known, and there-

latter remedy in particular, we have derived effects unexpectedly salutary.

But in the treatment of chronic hepatitis, our chief reliance is on a gentle but continued mercurial ptyalism. Should the system be likely to sink under this remedy, let it be discontinued, for a time, and then recommenced; and let this plan be steadily pursued, until every symptom of the complaint shall have disappeared.

If the season be mild, and the febrile action very moderate, the patient may be allowed to take gentle exercise in the open air. But no one, under the influence of mercury, should ever venture out of his chamber in damp or cold weather. It is to a neglect of this precaution, that we are to attribute the frequent failure of that remedy, and the many injurious effects that occasionally result from the use of it. When exhibited under proper circumstances, there is no remedy more perfectly safe than mercury; nor is there any one more dangerous if used indiscreetly.

Another remedy which has acquired a high reputation in the treatment of chronic hepatitis, is the nitric acid. It may be given, in divided doses, to the amount of from one to three or four drachms in twenty-four hours. A pleasant formula is, to make it into a julep with mucilage of gum arabic, mint, or lavender water, and loaf sugar.

In the use of this remedy, our experience is limited. It is recommended, therefore, on the testimony of others, rather than on our own personal knowledge.

With some physicians of eminence, the expressed juice of the dandelion, taken in the quantity of from a gill to half a pint a day, is in high reputation.

When all other remedies have failed of a perfect cure, we have known chronic hepatitis completely removed, by the long continued action of a seton in the right hypochondriac region.

To success in this disease, under any plan of treatment, the use of flannel next the skin, and an adherence to the antiphlogistic regimen, is necessary.

As a laxative and an alterative, the long continued use of pills composed of rhubarb and castile soap, is highly recommended.

fore 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.

414. 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 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.

415. 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.

416. It has been supposed, that the hepatitis may be an affection eitheir 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.

417. 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.

418. 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.

419. 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 evacuation 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.

420. When this disease has ended in suppuration, the pus collected may be discharged by the biliary ducts; or, if the suppurated part does not any where 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 neighboring 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 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.

421. 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.

422. 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 sense 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.

423. 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.

424. 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.

CHAPTER XI.

OF THE NEPHRITIS, OR THE INFLAMMATION OF THE KIDNEYS.

425. THIS disease, like other internal inflammations, is always attended with pyrexia; and is especially known from the region of the kidney being affected with 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 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.

426. 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 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 fallen into the ureter.

427. The various event of this disease may be understood from what has been delivered on the subject of other inflammations.

428. Writers, in treating of the cure of the nephritis, have commonly at the same time treated of the cure of the calculis 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.

429. The cure of this proceeds upon the 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.*

* In addition to venesection, recommended by our author, which must be pushed, at times, to a considerable extent, copious topical blood-letting from the region of the kidneys, by cups or leeches, is an important remedy in Nephritis, and should by no means be omitted. It may be repeated, with advantage, should the continuance of fever, and the obstinacy and severity of the pain require it.

The professor's fears, in relation to the absorption of cantharides in case of blistering, are totally unfounded. Cantharides are not absorbed; and the affection of the urinary organs, under these circumstances, is entirely sympathetic. Besides, it is not in the kidneys, but in the bladder, that the irritation is produced. We do not, therefore, perceive how it can be injurious in the treatment of Nephritis: nor have we, from experience, ever found it so. On the other hand, we think blistering on the lumbar region in this complaint, not only an admissible but a useful remedy; the more so, in as much as the irritation produced on the neck of the bladder may lessen that in the kidneys through the medium of sympathy. If the primary irritation, by a blister on the skin, be useful in removing an internal topical affection, why not the secondary one on the neck of the blad-

430. The Cystitis, or inflammation of the bladder, is seldom a primary disease; and therefore is not to be treated of here. The treatment of it, so far as necessary

der? Whether our reasoning on this head be, in all points, conclusive or not, we are persuaded that blistering at the proper period of Nephritis is not hurtful. It is considered so, not from observation, but on principles of hypothesis.

In addition to the plan of treatment, enjoined by our author, in this disease, viz. the antiphlogistic regimen generally, bleeding, purging by glysters, and the copious use of demulcent drinks, we can recommend, from experience, lying on a matrass instead of a feather bed, and the employment of mercury. The former of these prevents the accumulation of undue warmth around the region of the kidneys, and the latter we have found to be a most important remedy, when carried to the extent of a gentle salivation. To this we have known a nephritic affection immediately to give way, after it had resisted every other remedy that is usually employed. As in most other cases of disease, the preparation of mercury we have commonly made use of is calomel, given to the amount of three or four grains per day. Nor have we hesitated for a moment to add to each dose of calomel ten or twelve grains of nitre: convinced that that neutral salt is not only safe but useful. It acts primarily on the stomach, and by sympathy on the kidneys; and produces, as we feel persuaded, on these latter organs, no injurious irritation by making its way into the serum of the blood.

Warm fomentations extensively applied on the lumbar region, seldom fail to give relief in this disease. If practicable to employ them, therefore, they should never be neglected. Great care, however, must be taken, lest, by exposure to cold immediately afterwards, or at the time, the patient experience a chill.

As the sickness at stomach, which usually, or at least very often, accompanies this disease, reduces by sympathy the action of the arteries, without actually relieving the existing inflammation, the pulse cannot be very confidently relied on as an index to blood-letting. The appearance of the blood already drawn, and the degree of pain that may still continue, must be carefully attended to in settling the indication.

Respecting the diseases of Cystitis and Hysteritis, which our author refers to in this chapter, we think it necessary to observe,

to be explained, may be readily understood from what has been already delivered.

431. 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.

that, in their treatment, they require blood-lettiug, for the most part, to very great extent.

The reason of this we think sufficiently obvious. The bladder and uterus, being detached organs, are supplied with blood by arteries of inferior size. They cannot, therefore, feel the effect of each act of venesection in the same degree as if their arteries were larger. To bleed from the arm in these complaints is somewhat as it would be to open the same vein in a case of whitlow. The part inflamed is but little affected by it. It is hence that the operation must be frequently repeated, until the action of the arteries is very much reduced.

Could topical blood-letting be practised on the parts affected, it would prove a much more efficacious remedy. Cups and leeches applied externally in the region of these parts, and also in the groins, are found to be useful. The quantity of blood taken away by them ought to be copious. But, for general blood-letting, although not so efficacious here as we could wish it to be, nothing can operate as a substitute.

Puking is said to be a more useful remedy in these diseases, especially in Hysteritis, than in any other of the phlegmasiæ. From the direct and powerful sympathy that exists between the stomach and uterus, we are not much inclied to a disbelief of the fact. Our own experience, however, does not authorise us to decide on the subject. We consider the remedy worth a trial.

In Hysteritis, and Cystitis in females, what would be the effect of the introduction of ice, or the frequent injection of cold water into the vagina?

In the treatment of cystitis in males, the application of ice to the perineum and external organs of generation has been found useful. A copious extraction of blood from the perineum by means of leeches, may be also practised with advantage. Bleeding from the hemorrhoidal vessels is also said to afford relief. These several remedies seem founded in reason.

CHAPTER XII.

OF THE RHEUMATISM.*

432. OF this disease there are two species, the one named the Acute, the other the Chronic rheumatism.

433. It is the acute rheumatism which especially be-

* Our author's history and description of this disease, as well as his exposition of the principles of practice in it, are ample and excellent. We know but few pieces of medical composition richer in matter that is worth remembering. On the attention of students of medicine, therefore, it has the strongest of claims. It will instruct them in the knowledge of an important disease.

The hereditary nature of Rheumatism constitutes a feature in the character of that complaint, which we do not recollect to have seen any where represented. Yet that it possesses such a feauture, does not, we think, admit of a doubt.

It is indeed true, that if exposed for a sufficient length of time to its exciting causes, most persons will be ultimately attacked by rheumatism. But it is no less true, that some of these will suffer from it much sooner, and more readily and certainly, than others; not because they have weaker systems; but because they are constitutionally predisposed to the disease; because they possess an organization or structure of parts peculiarly susceptible of the morbid action wherein it consists.

To dwell, for a moment, on this point, will be neither, we trust, useless nor uninteresting.

Pulmonary consumption is a disease of the lungs, and is known to attack such children or descendants, as resemble, particularly in the form and structure of the chest, their parents or ancestors who had been previously subject to it. Hence it is considered a hereditary complaint.

Madness is a disease of the brain, and is communicated from parents to their children, along with a similarity of countenance and person. It is, in like manner, therefore, called hereditary.

Gout passes also most readily to those descendants who most resemble such of their ancestors as had previously suffered from it.

* See also, On Gout & Rheumatism;

longs to this place, as from its causes, symptoms, and methods of cure, it will appear to be a species of phlegmasia, or inflammation.

434. This disease is frequent in cold, and more uncommon in warm climates. It appears most frequently in autumn and spring, less frequently in winter when the cold is considerable and constant, and very seldom during the heat of summer. It may occur, however, at any season, if vicissitudes of heat and cold be for the time frequent.

435. The acute rheumatism generally arises from the application of cold to the body when any way unusually warm; or when one part of the body is exposed to cold whilst the other parts are kept warm; or, lastly, when the application of the cold is long continued, as it is when wet or moist clothes are applied to any part of the body.

436. These causes may affect persons of all ages; but the rheumatism seldom appears in either very young or in elderly persons, and most commonly occurs from the age of puberty to that of thirty-five years.*

Our author, therefore, himself embraces, in his definition of it, its hereditary quality.

Rheumatism is a disease of the joints, prevails in some families much more than in others; and, in these cases, attacks with most certainty those children, who, in personal appearance, most strongly resemble such of their ancestors as had been already subject to it. Why, then, is not it also regarded as hereditary? Is a disease passing from parent to child, in consequence of a similarity of brain and lungs, to be denominated hereditary? and shall the same title be denied to one that passes, in the same way, by means of a similarity of joints and muscles? Be custom and fashion what they may, we can perceive in nature no reason why this should be the case. It would not, we think, be difficult to show, that there exists scarcely an argument in proof of the hereditary nature of gout, which may not be urged with equal pertinency in favour also of that of Rheumatism.

* We have seen not only children, but also persons far advanced

437. These causes (435.) may also affect persons of any constitution; but they most commonly affect those of a sanguine temperament.

438. This disease is particularly distinguished by pains affecting the joints, for the most part the joints alone, but sometimes affecting also the muscular parts. Very often the pains shoot along the course of the muscles, from one joint to another, and are always much increased by the action of the muscles belonging to the joint or joints affected.

439. The larger joints are most frequently affected, such as the hip-joint and knees of the lower, and the shoulders and elbows of the upper extremities. The ankles and wrists are also frequently affected; but the smaller joints, such as those of the toes or fingers, seldom suffer.

440. This disease, although sometimes confined to one part of the body only, yet very often affects many parts of it; and then it comes on with a cold stage, which is immediately succeeded by the other symptoms of pyrexia, and particularly by a frequent, full, and hard pulse. Sometimes the pyrexia is formed before any pains are perceived; but more commonly pains are felt in particular parts, before any symptoms of pyrexia appear.*

441. When no pyrexia is present, the pain is sometimes confined to one joint only; but, when any consi-

in years, labouring under very severe attacks of acute rheumatism. Chronic rheumatism is known to be particularly incidental to the aged. It too often constitutes one of the miseries of the evening of life.

* In this, as in all other general diseases, pyrexia arises from a local affection. It very rarely, therefore, precedes *pain*, and *never irritation:* and we have stated, on a former occasion, that a mere *irritative* affection is as capable of giving rise to general fever as a *sensative* one.

derable pyrexia is present, although the pain may be chiefly in one joint, yet it seldom happens but that the pains affect several joints often at the very same time, but for the most part shifting their place, and having abated in one joint, become more violent in another. They do not commonly remain long in the same joint, but frequently shift from one to another, and sometimes return to joints formerly affected; and in this manner the disease often continues for a long time.

442. The pyrexia attending this disease has an exacerbation every evening, and is most considerable during the night, when the pains also become more violent; and it is at the same time that the pains shift their place from one joint to another. The pains seem to be also increased during the night, by the body being covered more closely, and kept warmer.

443. A joint, after having been for some time affected with pain, commonly becomes affected also with some redness and swelling, which is painful to the touch. It seldom happens, that a swelling coming on does not alleviate the pain of the joint; but the swelling does not always take off the pain entirely, nor secure the joint against a return of it.*

444. This disease is commonly attended with some sweating, which occurs early in the course of the disease; but it is seldom free or copious, and seldom either relieves the pains or proves critical.

445. In the course of this disease the urine is high colored, and in the beginning without sediment; but as the disease advances, and the pyrexia has more consider-

* In rheumatism the inflammation is primarily membranous. The swelling that occurs is produced by an effusion from the diseased and distended vessels into the cellular substance by which they are surrounded. This effusion operates like a topical evacuation from the inflamed part, takes off the tension from the labouring vessels, and, in this way, mitigates the severity of the pain.

able remissions, the urine deposits a lateritious sediment. This, however, does not prove entirely critical; for the disease often continues long after such a sediment has appeared in the urine.

446. When blood is drawn in this disease, it always exhibits the appearance mentioned (237.)

447. The acute rheumatism, though it has so much of the nature of the other phlegmasiæ, differs from all those hitherto mentioned, in this, that it is not apt to terminate in suppuration. This almost never happens in rheumatism; but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons. If we may be allowed to suppose that such effusions are frequent, it must also happen, that the effused fluid is commonly reabsorbed; for it has seldom happened, and never indeed to my observation, that considerable or permanent tumors have been produced, or such as required to be opened, and to have the contained fluid evacuated. Such tumors, however, have occurred to others, and the opening made in them has produced ulcers difficult to heal. Vide Storck. Ann. Med. II.*

448. With the circumstances mentioned from (438. to 447.) the disease often continues for several weeks. It seldom, however, proves fatal; and it rarely happens that the pyrexia continues to be considerable for more than two or three weeks. While the pyrexia abates in its violence, if the pains of the joints continue, they are

* The inflammation in rheumatism is as much of a nature sui generis—as specifically different from every other kind of inflammation, as is that of small pox, kine pox or lues venerea. The difference of the diseased action is conclusively manifested by the difference of its results,—rheumatic inflammation, strictly so called, often, like that of gout, suddenly shifting from place to place, and never terminating in suppuration or gangrene. When it terminates in either, it is of a spurious kind.

less violent, more limited in their place, being confined commonly to one or a few joints only, and are less ready to change their place.

449. When the pyrexia attending rheumatism has entirely ceased; when the swelling, and particularly the redness of the joints, are entirely gone; but when pains still continue to affect certain joints, which remain stiff, which feel uneasy upon motion, or upon changes of weather; the disease is named the Chronic Rheumatism, as it very often continues for a long time. As the chronic is commonly the sequel of the acute rheumatism, I think it proper to treat of the former also in this place.*

450. The limits between the acute and chronic rheumatism are not always exactly marked.

When the pains are still ready to shift their place; when they are especially severe in the night-time; when, at the same time, they are attended with some degree of pyrexia, and with some swelling, and especially with some redness of the joints; the disease is to be considered as still partaking the nature of the acute rheumatism.

But when there is no degree of pyrexia remaining; when the pained joints are without redness; when they are cold and stiff; when they cannot easily be made to sweat; or when while a free and warm sweat is brought out on the rest of the body, it is only clammy and cold on the pained joints; and when, especially, the pains of these joints are increased by cold, and relieved by heat

* We believe that in youthful persons, and even in those who have not yet attained their forty-fifth year, the acute rheumatism, if properly treated, never terminates in the chronic. Such a termination must be the result of neglect or unskilful practice. Chronic rheumatism induced under these circumstances, can be nothing but an acute form of the disease imperfectly cured.

applied to them; the case is to be considered as that of a purely chronic rheumatism.*

451. The chronic rheumatism may affect different joints; but is especially ready to affect those joints which are surrounded with many muscles, and those of which the muscles are employed in the most constant and vigorous exertions. Such is the case of the vertebræ of the loins, the affection of which is named Lumbago; or that of the hip-joint, when the disease is named Ischias, or Sciatica.

452. Violent strains and spasms occurring on sudden and somewhat violent exertions, bring on rheumatic affections, which at first partake of the acute, but very soon change into the nature of the chronic rheumatism.

453. I have thus delivered the history of rheumatism; and suppose, that, from what has been said, the remote causes, the diagnosis, and prognosis of the disease, may be understood. The distinction of the rheumatic pains from those resembling them, which occur in the syphilis and scurvy, will be obvious, either from the seat of those pains, or from the concomitant symptoms peculiar to these diseases. The distinctions of rheumatism from gout will be more fully understood from what is to be delivered in the following chapter.†

454. With respect to the proximate cause of rheu-

* In this paragraph is drawn with a nice and masterly hand the line of discrimination between acute and chronic rheumatism.

† Notwithstanding all our author has here said, there occurs, at times, no inconsiderable difficulty in distinguishing pains of a purely rheumatic character from those connected with lues venerea, and perhaps also with scurvy. To enable himself fairly to make up his mind on this subject, the physician is often obliged to inquire very minutely into the previous history, habits and practices of his patient.

matism, there have been various opinions. It has been imputed to a peculiar acrimony; of which, however, in ordinary cases I can find no evidence; and from the consideration of the remote causes, the symptoms and cure of the disease, I think the supposition very improbable.

The cause of an Ischias Nervosa assigned by COTUNNIUS, appears to me hypothetical, and is not supported by either the phenomena or method of cure. That, however, a disease of a rheumatic nature may be occasioned by an acrid matter applied to the nerves, is evident from the tooth-ach, a rheumatic affection generally arising from a carious tooth.

That pains resembling those of rheumatism may arise from deep seated suppurations, we know from some cases depending on such a cause, and which, in their symptoms, resemble the lumbago or ischias. I believe, however, that by a proper attention, these cases depending on suppuration, may be commonly distinguished from the genuine cases of lumbago and ischias; and from what is said in (447.) I judge it to be at least improbable, that a genuine lumbago or ischias does ever end in suppuration.

455. The proximate cause of rheumatism has been by many supposed to be a lentor of the fluids obstructing the vessels of the part; but the same consideration as in (241. 1, 2, 3, 4, and 5.) will apply equally here for rejecting the supposition of a lentor.

456. While I cannot, therefore, find either evidence or reason for supposing that the rheumatism depends upon any change in the state of the fluids, I must conclude, that the proximate cause of acute rheumatism, is commonly the same with that of other inflammations not depending upon a direct stimulus.

457. In the case of rheumatism, I suppose, that the most common remote cause of it, that is, cold applied, operates especially on the vessels of the joints, from these being less covered by a cellular texture than those of the intermediate parts of the limbs. I suppose further, that the application of cold produces a constriction of the extreme vessels on the surface, and at the same time an increase of tone or phlogistic diathesis in the course of them, from which arises an increased impetus of the blood, and, at the same time, a resistance to the free passage of it, and consequently inflammation and pain. Further, I suppose, that the resistance formed excites the vis medicatrix to a further increase of the impetus of the blood; and, to support this, a cold stage arises, a spasm is formed, and a pyrexia and phlogistic diathesis are produced in the whole system.*

458. According to this explanation, the cause of acute rheumatism appears to be exactly analogous to that of the inflammations depending on an increased afflux of blood to a part while it is exposed to the action of cold.

But there seems to be also, in the case of rheumatism, a peculiar affection of the fibres of the muscles.

These fibres seem to be under some degree of rigidity, and therefore less easily admit of motion; and are pained upon the exertions of it.

It is also an affection of these fibres which gives an

* It will be perceived that our author delivers here his usual doctrine of the proximate cause of inflammation, in which is included his belief that the blood moves through the inflamed vessels with an increased impetus. In this, we repeat, he must be mistaken. In every case of genuine inflammation there appears to be necessarily, in the diseased vessels, a diminished rather than an increased rapidity and force in the movement of the blood. This is true in relation to rheumatic inflammation, as well as to that of every other kind.

opportunity to the propagation of pains from one joint to another, along the course of the muscles, and which pains are more severely felt in the extremities of the muscles terminating in the joints, because, beyond these, the oscillations are not propagated.

This affection of the muscular fibres attending rheumatism, seems to explain why strains and spasms produce rheumatic affections; and, upon the whole, shows, that, with an inflammatory affection of the sanguiferous system, there is also in rheumatism a peculiar affection of the muscular fibres, which has a considerable share in producing the phenomena of the disease.*

459. Having thus given my opinion of the proximate cause of rheumatism, I proceed to treat of the cure.

460. Whatever difficulty may occur with respect to the explanation given, (457. and 458.) this remains certain, that in acute rheumatism, at least in all those cases which do not arise from direct stimuli, there is an inflammatory affection of the parts, and a phlogistic diathesis in the whole system; and upon these is founded the method of cure, which frequent experience has approved of.

461. The cure therefore requires, in the first place, an antiphlogistic regimen, and particularly a total abstinence from animal food, and from all fermented or spi-

* This rigidity of the fibres in rheumatism may be owing to a remora in the fluids of what we might denominate the *vasa fibrarum;* or at least to some species of disease in these vessels, in consequence of which they do not secrete the fine mucus, or rather halitus, requisite to lubricate the parts, and to enable them to move with the facility of health. For it is not improbable that each fibre is inclosed in a fine sheath similar to that of the muscle to which it belongs, and requiring to be moistened and prepared for motion by a liquid secreted specifically for the purpose. Rheumatic inflammation would seem to be to the vasa fibrarum, what phlegmonic inflammation is to the vessels belonging to the cellular membrane.

rituous liquors; substituting a vegetable or milk diet, and the plentiful use of bland diluent drinks.*

462. Upon the same principle (449.) at least with perhaps the same exception as above, blood-letting is the chief remedy of acute rheumatism. The blood ought to be drawn in large quantity, and the bleeding is to be repeated in proportion to the frequency, fulness, and hardness of the pulse, and to the violence of the pain. For the most part, large and repeated bleedings, during the first days of the disease, seem to be necessary, and accordingly have been very much employed: but to this some bounds are to be set; for very profuse bleedings occasion a slow recovery, and, if not absolutely effectual, are ready to produce a chronic rheumatism.†

463. To avoid that debility of the system, which general bleedings are ready to occasion, the urgent symptom of pain may be often relieved by topical bleedings; and especially when any swelling and redness have come upon a joint, the pain of it may be very certainly relieved by such bleedings; but, as the continuance of the disease seems to depend more upon the phlogistic dia-

* In acute rheumatism accompanied with pyrexia, a milk diet is totally inadmissible. Barley water, rice water, currant jelly dissolved in water, and other articles, bland and purely vegetable, constitute the only suitable diet in this disease. If any part of milk be allowable, it is the whey, prepared by buttermilk or some vegetable acid.

† We do not believe that "profuse bleedings" ever have been, or ever can be, productive of "chronic rheumatism." As often as the acute is converted into the chronic form of this disease, it is rather in consequence of a deficiency than an excess of blood-letting. As a liberal loss of blood prevents peripneumony from terminating in empyema or hydrothorax, catarrh in pulmonary consumption, and bilious remitting fever in hepatitis and dropsy, so does it prevent the acute from terminating in the chronic form of rheumatism.

thesis of the whole system, than upon the affection of particular parts, so topical bleedings will not always supply the place of the general bleedings proposed above.*

464. To take off the phlogistic diathesis prevailing in this disease, purging may be useful, if procured by medicines which do not stimulate the whole system, such as the neutral salts, and which have, in some measure, a refrigerant power. Purging, however, is not so powerful as bleeding, in removing phlogistic diathesis; and when the disease has become general and violent, frequent stools are inconvenient and even hurtful, by the motion and pain which they occasion.†

465. In acute rheumatism, applications to the pained parts are of little service. Fomentations, in the beginning of the disease, rather aggravate, than relieve the pains. The rubefacients and camphire are more effectual in relieving the pains; but generally they only shift the pain

* Copious topical evacuations from the inflamed joints by leeches and cups, although not to be resorted to as a substitute for general blood-letting, is notwithstanding, when judiciously used, an invaluable auxiliary to it. When the pain and inflammation, therefore, are great, it should never be neglected.

† In pure rheumatism, we have rarely employed purgatives for any other purpose, than to keep the bowels free from irritating contents. If carried beyond this, they become inconvenient; and, as we are inclined to believe, do as much injury by the motion which they compel the patient to use, as they do good by their power of evacuation. In a disease so highly arterial as that of rheumatism, and, in the production of which, the first morbific impression is usually made on the skin, they can, in no shape, be regarded as a substitute for blood-letting.

In case of cathartics being used in this disease, for the reduction of arterial action, the saline purgatives are the most suitable. A solution of Glauber's, Epsom, or Rochelle salts, in a strong infusion of senna and manna, constitutes, for this purpose, one of the best preparations.

from one part into another, and do little towards the cure of the general affection. Blistering, applied to the pained part, may also be very effectual in removing the pain from it; but will be of little use, except where the pains are much confined to one part.

466. The several remedies mentioned from (450. to 454.) moderate the violence of the disease, and sometimes remove it entirely; but they sometimes fail in this, and leave the cure imperfect. The attempting a cure by large and repeated bleedings, is attended with many inconveniencies, (see 140.) and the most effectual and safe method of curing this disease, is, after some general bleedings for taking off, or at least diminishing, the phlogistic diathesis, to employ sweating, conducted by the rules laid down (168. and 169.)*

* Sweating in rheumatism, provided it be employed at the proper period, viz. after blood-letting has sufficiently reduced arterial action, is, in general, a valuable remedy. We have seen it, however, in some instances, very fairly and extensively employed, without contributing much to weaken the complaint. In such cases, blisters applied to the inflamed joints, after the disease had been reduced, by general remedies, to somewhat of a local character, were productive of salutary effects. But, blisters do no good—they rather prove injurious, if applied while the symptoms of pyrexia are high.

An excellent sweating formula is the nitrous powder combined with calomel and tartarized antimony, which was formerly mentioned.

The hourly exhibition of a grain or two of ipecacuanha, combined with ten or twelve grains of nitre, warm diluting drinks being given in the interim, constitutes an excellent sudorific process. To this, to prevent sickness and purging, we have sometimes advantageously added, from the sixth to the tenth of a grain of opium. Heating sudorifics should be carefully avoided.

If the disease prove obstinate, the calomel and nitre may be very properly continued until the gums become affected with the mercurial action. On the occurrence of this, the symptoms of the complaint almost always give way.

467. Opiates, except where they are directed to procure sweat, always prove hurtful in every stage of this disease.

468. The Peruvian bark has been supposed a remedy in some cases of this disease; but we have seldom found it useful, and in some cases hurtful. It appears to me to be fit in those cases only, in which the phlogistic diathesis is already much abated, and where, at the same time, the exacerbations of the disease are manifestly periodical, with considerable remissions interposed.

469. Calomel and some other preparations of mercury, have been recommended in the acute rheumatism; but I believe they are useful only in cases of the chronic kind, or at least in cases approaching to the nature of these.

470. Having now treated fully of the cure of the acute rheumatism, I proceed to treat of the cure of the chronic, which is so frequently a sequel of the former.

471. The phenomena of the purely chronic rheumatism, mentioned in (438. and 439.) lead me to conclude, that its proximate cause is an atony, both of the blood-vessels and of the muscular fibres of the part affected, together with a degree of rigidity and contraction in the latter, such as frequently attends them in a state of atony.

472. Upon this view of the proximate cause the general indication of cure must be, to restore the activity and vigor of the vital principle in the part; and the remedies for this disease, which experience has approved of, are chiefly such as are manifestly suited to the indication proposed.

473. These remedies are either external or internal.

The external are, the supporting the heat of the part, by keeping it constantly covered with flannel; the increasing the heat of the part by external heat, applied either in a dry or in a humid form; the diligent use of the flesh-brush, or other means of friction; the applica-

tion of electricity in sparks or shocks; the application of cold water by affusion or immersion; the application of essential oils of the most warm and penetrating kind; the application of salt brine; and lastly, the employment of exercise, either of the part itself so far as it can easily bear it, or of the whole body by riding, or other mode of gestation.*

* To prove permanently useful, the electric fluid should be administered in a much more continued form; *i. e.* more frequently, and longer each time, than is usually the case. If the patient be placed under its influence, only from half an hour to an hour, each day, he will derive from it but little advantage. So true is it, that a chronic disease can be removed only by a chronic remedy.

Cold water applied in the form of the shower bath, if it does not produce chilliness, but is succeeded by a pleasant glow on the surface of the body, has been found very useful in chronic rheumatism. It gives tone to the skin, hence to the stomach, and hence again to the whole system.

Bandaging the affected limb or part equably, but somewhat tightly, with flannel rollers, proves exceedingly useful in the treatment of this disease. It gives support to the muscles of the part, aids circulation in them, prevents in them the sensation of fatigue, and thus restores to them their lost tone. It produces, in fact, a new impression, whence proceeds a new action, which effectually severs the morbid association, wherein the disease consists. It also aids in promoting perspiration.

As far as we are informed on the subject, this remedy was first used in this city by the present professor of the theory and practice of physic in the university of Pennsylvania.

When we come to speak of certain chronic affections of the bowels, we shall say that a similar remedy has been found extremely useful in their treatment.

On the operation of the Juniperus Sabina, or Savin, in chronic rheumatism, we are permitted, by the kindness of Dr. Chapman, to take from his manuscript lectures, the following interesting and important extract:

"The Savin, in its operation on the system, produces the effects of a warm, powerful, and diffusible stimulant, exciting all the secretions, with a considerable determination to the surface.

"Baffled

474. The internal remedies are, 1. Large doses of essential oil drawn from resinous substances, such as tur-

"Baffled in my attempts to cure some of the forms of chronic rheumatism with the ordinary remedies, it is now upwards of five years, since I was led, in consequence of my speculative notions, as to the powers of this medicine, to experiment with it in this disease. During the period which has subsequently elapsed, I have prescribed it very extensively, both in public and private practice. The result of my numerous trials with it is such, that I hope it will not be deemed the language of enthusiasm, when I declare, that I hold it to be entitled, to be placed at the very head of the remedies in chronic rheumatism.

"But, for its successful application, it requires a very nice discrimination in the selection of the proper cases.

"My enlarged experience with the medicine, has taught me some degree of certainty in its use. It is still, however, not easy, by any general description, to impart the same sort of tact, or knowledge."

After a description of a form of rheumatism, in which there exists great exhaustion of the system, with an unusual degree of coldness, and want of action on the surface of the body, the professor subjoins the following practical remarks:

"Endued with properties, such as I have alleged it to possess, it was reasonable to presume, that the Savin would prove eminently serviceable in the precise form of rheumatism, which has been here described.

"The primary effects of the medicine, or, at least, its sensible effects, are, to heat and stimulate the whole system, producing particularly a glow on the surface, with much itching, and, ultimately, a slight perspiration, which, however, seems to be extorted by the mere force of excitement. There are, also, sometimes, miliary eruptions.

"The influence of the Savin over the circulation is prodigious. The pulse, which, previously to its exhibition, is commonly small, weak, and accelerated, now becomes full, active, and comparatively slow. No portion of the system, indeed, seems to escape its wide pervading operation; every function being more or less invigorated, and especially some of the secretory offices, as the urinary, the catamenial, and, perhaps, the seminal.

"Contrary to a very uniform law of the animal economy, by

pentine; 2. Substances containing such oils, as guaiac; 3. Volatile alkaline salts; 4. These, or other medicines

which it seems to be ordained that the vigour of the arterial and lymphatic apparatus should be in an inverse ratio, we have here indisputable evidence, in the speedy removal of the chalky depositions, and of the various morbid growths incident to the disease, of absorption being actively performed.

"After some days' continuance of the Savin, either from the mitigation of the disease, or the positive tonic power which the medicine exerts, the situation of the patient is very considerably improved, as relates to his strength, appetite, rest, and general sensations."

Encouraged by his successful use of Savin in one kind of chronic rheumatism, Dr. Chapman was led to administer it in another—that which is usually denominated syphilitic. Here, again, his success was highly flattering; the disease being always alleviated, if not cured, by the remedy.

On commencing the use of the Savin, in any case, the professor's practice is, to administer to an adult from twelve to fifteen grains of the powdered leaves, three times a-day. This dose he gradually increases, until an evident effect is produced; which sometimes, as he informs us, requires "three or four times the quantity" with which he had begun.

In the treatment of chronic rheumatism, much good may be done by clothing and exercise.

The patient should wear, constantly, an entire covering of flannel, or fleecy hosiery, next to the skin; and, if he be free from fever, take, during fine weather, as much exercise in the open air, as he is able to bear without fatigue. If he even exercise to such an extent as to produce a perspiration, so much the better; provided he be careful not to suffer himself to cool too suddenly, or in a partial manner.

In addition to those already mentioned, many other remedies, both external and internal, may be recommended as useful in chronic rheumatism.

Of the internal remedies, we may briefly enumerate the following:

Bruised mustard seed.—Of this, a table spoon-full may be taken at a dose, and repeated twice or three times a-day.

Gum Guiacum, in substance, or tincture.—Of the gum in pow-

directed to procure sweat; (169.) and, lastly, calomel, or other preparation of mercury, in small doses, continued for some time.

der, the dose is from a scruple to half a drachm, to be taken from once to three times a-day, according as the stomach and bowels may bear it. Of the tincture, the volatile being preferable to the simple, a tea-spoonful may be taken three or four times a day. This remedy proves most useful when it operates moderately on the bowels.

Sarsaparilla.—Of this, a drachm of the extract, or a decoction of half an ounce of the root, may be taken at a dose, and repeated as often as circumstances may require. It is deemed valuable as a sudorific, and, therefore, throws excitement on the skin.

Oxyde of Arsenic.—This article may be given either in powder or solution. Of the former, the dose may be from the eighth to the sixteenth of a grain, and, of the latter, from six to eight, or ten drops, to be repeated, in either case, four or five times a-day. This is a very powerful remedy, and possesses strong anti-rheumatic qualities.

Peruvian Bark.—This remedy, in common doses, either alone, or in combination with Virginia snake root, or gum guiacum, and repeated several times a-day, has acquired, with some practitioners, considerable reputation.

Mercury.—This, to prove effectual, should be administered in the usual doses, until a gentle ptyalism be produced; which, if the disease be of long standing, ought to be continued for a considerable time.

Opium, given in large and repeated doses, is said to have removed chronic rheumatism in a few days. Combined with other articles, we have often exhibited it in this complaint, with very pleasant and salutary effects.

An indigenous remedy, of considerable reputation, is, the juice of the berry of the Phytolacca decandria. Of this, a small wine glass-full may be taken two or three times a-day. Although our own experience in this preparation has not been very extensive, we believe it to be an article of some efficacy. To prevent the juice from fermenting and becoming sour, it should be mixed, when expressed, with a little spirits of wine, or common brandy.

In addition to those already mentioned, the external remedies most in use, and in highest estimation, are, the warm, water or va-

475. These (462, 463.) are the remedies successfully employed in the purely chronic rheumatism; and there are still others recommended, as bleeding, general and topical, burning, blistering, and issues: but these appear to me to be chiefly, perhaps only, useful when the disease still partakes of the nature of acute rheumatism.

pour bath, frictions with the flesh brush, or with some spirituous stimulating preparation, such as camphorated, or volatile liniment, and cupping, sinapisms, blisters, or setons, as near as convenient to the parts affected.

Tartarized Antimony, moistened with simple water, and briskly rubbed with the hand on the diseased part, produces, after a few applications, which should be made twice or thrice a-day, a crop of pustules of a peculiar appearance and character, and rarely fails to give great relief.

When other remedies have failed, travelling and change of climate, particularly a removal from a colder to a warmer climate, have effected a cure. So has a change of life from a more sedentary to a more active.

A former resident of Philadelphia, with whom we are well acquainted, has been, of late, entirely relieved from chronic rheumatism, by exchanging the occupation of a manufacturer for that of a farmer. His habits, which, during his first pursuit, were sedentary, are now active, and sometimes laborious.

In chronic rheumatism, the diet should be nutritive, but not heating. Vinous and distilled liquors should be used very sparingly. In every instance where the physical powers of the system are weakened, perfect temperance, a mild climate, pure air, and moderate exercise, are the best restoratives.

CHAPTER XIII.

OF THE TOOTHACH, OR ODONTALGIA.*

476. I HAVE formerly considered this disease as a species of rheumatism, to be treated upon the same principles as those delivered in the precediug chapter: but

* On the subject of Odontalgia, we have but little to say; our professional experience in it being exceedingly limited.

We are persuaded, however, that Dr. Cullen is entirely mistaken respecting its theory. It is in no way dependent on an acrimony of the humours. Toothach, as a disease, is much more intimately connected with the stomach than is generally imagined.

In corroboration of this, there is an abundance of evidence, accessible to every one who may be inclined to go in quest of it.

The state of the teeth depends very essentially on that of the gums. If the latter be in any measure diseased, it is almost impossible for the former to be sound. But the condition of the gums is known to be materially influenced by that of the stomach. Although a sound state of the stomach does not absolutely insure sound gums, because the latter organs may, like other parts, be locally affected, yet, during a long continued disease of the stomach, the gums rarely escape without injury. Hence it is, that dyspeptic persons, and those who are subject to habitual costiveness, suffer so generally from carious teeth. Hence, also, the frequency of toothach in pregnant and hysterical women, whose stomachs are almost constantly the seat of disease.

The connexion between the teeth and the alimentary canal is very strikingly manifested during the dentition of children. The diseases induced in the stomach and bowels by that process, are known and acknowledged by every physician. But the influence, it is reasonable to believe, is reciprocal. If a diseased condition of the gums can disorder the primæ viæ, we can have no ground to doubt of the reverse being true—the former must sympathize with the sufferings of the latter.

Even in adults, we have known several instances wherein dyspeptic affections remained intractable, until after the extraction of carious teeth; when they suddenly disappeared without farther remedies.

The disease, Odontalgia, belongs to the class Neuroses, rather than to that of pyrexiæ; it being very seldom accompanied with any

now, from more attentive consideration, I am led to consider the toothach as a distinct disease. Whilst the most of what has been delivered in the last chapter proceeds upon the supposition that the rheumatism depends upon a certain state of the blood-vessels, and of the motion of the blood in them, without this being produced by the irritation of any acrid matter applied; I judge, that in the toothach, though there are often the same circumstances in the state of the blood-vessels as in the cases of rheumatism, these circumstances in toothach always arise from the application of an acrid matter to the nerves of the teeth.

febrile action. But we feel persuaded, that when the science of pathology shall be better understood, the stomach and alimentary canal will be acknowledged to be the seat of that whole tribe of diseases, that are now called nervous. Perhaps, even their name will be ultimately changed, and they will be known only by that of *diseases of the primæ viæ*. That toothach is a nervous disease, appears from the fact, that it is often times cured by the sight of the dentist; or by any other occurrence that produces a fright.

Women are much more subject than men to complaints of the stomach and bowels. So are they also to odontalgia and carious teeth. This would seem to indicate a connexion between these two seats of disease.

Emetics, given for other purposes, have been known to afford great and unexpected relief in the toothach. Without having ourselves ever tried the experiment, we are inclined to believe that this would be very *often*, if not, *generally*, the case. The operation of an emetic would seldom fail to cure, for the time, a fit of the toothach.

Such are the principal reasons, occurring to us, at present, which incline us to believe that odontalgia is connected with a diseased stomach. In addition, then, to perfect cleanliness of the mouth, let those who wish to preserve their teeth, be active in their endeavours to preserve a sound condition of the alimentary canal.

A diet of unripe and acid fruit, or of crude vegetable substances of any other description, is injurious to the teeth. This effect it probably produces, much more through the medium of the stomach, than by its direct action on the teeth themselves.

477. This disease is often no other than a pain felt in a particular tooth, without any inflammatory affection being at the same time communicated to the neighbouring parts. This, however, is rarely the case; and, for the most part, together with the pain of the tooth, there is some degree of pain and of inflammatory affection communicated to the neighbouring parts, sometimes to the whole of those on the same side of the head with the affected tooth.

478. This inflammatory affection seems to me to be always an affection of the muscles and of the membranous parts connected with these, without any tendency to suppuration; and such an affection, as is excited by cold in similar parts elsewhere. It is from these circumstances that I conclude the affection to be of the rheumatic kind.

479. It is possible that the muscles and membranes of the jaw may be affected by the same causes which produce the rheumatism in other parts; and it is also possible, that a rheumatic diathesis at first produced by irritation, may subsist in the muscles and membranes of the jaw, so that the inflammatory affection may be renewed by certain causes without any new application of acrid matter. But I am persuaded that either of these occurrences are very rare, and I have never been able to ascertain any cases of toothach to be of these kinds. I consider it, therefore, as highly probable, that this rheumatic affection of the jaws which we name toothach, is always dependent upon some immediate application of acrid matter to the nerves of the teeth.

480. It is however to be observed, that this application of acrid matter does not always excite a pain in the tooth itself, or an inflammatory affection of the neighbouring parts; but that it very often operates by producing a diathesis only; so that cold applied to the neighbouring parts does excite both a pain in the tooth, and

an inflammatory affection of the neighbouring parts which did not appear before.

There seems to be also certain states of the body, which operate upon the same diathesis so as to produce toothach. Such seems to be the case of pregnant women, who are more liable to toothach than other women There are probably also some cases of increased irritability which render persons more subject to toothach. Thus women are more liable to the disease than men, and particularly women liable to hysteric affections.

481. The acrid matter producing this disease, seems to be generated first in the hard substances of the teeth: and as it often appears first upon the external surface of these, it might be suspected to arise from the application of external matters to the teeth. But as the production of this acrimony is often begun in the internal cavity of the teeth, where the operation of external matters cannot be suspected, and as even when it begins upon the external parts of the teeth, the operation of the cause is at first in a small portion of the teeth only, that it is difficult to suppose that any matter externally applied could act in such a partial manner; so it is presumed that the acrid matter occasioning the toothach, is produced by some vice originating in the substance of the tooth itself. When it begins upon the external surface, it is on the enamel; but upon the internal surface, it must be in the bony part. From what causes it arises in either of these substances, I do not at all know; but I suspect that it often arises from some more general fault in the fluids of the body. The frequent use of mercury, especially when thrown much upon the mouth, and the state of the fluids in scurvy, seem both of them to give a disposition to a caries in the teeth; and it is possible that some other acrimonious states of the fluids may have the same effect.

482. A caries in some part of the teeth, whether arising upon their internal surface, or upon their external, proceeding so far as to reach the nerves in the cavity of the teeth, is pretty manifestly the cause of toothach, and of the first attacks of it; but when the cavity of the teeth has been opened, so that the external air or other matters can reach that cavity, these are often the exciting causes of toothach, and serve to prove in general, that acrid matters applied to the nerves occasion the disease.

483. What is the nature of the matter produced in the caries of the teeth, I do not understand, nor have I found any proper corrector of it; but I presume it to be of the putrid kind, as it often taints the breath with a fetid odour.

484. In the cure of this disease, a long experience has shown, that the extraction of the carious tooth proves the most effectual, and very often the only effectual, remedy of the disease. But as in some cases this extraction is not proper, and as in many cases it is obstinately avoided, other means of curing the disease, or at least of relieving the pain, have been sought for and much practised.

485. Among these remedies, those are likely to be the most effectual which entirely destroy the affected nerve, or at least so much of it as is exposed to the action of the acrid matter in the tooth. When an opening is made into the cavity of the tooth, the nerve of it may be destroyed most certainly by the actual cautery; and it may also possibly be done by the application of potential causties, either of the alkaline or acid kind.

486. When these remedies cannot be rendered effectual, relief may often be obtained by diminishing the sensibility of the nerve affected, by the application of opium, or of the more acrid aromatic oils, and directly to the nerve in the tooth. It appears also, that the sensi-

bility of the affected nerve may often be for some time diminished by the external application of opium to the extremities of those nerves in the skin, which are branches of the same fifth pair of nerves with those of the teeth.*

487. When the disease consists entirely in a pain of the nerve of the tooth, without any considerable affection communicated to the neighbouring parts, the remedies already mentioned are those especially to be employed; but when the disease consists very much in an inflammatory affection of the muscles and membranes of the jaw, and when at the same time there is little or no access for the above-mentioned remedies to the affected nerve, other measures are to be employed for relieving the disease.

488. If the disease be attended with any general phlogistic diathesis of the system, or with any considerable degree of pyrexia, a general bleeding may be useful in relieving the disease: but these circumstances occur very rarely, and the disease is for the most part a purely topical affection; in which, as I observed before, a general bleeding is of very little service. As this disease, however, is a topical inflammation, it might be supposed that topical bleedings would be very useful, and sometimes they are so; but it is seldom that their effects are either considerable or permanent. The reasons of this I take to be, that the disease does not consist in an affection of the blood-vessels alone, as in the ordinary cases of rheu-

* In a case of toothach, a small portion of the oleum origani, or of the essential oil of cloves, introduced into the cavity of the carious tooth, seldom fails to afford, at least, a temporary relief. So, if used in the same way, does opium, camphor, alkohol, and various other stimulating substances. But, by irritating and inflaming the gums, with which they cannot fail to come in contact, we apprehend that these articles, if long continued, increase, at length, the malady they are intended to relieve.

matism; but in a peculiar affection of the fibres both of the muscles and of the vessels of the part induced by irritation. The inefficacy of topical bleedings is with me a proof of the disease being of the latter kind.

489. The remedies therefore necessary to give relief in this disease, are those which take off the spasm of the vessels, and especially of the muscles and membranes affected. Such are blistering, brought as near to the part affected as can be conveniently done; and such are also increased excretions excited in the neighbouring parts, as of the saliva and mucus of the mouth by the use of acrid masticatories. It is often sufficient to excite a strong sensation in the neighbouring parts; as by eau de luce, spirit of lavender, or Hungary water snuffed up the nostrils; or by the vitriolic æther properly applied to the cheek. It is upon the same footing that I suppose brandy or other ardent spirit held in the mouth is often of service.*

490. There are cases of toothach in which it does not appear that the disease arises from an acrid matter immediately applied to the nerve of a tooth; but from the external application of cold, or some other causes immediately applied to the muscles and membranes of the jaw; and which therefore seem to require some remedies different from those above mentioned. But in all such cases, it is to be suspected, that the effects of cold, or of other such causes, are owing to a diathesis produced

* Blisters, or sinapisms, applied to the cheek, or behind the ear, afford, frequently, great relief to an aching tooth.

The chewing of such acrid, stimulating substances, as make a strong impression on the mouth and fauces, and provoke a copious secretion of saliva, produces, for the most part, a similar effect. So does the scarification of the gum around the tooth.

These, however, are but palliative remedies. The only one from which a radical cure is to be expected, is, the extraction of the tooth.

by an acrid matter applied to the nerve of a tooth, and continuing in some measure to act there; and we have accordingly often found, that the action of those external causes were to be obviated only by the extraction of the tooth from which the diathesis had arisen.

CHAPTER XIV.

OF THE GOUT.*

491. THE Gout, not only as it occurs in different persons, but even as it occurs in the same person at different times, is a disease of such various appearance, that it is difficult to render the history of it complete and exact, or to give a character of it that will universally apply. However, I shall endeavour to describe the disease as it most commonly appears, and to mark the va-

* Gout, more than almost any other disease, may be considered as growing literally out of the stomach.

Whether it arise from a hereditary predisposition, from a long continued and laborious pursuit of letters, or from an inordinate devotion to the pleasures of the table, or of love, the stomach is the organ that primarily suffers. It is there that the symptoms of an approaching paroxysm are first felt; and to the same part alone, can remedies for it be directed, with any reasonable prospect of advantage. Applications to other parts afford relief; but if a cure by medicines ever be obtained, it must come from the stomach.

We are apprehensive that women are as liable to this disease as men; but they are attacked by it in a different shape; which is not, therefore, generally recognized as gout. What would be regular podagra in men, is colic, hysteria, sick headach, or some such anomalous complaint, in women.

rieties of it as well as I can. From such a history I expect that a general character may be given; and such I think is the following, as given in the last edition of our Nosology:

GEN. XXIII. PODAGRA.—Morbus hæreditarius, oriens sine causa externa evidente, sed præeunte plerumque ventriculi affectione insolita; pyrexia; dolor ad articulum et plerumque pedis pollici, certe pedum et manuum juncturis, potissimum infestus; per intervalla revertens, et sæpe cum ventriculi, vel aliarum internarum partium affectionibus alternans.

492. The Gout is generally a hereditary disease: but some persons, without hereditary disposition, seem to acquire it; and, in some a hereditary disposition may be counteracted by various causes. These circumstances may seem to give exceptions to our general position; but the facts directly supporting it are very numerous.

493. This disease attacks especially the male sex: but it sometimes, though more rarely, attacks also the female. The females liable to it are those of the more robust and full habits; and it very often happens to such long before the menstrual evacuation has ceased. I have found it occurring in several females, whose menstrual evacuations were more abundant than usual.

494. This disease seldom attacks eunuchs, and when it does, they seem to be those who happen to be of a robust habit, to lead an indolent life, and to live very full.

495. The gout attacks especially men of robust and large bodies, men of large heads, of full and corpulent habits, and men whose skins are covered with a thicker *rete mucosum*, which gives a coarser surface.

496. If with the ancients, we might ascertain, by certain terms, the temperaments of men, I would say, that the gout attacks especially men of a *cholerico-sanguine*

temperament, and that it very seldom attacks the purely sanguine or melancholic. It is however, very difficult to treat this matter with due precision.

497. The gout seldom attacks persons employed in constant bodily labour, or persons who live much upon vegetable aliment. It is also said to be less frequent among those people who make no use of wine or other fermented liquors.

498. The gout does not commonly attack men, till after the age of five and thirty; and generally not till a still later period. There are indeed instances of the gout occurring more early; but these are few in comparison of the numbers which agree with what we have given as the general rule. When the disease does appear early in life, it seems to be in those in whom the hereditary disposition is very strong, and to whom the remote causes to be hereafter mentioned have been applied in a considerable degree.*

499. As the gout is a hereditary disease, and effects especially men of a particular habit, its remote causes may be considered as predisponent and occasional.

500. The predisponent cause, so far as expressed by external appearances or by the general temperament, we have already marked; and physicians have been very confident in assigning the occasional causes: but, in a disease depending so much upon a predisposition, the assigning occasional causes must be uncertain; as in the predisposed, the occasional causes may not always appear, and in persons not predisposed, they may appear without effect. This uncertainty must particularly affect

* We have known a boy of about six years old to sustain a regular paroxysm of podagra. For several generations gout had been a disease of his paternal ancestors.

the case of the gout; but I shall offer what appears to me most probable on the subject.

501. The occasional causes of the gout seem to be of two kinds. First, those which induce a plethoric state of the body. Secondly, those which in plethoric habits, induce a state of debility.

502. Of the first kind are a sedentary indolent manner of life, a full diet of animal food, and the large use of wine or of other fermented liquors. These circumstances commonly precede the disease; and if there should be any doubt of their power of producing it, the fact, however, will be rendered sufficiently probable by what has been observed in (497.)

503. Of the second kind of occasional causes which induce debility are, excess in venery; intemperance in the use of intoxicating liquors; indigestion, produced either by the quantity or quality of aliments; much application to study or business; night watching; excessive evacuations; the ceasing of usual labour; the sudden change from a very full to a very spare diet; the large use of acids and ascescents; and, lastly, cold applied to the lower extremities.*

504. The first (502.) seem to act by increasing the predisposition. The last (503.) are commonly the exciting causes, both of the first attacks, and of the repetitions of the disease.

505. It is an inflammatory affection of some of the joints, which especially constitutes what we call a paroxysm of the gout. This sometimes comes on suddenly without any warning, but is generally preceded by several symptoms; such as the ceasing of a sweating which

* None of these causes ever produces gout, until it has first impaired the tone of the stomach. But when the sound state of that organ has given way, gout is likely very soon to follow.

the feet had been commonly affected with before; an unusual coldness of the feet and legs; a frequent numbness, alternating with a sense of prickling along the whole of the lower extremities; frequent cramps of the muscles of the legs; and an unusual turgescence of the veins.

506. While these symptoms take place in the lower extremities, the whole body is affected with some degree of torpor and languor, and the functions of the stomach in particular are more or less disturbed. The appetite is diminished, and flatulency, or other symptoms of indigestion, are felt. These symptoms, and those of (505.) take place for several days, sometimes for a week or two, before a paroxysm comes on: but commonly, upon the day immediately preceding it, the appetite becomes greater than usual.

507. The circumstances of paroxysms are the following. They come on most commonly in the spring, and sooner or later according as the vernal heat succeeds sooner or later to the winter's cold; and perhaps sooner or later also according as the body may happen to be more or less exposed to vicissitudes of heat and cold.

508. The attacks are sometimes felt first in the evening, but more commonly about two or three o'clock of the morning. The paroxysm begins with a pain affecting one foot, most commonly in the ball or first joint of the great toe, but sometimes in other parts of the foot. With the coming on of this pain, there is commonly more or less of a cold shivering, which, as the pain increases, gradually ceases, and is succeeded by a hot stage of pyrexia, which continues for the same time with the pain itself. From the first attack, the pain becomes by degrees more violent, and continues in this state with great restlessness of the whole body till next midnight, after which it gradually remits; and, after it

has continued for twenty-four hours from the commencement of the first attack, it commonly ceases very entirely, and, with the coming on of a gentle sweat, allows the patient to fall asleep. The patient, upon coming out of this sleep in the morning, finds the pained part affected with some redness and swelling, which, after having continued for some days, gradually abate.

509. When a paroxysm has thus come on, although the violent pain after twenty-four hours be considerably abated, the patient is not entirely relieved from it. For some days he has every evening a return of more considerable pain and pyrexia, and which continue with more or less violence till morning. After continuing in this manner for several days, the disease sometimes goes entirely off, not to return till after a long interval.

510. When the disease, after having thus remained for some time in a joint, ceases very entirely, it generally leaves the person in very perfect health, enjoying greater ease and alacrity in the functions of both body and mind, than he had for a long time before experienced.*

511. At the beginning of the disease, the returns of it are sometimes only once in three or four years: but, after some time, the intervals become shorter, and the attacks become annual; afterwards they come twice each year, and at length recur several times during the whole course of autumn, winter, and spring; and as it happens that, when the fits are frequent, the paroxysms become also longer, so, in the advanced state of the disease, the patient is hardly ever tolerably free from it, except perhaps for two or three months in summer.

* The morbid irritation under which the stomach had laboured, is now gone, and the system enjoys uninterrupted health.

512. The progress of the disease is also marked by the parts which it affects. At first, it commonly affects one foot only; afterwards every paroxysm affects both feet, the one after the other; and, as the disease continues to recur, it not only affects both feet at once, but after having ceased in the foot which was secondly attacked, returns again into the foot first affected, and perhaps a second time also into the other. Its changes of place are not only from one foot to the other, but also from the feet into other joints, especially those of the upper and lower extremities; so that there is hardly a joint of the body that is not, on one occasion or other, affected. It sometimes affects two different joints at the same time; but more commonly it is severe in a single joint only, and passes successively from one joint to another; so that the patient's affliction is often protracted for a long time.

513. When the disease has often returned, and the paroxysms have become very frequent, the pains are commonly less violent than they were at first; but the patient is more affected with sickness, and the other symptoms of the atonic gout, which shall be hereafter mentioned.*

514. After the first paroxysms of the disease, the joints which have been affected are entirely restored to their former suppleness and strength: but after the disease has recurred very often, the joints affected do neither so suddenly nor so entirely recover their former state, but continue weak and stiff; and these effects at length proceed to such a degree, that the joints lose their motion altogether.

* As the stomach becomes more and more weakened, it is less able to throw the disease completely on another part of the system. Hence it is obliged constantly to retain some portion of it itself.

515. In many persons, but not in all, after the disease has frequently recurred, concretions of a chalky nature are formed upon the outside of the joints, and for the most part immediately under the skin. The matter seems to be deposited at first in a fluid form, but afterwards becomes dry and firm. In their dry state, these concretions are a friable earthy substance, very entirely soluble in acids. After they have been formed, they contribute, with other circumstances, to destroy the motion of the joint.

516. In most persons who have laboured under the gout for many years, a nephritic affection comes on, and discovers itself by all the symptoms which usually attend calculous concretions in the kidneys, and which we shall have occasion to describe in another place. All that is necessary to be observed here is, that the nephritic affection alternates with paroxysms of the gout; and that the two affections, the nephritic and the gouty, are hardly ever present at the same time. This also may be observed, that children of gouty or nephritic parents, commonly inherit one or other of these diseases; but which ever may have been the principal disease of the parent, some of the children have the one, and some the other. In some of them, the nephritic affection occurs alone, without any gout supervening; and this happens to be frequently the case of the female offspring of gouty parents.

517. In the whole of the history already given, I have described the most common form of the disease; and which therefore, however diversified in the manner I have said, may be still called the regular state of the gout. Upon occasion, however, the disease assumes different appearances; but, as I suppose the disease to depend always upon a certain diathesis or disposition of the system; so every appearance which we can perceive

to depend upon that same disposition, I shall consider as a symptom and case of the gout. The principal circumstance in what we term the *Regular Gout*, is the inflammatory affection of the joints; and, whatever symptoms we can perceive to be connected with, or to depend upon, the disposition which produces that inflammatory affection, but without its taking place, or being present at the same time, we name the *Irregular Gout*.*

518. Of such irregular gout there are three different states, which I name the *atonic*, the *retrocedent*, and the *misplaced* gout.

519. The atonic state is when the gouty diathesis prevails in the system, but, from certain causes, does not produce the inflammatory affection of the joints. In this case, the morbid symptoms which appear are chiefly affections of the stomach; such as, loss of appetite, indigestion, and its various circumstances of sickness, nausea, vomiting, flatulency, acrid eructations, and pains in the region of the stomach. These symptoms are frequently accompanied with pains and cramps in several parts of the trunk, and the upper extremities of the body, which are relieved by the discharge of wind from the stomach. Together with these affections of the stomach, there commonly occurs a costiveness; but sometimes a looseness with colic pains. These affections of the alimentary canal are often attended with all the symptoms of hypochondriasis; as dejection of mind, a

* Young practitioners ought to be exceedingly attentive to the irregular forms, or appearances of gout, lest they should mistake them for some other disease. Such mistake might lead to a practice discreditable to themselves, and injurious to their patients. The history of the sick, connected with that of their family and ancestors, will generally enable a physician of discernment, to determine with correctness, whether their complaint be gout or not. To these circumstances let practitioners, particularly at the commencement of their professional course, pay the strictest attention.

constant and anxious attention to the slightest feelings, an imaginary aggravation of these, and an apprehension of danger from them.

In the same atonic gout, the viscera of the thorax also are sometimes affected, and palpitations, faintings, and asthma, occur.

In the head also occur, headachs, giddiness, apoplectic and paralytic affections.*

520. When the several symptoms now mentioned occur in habits having the marks of a gouty disposition, this may be suspected to have laid the foundation of them, and especially when either, in such habits, a manifest tendency to the inflammatory affection has formerly appeared; or when the symptoms mentioned are intermixed with, and are relieved by, some degree of the inflammatory gout. In such cases there can be no doubt of considering the whole as a state of the gout.

521. Another state of the disease I name the *retrocedent* gout. This occurs when an inflammatory state of the joints has, in the usual manner, come on, but which, without arising to the ordinary degree of pain and inflammation, or, at least, without these continuing for the usual time, and receding gradually in the usual manner, they suddenly and entirely cease, while some internal part becomes affected. The internal part most commonly affected is the stomach, which is then affected with anxiety, sickness, vomiting, or violent pain; but sometimes the internal part is the heart, which gives occasion to a syncope; sometimes it is the lungs which are affected with asthma; and sometimes it is the head,

* We believe that a great majority of apoplectic and paralytic cases are nothing else than irregular gout. They certainly have their seat in the stomach, and attack the brain through the medium of sympathy. Hence the importance of plentiful purging in them.

giving occasion to apoplexy or palsy. In all these cases, there can be no doubt of the symptoms being all a part of the same disease, however different the affection may seem to be in the parts which it attacks.

522. The third state of irregular gout, which we name the *misplaced*, is when the gouty diathesis, instead of producing the inflammatory affection of the joints, produces an inflammatory affection of some internal part, and which appears from the same symptoms that attend the inflammation of those parts arising from other causes.

Whether the gouty diathesis does ever produce such inflammation of the internal parts without having first produced it in the joints, or if the inflammation of the internal part be always a translation from the joints previously affected, I dare not determine; but, even supposing the latter to be always the case, I think the difference of the affection of the internal part must still distinguish the misplaced from what I have named the *retrocedent gout.**

523. What internal parts may be affected by the misplaced gout I cannot precisely say, because I have never met with any cases of the misplaced gout in my practice; and I find no cases of it distinctly marked by practical writers, except that of a pneumonic inflammation.

524. There are two cases of a translated gout; the one of which is an affection of the neck of the bladder, producing pain, strangury, and a catarrhus vesicæ: The other is an affection of the rectum, sometimes by pain alone in that part, and sometimes by hæmorrhoidal swelling there. In gouty persons, I have known such af-

*Our author's remarks on the *misplaced* gout are vague and unsatisfactory—wholly insufficient to establish it as a stated form of the disease. For ought *he* has said on the subject, it might be rejected entirely from systems of nosology, and none but the *atonic* and *retrocedent* forms of irregular gout be retained.

fections alternate with inflammatory affection of the joints: but whether to refer those affections to the retrocedent, or to the misplaced gout, I will not presume to determine.

525. From the history which I have now delivered of the gout, I think it may be discerned under all its various appearances. It is, however, commonly supposed, that there are cases in which it may be difficult to distinguish gout from rheumatism, and it is possible there may be such cases: but, for the most part, the two diseases may be distinguished with great certainty by observing the predisposition, the antecedents, the parts affected, the recurrences of the disease, and its connexion with the other parts of the system; which circumstances, for the most part, appear very differently in the two diseases.*

526. With respect to the gout, our next business is to investigate its proximate cause; which must be a difficult task, and I attempt it with some diffidence.

* We apprehend the most radical and essential difference between gout and rheumatism to be, that the former *always*, and the latter *never* originates in the stomach. In rheumatism the stomach is diseased; but its affection we believe to be, for the most part, *secondary;* whereas, in the gout, it is always *primary*.

Another well known difference is, that the gout usually attacks the *smaller*, and the rheumatism the *larger* joints of the body. To this rule, however, there exist exceptions; gout attacking, occasionally, almost every part of the system.

The subjects of gout and rheumatism are, also, for the most part, different from each other, in their stations, habits, and modes of life. Gout attacks the wealthy and luxurious, who live at their ease; rheumatism those in humbler circumstances, who pursue a laborious mode of life. Gout is a disease of more, rheumatism of less polished society. Hence the former is, in a great measure, confined to cities; whereas the latter assails, indifferently, the poor of cities, and the inhabitants of the country.

Had we leisure to pursue the inquiry, we could make it appear, that the inflammation of gout, like that of rheumatism, is of a *specific* character.

527. Upon this subject, the opinion which has generally prevailed is, that the gout depends upon a certain morbific matter, always present in the body; and that this matter, by certain causes, thrown upon the joints or other parts, produces the several phenomena of the disease.

528. This doctrine, however ancient and general, appears to me very doubtful; for,

First, There is no direct evidence of any morbific matter being present in persons disposed to the gout. There are no experiments or observations which show that the blood, or other humours of gouty persons, are in any respect different from those of other persons. Previous to attacks of the gout, there appear no marks of any morbid state of the fluids; for the disease generally attacks those persons who have enjoyed the most perfect health, and appear to be in that state when the disease comes on. At a certain period of the disease, a peculiar matter indeed appears in gouty persons; (515.) but this, which does not appear in every instance, and which appears only after the disease has subsisted for a long time, seems manifestly to be the effect, not the cause, of the disease. Further, though there be certain acrids, which, taken into the body, seem to excite the gout, (503.) it is probable that these acrids operate otherwise in exciting the disease, than by affording the material cause of it. In general, therefore, there is no proof of any morbific matter being the cause of the gout.

Secondly, The suppositions concerning the particular nature of the matter producing the gout, have been so various and so contradictory to each other, as to allow us to conclude, that there is truly no proof of the existence of any of them. With respect to many of these suppositions, they are so inconsistent with chemical phi-

losophy, and with the laws of the animal economy, that they must be entirely rejected.

Thirdly, The supposition of a morbific matter being the cause of the gout, is not consistent with the phenomena of the disease, particularly with its frequent and sudden translations from one part to another.

Fourthly, The supposition is further rendered improbable by this, that, if a morbific matter did exist, its operation should be similar in the several parts which it attacks; whereas it seems to be very different, being stimulant, and exciting inflammation in the joints, but sedative and destroying the tone in the stomach: Which, upon the supposition of particular matter acting in both cases, is not to be explained by any difference in the part affected.

Fifthly, Some facts, alleged in proof of a morbific matter, are not sufficiently confirmed, such as those which would prove the disease to be contagious. There is, however, no proper evidence of this, the facts given being not only few, but exceptionable; and the negative observations are innumerable.

Sixthly, Some arguments brought in favour of a morbific matter, are founded upon a mistaken explanation. The disease has been supposed to depend upon a morbific matter because it is hereditary: But the inference is not just; for most hereditary diseases do not depend upon any morbific matter, but upon a particular conformation of the structure of the body, transmitted from the parent to the offspring; and this last appears to be particularly the case in the gout. It may be also observed, that hereditary diseases, depending upon a morbific matter, always appear much more earlier in life than the gout commonly does.

Seventhly, The supposition of a morbific matter being the cause of the gout, has been hitherto useless,

as it has not suggested any successful method of cure. Particular suppositions have often corrupted the practice and have frequently led from those views which might be useful, and from that practice which experience had approved. Further, though the supposition of a morbific matter has been generally received, it has been as generally neglected in practice. When the gout has affected the stomach, nobody thinks of correcting the matter supposed to be present there, but merely of restoring the tone of the moving fibres.

Eighthly, The supposition of a morbific matter is quite superfluous; for it explains nothing, without supposing that matter to produce a change in the state of the moving powers; and a change in the state of the moving powers, produced by other causes, explains every circumstance, without the supposition of a morbific matter; and, to this purpose, it may be observed, that many of the causes (503.) exciting the gout, do not operate upon the state of the fluids, but directly and solely upon that of the moving powers.

Lastly, the supposition of a morbific matter is also superfluous; because, without any such supposition, I think the disease can be explained in a manner more consistent with its phenomena, with the laws of the animal economy, and with the method of cure which experience has approved.

I now proceed to give this explanation; but, before entering upon it, I must premise some general observations.*

* The very name of Gout, being derived from the French word Goute, a drop—that of rheumatism, from the Greek word, ῥέω, to flow, convinces us that, originally, both diseases were supposed to arise from a vitiation of the fluids. But, for the reasons assigned by Dr. Cullen, in addition to what we have ourselves said, on several occasions, in opposition to the humoral pathology in every

529. The first observation is, that the gout is a disease of the whole system, or depends upon a certain general conformation and state of the body, which manifestly appears from the facts mentioned from (493. to 496.) But the general state of the system depends chiefly upon the state of its primary moving powers; and therefore the gout may be supposed to be chiefly an affection of these.*

530. My second observation is, that the gout is manifestly an affection of the nervous system; in which the primary moving powers of the whole system are lodged. The occasional or exciting causes (503.) are almost all such as act directly upon the nerves and nervous system; and the greater part of the symptoms of the atonic or retrocedent gout are manifestly affections of the same system (519. and 521.) This leads us to seek for an explanation of the whole of the disease in the laws of the nervous system, and particularly the changes which may happen in the balance of its several parts.†

531. My third observation is, that the stomach, which has so universal a consent with the rest of the system, is the internal part that is the most frequently, and often very considerably affected by the gout. The paroxysms of the disease are commonly preceded by an affection of the stomach; (506.) many of the exciting causes

shape, the hypothesis must be ultimately and for ever abandoned. Rheumatism, gout, and all other complaints, originate in the solids; the disease arising from the exclusion of respirable air from the lungs excepted.

* Gout is a disease of the whole system, *when it has become so by sympathy*. But, like every other complaint, it is at first local. It commences in the stomach, and spreads by degrees to the other parts of the body.

† We have already observed, and here repeat, that the primæ viæ, more particularly the stomach, constitute the seat of that family of diseases that are now called *nervous*.

(503.) act first upon the stomach; and the symptoms of the atonic and retrocedent gout (519. 521.) are most commonly and chiefly affections of the same organ. This observation leads us to remark, that there is a balance subsisting between the state of the internal and that of the external parts; and, in particular, that the state of the stomach is connected with that of the external parts; (44.) so that the state of tone in the one may be communicated to the other.

532. These observations being premised, I shall now offer the following pathology of the gout.

In some persons there is a certain vigorous and plethoric state of the system (495.) which, at a certain period of life, is liable to a loss of tone in the extremities. (498. 505.) This is in some measure communicated to the whole system, but appears more especially in the functions of the stomach (506.) When this loss of tone occurs while the energy of the brain still retains its vigour, the vis medicatrix naturæ is excited to restore the tone of the parts; and accomplishes it by exciting an inflammatory affection in some part of the extremities. When this has subsisted for some days, the tone of the extremities, and of the whole system, are restored, and the patient returns to his ordinary state of health. (510.)*

* This is just as correct and intelligible as most of our author's speculations touching the proximate causes of disease. In other words, it is "*voces inanæ et præterea nihil.*"

All we shall venture to say, at present, respecting the philosophy of gout, is, that the disease begins at a point in the stomach, and extends by sympathy to the rest of the system. But we do not pretend to understand either the principles of this sympathetic extension, or the peculiar kind of morbid action in which gout consists. A knowledge of these points is reserved for a period of greater advancement in pathological science.

If gout be, as we believe and have pronounced it, a disease of a specific character, it is then on a level with all other complaints of the same description—*not understood:* for, by *specific ac-*

533. This is the course of things, in the ordinary form of the disease, which we name the *regular* gout; but there are circumstances of the body, in which this course is interrupted or varied. Thus when the atony (505. 506.) has taken place, if the reaction (508.) do not succeed, the atony continues in the stomach, or perhaps in other internal parts, and produces that state which we have, for reasons now obvious, named the *atonic* gout.

534. A second case of variation in the course of the gout is, when, to the atony, the reaction and inflammation have to a certain degree succeeded; but, from causes either internal or external, the tone of the extremities, and perhaps of the whole system, is weakened; so that the inflammatory state, before it had either proceeded to the degree, or continued for the time, requisite for restoring the tone of the system, suddenly and entirely ceases. Hence the stomach, and other internal parts, relapse into the state of atony; and perhaps have this increased by the atony communicated from the extremities: All which appears in what we have termed the *retrocedent* gout.

535. A third case of variation from the ordinary course of the gout, is, when, to the atony usually preceding, an inflammatory reaction fully succeeds, but has its usual determination to the joints by some circumstances prevented; and is therefore directed to an internal part, where it produces an inflammatory affection, and that state of things which we have named the *misplaced* gout.

536. We have thus offered an explanation of the circumstances of the system in the several states of the

tion, whether in physiology, pathology, or therapeutics, we mean an ultimate fact—something that we do not comprehend, and cannot explain, inasmuch as we have no standard of comparison by which we can throw light on it, either to ourselves or others.

Irregular

gout; and this explanation we suppose to be consistent with the phenomena of the disease, and with the laws of the animal economy. There are indeed, with respect to the theory of the disease, several questions which might be put, to which we have not given any answer. But, though perhaps we could give an answer to many of these questions, it does not here appear necessary; as at present we intend only to establish such general facts with regard to this disease, as may lay a foundation for the cure of it, so far as experience has enabled us to prosecute it. Proceeding, therefore, upon the several parts of the pathology given, as so many matters of fact, I shall now consider what may be attempted towards the cure of the disease.

537. In entering upon this, I must observe, in the first place, that a cure has been commonly thought impossible; and we acknowledge it to be very probable, that the gout, as a disease of the whole habit, and very often depending upon original conformation, cannot be cured by medicines, the effects of which are always very transitory, and seldom extend to the producing any considerable change of the whole habit.*

Irregular gout occurs, when, by debility, exhaustion, or other causes, the chain of sympathy, if we may so express ourselves, between the stomach and the lower extremities, is interrupted or broken.

* Completely to eradicate a strong hereditary predisposition to gout, we believe to be as impracticable, as it would be to remove a hereditary likeness in feature or figure, complexion or size. It is so inextricably interwoven with the texture of certain organs, as to constitute, perhaps, essentially, a part of the system. But, by steadily persevering in a suitable regimen, it may be, if not actually weakened, at least prevented from acquiring any additional strength: while a cautious avoidance of exciting causes, will, if not always, at least in most instances, effectually stay its progress towards disease.

Our author's observations, on the regimen proper for persons

538. It would perhaps have been happy for gouty persons, if this opinion had been implicitly received by them; as it would have prevented their having been so often the dupes of self-interested pretenders, who have either amused them with inert medicines, or have rashly employed those of the most pernicious tendency. I am much disposed to believe the impossibility of a cure of the gout by medicines; and more certainly still incline to think, that whatever may be the possible power of medicines, yet no medicine for curing the gout has hitherto been found. Although almost every age has presented a new remedy, yet all hitherto offered have very soon been either neglected as useless, or condemned as pernicious.

539. Though unwilling to admit the power of medi-

predisposed to gout, are so sensible and pertinent, ample and clearly expressed, that any addition to them might be deemed superfluous. They constitute as able a manifestation of practical wisdom and professional skill, as is any where to be found in the records of medicine.

We shall only further observe, that, whatever co-operates with temperance in strengthening the system, particularly the stomach, and diminishing susceptibility, may be usefully employed as a preventive of gout. Of this description is travelling and all manly and athletic exercises in the open air: these, however, should never be carried to the point of fatigue. Moderation in all things constitutes the true spirit of the regimen most suitable to those who are subject to gout.

In persons whose predisposition to gout, instead of being hereditary, has been created by their own voluptuous practices and luxurious living, a change of life has effectually removed it.

It must be acknowledged, however, that such instances are not very common, and that success is always doubtful, where the meridian of life is already past, and there has been a long and zealous devotion to convivial pleasures, to immoderate drinking, or to an excessive and illegitimate indulgence in love. Under circumstances like these, it is perfectly true, as our author has stated, that a sudden change of life is neither a remedy uniformly effectual, in the cure of gout, nor altogether unaccompanied with danger.

cines, yet I contend that a great deal can be done towards the cure of the gout by a regimen: And from what has been observed (497.) I am firmly persuaded, that any man who, early in life, will enter upon the constant practice of bodily labour, and of abstinence from animal food, will be preserved entirely from the disease.

Whether there be any other means of radically curing the gout I am not ready to determine. There are histories of cases of the gout, in which it is said, that by great emotions of mind, by wounds, and by other accidents, the symptoms have been suddenly relieved, and never again returned; but how far these accidental cures might be imitated by art, or would succeed in other cases, is at least extremely uncertain.

540. The practices proper and necessary in the treatment of the gout, are to be considered under two heads; *first*, As they are to be employed in the intervals of paroxysms; or, *secondly*, As during the time of these.

541. In the intervals of paroxysms, the indications are, to prevent the return of paroxysms, or at least to render them less frequent, and more moderate. During the time of paroxysms, the indications are, to moderate the violence, and shorten the duration of them as much as can be done with safety.

542. It has been already observed, that the gout may be entirely prevented by constant bodily exercise, and by a low diet; and I am of opinion, that this prevention may take place even in persons who have a hereditary disposition to the disease. I must add here, that, even when the disposition has discovered itself by several paroxysms of inflammatory gout, I am persuaded that labour and abstinence will absolutely prevent any returns of it for the rest of life. These, therefore, are the means of answering the first indication to be pursued in the in-

tervals of paroxysms; and I must here offer some remarks upon the proper use of these remedies.*

543. Exercise, in persons disposed to the gout, is directed to two purposes: One of these is the strengthening of the tone of the extreme vessels; and the other, the guarding against a plethoric state. For the former, if exercise be employed early in life, and before intemperance has weakened the body, a very moderate degree of it will answer the purpose; and for the latter, if abstinence be at the same time observed, little exercise will be necessary.

544. With respect to exercise, this in general is to be observed, that it should never be violent; for if violent, it cannot be long continued, and must always endanger the bringing on an atony in proportion to the violence of the preceding exercise.

545. It is also to be observed, that the exercise of gestation, though considerable and constant, if it be entirely without bodily exercise, will not answer the purpose in preventing the gout. For this end, therefore, the exercise must be in some measure, that of the body, and must be moderate, but at the same time constant and continued through life.

546. In every case and circumstance of the gout, in which the patient retains the use of his limbs, bodily exercise, in the intervals of paroxysms, will always be useful; and, in the beginning of the disease, when the disposition to it is not yet strong, exercise may prevent

* The Baron Van Sweiten mentions the case of a priest, who, enjoying a rich living, had been an old and constant sufferer from the gout. But, being made a captive by the pirates of Barbary, he was detained in slavery for two years, and compelled to work in the galleys, supported only by a meagre diet. He was at length ransomed, and the result was, that having lost his troublesome and cumbrous obesity, he had never afterwards a fit of the gout, but lived many years in the enjoyment of uninterrupted health.

a paroxysm which otherwise might have come on. In more advanced states of the disease, however, when there is some disposition to a paroxysm, much walking will bring it on; either as it weakens the tone of the lower extremities, or as it excites an inflammatory disposition in them; and it is probable, that in the same manner strains or contusions often bring on a paroxysm of the gout.*

547. Abstinence, the other part of our regimen (539.) for preventing the gout, is of more difficult application. If an abstinence from animal food be entered upon early in life, while the vigour of the system is yet entire, we have no doubt of its being both safe and effectual; but if the motive for this diet shall not have occurred till the constitution shall have been broken by intemperance, or by the decline of life, a low diet may then endanger the bringing on an atonic state.

548. Further, if a low diet be entered upon only in the decline of life, and be at the same time a very great change in the former manner of living, the withdrawing of an accustomed stimulus of the system may readily throw this into an atonic state.†

549. The safety of an abstemious course may be greater or less according to the management of it. It is animal food which especially disposes to the plethoric and inflammatory state, and that food is to be therefore especially avoided; but, on the other hand, it is vegetable aliment of the lowest quality that is in danger of weakening the system too much, by not affording sufficient nourishment; and more particularly of weakening the

* We have seen several instances, in which, in those predisposed to the disease, a strain or contusion of the foot has produced a regular paroxysm of podagra. The injury in such cases acts only as the exciting cause.

† A sudden change from a full to a spare diet is mentioned, in article 503 as one of the occasional causes of gout.

tone of the stomach by its acescency. It is therefore a diet of a middle nature that is to be chosen; and milk is precisely of this kind, as containing both animal and vegetable matter.

As approaching to the nature of milk, and as being a vegetable matter containing the greatest portion of nourishment, the farinaceous seeds are next to be chosen, and are the food most proper to be joined with milk.

550. With respect to drink, fermented liquors are useful only when they are joined with animal food, and that by their acescency; and their stimulus is only necessary from custom. When, therefore, animal food is to be avoided, fermented liquors are unnecessary; and, by increasing the acescency of vegetables, these liquors may be hurtful. The stimulus of fermented or spirituous liquors, is not necessary to the young and vigorous; and, when much employed, impairs the tone of the system. These liquors, therefore, are to be avoided, except so far as custom and the declining state of the system may have rendered them necessary. For preventing or moderating the regular gout, water is the only proper drink.

551. With respect to an abstemious course, it has been supposed that an abstinence from animal food and fermented liquors, or the living upon milk and farinacea alone for the space of one year, might be sufficient for a radical cure of the gout; and it is possible that, at a certain period of life, in certain circumstances of the constitution, such a measure might answer the purpose. But this is very doubtful; and it is more probable that the abstinence must, in a great measure, be continued, and the milk diet be persisted in, for the rest of life. It is well known, that several persons who had entered on an abstemious course, and had been thereby delivered from the gout, have, however, upon returning to their

former manner of full living, had the disease return upon them, with as much violence as before, or in a more irregular and more dangerous form.*

552. It has been alleged, that, for preventing the return of the gout, blood-letting, or scarifications of the feet frequently repeated, and at stated times, may be practised with advantage; but of this I have had no experience.

553. Exercise and abstinence are the means of avoiding the plethoric state which gives the disposition to the gout; and are therefore the means proposed for preventing paroxysms, or at least for rendering them less frequent, and more moderate. But many circumstances prevent the steadiness necessary in pursuing these measures; and therefore, in such cases, unless great care be taken to avoid the exciting causes, the disease may frequently return; and in many cases, the preventing of paroxysms is chiefly to be obtained by avoiding those exciting causes enumerated in (503.) The conduct necessary for avoiding them, will be sufficiently obvious to persons acquainted with the doctrines of the Hygieine, which I suppose to have been delivered in another place.

554. A due attention in avoiding those several causes (502. 503.) will certainly prevent fits of the gout; and the taking care that the exciting causes be never applied in a great degree, will certainly render fits more moderate when they do come on. But, upon the whole, it will appear, that a strict attention to the whole conduct of life, is in this matter necessary; and therefore, when the predisposition has taken place, it will be extremely difficult to avoid the disease.

* It is exceedingly improbable that any regimen or mode of life, persisted in for only a year, and then abandoned, has ever effected or ever will effect, a radical cure of gout.

555. I am indeed firmly persuaded, that, by obviating the predisposition, and by avoiding the exciting causes, the gout may be entirely prevented: But as the measures necessary for this purpose will, in most cases, be pursued with difficulty, and even with reluctance, men have been very desirous to find a medicine which might answer the purpose without any restraint on their manner of living. To gratify this desire, physicians have proposed, and, to take advantage of it, empirics have feigned, many remedies, as we have already observed. Of what nature several of these remedies have been, I cannot certainly say; but, of those which are unknown, we conclude, from their having been only of temporary fame, and from their having soon fallen into neglect, that they have been either inert or pernicious, and therefore I make no inquiry after them; and shall now remark only upon one or two known remedies for the gout, which have been lately in vogue.

556. One of these is what has been named in England the Portland Powder. This is not a new medicine, but is mentioned by GALEN, and, with some little variation in its composition, has been mentioned by the writers of almost every age since that time. It appears to have been at times in fashion, and to have again fallen into neglect; and I think that this last has been owing to its having been found to be, in many instances, pernicious. In every instance which I have known of its exhibition for the length of time prescribed, the persons who had taken it were indeed afterwards free from any inflammatory affection of the joints; but they were affected with many symptoms of the atonic gout; and all, soon after finishing their course of the medicine, have been attacked with apoplexy, asthma, or dropsy, which proved fatal.*

* The Portland Powder being rejected from practice, both in Europe and America, an account of its composition would be alto-

557. Another remedy which has had the appearance of preventing the gout, is an alkali in various forms, such as the fixed alkali both mild and caustic, lime water, soap, and absorbent earths. Since it became common to exhibit these medicines in nephritic and calculous cases, it has often happened that they were given to those who were at the same time subject to the gout; and it has been observed, that under the use of these medicines, gouty persons have been longer free from the fits of their disease. That, however the use of these medicines has entirely prevented the returns of gout, I do not know; because I never pushed the use of those medicines for a long time, being apprehensive that the long continued use of them might produce a hurtful change in the state of the fluids.*

gether useless. It consisted of several vegetable articles, all of them bitter, aromatic, or otherwise stimulating, calculated, perhaps, to give, for a time, a factitious tone to the stomach, but not to augment its natural powers. On the other hand, it could no more fail to impair these powers, than the long continued and excessive use of ardent spirits, Cayenne pepper, or any other powerfully stimulating condiment or drink. To say the least, it prevented one disease of the stomach only by producing another.

* Several persons with whom we have conversed, fancy that their arthritic complaints have been much relieved, by the daily and long continued use of the hypercarbonated soda water.

That some of the troublesome symptoms of gout have been thus mitigated, is probably true: but that the predisposition to the disease has ever been materially weakened by this remedy, is a position, which, as far as we are informed, there exists no satisfactory reason to believe. From the usual operation of soda and other absorbents on the system, we would not be led to consider them as efficacious remedies in the treatment of gout. We believe their introduction and employment to have arisen from a false theory of the disease; and that they have never yet received the sanction of experience. When gout was supposed to originate from the presence of a superabundant acid, in the system, alkalis and absorbents were resorted to as its most promising and natural remedies. But it be-

558. With respect to preventing the gout, I have only one other remark to offer. As the preventing the gout depends very much on supporting the tone of the stomach, and avoiding indigestion; so costiveness, by occasioning this, is very hurtful to gouty persons. It is there-

ing now acknowledged to be a disease of the solids, these remedies are no longer in such esteem.

"The Eau Medicinale d'Husson, (says a British practical writer of considerable reputation,) is a remedy much in vogue, at present, in gouty attacks, and in some cases it appears to have considerably alleviated the paroxysm, but in a few others, it has produced alarming effects, such as syncope, cold sweats, extreme prostration of strength, excessive evacuations from the stomach and bowels, accompanied by a pulse scarcely perceptible, and a degree of insensibility that indicated approaching dissolution. Such consequences, however, have only ensued when an improper dose of the nostrum has been taken. Besides possessing the properties of an emetic and a cathartic, it appears also to be endowed with the properties of a narcotic, as in some instances it seems to act as an anodyne, previous to any sensible evacuation taking place."

The Eau Medicinale is a vegetable preparation, of a bitter and nauseous taste, the composition of which remains a secret. Some suppose it to consist of white hellebore, others of gratiola or hedge-hyssop, a third class of the colchicum autumnale or meadow saffron, and a fourth of the roots of betony, infused in Spanish white wine, with the addition of tincture of opium.

The experience of American physicians in the use of this nostrum is not very ample. As far, however, as it has extended, it has, we believe, tended somewhat to confirm the favourable opinion originally entertained of its anti-arthritic qualities.

In the dose of from half a drachm to two drachms, taken in any convenient vehicle, it greatly mitigates the pain, and shortens the duration of the paroxysm, after it has occurred; while, in doses of from ten drops to a scruple or half a drachm, it is found to prevent it, after the premonitions of its approach have been felt.

We have no evidence of its being calculated to remove entirely the predisposition to gout; nor any of its tendency to produce on the stomach those deleterious effects which follow the use of Portland Powder.

But, if it continue uniformly to relieve the pain and to protract

fore necessary for such persons to prevent or remove costiveness, and by a laxative medicine, when needful; but it is at the same time proper, that the medicine employed should be such as may keep the belly regular, without much purging. Aloetics, rhubarb, magnesia alba, or flowers of sulphur, may be employed, as the one or the other may happen to be best suited to particular persons.

559. These are the several measures (from 541. to 558.) to be pursued in the intervals of the paroxysms; and we are next to mention the measures proper during the time of them.

560. As during the times of paroxysms the body is in a feverish state, no irritation should then be added to it; and every part, therefore, of the antiphlogistic regimen, (130. to 133.) except the application of cold, ought to be strictly observed.

Another exception to the general rule may occur when the tone of the stomach is weak, and when the patient has been before much accustomed to the use of strong drink; for it then may be allowable, and even necessary, to give some animal food, and a little wine.*

the intervals of the paroxysms of gout, it cannot be otherwise regarded than as an important remedy.

We regret to find that, in Great Britain, it does not altogether maintain its original character.

In atonic gout, the pulvis sabinæ, in moderate doses, is a useful remedy.

* We have never seen a case of regular gout accompanied with fever, in which the exhibition of either wine or animal food was admissible. Although we do not believe in the unity of disease, yet, practically speaking, inflammatory fever, whatever may be its name, is so far an unit, as to be always increased by the operation of stimulants. But the fever of real podagra is known to be inflammatory: it does not, therefore, admit of the exhibition of wine or animal food.

561. That no irritation is to be added to the system during the paroxysms of gout, except in the cases mentioned, is entirely agreed upon among physicians: But

If the form of gout be atonic; or the topical affection threaten to recede from the foot and attack the stomach; in either case, wine and other stimulants become essential. But in true podagra, when the pain is severe and the fever considerable, the action of the system should be diminished, not increased. We are convinced that the amount of suffering in regular gout is greatly augmented by the injudicious manner in which that complaint is generally treated—we ought rather to say, the *actual neglect* with which it is treated.

On this subject, we can do nothing else so well calculated to instruct our readers, as to quote, from his manuscript lectures, the sentiments of our very able and distinguished friend, the present Professor of the Theory and Practice of Physic, in the University of Pennsylvania.

"It may be proper for me in this place, (says the Professor,) to state, that the treatment of podagra or regular gout, by active purging, is a very ancient practice. It indeed prevailed, with no interruption, from the earliest times, until it was prohibited by Sydenham, on purely theoretical views: it being, he observes, 'an inviolable law of nature, that the matter of the disease should be thrown out by the extremities, emetics and cathartics will have no other effect, than that of bringing back the offending matter to the bowels.'

"Enslaved by the authority of Sydenham, we have ever since, with some very limited exceptions, wholly abandoned the use of purgatives, and have been most commonly content to let the attack spontaneously exhaust itself. To envelope the limb with flannel, and to urge a patient endurance of the pain, constitute, indeed, proverbially, the amount of what is at present done in a regular paroxysm of gout.

"It appears to me, that the example of Sydenham has been, in this case, exceedingly mischievous; having led, in my opinion, to the desertion of a practice, which, if judiciously applied, is not only safe, but peculiarly calculated to overcome this most distressing disease.

"It would ill comport with my duties, were I to indulge in any minute, or lengthened disquisition respecting the nature and causes

it is a more difficult matter to determine whether, during the time of paroxysms, any measure may be pursued to moderate the violence of reaction and of inflamma-

of gout. My impression, very concisely stated, is, that this disease, if not originating in, has a most intimate connection with, certain states of the alimentary canal. I am inclined to this view of the subject, from having so frequently observed gout to commence with the symptoms which denote a disordered condition of the stomach and bowels. The precursory indications of an approaching attack of this disease are, almost invariably, flatulence, sour eructations, indigestion, depraved appetite, nausea, strong sensations of internal heat, and obstinate constipation, or a lax and disordered state of the bowels.—

—"But whether the opinion I have ventured to advance on this subject be right or wrong, (continues the Professor,) it may be confidently stated, that the practice it dictates is perfectly sound, and fully warranted by long and diversified experience.

"I have now, for several years, habitually employed purgatives in the paroxysms of gout, and with unequivocal advantage. Not content with simply opening the bowels, I completely evacuate, by active purging, the entire alimentary canal. This being accomplished, all the distressing sensations of the stomach which I have mentioned are removed, the pain and inflammation of the limb gradually subside, and the paroxysm, thus broken, speedily passes away. To effect these purposes, however, it is often necessary to recur to the remedy repeatedly.

"Though, in some instances, the operation of a single cathartic will be productive of considerable relief, it more generally requires successive purging for several days to do it.

"My practice has been, to administer every day, or every other day, a very large dose of rhubarb and magnesia, to produce a greater or lesser number of openings, according to the strength of the patient, and the violence of the case."

This statement of his own practice in regular gout, the Professor proceeds to corroborate by an account of that of other distinguished physicians of former times and distant countries. Indulging himself, here, in a rapid glance over the annals of medicine, he clearly shows, that from the time of Hippocrates to that of Sydenham, podagra was uniformly treated by active purging: and further, that although the latter character, from the peculiarity of his

tion. Dr. Sydenham has given it as his opinion, that the more violent the inflammation and pain, the paroxysms will be the shorter, as well as the interval between the present and next paroxysm longer; and, if this opinion be admitted as just, it will forbid the use of any remedies which might moderate the inflammation; which is, to a certain degree, undoubtedly necessary for the health of the body. On the other hand, acute pain presses for relief; and, although a certain degree of inflammation may seem absolutely necessary, it is not certain but that a moderate degree of it may answer the purpose: And it is even probable, that in many cases, the violence of inflammation may weaken the tone of the parts, and thereby invite a return of paroxysms. It seems to me to be in this way, that, as the disease advances, the paroxysms become more frequent.

562. From these last considerations, it seems probable, that, during the time of paroxysms, some measures may be taken to moderate the violence of the inflammation and pain; and particularly, that in first paroxysms, and in the young and vigorous, blood-letting at the arm may be practised with advantage. But I am persuaded that this practice cannot be repeated often with safety; because blood-letting not only weakens the tone of the system, but may also contribute to produce plethora. I believe, however, that bleeding by leeches on the foot, and upon the inflamed part, may be practised, and repeated with greater safety; and I have known in-

views, and by the weight of his authority, rendered this mode of practice somewhat unpopular, it was, notwithstanding, pursued, until a much later period, by some of the most eminent physicians of Europe.

We regret exceedingly that our limits do not permit us to quote the whole of the Professor's remarks and illustrations touching this subject, as they could not fail to prove highly interesting and instructive to our readers.

stances of its having been practised with safety, to moderate and shorten paroxysms; but how far it may be carried, we have not had experience enough to determine.

563. Besides blood-letting, and the antiphlogistic regimen, it has been proposed to employ remedies for moderating the inflammatory spasm of the part affected, such as warm bathing and emollient poultices. These have sometimes been employed with advantage and safety; but at other times, have been found to give occasion to a retrocession of the gout.

564. Blistering is a very effectual means of relieving and discussing a paroxysm of the gout; but has also frequently had the effect of rendering it retrocedent.*

565. The stinging with nettles I consider as analogous to blistering; and I think it probable that it would be attended with the same danger.

566. The burning with moxa, or other substances, I consider as a remedy of the same kind. I have had indeed no evidence of this proving hurtful; but neither have I had any proper evidence of its having proved a radical cure.

567. Camphire, and some aromatic oils, have the power of allaying the pain, and of removing the inflammation from the part affected; but these remedies commonly make the inflammation only shift from one part to another, and therefore with the hazard of its falling upon a part where it may be more dangerous: and they have sometimes rendered the gout retrocedent.

568. From these reflections (563. et seq.) it will ap-

* In case of the retrocession of gout, blisters and sinapisms are useful remedies in recalling the topical affection to the extremities. But blistering the part where the affection is already situated, with a view to its discussion, is a practice which, we believe, is very rarely pursued. We have never seen an instance of it, nor can we discover any correctness of principle on which it is founded.

pear, that some danger must attend every external application to the parts affected during a paroxysm; and that therefore the common practice of committing the person to patience and flannel alone, is established upon the best foundation.*

569. Opiates give the most certain relief from pain; but, when given in the beginning of gouty paroxysms, occasion these to return with greater violence. When, however, the paroxysms shall have abated in their violence, but still continue to return, so as to occasion painful and restless nights, opiates may then be given with safety and advantage, especially in the case of persons advanced in life, and who have been often affected with the disease.

570. When, after paroxysms have ceased, some swelling and stiffness shall remain in the joints, these symptoms are to be discussed by the diligent use of the flesh-brush.

571. Purging, immediately after a paroxysm, will be always employed with the hazard of bringing it on again.†

572. I have now finished what has occurred to be said upon the means of preventing and curing the regular gout; and shall now consider its management when it

* As far as our own observation has enabled us to decide, we consider all active topical applications, in cases of podagra, somewhat hazardous; and are, therefore, inclined to caution practitioners against their use. We believe, with our author, that soft flannel, or flakes of carded wool, or cotton, constitute the best remedies of this description. In atonic gout, the same objections against topical applications do not exist. In that complaint, when in the form of lumbago, sciatica, or pains in the joints, blisters, sinapisms, and other external irritating means, judiciously directed, are exceedingly useful.

† This we believe to be an error. We have never witnessed the event in practice; nor do we know of any principle on which it could be explained.

has become irregular; of which, as I have observed above, there are three different cases.

573. In the first case, which I have named the Atonic Gout, the cure is to be accomplished by carefully avoiding all debilitating causes; and by employing, at the same time, the means of strengthening the system in general, and the stomach in particular.

574. For the avoiding debilitating causes, I must refer to the doctrines of the Hygieine, as in 553.

575. For strengthening the system in general, I must recommend frequent exercise on horseback, and moderate walking. Cold bathing also may answer the purpose, and may be safely employed if it appear to be powerful in stimulating the system, and be not applied when the extremities are threatened with any pain.

For supporting the tone of the system in general, when threatened with atonic gout, some animal food ought to be employed, and the more acescent vegetables ought to be avoided. In the same case, some wine also may be necessary, but it should be in moderate quantity, and of the least acescent kinds; and, if every kind of wine shall be found to increase the acidity of the stomach, ardent spirits and water must be employed.*

576. For strengthening the stomach, bitters and the Peruvian bark may be employed; but care must be taken that they be not constantly employed for any great length of time. Compare 556.

The most effectual medicine for strengthening the stomach is iron, which may be employed under various preparations; but, to me, the best appears to be the rust in fine powder, which may be given in very large doses.

* Persons subject to atonic gout, should approach the cold bath with great caution. If, on being used, it excite on the surface of the body and extremities, a pleasant glow, it may be safely continued; but, if it produce a sensation of chilliness, let it be promptly abandoned.

For supporting the tone of the stomach, aromatics may be employed; but should be used with caution, as the frequent and large use of them may have an opposite effect; and they should therefore be given only in compliance with former habits, or for palliating present symptoms.

When the stomach happens to be liable to indigestion, gentle vomits may be frequently given; and proper laxatives should be always employed to obviate, or to remove costiveness.*

577. In the atonic gout, or in persons liable to it, to guard against cold is especially necessary; and the most certain means of doing this is, by repairing to a warm climate during the winter season.

578. In the more violent cases of the atonic gout, blistering the lower extremities may be useful; but that remedy should be avoided when any pain threatens the extremities. In persons liable to the atonic gout, issues may be established in the extremities, as, in some measure, a supplement to the disease.†

579. A second case of the irregular gout, is that which I have named the Retrocedent. When this affects the stomach and intestines, relief is to be instantly at-

* Besides acting with superior efficacy, prepared steel is much less apt to disorder the stomach, if it be combined with a small quantity of powdered ginger, cinnamon, cloves, or some other warm and pleasant aromatic. Of prepared steel, ten grains may be administered from three to six times a-day, according to the exigency of the case, and the retentive power of the stomach.

Suitable purges for arthritic patients are, magnesia, rhubarb, gum guaiacum, or an infusion of senna, rendered aromatic by cardamum, or fennel seeds.

† In cases of this description, the application of sinapisms is greatly preferable to that of blisters. The establishment of issues in the extremities, we consider a hazardous experiment, as the consequence may be, the production of troublesome sores.

tempted by the free use of strong wines, joined with aromatics, and given warm; or if these should not prove powerful enough, ardent spirits must be employed, and are to be given in a large dose. In moderate attacks, ardent spirits impregnated with garlic, or with assafœtida, may be employed; or, even without the ardent spirits, a solution of assafœtida with the volatile alkali may answer the purpose. Opiates are often an effectual remedy, and may be joined with aromatics, as in the Electuarium Thebaicum; or they may be usefully joined wtth volatile alkali and camphire. Musk has likewise proved useful in this disease.

When the affection of the stomach is accompanied with vomiting, this may be encouraged, by taking draughts of warm wine, at first with water, and afterwards without it; having at length recourse, if necessary, to some of the remedies above-mentioned, and particularly to the opiates.

In like manner, if the intestines be effected with diarrhœa, this is to be at first encouraged, by taking plentifully of weak broth; and when this shall have been done sufficiently, the tumult is to be quieted by opiates.*

580. When the retrocedent gout shall affect the lungs, and produce asthma, this is to be cured by opiates, by antispasmodics, and, perhaps, by blistering on the breast or back.†

* In a case like this, opiates may be given in very powerful and repeated doses. An ounce of laudanum has been administered in the space of eight hours, with safety and success. If the spasm be violent, ether may be exhibited with particular advantage. So may a very strong tincture of assafœtida, garlic, or camphor.

We know not on what principle wine should be given to promote vomiting in retrocedent gout. Warm water is greatly preferable.

† In the treatment of this form of retrocedent gout, emetics are exhibited with the happiest effect. Cupping on the breast, or

581. When the gout, leaving the extremities, shall affect the head, and produce pain, vertigo, apoplexy, or palsy, our resources are very precarious. The most probable means of relief is, blistering the head: and if the gout shall have receded entirely from the extremities, blisters may be applied to these also. Together with these blisterings, aromatics, and the volatile alkali, may be thrown into the stomach.*

582. The third case of the irregular gout is what I have named the Misplaced; that is, when the inflammatory affection of the gout, instead of falling upon the extremities, falls upon some internal part. In this case, the disease is to be treated by blood-letting, and by such other remedies as would be proper in an idiopathic inflammation of the same parts.

583. Whether the translation so frequently made from the extremities to the kidneys, is to be considered as an instance of the misplaced gout, seems, as we have said before, uncertain; but I am disposed to think it something different; and therefore am of opinion, that, in the Nephralgia Calculosa produced upon this occasion, the remedies of inflammation are to be employed no farther than they may be otherwise sometimes necessary in that disease, arising from other causes than the gout.

along the spine opposite to the thorax, is also useful. Our author is correct in his opinion of blistering. It constitutes, here, an important remedy. So do stimulating applications to the extremities.

* In this form of the disease, copious purging, with the application of cups to the temples, and also venesection, if the system will bear it, are remedies of fair promise, and ought not to be omitted. The application of blisters to the ancles, and sinapisms to the feet, may also be practised with the prospect of advantage. In every case of gout, whether atonic or retrocedent, it is correct practice to endeavour, by irritating applications, to fix it in the extremities —the hands or feet, according to its tendencies.

BOOK III.

OF EXANTHEMATA,

OR ERUPTIVE FEVERS.

584. THE diseases comprehended under this title, which make the third Order of Pyrexiæ in our Nosology, are in general such as do not arise but upon occasion of a specific contagion applied, which first produces fever, and afterwards an eruption upon the surface of the body; and which diseases, for the most part affect persons but once in the course of their lives.*

585. Whether the character of the Order may be thus limited, or if the Order may be allowed to comprehend also the eruptive fevers produced by a matter generated in the body itself, and likewise those cases of eruption

*We shall, hereafter, say more particularly, that Pestis vera, or true Plague, is very improperly referred to the order exanthemata. It is not an eruptive disease; but belongs, of right, to the order febres; or rather, perhaps, to that of phlegmasiæ; inasmuch as it is usually marked by some inflammatory affection, particularly an inflammation of the stomach. The human body, moreover, is liable to be attacked by it more than once. We do not believe that either it, or scarlet fever is, strictly speaking, a contagious disease.

We feel persuaded, that all the exanthemata are original diseases of the stomach: We mean, that they originate in a topical affection of that organ.

Having never seen a case of oriental plague, we do not feel authorized to speak of the treatment of that disease.

which do not depend upon contagion, or upon a matter generated before the fever, but upon a matter generated in the course of the fever, I am not ready to determine. Of the diseases enumerated by the Nosologists as *Exanthemata*, there are certainly three different kinds, which may be distinguished by the circumstances mentioned in this and the preceding paragraph. Of the first kind are the Small Pox, the Chicken Pox, the Measles, the Scarlet Fever, and the Plague. Of the second kind seems to be the Erysipelas; and of the third kind I judge the Miliaria and Petechia to be. But as I am not sufficiently confident in the facts which should support these distinctions, or which would enable us to apply them in all cases; I go on in this book to treat of almost all the exanthemata enumerated by preceding Nosologists, with only some difference in the arrangement from what it was in my former editions.

CHAPTER I.

OF THE SMALL POX.*

586. THE small pox is a disease arising from a contagion of a specific nature, which first produces a fever; and on the third or fourth day thereof, produces an eruption of small red pimples. These are afterwards formed

* For many years past, the attention of physicians, both in Europe and America, has been directed, not to the making of improvements in the treatment of casual small pox, but, first, to the mitigation of that disease by the practice of inoculation; and, ulti-

into pustules, containing a matter, which, in the course of eight days from the time of the eruption, is changed into pus. After this, the matter dries, and falls off in crusts.

mately, to its entire prevention, by substituting in its place, the variolæ vaccinæ, or cow-pox.

As we hope, that even inoculation will never hereafter be practised in any part of the world, we should deem it superfluous to engross the time of our readers by any particular directions respecting it—much less do we think it our duty to trouble them with additions to what our author has said on the subject of the casual, or, as it is usually denominated, the natural small-pox. Instead of this, it will be much more useful, as we conceive, and will certainly better accord with the present state of medicine, to invite their attion to an account of the cow-pox. This we shall do, in the shape of a note, as it would be wrong to interpolate, in any way, the text of our author.

On looking over the article "VARIOLÆ VACCINÆ, OR COW-POX," in Thomas's "Modern Practice of Physic," we find it to be sensible and well composed—much compressed, indeed, yet containing almost every thing necessary to be known in relation to that disease. We shall, therefore, insert it here, precisely as it stands, prefacing it with the following brief remarks.

Our own experience in relation to the comparative force of the poisons of small-pox and cow-pox, is somewhat different from that of Dr. Thomas.

Soon after the introduction of the latter disease into the city of Philadelphia, we inserted those two poisons into the different arms of the same individual—a boy about twelve years old. The experiment with each virus succeeded so far as to produce a topical affection; and the two affections increased, *pari passu*, until about the eighth day. At this period, however, a very striking difference ensued. The vaccine pock assumed completely its characteristic appearance, and took possession of the system in the form of a general disease; while the variolous pock ceased to make any further progress in growth, and, in a few days, withered and disappeared, without suppurating, or producing the slightest affection of the system.

This is the only experiment we made. Circumstances, at the time, prevented us from repeating it; and the efficacy of the vac-

587. This is a general idea of the disease; but there are two particular forms or varieties of it, well known under the appellations of the *Distinct* and *Confluent*, which require to be specially described.

cine, as a preventive of the variolous disease, being soon afterwards established to our satisfaction, we did not feel it necessary to return to the subject.

It is found in this country, and the fact is now, we believe, known and acknowledged in Europe, that the virus of the cow-pox can be preserved with more certainty, for a much longer time, and in better condition, in a dry than in a humid state. We vaccinate, therefore, with the scab, when perfectly desiccated, rather than with the matter taken from the pock in a fluid form. Thus fixed and secured from the effects of both fermentation and evaporation, the virus may be conveyed to almost any distance, and the disease propagated in the remotest parts of the world.

A scab, with the cuticle entire, small, perfectly circular, of a dark mahogany colour, and somewhat rough on the external surface, is found to be most richly imbued with the poison, and to retain it longest in an active condition.

Unless in cases where it has been improperly irritated, by accident, or intentional scratching, the affection of the arm, in the cow-pox, has never proved in the slightest degree troublesome to us.

This disease may be propagated with equal advantage at every season of the year, except, that during the severities of winter, and the intense heats of summer, when the skin is strongly stimulated by heat and cold, it cannot be communicated with the same facility as during the milder weather of the autumn and spring.

It is often stated, as a question, why an inoculated disease is less severe than one contracted casually? or, as it is usually expressed, in the natural way?

To us, the answer has always appeared to be plain and easy.

The strength and severity of a disease are proportioned to the importance and the sympathies of the organ in which it has its seat. On this account, diseases that are seated in the stomach, are more violent than those which are radicated in the skin. This, we consider, as amounting to a solution of the question we are considering.

An inoculated disease—small-pox, for example—has its origin in the skin, and affects the stomach *secondarily* and *slightly:* but the casual small-pox takes root in the stomach, and produces in that

588. In the former, or in the distinct small-pox, the eruptive fever is moderate, and appears to be evidently of the inflammatory kind, or what we name a Synocha. It generally comes on about mid-day, with some symp-

organ a much more powerful and serious affection. Hence the violence and danger of the disease that follows.

Thus, the passage of a ball or a bayonet through the muscles of the thigh, gives rise to a wound which is rarely fatal; while the same weapon, by passing through the stomach or the intestines, produces a disease which is seldom cured.

VARIOLÆ VACCINÆ, OR COW-POX.

In many of the dairy counties it has been long known that the cows are liable to an eruption on their paps or udders, which was occasionally communicated to the hands or arms of those who milked them, producing an ulcer, and some degree of fever; and it had been observed by the people of those counties, that those who had undergone this disease, known by the name of cow-pox, were not liable to the small-pox.

The disease had not, however, undergone any medical investigation until Dr. Jenner, then of Berkley in Gloucestershire, paid particular attention to it. He very satisfactorily ascertained that it was a much milder disease than the small-pox, and that the fact was true that it secured those who had been infected with it from afterwards being liable to variolous infection. He also observed that the vaccine-pox is not infectious, but by inoculation; and that on this account it might be inoculated in a family without endangering others; a circumstance of the greatest importance. On the suggestions of Dr. Jenner, many practitioners were induced to adopt the practice of substituting the one disease for the other, and its efficacy is now fully established.

With respect to the origin of the disease in the cow, we are informed by Dr. Jenner, that he traced it to the diseased heels of horses which had been affected with the grease; and by the person appointed to apply the dressings to them, not paying a due attention to cleanliness, and incautiously bearing his part in milking the cows, with some particles of the infectious matter adhering to his fingers, he has communicated the disease to them. From numerous experiments made, however, at an early period, by the late Dr.

toms of a cold stage, and commonly with a considerable languor and drowsiness. A hot stage is soon formed, and becomes more considerable on the second and third days. During this course, children are liable to frequent

Woodville, and by Mr. Coleman, Professor at the Veterinary College, with the matter of grease, taken in the various stages of that complaint, no such effect has been produced upon cows. Neither were inoculations with this matter, nor with several other morbid secretions in the horse, productive of any effects upon the human subject, which by no means accord with the facts adduced by Dr. Jenner on this point.

Some communications through the medium of the Medical and Physical Journal (see vol. iv. pages 381 and 466,) in consequence of still later experiments, seem however to give support to Dr. Jenner's opinion as to the origin of the disease.

On its first investigation, some circumstances led to the supposition that the cow-pox and the small-pox were originally one and the same disease; the latter being derived from the animal at some remote period, and having undergone in the lapse of years, and by the influence of various constitutions, the changes we now experience. Subsequent facts have, however, invalidated this opinion.

From various experiments it appears that the vaccine disease and the small-pox are not susceptible of intermixture, but that each preserves its distinct character under all circumstances. At the Small-pox Hospital it has been noticed, that when the vaccine and variolous fluids are mixed together, and thus inserted, sometimes the vaccine pustule, at others the variolous, has been produced, each of them retaining its characteristic marks throughout. Again, it has been found, that when the two fluids are inserted separately, and so near together, that the two pustules which follow spread into one, by inoculating with the fluid taken from one side of it, the vaccine pustule alone will be produced, while the fluid taken from the other excites the genuine variolous pustule, with the general eruption of small-pox on the body. Another point of dissimilarity between the variolous and vaccine diseases is this: the inoculation of the former we well know supersedes the natural disease many days after exposure to infection.

The effect produced by submitting persons to the influence of variolous and vaccine matter at the same time, is, that they both prove effective; for the vaccine vesicle proceeds to its acme in the

startings form their slumbers; and adults, if they are kept a-bed, are disposed to much sweating. On the third day, children are sometimes affected with one or two epileptic fits. Towards the end of the third day, the

usual number of days, and the maturation of the variolous pustules is attended with a pustular eruption on different parts of the body; but when variolous matter is not inserted until the ninth day after the inoculation with vaccine matter, the action of the variolous seems to be wholly precluded.

The variolous and vaccine fluids inoculated about the same time, restrain the action of each other. The vaccine vesicle, in this case, is smaller, and proceeds more slowly to its maturity; and the variolous pustules are small, hard, and shining, producing only a small particle of matter at their apices.

The nipples of the cow being once affected, the disorder is communicated to the dairy-maids, and other assistants employed in milking, and by them it is spread through the farm, till at last most of the cattle experience its consequences.

The disease appears on the nipples of the cows in the form of irregular pustules, which on their first appearance are commonly of a colour somewhat approaching to livid, and are surrounded by an erysipelatous inflammation, according to the report of Dr. Jenner; but Dr. Woodville seems to think that it is rather an indurated tumefaction of the skin which surrounds the pustules, than an inflammation of an erysipelatous nature. Unless proper remedies are applied in time, these pustules soon degenerate into phagedenic ulcers, which prove extremely troublesome; the animals then become much indisposed, and the secretion of milk suffers a considerable diminution.

Inflamed spots now begin to appear on different parts of the hands and wrists of the domestics employed in milking, which run on quickly to suppuration, assuming at first the appearance of small vesications produced by a burn. Most commonly they come out about the joints of the fingers, and at their extremities; but whatever parts are affected, if the situation will admit, these superficial suppurations put on a circular form with their edges more elevated than their centre, and of a colour distinctly approaching to blue. In consequence of absorption, tumours appear in each axilla, the system becomes affected, the pulse is quickened, and rigors, with general lassitude and pains about the limbs and loins, with a vomit-

eruption commonly appears, and gradually increases during the fourth; appearing first upon the face, and successively on the inferior parts, so as to be completed over the whole body on the fifth day.

ing, come on. In some instances, the head is much affected, and a delirium arises.

These symptoms varying in their degrees of violence, usually continue for three or four days, leaving ulcerated sores about the hands, which from the sensibility of the parts are very troublesome, and commonly heal slowly, becoming not unfrequently phagedenic, like those from which they sprung.

The lips, nostrils, eye-lids, and other parts of the body, are likewise affected sometimes with sores, in consequence of being heedlessly rubbed or scratched with the patient's infected fingers.

Dr. Jenner informs us that he had never met with any case of the cow-pox, either taken naturally, or produced artificially, which proved fatal; but by Dr. Woodville we are told, that out of five hundred cases of inoculated cow-pox under his care, one proved fatal, which was a child at the breast, on the eleventh day after the matter had been inserted in the arm.

From that occurrence, and a few cases in which the febrile symptoms ran high, this gentleman was at first very adverse to the vaccine inoculation; but from further trials he latterly gave it, with almost every other practitioner, the most decided preference.

The few instances of death which have occurred from vaccine inoculation, since it has been more generally practised, may probably be referred with much justice to some unknown peculiarities of the constitution; to intervening disorders independent of the vaccine, and to inflammation excited by accidental causes in young children, especially when they have been ill fed and badly nursed—circumstances not uncommon among very poor people.

When the pustules are numerous, as sometimes happens where the disease has been received immediately from the cow, a considerable degree of fever attends; but when it has arisen from inoculation, few or no pustules are to be observed, except immediately round the wound in the arm; and little or no inconvenience is experienced.

A more general knowledge of the disease, than what we had at first, has ascertained it to be an undoubted fact that the vaccine virus is greatly modified, and rendered much milder by passing

From the third day, the fever abates; and against the fifth, it entirely ceases. The eruption appears first in small red spots, hardly eminent, but by degrees rising into pimples. These are generally upon the face in small

through different habits; and that although the cow-pox has proved in many instances a severe disorder in those who received the infection immediately from the animal, still, in a few instances only, have the symptoms run high, or has the least inconvenience been experienced, where proper matter taken from the human subject was used for inoculation.

In the few cases which have been brought forward, where a numerous eruption, proceeded by a fiery redness, took place, we should attribute it to something wrong in the habit of body; to the intervening of some other eruptive disease; or possibly to the having inoculated with matter which had undergone a decomposition, in consequence of putrefaction, or some other cause not obvious.

A use of medicine seems wholly unnecessary in the cow-pox, except in those cases of the natural disease where much febrile heat attends; and then the antiphlogistic plan ought to be pursued.

The vaccine virus is certainly of a very singular nature, inasmuch as that a person who has been infected by it, is found to be for ever after secure from the infection of the small-pox; neither exposure to variolous effluvia, nor the insertion of the matter into the skin, being capable of producing the disease. Many direct experiments made by innumerable practitioners, prove that the susceptibility of the small-pox is totally destroyed by inoculating with the vaccine matter. The permanency of the effect was indeed a matter of some doubt, but that is now fully established. It appears from the report of the Small-pox Hospital in London, that up to December 1802, eleven thousand eight hundred patients and upwards had been vaccinated, of which number twenty-five hundred were afterwards *proved* to be secured from the natural small-pox, by receiving a further inoculation with small-pox matter, while they were at the same time exposed in an hospital full of its infection, without effect. It was said at first, that although the cow-pox destroyed the susceptibility of the small-pox, still it possessed not the same power with regard to itself, as a person might have the disease more than once. Instances certainly have been adduced of the cow-pox taking place a second time; but they are of very rare

number; but even when more numerous, they are separate and distinct from one another. On the fifth or sixth day, a small vesicle, containing an almost colourless or whey-coloured fluid, appears upon the top of each pim-

occurrence, and should be looked on as irregular. The same has happened with the small-pox.

In Dr. Jenner's first treatise, he mentions that the small-pox is not always a security against the cow-pox, and that although the susceptibility of the virus of the cow-pox is for the most part lost in those who have had the small-pox, yet in some constitutions it is only partially destroyed, and in others it does not appear to be in the least diminished. A more intimate knowlege of the disease has convinced us of the fallacy of this opinion.

Soon after Dr. Jenner's first publication on the vaccine disease, a few instances were adduced, tending to invalidate his supposition of the preventive power of the cow-pox with regard to variolous infection; but these he considers to have been cases of a spurious disease, and therefore not affecting his general conclusion.

In using this term, he does not mean, however, to imply that there is a true and false cow-pox, but merely to express an irregularity or difference from that common form and progress of the vaccine pustule from which its efficacy is inferred. Those who perform vaccination ought, therefore, to be well instructed, and should have watched with the greatest care, the regular process of the pustule, and learned the most proper time for taking the matter.

A few cases of still later occurrence have also been brought forward by Mr. Goldson* of Portsmouth, and others, with a view of proving that the inoculated cow-pox is not a permanent security against the infection of the small-pox; but a failure in one or two cases out of more than thirty thousand, although ever so well substantiated, should be considered in no other light than as a casual irregularity, upon which no solid determination can, or ought to be grounded. Instances of the like nature have been known to occur likewise among persons inoculated with variolous matter, and when they are met with, ought to be looked on as anomalous.

There can be little doubt, however, that some of the failures are to be imputed to the inexperience of the early vaccinators, and it is by no means unreasonable to expect that further observation will

* See his cases of Small-pox subsequent to Vaccination.

ple. For two days, these vesicles increase in breadth only, and there is a small hollow pit in their middle; so that it is only against the eighth day that they are raised into spheroidical pustules.

yet suggest many improvements that will reduce the number of anomalous cases, and furnish the means of determining with greater precision when the vaccine disease has been effectually received.

Persons who have been vaccinated and passed through the cow-pox with all the usual accompanying symptoms, and who have afterwards taken the small-pox, of which a very few instances may have happened, have generally imperfect pustules, which die away, in a few days, without exciting any constitutional complaint; but the matter taken from these pustules will communicate the small-pox. This circumstance has been brought forward by the anti-vaccinists as a proof that persons who have had the cow-pox, may afterwards take the small pox by inoculation, and otherwise, not making the proper distinction between local and constitutional infection; or perhaps not understanding how any one can communicate a disease to others, with which he is not himself infected.

We are informed by Dr. Jenner that the sources of a spurious cow-pock are as follow:

1st, That arising from pustules on the nipples or udder of the cow; which pustules contain no specific virus.

2dly, From the matter (although originally possessing the specific virus) which has suffered a decomposition either from putrefaction, or from any other cause less obvious to the senses.

3dly, When the matter is taken from an ulcer in an advanced stage, which ulcer arose from a true cow-pock: and,

4thly, He supposes a spurious disease to arise from matter produced on the human skin, from contact with some peculiar morbid matter generated by a horse.

The characteristics of the true cow-pox are as follow, viz. a circumscribed, circular, elevated eruption, surrounded by a red halo or efflorescence, smooth surface; brown, black, or mahogany, and tamarind-stone coloured, long adhering scab.

From a chymical analysis of vaccine matter by some French physicians, it was found to consist of water and albumen.

The succeeding arguments have been urged in favour of inoculation for the cow-pock over that for the small-pox.

1st, Of

These vesicles or pustules, from their first formation, continue to be surrounded with an exactly circular inflamed margin, which, when the pustules are numerous, diffuses some inflammation over the neighbouring skin,

1st, Of several thousand persons who have had the inoculated cow-pock, only one or two have died.

2dly, Very few well-attested instances have been produced out of many thousands of the above persons, known to have had the inoculated vaccine pock, and who were subsequently inoculated for the small-pox, of this disease being afterwards taken; although many of these were also exposed to the infectious effluvia of the natural small-pox. And, traditionally, this fact has been established time immemorial, with regard to the casual cow-pox.

3dly, It may safely be affirmed, that the inoculated cow-pock is generally a much slighter disease than the inoculated small-pox; and that the proportion of severe cases in the latter is to the former as at least ten to one.

4thly, It does not appear that the genuine vaccine pock can be propagated like the small-pox, by effluvia from persons labouring under it. Hence, if the vaccine inoculation should be universally instituted in place of the small-pox, it is reasonable to conclude, that this most loathsome and fatal malady will be extinguished.

5thly, It does not appear that the vaccine poison, like that of the small-pox, can be conveyed so as to produce the disease indirectly from diseased persons, by adhering to clothes, furniture, bedding, letters, &c. Hence, no danger of its propagation in these channels is to be apprehended from the universal practice of the inoculation of the cow-pock.

6thly, It has been found, that a person whose constitution has distinctly undergone the vaccine disease, is in future unsusceptible of the same disorder. Hence no objection can be made to the new inoculation, as was once urged, on account of its being believed, that by the commutation of the small-pox for the vaccine pock, an eruptive disease would be introduced, to which the same person would be repeatedly liable.

7thly, It does not appear that those who have already gone through the small-pox, are susceptible of the vaccine disease, as was at first believed. Hence no objection can be urged on the score of persons who have already gone through the small-pox, being liable to a new infectious disease, by the introduction of the vaccine inoculation.

8thly, Ex-

so as to give somewhat of a damask rose colour to the spaces between the pustules. As the pustules increase in size, if they be numerous on the face, against the eighth day the whole of the face becomes considerably

8thly, Experience shows, that there is no reason to apprehend the smallest chance of deformities of the skin from the vaccine inoculation.

9thly, The extensive practice of the vaccine inoculation, and the accounts of the disease in the casual way, do not show that any other disease will be excited subsequently, which is peculiarly imputable to the new practice.

On a review of these arguments founded on facts, there can remain no doubt but that the vaccine inoculation will soon wholly supersede and do away the variolous. Could all parents be persuaded to inoculate their children with vaccine matter soon after birth, the small-pox might be entirely eradicated in time. The introduction of this species of inoculation generally throughout both the army and navy, and its extension to France, Spain, Germany, and every part of the continent, as well as to both the Indies, fully stamp its value and efficacy, and give us reason to hope that it will shortly be adopted by every nation of the earth with whom we have the least communication. Vaccination has indeed penetrated to the remotest corners of the globe, and wherever it has been introduced, the increasing experience of every year has only served to confirm pretty generally a confidence in its efficacy. It has been recommended and adopted by far the greatest and most respectable part of the profession, every where; but by a few individuals, it has been obstinately opposed through interested motives.

In inoculating for the vaccine disease, we should carefully attend to the following circumstances:

1st, That the matter should not be taken later than the ninth day of the disease.

2dly, That the fluid should be perfectly transparent, as it is not to be depended upon, if it has become in any degree opaque.

3dly, That the matter, if not used immediately, should be allowed to dry gradually and thoroughly before it is laid by for future use.

4thly, That the punctures can scarcely be made too superficial, and on no account should more than one be made in each arm.

5thly, That

swelled: and, in particular, the eye-lids are so much swelled as entirely to shut the eyes.

As the disease thus proceeds, the matter in the pustules becomes by degrees more opaque and white, and at length of a yellowish colour. On the eleventh day, the swelling of the face is abated, and the pustules seem quite full. On the top of each a darker spot appears; and at this place the pustule, on the eleventh day, or soon after, is spontaneously broken, and a portion of the matter oozes out; in consequence of which the pustule is shrivelled, and subsides; while the matter oozing out dries, and forms a crust upon its surface. Sometimes a little only of the matter oozes out; and what remains in the pustule becomes thick, and even hard. After some days, both the crusts and the hardened pustules fall off, leaving the skin, which they covered, of a brown red colour; and it is only after many days that the skin in these places resume its natural colour. In some cases, where the matter of the pustules has been more liquid, the crusts formed by it are later in falling off, and the part they covered suffers some desquamation, which leaves in it a small pit or hollow.

This is the course of things on the face; and succes-

5thly, That attention should be made to repress, as soon as may be, any excess of inflammation that may happen to arise; and this is best done by cold and restringent applications.

From the report of the physicians of the Vaccine Pock Institution, it appears that the matter of a single pustule, being mixed with one quarter of an ounce measure of warm water, such diluted matter excited as distinct a vaccine pock by inoculation, as an equal quantity of undiluted matter. A pock so excited, was not attended with less inflammation, or constitutional affection, than that excited by a larger quantity of undiluted matter; which points out an easy method of inoculating several persons from a single vaccine pock—a great conveniency indeed, when the poor to be inoculated at one time, are very numerous.

sively, the pustules on the rest of the body take the same. The matter of the pustules, on the arms and hands, is frequently absorbed; so that, at the height of the disease, these pustules appear as empty vesicles. On the tenth and eleventh days, as the swelling of the face subsides, a swelling arises in the hands and feet; but which, again, subsides, as the pustules come to maturity.

When the pustules on the face are numerous, some degree of pyrexia appears on the tenth and eleventh days, but disappears again after the pustules are fully ripened; or perhaps remains in a very slight degree till the pustules on the feet have finished their course. It is seldom that in the distinct small-pox the fever continues longer.

When the pustules on the face are numerous, some uneasiness in the throat, with a hoarseness of the voice, comes on upon the sixth or seventh day, and a thin liquid is poured out from the mouth. These symptoms increase with the swelling of the face; and the liquids of the mouth and throat becoming thicker, are more difficultly thrown out. There is at the same time some difficulty of swallowing; so that liquids taken in to be swallowed are frequently rejected, or thrown out by the nose. But all these affections of the fauces abate as the swelling of the face subsides.

589. In the other form of small-pox, or what is called the Confluent, the course of the disease is, in general, the same with that we have described; but the symptoms of every stage are more violent, and several of the circumstances are different.

In particular, the eruptive fever is more violent. The pulse is more frequent and more contracted, approaching to that state of pulse which is found in the typhus. The coma is more considerable, and there is frequently

a delirium. Vomiting also is a common symptom, especially at the coming on of the disease. In very young infants, epileptic fits are sometimes frequent on the first days of the disease, and sometimes prove fatal before any eruption appears; or they usher in a very confluent and putrid small-pox.

590. The eruption appears more early on the third day, and it is frequently preceded or accompanied with an erysipelatous efflorescence. Sometimes the eruption appears in clusters, like that of the measles. When the eruption is completed, the pimples are always more numerous upon the face, and at the same time smaller and less eminent. After the eruption, the fever suffers some remission, but never goes off entirely; and after the fifth or sixth day it again increases, and continues considerable through the remaining course of the disease.

The vesicles formed on the tops of the pimples appear sooner; and while they increase in breadth, do not retain a circular, but are every way of an irregular figure. Many of them run into one another, insomuch, that very often the face is covered rather with one vesicle than with a number of pustules. The vesicles, so far as they are any wise separated, do not arise to a spheroidical form, but remain flat, and sometimes the whole of the face is of an even surface. When the pustules are in any measure separated, their circumference is not bounded by an inflamed margin, and the part of the skin that is free from pustules is commonly pale and flaccid.

The liquor that is in the pustules changes from a clear to an opaque appearance, and becomes whitish or brownish, but never acquires the yellow colour and thick consistence that appear in the distinct small-pox.

591. The swelling of the face which attends the distinct small-pox, when they are numerous, and almost then only, always attends the confluent, comes on more early, and arises to a greater degree; but abates on the tenth day, and on the eleventh still more. At this time the pustules or vesicles break, and, shrivelling, pour out a liquor that is formed into brown or black crusts, which do not fall off for many days after. Those of the face, in falling off, leave the parts they cover subject to a desquamation, which pretty certainly produces pittings.

On the other parts of the body, the pustules of the confluent small pox are more distinct than upon the face, but never acquire the same maturity and consistence of pus, as in the properly distinct kind.

The salivation, which only sometimes attend the distinct small-pox, very constantly attends the confluent; and both the salivation and the affection of the fauces above mentioned, are, especially in adults, in a higher degree. In infants, a diarrhœa comes frequently in place of the salivation.

In the confluent small-pox, there is often a considerable putrescency of the fluids, as appears from petechiæ, from serous vesicles, under which the skin shows a disposition to gangrene, and from bloody urine, or other hæmorrhagy, all which symptoms frequently accompany this disease.

In the confluent small-pox, the fever, which had only suffered a remission from the time of eruption to that of maturation, is often, at or immediately after this period, renewed with considerable violence. This is what has been called the Secondary Fever; and is, in different cases, of various duration and event.

592. We have thus endeavoured to describe the various circumstances of the small-pox; and from the difference of these circumstances, the event of the disease

may be determined. The whole of the prognosis may be nearly comprised in the following propositions:

The more exactly the disease retains the form of the distinct kind, it is the safer; and the more completely the disease takes the form of the confluent kind, it is the more dangerous.

It is only when the distinct kind shows a great number of pustules on the face, or otherwise, by fever or putrescency, approaches to the circumstances of the confluent, that it is attended with any danger.

In the confluent small-pox there is always danger; and this is always more considerable and certain, according as the fever is more violent and permanent, and especially as the marks and symptoms of putrescency are more evident.

When the putrid disposition is very great, the disease sometimes proves fatal before the eighth day; but, in most cases, it is on the eleventh that death happens, and sometimes it is put off till the fourteenth or seventeenth day.

Though the small-pox should not be immediately fatal, the more violent kinds are often followed by a morbid state of the body, of various kind and event. These consequences, as I judge, may be imputed sometimes to an acrid matter produced by the preceding disease, and deposited in different parts; and sometimes to an inflammatory diathesis produced, and determined to particular parts of the body.

593. It is, I think, agreed among practitioners, that, in the different cases of small-pox, the difference chiefly depends upon the appearance of distinct or confluent; and from the above description of these kinds, it will appear, that they chiefly differ in the period of the eruption, in the number of pustules produced, in the form of the pustules, in the state of the matter contained in

them, in the continuance of the fever, and, lastly, in the danger of the disease.

594. Upon inquiring into the causes of these differences, we might readily suspect, that they depended upon a difference of the contagion producing the disease. This, however, is not probable; for there are innumerable instances of the contagion, arising from a person labouring under the small-pox of the distinct kind, producing the confluent; and on the contrary. Since the practice of inoculation became frequent, we have known the same variolous matter produce in one person the distinct, and in another the confluent small-pox. It is therefore highly probable, that the difference of the small-pox does not depend upon any difference of the contagion, but upon some difference in the state of the person to whom it is applied, or in the state of certain circumstances concurring with the application of the contagion.

595. To find out wherein the difference in the state of the persons to whom the contagion of the small-pox is applied consists, I observe, that the difference between the distinct and confluent small-pox consists especially in the number of pustules produced, which, in the distinct, are generally few; in the confluent, always many. If, therefore, we shall be able to discover what, in the state of different persons, can give occasion to more or fewer pustules, we shall probably be able to account for all the other differences of the distinct and confluent small-pox.

596. It is evident, that the contagion of the small-pox is a ferment with respect to the human fluids, and assimilates a great part of them to its own nature; and it is probable, that the quantity thus assimilated is, in proportion to the bulk of their several bodies, nearly the same in different persons. This quantity passes again out of the body, partly by insensible perspiration, and partly

by being deposited in pustules; but if the quantities generated be nearly equal, the quantities passing out of the body by the two ways mentioned are very unequal in different persons; and, therefore, if we can explain the causes which determine more to pass by the one way than by the other, we may thereby discover the causes which give occasion to more pustules in one person than in another.

597. The causes which determine more of the variolous matter to pass by perspiration, or to form pustules, are probably certain circumstances of the skin, that determine more or less of the variolous matter to stick in it, or to pass freely through it.

598. The circumstance of the skin, which seems to determine the variolous matter to stick in it, is a certain state of inflammation, depending much upon the heat of it. Thus, we have many instances of parts of the body, from being more heated, having a greater number of pustules than other parts. In the present practice of inoculation, in which few pustules are produced, much seems to be owing to the care that is taken to keep the skin cool. Parts covered with plasters, especially with those of a stimulant kind, have more pustules than other parts. Further, certain circumstances, such as adult age, and full living, determining to a phlogistic diathesis, seem to produce a greater number of pustules; while the contrary circumstances have contrary effects.

599. It is therefore probable, that an inflammatory state of the whole system, and more particularly of the skin, gives occasion to a greater number of pustules; and the causes of this may likewise produce most of the other circumstances of the confluent small-pox; such as the period of eruption; the continuance of the fever; the effusion of a more putrescent matter, and less fit to be converted into pus; and, what arises from

thence, the form and other circumstances of the pustules.

600. Having thus attempted to account for the chief difference which occurs in the state of the small-pox, we shall now try the truth of our doctrine, by its application to practice.

601. In considering the practice, we view it first, in general, as suited to render the disease more generally benign and safe, and this by the practice of inoculation.

602. It is not necessary here to describe the operation of inoculating; and what we name the practice of inoculation, comprehends all the several measures which precede or follow that operation, and are supposed to produce its salutary effects.

These measures are chiefly the following:

1. The choosing for the subject of inoculation, persons otherwise free from disease, and not liable, from their age or other circumstances, to any incidental disease.

2. The choosing a person at the time of life most favourable to a mild disease.

3. The choosing for the practice a season the most conducive to the mildness of the disease.

4. The preparing the person to be inoculated, by abstinence from animal food, for some time before inoculation.

5. The preparing the person by courses of mercurial and antimonial medicines.

6. The taking care, at the time of inoculation, to avoid cold, intemperance, fear, or other circumstances which might aggravate the future disease.

7. After these preparations and precautions, the choosing a fit matter to be employed in inoculation, by taking it from a person of a sound constitution, and free from any disease or suspicion of it; by taking it from a per-

son who has had the small-pox of the most benign kind; and, lastly, by taking the matter from such persons, as soon as it has appeared in the pustules, either in the part inoculated, or on other parts of the body.

8. The introducing, by inoculation, but a small portion of the contagious matter.

9. After inoculation, the continuing the vegetable diet, as well as the employment of mercurial and antimonial medicines, and, at the same time, frequently employing purgatives.

10. Both before and after inoculation, taking care to avoid external heat, either from the sun, artificial fires, warm chambers, much clothing, or being much in bed; and, on the contrary, exposing the person to a free and cool air.

11. Upon the appearance of the eruptive fever, the rendering that moderate by the employment of purgatives, by the use of cooling and antiseptic acids, and especially by exposing the person frequently to a cool, and even a cold air, at the same time giving freely of cold drink.

12. After the eruption, the continuing the application of cold air, and the use of purgatives, during the course of the disease, until the pustules are fully ripened.

603. These are the measures proposed and practised in the latest and most improved state of inoculation; and the advantages obtained by the whole of the practice, or at least by most of the measures above mentioned, are now ascertained, by a long experience, to amount to this. That in ninety-nine cases of the hundred, inoculation gives a distinct small-pox only, and that also very generally of the mildest form; but it will still be useful, for the proper conduct of inoculation, to consider the importance and utility of the several measures above mentioned, that we may thereby more exactly determine

upon what the advantages of inoculation more certainly depend.

604. As the common infection may often seize persons labouring under another disease, which may render the small-pox more violent, it is obvious, that inoculation must have a great advantage, by avoiding such concurrence. But as the avoiding such concurrence may often, in the mean while, leave persons exposed to the common infection, it merits inquiry, whether every diseased state should restrain from the practice of inoculation, or what are the particular diseases that should do so. This is not yet sufficiently ascertained by observation; and we have frequently remarked, that the small-pox have often occurred with a diseased state of the body, without being thereby rendered more violent. In particular, we have observed, that a scrofulous habit, or even the presence of scrofula, did not render the small-pox more violent; and we have observed also, that several diseases of the skin are equally innocent. I am of opinion, that they are the diseases of the febrile kind, or ailments ready to induce or aggravate a febrile state, that especially give the concurrence which is most dangerous with the small-pox. I dare not attempt any general rules; but I am disposed to maintain, that, though a person be in a diseased state, if that state be of uncertain nature and effect, and, at the same time, the small-pox be exceedingly rife, so as to render it extremely difficult to guard against the common infection, it will always be safer to give the small-pox by inoculation, than to leave the person to take them by the common infection.

605. Though inoculation has been practised with safety upon persons of all ages; yet, from what has actually occurred in the cases of common infection, and from several other considerations, there is reason to conclude, that adults are more liable to a violent disease

than persons of younger years. At the same time, it is observed, that children, in the time of their first dentition, are liable, from this irritation, to have the small-pox rendered more violent; and that infants, before the time of dentition, upon receiving the contagion of the small-pox, are liable to be affected with epileptic fits, which frequently prove fatal. It is, therefore, upon the whole, evident, that, though circumstances may admit, and even render inoculation at any age proper, yet for the most part, it will be still more advisable to choose persons at an age, after the first dentition is over, and before the time of puberty.

606. Though inoculation has been practised with safety at every season of the year, yet as it is certain, that the cold of winter may increase the inflammatory, and the heats of summer increase the putrescent state of the small-pox, it is highly probable, that inoculation may have some advantage, from avoiding the extremes either of heat or cold.

607. Although the original temperament and constitutions of men are not to be readily changed, it is sufficiently certain, that the conditions of the human body may, by various causes, in many respects be occasionally very much changed, and therefore as the use of animal food may increase both the inflammatory and putrescent state of the human body, so it must render persons, on receiving the contagion of the small-pox, less secure against a violent disease; and therefore inoculation may derive some advantage from abstinence from animal food for some time before the inoculation is performed: but I am of opinion, that a longer time than that usually prescribed may be often necessary; and I am persuaded, that the Scottish mothers who avoid giving their children animal food till they are past the small-pox, render this disease in them of a milder kind.

608. I cannot deny that mercurial and antimonial medicines may have some effect in determining to a more free perspiration, and therefore may be of some use in preparing a person for the small-pox; but there are many observations which render me doubtful as to their effect. The quantity of both these medicines, particularly of the antimony commonly employed, is too inconsiderable to produce any effect. It is true that the mercurials have often been employed more freely; but even their salutary effects have not been evident, and their mischievous effects have sometimes appeared. I doubt therefore, upon the whole, if inoculation derives any advantage from these pretended preparatory courses of medicines.

609. As it has been often observed, in the case of almost all contagions, that cold, intemperance, fear, and some other circumstances, concurring with the application of the contagion, have greatly aggravated the future disease, so it must be the same in the case of the small-pox; and it is undoubted, that inoculation must derive a great, and perhaps its principal, advantage, from avoiding the concurrences above mentioned.

610. It has been commonly supposed, that inoculation has derived some advantage from the choice of the matter employed in it; but, from what has been observed in 594, it must appear very doubtful if any choice be necessary, or can be of any benefit in determining the state of the disease.

611. It has been supposed by some, that inoculation has an advantage, by introducing a small portion only of the contagious matter: but this rests upon an uncertain foundation. It is not known what quantity is introduced by the common infection, and it may be a small quantity only: Although it were larger than that thrown in by inoculation, it is not ascertained that the circumstance of quantity would have any effect. A certain quantity of

ferment may be necessary to excite fermentation in a given mass: but that quantity given, the fermentation and assimilation are extended to the whole mass; and we do not find that a greater quantity than is just necessary, either increases the activity of the fermentation, or more certainly secures the assimilation of the whole. In the case of the small-pox, a considerable difference in the quantity of contagious matter introduced, has not discovered any effect in modifying the disease.

612. Purging has the effect of diminishing the activity of the sanguiferous system, and of obviating its inflammatory state. It is therefore probable, that the frequent use of cooling purgatives is a practice attending inoculation which may be of considerable advantage; and, probably, it is also useful by diminishing the determination to the skin. It appears to me, that mercurials and antimonials, as they are commonly managed, are useful only as they make a part of the purging course.

613. It is probable, that the state of the small-pox depends very much upon the state of the eruptive fever, and particularly upon moderating the inflammatory state of the skin; and, therefore, it is probable, that the measures taken for moderating the eruptive fever and inflammatory state of the skin, afford the greatest improvement which has been made in the practice of inoculation. The tendency of purging, and the use of acids for this purpose, is sufficiently obvious; and upon the same ground, we should suppose, that blood-letting might be useful; but probably this has been omitted, for the same reason that might perhaps have led to the omission of other remedies also; which is, that we have found a more powerful and effectual one in the application of cold air, and the use of cold drink. Whatever doubts or difficulties our theory might present to us on this subject, they may be entirely neglected, as the practice of

Indostan had long ago, and the practice of this country has lately, by a large and repeated experience, ascertained the safety and efficacy of this remedy: and as it may and can be more certainly employed with the practice of inoculation, than it can be in cases of common infection, it must give a singular advantage to the former.

614. After the eruption, when a few pimples only have appeared on the face, the continuing the application of cold air, and the employment of purgatives, has indeed been the practice of many inoculators: but I think, these practices cannot be said to give any peculiar advantages to inoculation; for when the state of the eruption is determined, when the number of pustules is very small, and the fever has entirely ceased, I hold the safety of the disease to be absolutely ascertained, and the further use of remedies entirely superfluous. In such cases, I judge the use of purgatives to be not only unnecessary, but that they may be often hurtful.

615. I have thus considered the several circumstances and practices accompanying inoculation, and have endeavoured to ascertain the utility and importance of each. Upon the whole, I hope I have sufficiently ascertained the general utility and great advantage of this practice, especially consisting in this, that if certain precautions, preparations, and remedies, are of importance, all of them can be employed with more certainty in the practice of inoculation, than in the case of common infection.

It remains now that I should offer some remarks on the conduct of the small-pox, as received by infection, or even when, after inoculation, the symptoms shall prove violent. The latter sometimes happens, although every precaution and remedy have been employed. The cause of this is not well known; but it appears to me to be commonly owing to a disposition of the fluids to putres-

cency. But, however this may be, it will appear, that, not only in the case of common infection, but even in that of inoculation, there may be occasion for studying the conduct of this disease, in all its possible varying circumstances.

616. When, from the prevailing of small-pox as an epidemic, and more especially when it is known that a person not formerly affected with the disease, has been exposed to the infection, if such person should be seized with the symptoms of fever, there can be little doubt of its being an attack of the small-pox; and therefore he is to be treated in every respect as if the disease had been received by inoculation. He is to be freely exposed to a cool air, to be purged, and to have cooling acids given liberally.

617. If these measures moderate the fever, nothing more is necessary: but if the nature of the fever attacking a person be uncertain; or if, with suspicions of the small-pox, the symptoms of the fever be violent: or even if, knowing the disease to be the small-pox, the measures mentioned (596.) shall not moderate the fever sufficiently; it will be proper to let some blood: and this will be more especially proper, if the person be an adult, of a plethoric habit, and accustomed to full living.

618. In the same circumstances, we judge it will be always proper to give a vomit, as useful in the commencement of all fevers, and more especially in this, where a determination to the stomach appears from pain and spontaneous vomiting.

619. It frequently happens, especially in infants, that during the eruptive fever of the small-pox, convulsions occur. Of these, if only one or two fits appear on the evening preceding the eruption, they give a favourable prognostic of a mild disease, and require no remedy; but if they occur more early, and be violent and fre-

quently repeated, they are very dangerous, and require a speedy remedy. For this purpose, bleeding is hardly ever of service; blistering always comes too late; and the only remedy I have found effectual, is an opiate given in a large dose.

620. These are the remedies necessary during the eruptive fever; and if, upon the eruption, the pimples upon the face be very few and distinct, the disease is no further of any danger, requires no remedies, and the purgatives, which, as has been said before, are by some practitioners continued, prove often hurtful.

But when, upon the eruption, the pimples on the face are very numerous; when they are not distinct; and especially when, upon the fifth day, the fever does not suffer a considerable remission, the disease will still require a great deal of attention.

621. If, after the eruption, the fever shall continue; the avoiding heat, and continuing to expose the body to a cool air, will still be proper. If the fever be considerable, with a full and hard pulse, in an adult person, a bleeding will be necessary; and, more certainly, a cooling purgative. It is, however, seldom that a repetition of the bleeding will be proper, as a loss of strength does usually come on very soon; but the repetition of a purgative, or the frequent use of laxative glysters, is commonly useful.

622. When a loss of strength, with other marks of a putrescent tendency of the fluids, appears, it will be necessary to exhibit the Peruvian bark in substance, and in large quantity. In the same case, the free use of acids, and of nitre, is useful; and it is commonly proper also to give wine very freely.

623. From the fifth day of the disease, onward through the whole course of it, it is proper to give an opiate

once or twice a-day; taking care, at the same time, to obviate costiveness, by purgatives, or laxative glysters.

624. In a violent disease, from the eighth to the eleventh day, it is proper to lay on blisters successively on different parts of the body; and that without regard to the parts being covered with pustules.

625. If, in this disease, the tumour of the fauces be considerable; the deglutition difficult; the saliva and mucus viscid, and with difficulty thrown out; it will be proper to apply blisters to the external fauces, and to employ diligently detergent gargles.

626. During the whole course of the disease, when any considerable fever is present, the frequent exhibition of antimonial medicines, in nauseating doses, has been found useful; and these, for the most part, sufficiently answer the purpose of purgatives.

627. The remedies mentioned from 621. to 625. are those frequently necessary, from the fifth day, till the suppuration is finished. But as, after that period, the fever is sometimes continued and increased; or, as sometimes, when after there has been little or no fever before, a fever now arises, and continues with considerable danger; this is what is called the Secondary Fever, and requires particular treatment.

628. When the secondary fever follows the distinct small-pox, and the pulse is full and hard, the case is to be treated as an inflammatory affection, by bleeding and purging. But, if the secondary fever follow the confluent small-pox, and be a continuance or exacerbation of the fever which had subsisted before, it is to be considered as of the putrid kind; and in that case, bleeding is improper. Some purging may be necessary; but the remedies to be chiefly depended on, are the Peruvian bark and acids.

When the secondary fever first appears, whether it is

after a distinct or confluent small-pox, it will be useful to exhibit an antimonial emetic in nauseating doses, but in such a manner as to produce some vomiting.

629. For avoiding the pits which frequently follow the small-pox, many different measures have been proposed; but none of them appear to be sufficiently certain.

CHAPTER II.

OF THE CHICKEN POX.*

630. THIS disease seems to depend upon a specific contagion, and to affect persons but once in their lives. It is hardly ever attended with any danger; but as it seems frequently to have given occasion to the supposition of a person's having the small-pox twice, it is proper to study this disease, and to distinguish it from the genuine small-pox.

* Chicken-pox, being a febrile disease of excessive action, requires, at all times, as far as medical aid may become necessary in it, the antiphlogistic plan of treatment. Of the extent to which this plan should be carried, the practitioner will easily judge, from the character of the attack.

Sometimes, from improper exposure, or other causes, the eruption, before it is completed, suddenly disappears. In such cases, considerable nausea, or vomiting, and prostration of strength almost immediately ensue.

Under such circumstances, an emetic, by changing the action of the stomach, and determining again to the surface, is highly useful.

This, followed by the use of warm sage, or balm tea, or some other vegetable infusion, gently stimulating, restores the eruption and relieves the complaint.

All eruptive diseases, we have said, originate in the stomach. This truth very clearly appears, from the serious manner in which that organ suffers, when, from any cause, the eruption recedes from the surface of the body.

631. This may be generally done by attending to the following circumstances.

The eruption of the chicken-pox comes on with very little fever preceding it, or with fever of no determined duration.

The pimples of the chicken-pox, more quickly than those of the small-pox, are formed into little vesicles or pustules.

The matter in these pustules remains fluid, and never acquires the colour or consistence of the pus which appears in the pustules of the small-pox.

The pustules of the chicken-pox are always in three or four days from their first appearance, formed into crusts.

See Dr. Heberden in Med. Transact. Vol. I. art. xvii.

CHAPTER III.

OF THE MEASLES.

632. THIS disease also depends upon a specific contagion, and affects persons but once in their lives.*

* However visionary it might appear in us to doubt, or heterodox to deny, the contagious nature of measles, we acknowledge ourselves unable, definitively, to prove it.

Measles cannot be propagated by inoculation; the only *conclusive* test of contagion, with which we are acquainted. Every other may prove delusive.

This complaint, when it *does prevail*, assumes, we believe, always, the character of an *epidemic;* which is only another name for *an atmospheric disease*. There exists not a doubt, therefore, that it *often*, at least, makes its appearance in places, into which it has not

633. It occurs most frequently in children; but no age is exempted from it, if the persons have not been subjected to it before.

634. It commonly appears as an epidemic, first in the month of January, and ceases soon after the summer solstice; but various accidents, introducing the contagion, may produce the disease at other times of the year.

635. The disease always begins with a cold stage, which is soon followed by a hot, with the ordinary symptoms of thirst, heat, anorexia, anxiety, sickness, and vomiting; and these are more or less considerable in different cases. Sometimes from the beginning, the fever is sharp and violent; often, for the first two days, it is obscure and inconsiderable, but always becomes violent before the eruption, which usually happens upon the fourth day.*

been introduced by means of contagion. We have repeatedly been witness to such an occurrence.

If, from a place, where measles prevails, one or more cases be removed to a distant part, where it did not before exist, it does not spread from the sick as from a center of contagion. It usually, if not uniformly, disappears, with the death or recovery of the persons affected. Nor is it until it arrives at this place, in the form of an epidemic, that it actually spreads among the inhabitants. Of this, we speak confidently, for we have witnessed the event. If it be contagious, therefore, the laws of its communication are materially different from those of small-pox—a disease, which, in all places, and under all circumstances, spreads among those who have not been affected by it; provided they come within the sphere of its action.

The strongest marks of a specifically contagious disease which measles possesses, are, its peculiar appearance, and that it affects persons but once in the course of their lives. Remove these characteristics, and the evidences of its contagion are scarcely stronger than those that are exhibited by intermitting fever.

* We have known the fever of measles to have continued *more than a week*, before the appearance of the eruption. A case of this kind fell, very recently, under our notice.

636. This eruptive fever from its commencement, is always attended with hoarseness, with a frequent hoarse dry cough, and frequently with some difficulty of breathing. At the same time, the eye-lids are somewhat swelled, the eyes are a little inflamed, and pour out tears; and, together with these symptoms, there is a coryza, and frequent sneezing. For the most part, a constant drowsiness attends the beginning of this disease.

637. The eruption, as we have said, commonly appears upon the fourth day, first on the face, and successively on the lower parts of the body. It discovers itself first in small red points; but, soon after, a number of these appear in clusters, which do not arise into visible pimples, but by the touch are found to be a little prominent. This is the case on the face; but on other parts of the body, the prominence, or roughness, is hardly to be perceived. On the face the eruption retains its redness, or has that increased for two days: but, on the third, the vivid redness is changed to a brownish red; and, in a day or two more, the eruption entirely disappears, while a mealy desquamation takes place. During the whole time of the eruption, the face is somewhat turgid, but seldom considerably swelled.

638. Sometimes, after the eruption has appeared, the fever ceases entirely: but this is seldom the case; and more commonly the fever continues, or is increased after the eruption, and does not cease till after the desquamation. Even then the fever does not always cease, but continues with various duration and effect.

639. Though the fever happen to cease upon the eruption's taking place, it is common for the cough to continue till after the desquamation, and sometimes much longer.

In all cases, while the fever continues, the cough also continues, generally with an increase of the difficulty of

breathing; and both these symptoms sometimes arise to a degree that denotes a pneumonic affection. This may arise at any period of the disease; but very often it does not come on till after the desquamation of the eruption.

After the same period, also, a diarrhœa frequently comes on, and continues for some time.

640. It is common for the measles, even when they have not been of a violent kind, to be succeeded by inflammatory affections, particularly ophthalmia and phthisis.*

641. If the blood be drawn from a vein during the measles, with the circumstances necessary to favour the separation of the gluten, this always appears separated, and lying on the surface of the crassamentum, as in inflammatory diseases.

642. For the most part, the measles, even when violent, are without any putrid tendency; but in some cases, such a tendency appears, both in the course of the disease, and especially after the ordinary course of it is finished. See Dr. Watson, in London Med. Observations, Vol. IV. art. xi.

643. From what is delivered, from 636. to 641, it will appear, that the measles are distinguished by a catarrhal affection, and by an inflammatory diathesis to a considerable degree, and therefore the danger attending them arises chiefly from the coming on of a pneumonic inflammation.

644. From this consideration it will be obvious, that the remedies especially necessary, are those which may obviate and diminish the inflammatory diathesis; and

* These unfavourable terminations of measles very rarely occur, except as the result of neglect or unskilful treatment. Practice venesection to a sufficient extent, and avoid cold and improper exposure, and you effectually prevent them.

therefore, in a particular manner, blood-letting. This remedy may be employed at any time in the course of the disease, or after its ordinary course is finished. It is to be employed more or less according to the urgency of the symptoms of fever, cough, and dyspnœa; and generally may be employed very freely. But as the symptoms of pneumonic inflammation seldom come on during the eruptive fever; and, as this fever is sometimes violent immediately before the eruption, though a sufficiently mild disease be to follow; so bleeding is seldom very necessary during the eruptive fever, and may often be reserved for the periods of greater danger which perhaps are to ensue.*

645. In all cases of measles, where there are no marks of putrescency, and where there is no reason, from the known nature of the epidemic, to apprehend putrescency, bleeding is the remedy to be depended upon; but assistance may also be obtained from cooling purgatives; and particularly from blistering on the sides, or between the shoulders.†

646. The dry cough may be alleviated by the large use of demulcent pectorals, mucilaginous, oily, or sweet. It may, however, be observed, with respect to these demulcents, that they are not so powerful in involving and correcting the acrimony of the mass of blood as has been imagined; and that their chief operation is by besmearing the fauces, and thereby defending them from

* We are inclined to believe, that the judicious employment of the lancet, as well as of emetics, facilitates very much the appearance of the eruption. Confident we are, that venesection, during the eruptive fever, often affords immediate relief, without being productive of subsequent injury. It is, therefore, a valuable remedy.

† When symptoms of pneumonic inflammation exist, blistering on some part of the thorax, the part to be directed by the seat of the pain, is as essential in measles as it is in peripneumony.

the irritation of acrids, either arising from the lungs, or distilling from the head.*

647. For moderating and quieting the cough in this disease, opiates certainly prove the most effectual means, whenever they can be safely employed. In the measles, in which an inflammatory state prevails in a considerable degree, opiates may be supposed to be inadmissible; and, in those cases in which a high degree of pyrexia and dyspnœa show either the presence, or at least the danger, of pneumonic inflammation, I think that opiates might be very hurtful. In cases, however, in which the dyspnœa is not considerable, and where bleeding, to obviate or abate the inflammatory state, has been duly employed, and where the cough and watchfulness are the urgent symptoms, I think that opiates may be safely exhibited, and with great advantage. I think, further, that in all the exanthemata, there is an acrimony diffused over the system, which gives a considerable irritation; and, for obviating the effects of this, opiates are useful, and always proper, when no particular contra-indication prevails.†

648. When the desquamation of the measles is finished, though there should then be no disorder remaining,

* Flax-seed tea, bran tea, barley water, and gum arabic, dissolved in water, make excellent drinks in measles; but, with the oily preparations we are not pleased, because we consider them too stimulating. They excite too much action in the stomach, and, hence, in other parts, by sympathy. The blood, we believe, to be as free from acrimony in measles, as it is in health.

† When, by means of blood-letting, and other remedies, the febrile symptoms are so far subdued, that the complaint is little else than a disease of *local irritation*, opiates should be administered precisely as in other diseases of a similar character. To relieve the cough, which always accompanies measles, and the diarrhœa, which often makes its appearance towards the close of the complaint, opiates, in some form, constitute, the only effectual remedy.

physicians have thought it necessary to purge the patient several times, with a view to draw off the dregs of this disease, that is, a portion of the morbific matter which is supposed to remain long in the body. I cannot reject this supposition; but, at the same time, cannot believe, that the remains of the morbific matter, diffused over the whole mass of blood, can be entirely drawn off by purging; and, it appears to me, that to avoid the consequences of the measles, it is not the drawing off the morbific matter which we need to study, so much as the obviating and removing the inflammatory state of the system which had been induced by the disease. With this last view, indeed, purging may still be a proper remedy; but bleeding, in proportion to the symptoms of inflammatory disposition, is yet more so.*

649. From our late experience of the benefit of cold

The following formula, we have found pleasant and useful: viz.

℞. Mucilag. Gum. Arab.
Aq. Cinnamom. seu Lavend. simp. } āā ℥ij.
Aq. Font. ℥iv.
Tinct. Thebaic. ℥i.
Sacch. alb. q. s. m. ft. Julep.

Of this, a full table spoonful may be taken at a dose, by an adult, and repeated as often as circumstances require it.

* If, in this article, the mind of Dr. Cullen be correctly represented, it retained a strong bias towards the errors of the humoral pathology.

In case inflammation, on the decline of measles, threaten to fix itself in an ophthalmic, a catarrhal, or a pneumonic form, the liberal use of the lancet, of blisters, and other antiphlogistic remedies, becomes essential. Under these circumstances, no truce should be given to the disease; but it ought to be resolutely, and perseveringly assailed, until it be completely eradicated. This measure we hold to be essential; for, there is no complaint, which, if neglected towards its close, leaves behind it more troublesome affections than measles.

air in the eruptive fever of the small-pox, some physicians have been of opinion, that the practice might be transferred to the measles; but we have not yet had trials sufficient to ascertain this.

There is no doubt that external heat may be very hurtful in the measles, as in most other inflammatory diseases; and therefore the body ought to be kept in a moderate temperature during the whole course of the measles; but how far, at any period of the disease, cold air may be applied with safety, we are yet uncertain. Analogy, though so often the resource of physicians, is, in general, fallacious; and further, though the analogy with the small-pox might lead to the application of cold air during the eruptive fever of the measles, the analogy with catarrh seems to be against the practice. After the eruption had appeared upon the skin, we have had many instances of cold air making it disappear, and thereby producing much disorder in the system; and have also had frequent examples of such disorder being removed by restoring the heat of the body, and thereby again bringing forth the eruption.*

* The temperature of the chamber, in the treatment of measles, should be precisely the same as in that of peripneumony—moderate—not in either extreme. Of the two, a temperature, a little too high, is less apt to prove injurious, than one too low. Here, as in the treatment of most other febrile affections, the *punctum jucundum* of temperature should be carefully preserved. Whatever degree of heat or cold produces, on the system, an unpleasant impression, is an irritant, will increase fever, and ought, therefore, to be avoided.

CHAPTER IV.

OF THE SCARLET FEVER.*

650. IT may be doubted if the scarlet fever be a disease specifically different from the Cynanche Maligna above described. The latter is almost always attended with a scarlet eruption; and, in all the instances I have seen of what may be called the scarlet fever, the disease, in almost every person affected, has been attended with an ulcerous sore throat.

651. This view of the matter may create some doubt;

* Notwithstanding all Dr. Cullen's reasoning in this chapter, we are strongly inclined to believe, that Scarlatina Anginosa, and Cynanche Maligna, are but different forms or degrees of the same disease. They stand related to each other, precisely as the distinct and the confluent small-pox; which were also, at a former, and not a very remote period, regarded as diseases specifically different.

Indeed, we think the identity of Scarlatina Anginosa, and Cynanche Maligna, very fairly to be inferred, even from the statement of our author respecting them: for, he admits, that, when epidemic, these forms of disease always accompany each other; but in inverse ratios: and, it is well known, that two epidemics never prevail at the same time. They must, therefore, be the same. We doubt, however, their ever being propagated by contagion. We feel persuaded they never are; but, that they are exclusively atmospheric diseases. They both have their primary affection in the stomach.

The poison of scarlatina anginosa, whatever may be its nature, operates on the system, in a manner not greatly dissimilar to the operation of arsenic.

This latter article produces sickness at stomach, an inflammation of the throat and fauces, an eruption on the skin, and an anasarcous swelling. So does the matter of scarlatina anginosa. But arsenic, in producing its effects, acts on the stomach alone. So, we are persuaded, does the poison of scarlatina anginosa, and cynanche maligna. We make this statement only by way of illustration.

but I am still of opinion, that there is a scarlet fever which is a disease specifically different from the Cynanche Maligna.

Dr. Sydenham has described a scarlet fever, which he had seen prevailing as an epidemic, with all the circumstances of the fever and eruption, without its being accompanied with any affection of the throat; at least he does not take notice of any such affection, which such an accurate observer could not fail to have done, if any such symptom, as we have commonly seen making a principal part of the disease, had attended those cases which he had observed. Several other writers have described the scarlet fever in the same manner, and I know physicians who have seen the disease in that form; so that there can be no doubt of there being a scarlet fever not necessarily connected with an ulcerous sore throat, and therefore a disease different from the Cynanche Maligna.

652. But, further, although in all the instances of scarlet fever which I have seen, (and in the course of forty years I have seen it six or seven times prevailing as an epidemic in Scotland) the disease, in almost all the persons affected, was attended with an ulcerous sore throat, or was what Sauvages names the Scarlatina Anginosa; and although, in some instances the ulcers of the throat were of a putrid and gangrenous kind, and at the same time the disease in all its symptoms resembled very exactly the Cynanche Maligna; yet I am still persuaded, that not only the Scarlatina of Sydenham, but that even the Scarlatina Anginosa of Sauvages, is a different disease from the Cynanche Maligna; and I have formed this opinion from the following considerations:

653. 1st; There is a scarlet fever entirely free from any affection of the throat, which sometimes prevails as an epidemic; and therefore there is a specific contagion

producing a scarlet eruption without any determination to the throat.

2dly, The Scarlatina, which, from its matter being generally determined to the throat, may be properly termed Anginosa, has, in many cases of the same epidemic, being without any affection of the throat; and therefore the contagion may be supposed to be more especially determined to produce the eruption only.

3dly, Though in all the epidemics that I could allege to be those of the Scarlatina Anginosa, there have been some cases, which, in the nature of the ulcers, and in other circumstances, exactly resembled the cases of the Cynanche Maligna; yet I have as constantly remarked, that these cases have not been above one or two in a hundred, while the rest have all of them been with ulcers of a benign kind, and with circumstances hereafter to be described, somewhat different from those of the Cynanche Maligna.

4thly, On the other hand, as I have two or three times seen the Cynanche Maligna epidemically prevailing; so, among the persons affected, I have seen instances of cases as mild as those of the Scarlatina Anginosa usually are: but here the proportion was reversed; these mild cases were not one fifth of the whole, while the rest were of the putrid and malignant kind.

Lastly, It applies to the same purpose to observe, that, of the Cynanche Maligna, most of the instances terminate fatally; while, on the other hand, that is the event of very few of the cases of the Scarlatina Anginosa.

654. From these considerations, though it may appear that there is some affinity between the Cynanche Maligna and Scarlatina Anginosa, it will still remain probable that the two diseases are specifically different. I have been at some pains to establish this opinion: for, from all my experience, I find, that those two diseases

require a different treatment; and I therefore now proceed to mention more particularly the circumstances of the Scarlatina Anginosa.

655. This disease commonly appears about the beginning of winter, and continues throughout that season. It comes on with some cold shivering, and other symptoms of the fever which usually introduces the other exanthemata. But here there is no cough, nor the other catarrhal symptoms which attend the measles; nor is there that anxiety and vomiting which commonly introduce the confluent small-pox, and which more certainly introduce the Cynanche Maligna.

Early in the disease, some uneasiness is felt in the throat; and frequently the deglutition is difficult, generally more so than in the Cynanche Maligna. Upon looking into the fauces, a redness and swelling appear, in colour and bulk approaching to the state of these symptoms in the Cynanche Tonsillaris; but in the Scarlatina, there is always more or less of sloughs, which seldom appear in the Cynanche Tonsillaris; and the sloughs are commonly whiter than those in the Cynanche Maligna.

While these appearances are discovered in the fauces, upon the third or fourth day a scarlet eruption appears on the skin in the same form as described in 314. This eruption is commonly more considerable and universal than in the Cynanche; but it seldom produces a remission of the fever. The eruption for the most part remains till the third or fourth day after its first appearance; but then goes off, ending in a meally desquamation. At this time the fever usually subsides; and generally, at the same time, some degree of sweat comes on.

The sloughs on the fauces, which appeared early in the disease, continue for some days; but then falling off, discover the swelling abated, and an ulcer formed on one or both tonsils showing a laudable pus; and soon

after the fever has subsided, these ulcers heal up entirely. For the most part this disease has much less of coryza attending it than the Cynanche Maligna; and, when there is a coryza attending the Scarlatina, the matter discharged is less acrid, and has not the fetid smell which it has in the other disease.

In the Scarlatina, when the eruption has entirely disappeared, it frequently happens, that in a few days after, the whole body is affected with an anasarcous swelling; which, however, in a few days more, gradually subsides.

We have thus described the most common circumstances of the Scarlatina Anginosa; and have only to add, that during the time of its being epidemic, and especially upon its first setting in, there are always a few cases in which the circumstances of the disease approach very nearly to those of the Cynanche Maligna; and it is only in these instances that the disease is attended with any danger.

656. With respect to the cure of this disease, when the symptoms of it are nearly the same with those of the Cynanche Maligna, it requires exactly the same treatment as directed in 317.

657. When the scarlet fever appears without any affection of the throat, the treatment of it is very simple, and is delivered by Dr. Sydenham. An antiphlogistic regimen is commonly all that is requisite; avoiding, on one hand, the application of cold air; and, on the other, any increase of external heat.

658. In the ordinary state of the Scarlatina Anginosa, the same treatment is, in most cases, sufficient; but as here, the fever is commonly more considerable, and there is likewise an affection of the throat, some remedies may be often necessary.

659. When there is a pretty high degree of fever, with a full pulse, and a considerable swelling of the

tonsils, bleeding is very proper, especially in adults; and it has been frequently practised with advantage: but as, even in the Cynanche Tonsillaris, much bleeding is seldom necessary (305.); so, in the Scarlatina, when the state of the fever and the appearances of the fauces render the nature of the disease ambiguous, bleeding may be omitted; and, if not altogether avoided, it should at least not be large, and ought not to be repeated.*

660. Vomiting, and especially nauseating doses of emetics, notwithstanding the inflamed state of the fauces, have been found very useful in this disease. An open belly is proper in every form of this disease; and when the nauseating doses of emetics operate a little downwards, they are more serviceable.†

661. In every form of the Scarlatina Anginosa, through the whole course of it, detergent gargles should be employed, and more or less as the quantity of sloughs and the viscid mucus in the fauces may seem to require.‡

* In most cases of scarlatina anginosa, that are, in any measure, severe, blood-letting constitutes an important remedy: in many, it may be several times repeated with advantage. In the United States, where the type of this disease is, perhaps, more inflammatory than in Great-Britain, it is very seldom other than a safe remedy.

When the affection of the throat is troublesome, blistering externally should never be omitted; the febrile action being previously reduced by evacuating remedies.

† Emetics, particularly at the commencement of the disease, are highly seful. They relieve the stomach, determine to the skin, and break, in some measure, or, at least, weaken, the chain of diseased action, wherein the malady consists. In nauseating doses, they serve, in part, as a substitute for blood-letting.

‡ Aqueous gargles are rendered sufficiently detergent, by proper admixtures of vinegar, tincture of myrrh, or muriatic acid. The judicious employment of such remedies, accelerates the cure of the topical affection. When the disease has terminated, and convalescence commenced, a mild, but nutritious diet, constitutes the most efficacious tonic that can be administered.

662. Even in the milder states of the Scarlatina Anginosa, it has been common with practitioners to exhibit the Peruvian bark through the whole course of the disease; but we are assured, by much experience, that in such cases it may be safely omitted, though in cases any ways ambiguous it may not be prudent to neglect this remedy.

663. The anasarcous swelling, which frequently follows the Scarlatina Anginosa, seldom requires any remedy; and, at least, the purgatives so much inculcated, and so commonly exhibited, soon take off the anasarca.

CHAPTER V.

OF THE PLAGUE.*

SECT. I.—*Of the Phenomena of the Plague.*

664. THE Plague is a disease which always arises from contagion; which affects many persons about the

* We have already observed, that we do not believe plague to be a contagious disease. Knowing that this opinion is, by most people, perhaps, regarded as heterodox, we feel ourselves bound to give our reasons for entertaining it. They are as follow:

I. Plague has never been certainly propagated by inoculation. This is true, notwithstanding all that has been said to the contrary. The instances, in which attempts at inoculation have been made, are reported in a manner so loose and unsatisfactory, that no inference, absolutely conclusive, can, in any way, be drawn from them. On the whole, however, they afford, to a mind accustomed to analysis, no evidence that the attempts ever succeeded. It is true, that

same time; proves fatal to great numbers; generally produces fever; and in most persons is attended with buboes or carbuncles.

persons, who had been inoculated, afterwards sickened and died of the plague. But, from the vague and uncircumstantial manner, in which their cases are described, it is impossible to determine, whether the disease was contracted from inoculation, or from some other source. The latter supposition appears to us by far the most probable.

II. There exists in plague no morbid glands, by which a specific poison might be secreted; and, therefore, no source to supply the contagion. Buboes cannot be regarded as such, because they do not appear in every case of the disease; nor, when they do make their appearance, are they always converted into open sores: and carbuncles, which are, in fact, nothing but spots of gangrenous inflammation, occur, comparatively speaking, in but few cases of the disease.

III. Plague is a disease of circumscribed prevalence, whether it be considered in relation to place or time. It spreads only in given situations, under particular circumstances, and, at certain seasons of the year. In Constantinople, the cold of the winter, and in Egypt, the heat and dryness of the summer, completely check it.

But this is not the character of a contagious disease. Contagion, as formerly stated, is a secreted poison: it *may* be, therefore, and actually *is*, formed, indifferently, at every season, and in every situation—in the winter and summer, as well as in the spring or autumn; in the country, as well as in cities; in elevated regions, as readily as in low ones; and, in every degree of latitude, from the line to the poles. Of the truth of this, small-pox, cow-pox, and lues venerea, afford conclusive evidence.

IV. If a case of plague be removed from the vitiated atmosphere, where the disease prevails, to a situation, where the air is entirely free from septic effluvia, it is never communicated to physicians or visitants, nurses, or attendants. This fact appears to be as conclusively established as any one embraced in the history of the disease. It is confirmed, even by the writings of Dr. Russell himself, the great apostle of pestilential contagion. Plague, then, will not spread without the limits of a contaminated atmosphere; and is, hence, most palpably an atmospheric disease.

How different is the case in relation to small-pox, to the spread-

665. These are the circumstances, which, taken together, give the character of the disease; but it is accompanied with many symptoms almost peculiar to itself, that, in different persons, are greatly diversified in number and degree, and should be particularly studied. I would wish to lay a foundation for this; but think it unfit for a person who has never seen the disease to attempt its particular history. For this, therefore, I must refer to the authors who have written on the subject; but allowing those only to be consulted, who have themselves seen and treated the disease in all its different forms.

666. From the accounts of such authors, it appears to me, that the circumstances which particularly distinguish this disease, and especially the more violent and dangerous states of it, are,

1*st*, The great loss of strength in the animal functions, which often appears early in the disease.

2*dly*, The stupor, giddiness, and consequent staggering, which resembles drunkenness, or the headach, and

ing of which every condition of the air is equally favourable! The reason is obvious. This disease depends for its propagation on a specific poison, generated, by morbid action, which that poison itself excites. The action of this virus, the condition of the air, can neither assist nor prevent.

But plague depends, for its existence, on a contaminated atmosphere; and dies for want of nourishment if the air be pure.

Nothing appears to us to be more truly absurd, than to contend for the contagious nature of a disease of this description. Real febrile contagion is a poison as absolute and independent, as opium or henbane, arsenic or corrosive sublimate; and operates as exclusively by its own powers. As well, therefore, might we represent either of the latter to be capable of acting only under the influence of a given condition of the atmosphere, as the former. The very idea of a poison, pre-supposes an inherent and self-dependent power to act deleteriously: and, this definition applies to the poison of contagion, as well as to every other.

various delirium; which are all of them symptoms denoting a great disorder in the functions of the brain.

3*dly*, The anxiety, palpitation, syncope, and especially the weakness and irregularity of the pulse, which denote a considerable disturbance in the action of the heart.

4*thly*, The nausea and vomiting, particularly the vomiting of bile, which shows an accumulation of vitiated bile in the gall-bladder and biliary ducts, and from thence derived into the intestines and stomach; all of which symptoms I suppose to denote a considerable spasm, and loss of tone, in the extreme vessels on the surface of the body.

5*thly*, The buboes or carbuncles, which denote an acrimony prevailing in the fluids. And,

Lastly, The petechiæ, hæmorrhagies, and colliquative diarrhœa, which denote a putrescent tendency prevailing to a great degree in the mass of blood.*

* We think our author's exposition of the pathology, or ratio symptomatum, of plague, which he attempts in this article, highly exceptionable.

"The stupor, giddiness, and consequent staggering," with the "head ach and various delirium," which he considers as "denoting a great disorder in the functions of the brain;" "the anxiety, palpitation, syncope, and the weakness and irregularity of the pulse, which denote," as he thinks, "a disturbance in the action of the heart;" "the buboes and carbuncles," which he derives from a prevailing acrimony in the blood; and "the petechiæ, hemorrhagies, and colliquative diarrhœa which denote," as he alleges, "a putrescent tendency prevailing to a great degree in the mass of blood"—all these symptoms, instead of being explicable on the professor's principles, may be much more fairly and rationally attributed to an inflamed, or otherwise highly disordered, condition of the stomach. We well know, that symptoms of the foregoing description, *may* originate in such a condition of the stomach, and, we feel persuaded, that, in the present instance, such is their source. Indeed, we are convinced, that the more accurately the plague and the yel-

667. From the consideration of all these symptoms, it appears, that the plague is especially distinguished by a specific contagion, often suddenly producing the most considerable symptoms of debility in the nervous system or moving powers, as well as of a general putrescency in the fluids; and it is from the consideration of these circumstances as the proximate cause, that I think both the prevention and cure of the plague must be directed.

668. If this disease should revisit the northern parts of Europe, it is probable, that, at the time, there will be no physician then alive, who, at the first appearance of the disease, can be guided by his former experience, but must be instructed by his study of the writers on this subject, and by analogy. It is, therefore, I hope, allowable for me, upon the same grounds, to offer here my opinion with respect to both the prevention and cure of this disease.

This paragraph was written before I had any notice of the plague of Moscow, *anno* 1771; but I think it will still apply to the case of Great Britain, and of many other northern states.

Sect. II.—*Of the Prevention of the Plague.**

669. With respect to the prevention: As we are firmly persuaded that the disease never arises in the northern parts of Europe, but in consequence of its being im-

low fever shall be examined, the more they will be found to resemble, in their pathology, a *species of gastritis*.

We might here repeat what we have already observed, that pestis vera belongs more properly to the order phlegmasiæ, than to that of exanthemata.

* As we do not believe in the communicability of plague, by means of contagion, it would be superfluous in us to offer any remarks on our author's mode of prevention, which is founded entirely on that hypothesis. Considered, as a means of accomplishing

ported from some other country; so the first measure necessary, is the magistrate's taking care to prevent the importation: and this may generally be done by a due attention to bills of health, and to the proper performance of quarantines.

670. With respect to the latter, we are persuaded, that the quarantine of persons may safely be much less than forty days; and, if this were allowed, the execution of the quarantine would be more exact and certain, as the temptation to break it would be in a great measure removed.

671. With respect to the quarantine of goods, it can not be perfect, unless the suspected goods be unpacked and duly ventilated, as well as the other means employed for correcting the infection they may carry; and, if all this were properly done, it is probable that the time commonly prescribed for the quarantine of goods might also be shortened.

672. A second measure, in the way of prevention, becomes requisite, when an infection has reached and prevailed in any place, to prevent that infection from spreading into other places. This can be done only by preventing the inhabitants, or the goods of any infected place, from going out of it, till they have undergone a proper quarantine.

673. The third measure for prevention, to be employed with great care, is to hinder the infection from spreading among the inhabitants of the place in which it has arisen. The measures necessary for this, are to be directed by the doctrine laid down in 82.; and from that doctrine we infer, that all persons who can avoid any

what *he* intends, we should only deny the propriety of the whole. Yet, for the avoidance of a disease arising from a poison commingled with the atmosphere, many of his directions are pertinent and useful.

near communication with infected persons, or goods, may escape the infection.

674. For avoiding such communication, a great deal may be done by the magistrate: 1. By allowing as many of the inhabitants as are free from the infection, and not necessary to the service of the place, to go out of it. 2. By prohibiting all assemblies, or unnecessary intercourse of the people. 3. By taking care that necessary communications be performed without contact. 4. By making such arrangements and provisions as may render it easy for the families remaining, to shut themselves up in their own houses. 5. By allowing persons to quit houses in which an infection appears, upon condition that they go into lazarettoes. 6. By ventilating and purifying, or destroying at the public expense, all infected goods. Lastly, by avoiding hospitals, and providing separate apartments for infected persons.

The execution of these measures will require great authority, and much vigilance and attention, on the part of the magistrate; but it is not our province to enter into any detail on this subject of the public police.

675. The fourth and last part of the business of prevention, respects the conduct of persons necessarily remaining in infected places, especially of those obliged to have some communication with persons infected.

676. Of those obliged to remain in infected places, but not obliged to have any near communication with the sick, they may be preserved from the contagion by avoiding all near communication with other persons, or their goods; and it is probable that a small distance will answer the purpose, if, at the same time, there be no stream of air to carry the effluvia of persons, or goods, to some distance.

677. For those who are necessarily obliged to have a near communication with the sick, it is proper to let them know, that some of the most powerful contagions

do not operate, but when the bodies of men exposed to the contagion are in certain circumstances which render them more liable to be affected by it; and, therefore, by avoiding these circumstances and causes, they may often escape infection.

678. The bodies of men are especially liable to be affected by contagions, when they are any ways considerably weakened by want of food, and even by a scanty diet, or one of little nourishment; by intemperance in drinking, which when the stupor of intoxication is over, leaves the body in a weakened state; by excess in venery; by great fatigue; or by any considerable evacuation.

679. The causes which, concurring with contagion, render it more certainly active, are cold, fear, and full living.

The several means, therefore, of avoiding or guarding against the action of cold (94. to 96.) are to be carefully studied.

680. Against fear the mind is to be fortified as well as possible, by inspiring a favourable idea of the power of preservative means; by destroying the opinion of the incurable nature of the disease; by occupying men's minds with business or labour; and by avoiding all objects of fear, as funerals, passing bells, and any notice of the death of particular friends.

681. A full diet of animal food increases the irritability of the body, and favours the operation of contagion; and indige tion, whether from the quantity or quality of food, has the same effect.

682. Besides giving attention to obviate the several circumstances (609. 678. to 681.) which favour the operation of contagion, it is probable that some means may be employed for strengthening the bodies of men, and thereby enabling them to resist contagion.

For this purpose, it is probable, that the moderate use of wine, or of spirituous liquors, may have a good effect.

It is probable also, that exercise, when it can be employed, if so moderate as to be neither heating nor fatiguing to the body, may be employed with advantage.

Persons who have tried cold bathing, and commonly feel invigorating effects from it, if they are any ways secure against having already received infection, may possibly be enabled to resist it by the use of the cold bath.

It is probable, that some medicines also may be useful in enabling men to resist infection; but amongst these I can hardly admit the numerous alexipharmics formerly proposed; or, at least, very few of them, and those only of tonic power. Amongst these last we reckon the Peruvian bark; and it is perhaps the most effectual. If any thing is to be expected from antiseptics, I think camphire, whether internally or externally employed, is one of the most promising.

Every person is to be indulged in the use of any means of preservation of which he has conceived a good opinion, whether it be a charm or a medicine, if the latter be not directly hurtful.

Whether issues be useful in preserving from, or in moderating the effects of contagion, I cannot determine from the observations I have yet read.

683. As neither the atmosphere in general, nor any considerable portion of it, is tainted or impregnated with the matter of contagions; so the lighting of fires over a great part of the infected city, or other general fumigations in the open air, are of no use for preventing the disease, and may perhaps be hurtful.

684. It would probably contribute much to check the progress of infection, if the poor were enjoined to make a frequent change of clothing, and were suitably provided for that purpose, and if they were, at the same time, induced to make a frequent ventilation of their houses and furniture.

Sect. III.—*Of the Cure of the Plague.**

685. In the cure of the plague, the indications are the same as those of fever in general (126.); but here they are not all equally necessary and important.

686. The measures for moderating the violence of reaction, which operate by diminishing the action of the heart and arteries (128.), have seldom any place here; excepting so far as the antiphlogistic regimen is generally proper. Some physicians, indeed, have recommended bleeding; and there may occur cases in which bleeding may be useful; but, for the most part, it is unnecessary, and, in many cases, it might be very hurtful.

* To venture on directing the details of practice, in a disease wherein we have no experience, would betray in us a degree of self-confidence, which we do not feel. But, of the *general indications*, we will venture to speak.

These, from the best view we can take of the disease, appear to be, to moderate excessive action, or sustain declining strength, according to the existing state of the system; to evacuate freely the stomach and bowels, endeavouring thus to alter the state of morbid action in the alimentary canal, and to determine to the surface.

To answer these indications, the appropriate remedies must be administered. For the two first, suitable evacuations, or stimulants, cordials, and other articles of nourishment. For the third, vomiting and purging; and, for the fourth, sudorifics, rubefacients, and blisters, when they can be applied without endangering the production of gangrene.

The cold bath, when it proves useful in this disease, must do so, by determining to the surface.

Such we believe to be the chief indications for the treatment of plague; and such the cardinal remedies to be used in it; which it belongs to the practitioner to persevere in, or vary, according to the dictates of his judgment, and the result of his experience.

Purging has also been recommended; and, in some degree, it may be useful, in drawing off the bile, or other putrescent matters frequently present in the intestines; but a large evacuation this way may certainly be hurtful.

687. The moderating the violence of reaction, so far as it can be done by taking off the spasm of the extreme vessels, (151.) is a measure of the utmost necessity in the cure of the plague; and the whole of the means (152. to 200.) suited to this indication are extremely proper.

688. The giving an emetic at the very first approach of the disease, would probably be of great service; and it is likely, that at some other periods of the disease, emetics might be useful, both by evacuating bile abundant in the alimentary canal, and by taking off the spasm of the extreme vessels.

689. From some principles with respect to fever in general, and with respect to the plague in particular, I am of opinion, that, after the exhibition of the first vomit, the body should be disposed to sweat; which ought to be raised to a moderate degree only, but continued for at least twenty-four hours, or longer if the patient bear it easily.

690. This sweating should be excited and conducted agreeably to the rules laid down in 168. It is to be promoted by the plentiful use of diluents, rendered more grateful by vegetable acids, or more powerful by being impregnated with some portion of neutral salts.

691. To support the patient under the continuance of the sweat, a little weak broth, acidulated with the juice of lemons, may be given frequently; and sometimes a little wine, if the heat of the body be not considerable.

692. If sudorific medicines are judged to be necessary, opiates are the most effectual and safe: but they should

not be combined with aromatics; and probably may be more effectual if joined with a portion of emetics, and of neutral salts.

693. If, notwithstanding the use of emetics and sudorifics, the disease should still continue, the cure must depend upon the employment of means for obviating debility and putrescency; and for this purpose, the various remedies proposed above (from 201. to 227.) may all be administered, but especially the tonics; and of these the chief are cold drink and the Peruvian bark.

694. In the cure of the plague, some attention is due to the management of buboes and carbuncles: but we do not touch this, as it belongs to the province of surgery.

CHAPTER VI.

OF ERYSIPELAS, OR ST. ANTHONY'S FIRE.

695. IN 274, I mentioned the distinction which I proposed to make between the diseases to be named the Erythema and the Erysipelas; and from thence it will appear that Erysipelas, as an Erythema following fever, may have its place here.

696. I suppose the erysipelas to depend on a matter generated within the body, and which, analogous to the other cases of exanthemata, is, in consequence of fever, thrown out upon the surface of the body. I own it may be difficult to apply this to every particular case of erysipelas: but I take the case in which it is generally sup-

posed to apply, that of the erysipelas of the face; which I shall therefore consider here.*

697. The Erysipelas of the face comes on with a cold shivering, and other symptoms of the pyrexia. The hot stage of this is frequently attended with a confusion of head, and some degree of delirium; and almost always with drowsiness, and perhaps coma. The pulse is always frequent, and commonly full and hard.

698. When these symptoms have continued for one, two, or at most three days, there appears, on some part of the face, a redness, such as that described in (275.) as the appearance of Erythema. This redness, at first, is of no great extent; but gradually spreads from the part

* This, like most other diseases of the skin, appears to have its seat in the stomach. At the commencement of erysipelas of the face, that organ is known to be oftentimes very much affected. Hence, the free evacuation of the alimentary canal is a measure of great importance, in the treatment of that disease.

Erysipelas of the face, moreover, possesses many points of strong resemblance to gout. In fact, it is oftentimes nothing but a modification of gout; which, as we have already represented, has its origin in the stomach.

Some of the points of resemblance between gout and erysipelas of the face are, that these diseases occur, not only in subjects of the same description, but in the same individuals, and even, occasionally, alternate with each other. We are intimate with a gentleman, of a gouty diathesis, whose paroxysms have several times commenced in the form of erysipelas of the face, and terminated in regular podagra. Other instances of the same kind we know to have occurred.

Females, about the termination of their menstrual period, are particularly liable to erysipelas of the face. In them, we believe it to be, oftentimes, at least, nothing but a substitute for another form of gout.

Impressed by these considerations, we cannot but regard it as a very palpable error in Dr. Cullen, to have introduced erysipelas into his order exanthemata. It undoubtedly belongs to that of phlegmasiæ, as the professor himself finds cause to acknowledge.

it first occupied to the other parts of the face, commonly till it has affected the whole; and frequently from the face it spreads over the hairy scalp, or descends on some part of the neck. As the redness spreads, it commonly disappears, or at least decreases, in the parts it had before occupied. All the parts upon which the redness appears are, at the same time, affected with some swelling, which continues for some time after the redness has abated. The whole face becomes considerably turgid; and the eye-lids are often so much swelled as entirely to shut up the eyes.

699. When the redness and swelling have proceeded for some time, there commonly arise, sooner or later, blisters of a larger or smaller size, on several parts of the face. These contain a thin yellowish, or almost colourless liquor, which sooner or later runs out. The surface of the skin, in the blistered places, sometimes becomes livid and blackish; but this livor seldom goes deeper than the surface, or discovers any degree of gangrene affecting the skin. On the parts of the face not affected with blisters, the cuticle suffers, towards the end of the disease, a considerable desquamation. Sometimes the tumour of the eye-lids ends in a suppuration.

700. The inflammation coming upon the face does not produce any remission of the fever which had before prevailed; and sometimes the fever increases with the increasing and spreading inflammation.

701. The inflammation usually continues for eight or ten days; and for the same time, the fever and symptoms attending it also continue.

702. In the progress of the inflammation the delirium and coma attending it sometimes go on increasing, and the patient dies apoplectic on the seventh, ninth, or eleventh day of the disease. In such cases it has been commonly supposed that the disease is translated from

the external to the internal parts. But I have not seen any instance in which it did not appear to me, that the affection of the brain was merely a communication of the external affection, as this continued increasing at the same time with the internal.

703. When the fatal event does not take place, the inflammation, after having affected a part, commonly the whole of the face, and perhaps the other external parts of the head, ceases. With the inflammation, the fever also ceases; and without any evident crisis, the patient returns to his ordinary state of health.

704. This disease is not commonly contagious; but as it may arise from an acrid matter externally applied, so it is possible that the disease may sometimes be communicated from one person to another.

Persons who have once laboured under this disease are liable to returns of it.*

705. The event of this disease may be foreseen from the state of the symptoms which denote more or less affection of the brain. If neither delirium nor coma come on, the disease is seldom attended with any danger; but when these symptoms appear early in the disease, and are in a considerable degree, the utmost danger is to be apprehended.

706. As this disease often arises in the part, at the same time with the coming on of the pyrexia; as I have known it with all its symptoms, arise from an acrimony applied to the part; as it is commonly attended with a full and frequently a hard pulse; as the blood drawn in this disease shows the same crust upon its surface, that appears in the phlegmasiæ; and, lastly as the swelling of the eye-lids, in this disease, frequently ends in a suppu-

* This disease does not exhibit a mark of contagion more than intermitting fever, rheumatism, or peripneumony.

ration; so, from these considerations, it seems doubtful if this disease be properly, in Nosology, separated from the Phlegmasiæ. At any rate, I take the disease I have described to be what physicians have named the Erysipelas Phlegmonodes, and that it partakes a great deal of the nature of the Phlegmasiæ.

707. Upon this conclusion, the Erysipelas of the face is to be cured very much in the same manner as phlegmonic inflammation, by blood-letting, cooling purgatives, and by employing every part of the antiphlogistic regimen; and our experience has confirmed the fitness of this method of cure.

708. The evacuations of blood-letting and purging, are to be employed more or less according to the urgency of symptoms, particularly those of the pyrexia, and of those which mark an affection of the brain. As the pyrexia continues and often increases with the inflammation of the face; so the evacuations mentioned may be employed at any time in the course of the disease.*

709. In this, as in other diseases of the head, it is proper to put the patient, as often as he can easily bear it, into somewhat of an erect posture.†

710. As in this disease there is always an external af-

* Copious purging is a most important remedy in this disease. So is blood-letting, carried, in many instances, to a considerable extent, and several times repeated. In very threatening cases, nearly a hundred ounces of blood have been taken away, in a few days, with great advantage. Usually, however, the quantity necessary to be drawn is much less.

† It is advisable to keep the head of the patient somewhat elevated in this complaint—as much so, at least, as is agreeable to his feelings: but, in no dangerous febrile affection, can an erect posture of the body be either useful or admissible. In such a case, the stimulus of muscular exertion should be carefully avoided. In laying down his antiphlogistic plan of treatment, Dr. Cullen himself very properly gives a particular and strong injunction to this effect.

fection, and as in many instances there is no other; so various external applications to the part affected have been proposed; but almost all of them are of doubtful effect. The narcotic, refrigerant, and astringent applications, are suspected of disposing to gangrene; spirituous applications seem to increase the inflammation; and all oily or watery applications seem to occasion its spreading. The application that seems most safe, and which is now most commonly employed, is that of a dry mealy powder frequently sprinkled upon the inflamed parts.*

711. An Erysipelas Phlegmonodes frequently appears on other parts of the body, beside the face; and such other erysipelatous inflammations frequently end in suppuration. These cases are seldom dangerous. At coming on, they are sometimes attended with drowsiness, and even with some delirium; but this rarely happens; and these symptoms do not continue after the inflammation is formed. I have never seen an instance of the translation of this inflammation from the limbs to an internal part; and though these inflammations of the limbs be attended with pyrexia, they seldom require the same

* A very common and grateful application in this disease, is that of oat-meal or rye-flour, frequently repeated. It is to be lightly sprinkled on the part, and, when it becomes warm, carefully wiped off and renewed. It allays the itching and burning, which are so troublesome and distressing, and communicates an agreeable sensation of coolness.

But nothing, we believe, so effectually checks the progress of erysipelatous inflammation, as the use of blisters. When the inflamed spot is so situated, and of such a size, that it can be completely covered by a blister, it rarely extends any further.

In erysipelas of the face we have never employed this remedy. But, for arresting the course of this disease, when affecting other parts of the body, we have repeatedly used it, with great advantage. In what our author denominates "erysipelas phlegmonodes" of the limbs, it should never be neglected.

evacuations as the erysipelas of the face. At first they are to be treated by dry mealy applications only; and all humid applications, as fomentations, or poultices, are not to be applied, till, by the continuance of the disease, by the increase of swelling, or by a throbbing felt in the part, it appears that the disease is proceeding to suppuration.

712. We have hitherto considered erysipelas as in a great measure of a phlegmonic nature; and agreeably to that opinion, we have proposed our method of cure. But it is probable, that an erysipelas is sometimes attended with, or is a symptom of, a putrid fever; and, in such cases, the evacuations proposed above may be improper, and the use of the Peruvian bark may be necessary; but I cannot be explicit upon this subject, as such putrid cases have not come under my observation.

CHAPTER VII.

OF THE MILIARY FEVER.*

713. THIS disease is said to have been unknown to the ancients, and that it appeared, for the first time, in Saxony, about the middle of the last century. It is said to have spread from thence into all the other parts of

* Very fortunately, the form of fever treated of in this chapter is but little known, in the United States. We are yet to be convinced that it is known at all. As to ourselves, we do not recollect ever to have seen a decided case of it. With our author, we are apprehensive, that it is always the result of injudicious treatment. It arises from the action of an excess of external heat, and internal stimulants—more especially the latter: for, like other diseases of the

Europe; and, since the period mentioned, to have appeared in many countries in which it had never appeared before.

714. From the time of its having been first particu-

skin, it is of gastric origin. To the alexipharmic and heating regimen generally, once so fashionable in the treatment of fever, in Europe, but which never found its way, in strength, across the Atlantic, is the existence of this complaint to be chiefly attributed. That regimen was pursued more especially in the case of lying-in women, and hence the reason, why these subjects were most liable to miliary fever. Even among ourselves, and, at the present day, females, in this situation, are frequently injured by the use of an inflammatory preparation denominated caudle.

We have seen eruptions of the miliary kind produced by an indiscreet and extravagant use of pepper mixed in ardent spirits, for the cure of intermitting fever. Large and repeated doses of spirits of turpentine have been known to be productive of a similar effect. Even the bark itself, unskilfully administered, during the existence of fever, has often given rise to cutaneous eruptions. About the mouth, these eruptions are by no means uncommon, and are precursory, for the most part, to the disappearance of the complaint.

The perspirable matter, confined on the skin, by an excess of covering, stimulates by its acrimony, and aids in the production of the disease we are considering.

When the miliary fever does occur, we believe, with our author, that the proper treatment of it consists in a cooling regimen; to which should be added, provided the patient's strength be sufficient to bear it, the use of emetics and active purgatives. But the proper practice is, to prevent this disease, by an avoidance of the causes which are known to produce it—a measure, for the neglect of which, we are altogether inexcusable, in as much as those causes are perfectly under our control. We feel persuaded, that at no very distant period, when the treatment of diseases shall be conducted on more enlightened and rational principles, miliary fever will be recognized only by name, as a memorial of the errors of earlier times.

Among the multiplied forms and varieties of epidemics, it is altogether possible, that some may appear, marked by extensive miliary eruptions, independently of the influence of the causes we have enumerated. In case of the occurrence of such an event, the

larly observed, it has been described and treated of by many different writers; and by all of them, till very lately, has been considered as a peculiar idiopathic disease.

It is said to have been constantly attended with peculiar symptoms. It comes on with a cold stage, which is often considerable. The hot stage which succeeds, is attended with great anxiety, and frequent sighing. The heat of the body becomes great, and soon produces profuse sweating; preceded, however, by a sense of pricking, as of pin-points in the skin; and the sweat is of a peculiarly rank and disagreeable odour. The eruption appears sooner or later in different persons, but at no determined period of the disease. It seldom or never appears on the face; but discovers itself first upon the neck and breast, and from thence often spreads over the whole body.

disease will be found to be of gastric origin, and the principal remedies, in the treatment of it, will be, vomiting, purging, and, perhaps, blood-letting. The complaint may, however, assume a typhous character, when the latter remedy will, of course, be inadmissible.

A superabundant acidity in the stomach proves sometimes the cause of, or at least, accompanies, cutaneous eruptions. In this case, alkalis and absorbents are useful remedies. Tonics must also be administered, to remove the weakness and want of digestive power, from which the acidity arises.

If, in miliary fever, a retrocession of the eruption take place or be strongly threatened, sudorifics and blisters are the remedies by which the evil should be met. In this case, cold and, perhaps, even cool air should be carefully avoided. An emetic may avert or remove the mischief, by altering the condition of the stomach—the probable cause of the retrocession—and determining to the surface. Convulsions, under these circumstances, must be extremely dangerous. If they occur, bleeding, blistering and injections will be necessary. Perhaps an anodyne injection may afford relief, as it frequently does in convulsions from other causes.

With these remarks we dismiss the subject, leaving to our readers to acquire a knowledge of the history of miliary fever from the text of our author.

715. The eruption named Miliary is said to be of two kinds, the one named the Red, the other the White Miliary. The former, which in English is strictly named the Rash, is commonly allowed to be a symptomatic affection; and as the latter is the only one that has any pretensions to be considered as an idiopathic disease, it is this alone that I shall more particularly describe and treat of in the present chapter.

716. What then is called the White Miliary eruption appears at first like the red, in very small red pimples, for the most part distinct, but sometimes clustered together. Their slight prominence is distinguished better by the finger than by the eye. Soon after the appearance of this eruption, and at least on the second day, a small vesicle appears upon the top of each pimple. At first the vesicle is whey coloured; but soon becomes white, and stands out like a globule on the top of the pimple. In two or three days, these globules break, or are rubbed off; and are succeeded by small crusts, which soon after fall off in small scales. While one set of pimples takes this course, another set succeeds; so that the disease often continues upon the skin for many days together. Sometimes when one crop of this eruption has disappeared, another, after some interval, is produced. And it has been further observed, that in some persons there is such a tendency to this disease, that they have been affected with it several times, in the course of their lives.

717. This disease is said to affect both sexes, and persons of all ages and constitutions; but it has been observed, at all times, to affect especially, and most frequently, lying-in women.

718. This disease is often accompanied with violent symptoms, and has frequently proved fatal. The symptoms attending it are, however, very various. They are,

in one or other instances, all the several symptoms attending febrile diseases; but I cannot find that any symptom or course of symptoms are steadily the same in different persons, so as to furnish any specific character to the disease. When the disease is violent, the most common symptoms are phrenitic, comatose, and convulsive affections which are also symptoms of all fevers treated by a very warm regimen.

719. While there is such a variety of symptoms appearing in this disease, it is not to be expected that any one particular method of cure can be proposed: and accordingly we find, in different writers, different methods and remedies prescribed; frequent disputes about the most proper; and those received and practised by some, opposed and rejected by others.

720. I have thus given an account of what I have found delivered by authors who have considered the white miliary fever as an idiopathic disease: but, now, after having often observed the disease, I must say that I doubt much if it ever be such an idiopathic, as has been supposed, and I suspect that there is much fallacy in what has been written on the subject.

721. It seems to me very improbable, that this should have been really a new disease when it was first considered as such. There appear to me very clear traces of it in authors who wrote long before that period; and, though there were not, we know that the descriptions of the ancients were inaccurate and imperfect, particularly with respect to cutaneous affections; whilst we know also very well, that those affections which usually appear as symptomatic only, were commonly neglected, or confounded together under a general appellation.

722. The antecedent symptoms of anxiety, sighing, and pricking of the skin, which have been spoken of as peculiar to this disease, are, however, common to many

others; and, perhaps to all those in which sweatings are forced out by a warm regimen.

Of the symptoms said to be concomitant of this eruption, there are none which can be said to be constant and peculiar but that of sweating. This, indeed, always precedes and accompanies the eruption; and, while the miliary eruption attends many different diseases, it never, however, appears in any of these, but after sweating; and, in persons labouring under these diseases, it does not appear, if sweating be avoided. It is therefore probable, that the eruption is the effect of sweating; and that it is the produce of a matter, not before prevailing in the mass of blood, but generated, under particular circumstances, in the skin itself. That it depends upon particular circumstances of the skin, appears further from hence, that the eruption seldom or never appears upon the face, although it affects the whole of the body besides; that it comes upon those places especially which are more closely covered; and that it can be brought out upon particular parts by external applications.

723. It is to be observed, that this eruptive disease differs from the other exanthemata in many circumstances; in its not being contagious, and therefore never epidemic; that the eruption appears at no determined period of the disease; that the eruption has no determined duration; that successive eruptions frequently appear in the course of the same fever; and that such eruptions frequently recur in the course of the same person's life.

All these circumstances render it extremely probable, that, in the miliary fever, the morbific matter is not a subsisting contagion communicated to the blood, and thence, in consequence of fever and assimilation, thrown out upon the surface of the body; but a matter occasionally produced in the skin itself, by sweating.

724. This conclusion is further rendered probable,

from hence, that, while the miliary eruption has no peculiar symptoms, or concourse of symptoms, belonging to it; yet upon occasion, it accompanies almost all febrile diseases, whether inflammatory or putrid, if these happen to be attended with sweating; and from thence it may be presumed, that the miliary eruption is a symptomatic affection only, produced in the manner we have said.

725. But, as this symptomatic affection does not always accompany every instance of sweating, it may be proper to inquire what are the circumstances which especially determine this eruption to appear? To this, however, I can give no full and proper answer. I cannot say that there is any one circumstance which in all cases gives occasion to this eruption; nor can I say, what different causes may, in different cases, give occasion to it. There is only one observation I can offer to the purpose of this inquiry; and it is, that, of the persons, sweating under febrile diseases, those are especially liable to the miliary eruption, who have been previously weakened by large evacuations, particularly of blood. This will explain why it happens to lying-in women more frequently than to any other persons; and to confirm this explanation, I have remarked, that the eruption happened to women not in child-bed, but who had been much subjected to a frequent and copious menstruation; and to an almost constant fluor albus. I have also had occasion to observe it happen to men in fevers, after wounds from which they had suffered a great loss of blood.

Further, that this eruption is produced by a certain state of debility, will appear probable, from its often occuring in fevers of the putrid kind, which are always attended with great debility. It is true, that it also sometimes attends inflammatory diseases, when it cannot be accounted for in the same manner; but I believe it will be found to attend especially those inflammatory dis-

cases in which the sweats have been long protracted or frequently repeated, and which have thereby produced a debility, and perhaps a debilitating putrid diathesis.

726. It appears so clearly to me, that this eruption is always a symptomatic and factitious affection, that I am persuaded it may be in most cases prevented merely by avoiding sweats. Spontaneous sweatings, in the beginning of diseases, are very rarely critical; all sweatings, not evidently critical, should be prevented; and the promoting them, by increasing external heat, is commonly very pernicious. Even critical sweats should hardly be encouraged by such means. If therefore, spontaneous sweats arise, they are to be checked by the coolness of the chamber; by the lightness and coolness of the bedclothes; by the person's laying out their hands and arms, and by their taking cold drink: and, by these precautions, I think I have frequently prevented miliary eruptions, which were otherwise likely to have appeared, particularly in lying-in women.

727. But it may happen, when these precautions have been neglected, or from other circumstances, that a miliary eruption does actually appear; and the question will then be put, how the case is to be treated? It is a question of consequence, because I believe that the matter here generated is often of a virulent kind; it is frequently the offspring of putrescency; and, when treated by increasing the external heat of the body, it seems to acquire a virulence which produces those symptoms mentioned in 718, and proves certainly fatal.

It has been an unhappy opinion with most physicians, that eruptive diseases were readily to be hurt by cold; and that it was therefore necessary to cover up the body very closely, so as thereby to increase the external heat. We now know that this is a mistaken opinion; that in-

creasing the external heat of the body is very generally mischievous; and that several eruptions not only admit, but require the application of cold air. We are now persuaded, that the practice which formerly prevailed, in the case of miliary eruptions, of covering up the body close, and both by external means, and internal remedies, encouraging the sweatings which accompany this eruption, was highly pernicious, and commonly fatal. I am therefore of opinion, even when a miliary eruption has appeared, that in all cases where the sweating is not manifestly critical, we should employ all the several means of stopping it that are mentioned above; and I have sometimes had occasion to observe, that even the admission of cool air was safe and useful.

728. This is, in general, the treatment of miliary eruptions; but, at the same time, the remedies suited to the primary disease, are to be employed; and therefore, when the eruption happens to accompany inflamtory affections, and when the fulness and hardness of the pulse or other symptoms show an inflammatory state present, the case is to be treated by blood-letting, purging, and other antiphlogistic remedies.

Upon the other hand, when the miliary eruption attends diseases in which debility and putrescency prevail, it will be proper to avoid all evacuations, and employ tonic and antiseptic remedies, particularly the Peruvian bark, cold drink, and cold air.

I shall conclude this subject with mentioning, that the venerable octogenarian practitioner, de Fischer, when treating of this subject, in laying down the indications of cure, has given this as one of them: "Excretionis peripherice non primariam habere rationem."

CHAPTER VIII.

OF THE REMAINING EXANTHEMATA,

URTICARIA, PEMPHIGUS, AND APHTHA.*

729. THE Nettle Rash is a name applied to two different diseases. The one is the chronic eruption described

* Although every malady is an evil, which ought to be carefully prevented or removed, yet the diseases treated of in this chapter are, comparatively, of little moment.

Of Pemphigus we have no knowledge, having never seen the complaint ourselves, nor read any account of it that is worthy of being remembered, much less reprinted. We shall, therefore, dismiss it without further notice. In the mean time, those who are curious on the subject, may consult Willan, Dickson (Transactions of the Royal Irish Academy for 1787,) and Thomas; from each of whom something may be learnt respecting this disease. Although but little known in Europe, it is still, we believe, a much greater stranger in the United States.

Urticaria or Nettle-rash, has a place among the diseases of our country; but so mild is it, in its nature, and so inconsiderable are the danger and inconvenience which accompany it, that physicians are but rarely consulted respecting its treatment.

It is more particularly a disease of youth, and occurs most frequently in the season of spring. The returning warmth of the atmosphere may have some influence in producing it; but most cases of it that we have witnessed, could be clearly traced to gastric irritation. We once saw it brought on by a diet of rich chocolate, in a youth who had just recovered from a severe attack of inflammatory fever. In other instances, we have been able to trace it to an immoderate use of pickles, spices, and acids. We lately attended an irregular case of it, in a child of about four years old, which had been evidently induced by an inordinate meal of sour cherries.

When it calls for remedies, the first and principal indication in

by Dr. Heberden in the Medical Transactions, vol. i. art. xvii, which, as not being a febrile disorder, does not

the treatment of it is, to evacuate thoroughly the alimentary canal. This must be done by vomiting and purging. A solution of tartarized antimony and sulphate of soda, constitutes, for this purpose, a valuable remedy. The formula is, an ounce of the latter, added to two or three grains of the former, to be exhibited in divided doses till it operate.

If the disease, which is always, we believe, inflammatory, yield not to remedies directed to the alimentary canal, we must resort to blood-letting. It is understood, that during our treatment of it, a strict observance of the antiphlogistic regimen is to be enjoined—in a more especial manner, an avoidance of every thing that might irritate the stomach. The termination of Urticaria is always favourable.

Aphtha or Thrush commences also, we believe, in the stomach. In this country, it is very much a disease of childhood; although cases of it do occur in adults, whose stomach and bowels are irritable and weak. An epidemic aphthous fever has never, to our knowledge, appeared in the United States. In Barbadoes and others of the West India islands, adults are oftentimes attacked by it, with a degree of violence and obstinacy, which nothing but a change of climate can overcome. In Holland, Zealand, and other low and humid countries of the north of Europe, it is very common; while in the warm and dry countries of the south, it is scarcely known.

In this disease the eruptions generally make their appearance first about the angles of the lips, whence they spread to the inside of the lips, the tongue, the fauces, the esophagus, and the whole alimentary canal; until they ultimately appear even without the anus. Their colour varies, from white to yellow, and from yellow to brown. The latter colour indicates danger.

The eruptions about the mouth, although sometimes preceded by fever, are generally, we believe, the elder symptom. Morbid irritation in the stomach and bowels, always precedes the fever, and acts as its cause.

Aphtha, by attacking the gums of children, sometimes produces a general caries of the teeth. This manifests the existence of a strong sympathetic connection between the teeth and the stomach—a position which we endeavoured to establish, in our annotations on odontalgia.

In

belong to this place. The other is the Urticaria of our Synopsis, which as taken into every system of Nosology

In the treatment of aphtha, the cleansing of the stomach and bowels, by emetics and cathartics, should constitute the first object of attention. As the natural tendency of the disease, however, is to diarrhœa, the drastic purgatives are of doubtful utility. Castor oil, rhubarb, magnesia, and some of the milder saline purgatives, are generally employed. Calomel is also exhibited, either alone or in combination with rhubarb, and proves, in many cases, a very valuable remedy. The cases wherein it is used being well selected, we think it among the most useful that can be administered.

It is in the commencement of the disease, before the aphthous eruption has passed into the stomach and bowels, that these remedies may be most usefully employed. During its whole continuance, however, the primæ viæ must be kept free from irritating contents: for if, by their morbific impression, such contents originally produce the complaint, they must certainly aggravate it, and render it more obstinate, when it is already in existence. But, when the disease is at its height, injections are recommended in preference to cathartics administered by the mouth. The reason assigned is, the danger of inducing, by the use of purgatives, a debilitating and unmanageable hypercatharsis.

Towards the close of the disease, when the aphthous crusts are beginning to fall off, purgatives are again recommended, with a view to their removal from the alimentary canal.

As the alimentary canal is known to sympathise very powerfully with the skin, gentle diaphoretics are advantageously administered, in the treatment of aphtha.

Magnesia, as an absorbent and gentle evacuant, is also recommended as particularly useful. It not only neutralizes the acid which usually superabounds in the primæ viæ, but converts it into a means of removing from the bowels what would otherwise prove offensive.

The diet should be nutritive, but entirely liquid, mucilaginous, and mild. It may consist of well boiled sago, tapioca, powdered arrow-root, or barley water. Flax-seed tea and gum arabic dissolved in water make suitable drinks.

As milk of bad qualities contributes to the production of aphtha in infants; fresh and wholesome milk, on the other hand, constitutes,

as one of the Exanthemata Febrilia, is properly to be treated of here.

730. I have never observed this disease as contagious and epidemic; and the few sporadic cases of it which have occurred to me, have seldom taken the regular course described by authors. At the same time, as the accounts of different authors are not very uniform, and hardly consistent, I cannot enter further into the consideration of this subject: and I hope it is not very necessary, as on all hands it is agreed to be a mild disease, and such as seldom requires the use of remedies. It is generally sufficient to observe an antiphlogistic regimen, and to keep the patient in a temperature that is neither hot nor cold.

731. The Pemphigus, or Visicular Fever, is a rare and uncommon disease, and very few instances of it are recorded in the writings of physicians. As I have never had occasion to see it, it would be improper for me to treat of it; and I do not choose to repeat after others, while the disease has yet been little observed, and its character does not seem to be exactly ascertained. Vid. Acta Helvetica, vol. ii. p. 260. Synops. Nosolog. vol. ii. p. 149.

732. The Aphtha, or Thrush, is a disease better known; and, as it commonly appears in infants, it is so well understood, as not to need our treating of it here. As an idiopathic disease, affecting adults, I have not seen it in this country: but it seems to be more frequent in Holland; and, therefore, for the study of it, I refer to Dr.

when the fever is not too violent, an exceedingly valuable article of diet.

Those readers who wish to be more fully informed on the subject of this disease, are refered to Dr. Wilson's able and elaborate article on "aphthous fever."

Boerhaave, and his commentator Van Swieten, whose works are in every body's hands.

733. The Petechia has been, by all our Nosologists, enumerated amongst the exanthemata; but as, according to the opinion of most physicians, it is very justly held to be always a symptomatic affection only, I cannot give it a place here.

BOOK IV.

OF HÆMORRHAGIES.

CHAPTER I.

OF HÆMORRHAGY IN GENERAL.

734. IN establishing a class or order of diseases under the title of *Hæmorrhagies*, Nosologists have employed the single circumstance of an effusion of red blood, as the character of such a class or order. By this means they have associated diseases which in their nature are very different; but, in every methodical distribution, such arbitrary and unnatural associations should be avoided as much as possible. Further, by that management Nosologists have suppressed or lost sight of an established and well founded distinction of hæmorrhagies into Active and Passive.*

* The division of Hæmorrhagies into "*active and passive*," recognized by our author in this article, is utterly unfounded, and ought to be rejected from pathological science. The phraseology leads to a physiological error. The expression "passive hæmorrhagy," as applied to living matter, is a gross misnomer During life, no hæmorrhagy can possibly be passive. Blood flows from the vessel that contains it, at least in part, by means of the action of that vessel. Nor is it possible for such action to cease, otherwise than by the cessation of life in the part. But the cessation of life is the commencement of gangrene. A hæmorrhagy really passive, therefore, cannot take place except from gangrenous vessels. But from such vessels, unless they be very large, blood does not flow at all. The reason is obvious. They act on the blood which they contain like dead matter: and we well know that the action of dead matter on

735. It is my design to restore this distinction; and I shall therefore here, under the title of Hæmorrhagies, comprehend those only which have been commonly called Active, that is, those attended with some degree of pyrexia; which seem always to depend upon an increased impetus of blood in the vessels pouring it out, and which chiefly arise from an internal cause. In this I follow Dr. Hoffman, who joins the active hæmorrhagies with the febrile diseases, and have accordingly established these hæmorrhagies as an order in the class of Pyrexia. From this order I exclude all those effusions of red blood that are owing entirely to external violence; and all those which, though arising from internal causes, are however not attended with pyrexia, and which seem to be owing to a putrid fluidity of the blood, to the weakness or to the erosion of the vessels, rather than to any increased impetus of the blood in them.

736. Before proceeding to treat of those proper hæ-

blood forces it to coagulate. Hence, in the vessels of a gangrenous part, the blood does coagulate, and prevents the hæmorrhagy that would otherwise ensue.

Every hæmorrhagy, therefore, that does or can take place from the living body, is really an active one. It arises, not from the absolute want of action, in the part; but from its wrong action. The vessels *dilate*, or rather *contract* and *dilate alternately*, when they ought to *contract only*, and thus prevent the escape of the blood which they contain.

But some hæmorrhagies are attended with more action than others. Some have a much more general aspect than others. Some are febrile, others not.

Instead, then, of being denominated active and passive, they might, in our estimation, be much more correctly divided into *tonic* and *atonic:* or, if we might be permitted to coin terms more suitable to the occasion, into *pyrectic* and *apyrectic.*

Tonic or pyrectic hæmorrhagy appears to be the very reverse of inflammation. The latter consists in a deficiency, the former in an excess, of action in the vessels of the part affected.

morrhagies which from an order in our Nosology, I shall treat of active hæmorrhagy in general; and indeed the several genera and species to be treated of particularly afterwards have so many circumstances in common with one another, that the general consideration to be now offered will prove both proper and useful.

Sect. I.—*Of the Phenomena of Hæmorrhagy.*

737. The phenomena of hæmorrhagy are generally the following,

Hæmorrhagies happen especially in plethoric habits, and to persons of a sanguine temperament. They appear most commonly in the spring, or in the beginning of summer.

For some time, longer or shorter in different cases, before the blood flows, there are some symptoms of fulness and tension about the parts from whence the blood is to issue. In such parts as fall under our view, there are some redness, swelling, and sense of heat or of itching; and in the internal parts from which blood is to flow, there is a sense of weight and heat; and, in both cases, various pains are often felt in the neighbouring parts.*

738. When these symptoms have subsisted for some time, some degree of a cold stage of pyrexia comes on, and a hot stage is formed; during which, the blood flows of a florid colour, in a greater or lesser quantity, and continues to flow for a longer or shorter time; but com-

* To the symptoms announcing the approach of hæmorrhagy from any part of the body, our author should have added, a sense of throbbing, or pulsation, in the vessels from which the blood is to flow.

monly, after some time, the effusion spontaneously ceases, and together with it the pyrexia also.

739. During the hot stage which precedes an hæmorrhagy, the pulse is frequent, quick, full, and often hard; but as the blood flows, the pulse becomes softer and less frequent.

740. In hæmorrhagies, blood drawn from a vein, does, upon its concreting, commonly show the gluten separated, or a crust formed, as in the cases of Phlegmasiæ.

741. Hæmorrhagies from internal causes, having once happened, are apt, after a certain interval, to return; in some cases very often, and frequently at stated periods.*

* That hæmorrhagies recur periodically, is a fact, which will not we presume, be, at present, called in question. Nor is it, in reality, less true, although a matter of much less notoriety, that such recurrence corresponds very accurately, at least in many instances, to the periods of the moon.

For no inconsiderable amount of curious information on this subject, our readers are referred to the writings of Dr. Mead; particularly his well known and very learned treatise, *De imperio Solis et Lunæ.*"

To the more recent writings of Dr. Moseley, we are also indebted for much information, touching the influence of the moon on hæmorrhagies.

"The greater hæmorrhagies from the lungs," says this author, "or those of plethora, like all periodical hæmorrhagies, undisturbed in their natural course by peculiar circumstances, obey the influence of the moon. Of this I have many proofs; and that there are not more, authenticated by others, is owing, I believe, to the theory on which the fact depends not being sufficiently known to prevent the result escaping unnoticed.

"Among the many instances which I have lately seen, there was one which deserves to be recorded. A man in Burleigh-street, in the Strand, had a cough for some time, which brought on a hæmoptysis. This continued for six weeks, and then degenerated into a regular monthly eruption of blood from the lungs. *He disgorged about eight ounces of blood from the lungs every full moon.*

"This doctrine attended to," continues our author, "hæmor-

742. These are, in general, the phenomena of hæmorrhagy; and if in some cases, all of them be not exquisitely marked, or if perhaps some of them do not at all

rhagies which do not prove fatal in the first or second attack, will seldom be so afterwards; as their returns may always be moderated, and often entirely prevented; which, from repeatedly wounding the lungs, induce ulceration there, and end the subject in consumption."

In further confirmation of the doctrine of the influence of the moon in the production of hæmorrhagies, Dr. Moseley narrates the following very remarkable and pertinent case.

"Captain Richard Boyle, of the third regiment of guards, was attacked in London, on the 20th of January, 1785, from straining in pulling on his boots, with a pulmonary hæmorrhage, and almost suffocated by the violence of the blood forcing itself through his mouth and nostrils. It was preceded by a momentary tickling in his throat, that excited a fit of coughing; in which an artery burst in the right lobe of his lungs. He was in the 23d year of his age, and of a plethoric habit; but free from defect in make, that might indicate such an event.

"He had many repetitions of the hæmorrhage, after recovering from the first, in the course of the same year; and was advised to go to the south of France, to avoid the following winter in England. It was there that I saw him; and found the hæmorrhage periodical; and so faithfully obeyed the influence of the moon, that a statement of the returns of such, as came within my knowledge, will show one of the most decisive examples of lunar influence in medical history.

"1786, February 14th, he was attacked at *Hieres* near *Toulon*— Full moon on the 13th. In this hæmorrhage he was for some time thought, by his attendants, to be dead.

"February 20th, at *Aix*, in Provence. New moon on the 28th. Here, also, he bled nearly to death.

"April 15th, at ditto. Full moon on the 13th.

"April 29th, at *Tain*, upon the Rhone. New moon on the 28th.

"May 14th, at *Chalons*, in Burgundy. Full moon on the 13th.

"June 11th, at *Dijon*. It was then full moon.

"July 11th, at *Paris*. It was then full moon.

"August 9th, at *Yarmouth*, in the Isle of Wight. It was then full moon.

"The

appear, it imports only, that, in different cases the system is more or less generally affected; and that, in some cases, there are purely topical hæmorrhagies, as there are purely topical inflammations.

Sect. II.—*Of the Proximate Cause of Hæmorrhagy.*

743. The pathology of hæmorrhagy seems to be sufficiently obvious. Some inequality in the distribution of the blood occasions a congestion in particular parts of the sanguiferous system; that is, a greater quantity of blood is poured into certain vessels than their natural capacity is suited to receive. These vessels become thereby preternaturally distended; and this distention, proving a stimulus to them, excites their action to a greater degree than usual, which, pushing the blood with unusual force into the extremities of these vessels opens them by anastomosis, or rupture; and, if these extremities be loosely situated on external surfaces, or on the internal surfaces of certain cavities that open outwardly, a quantity of blood flows out of the body.*

"The three last hæmorrhages came on at the instant the moon appeared above the horizon."

On many other occasions, in the case of captain Boyle, did the hæmorrhagy from the lungs appear, at the time of the full or change of the moon, with as much punctuality as in those we have recited.

Readers who may wish further to amuse themselves with many curious, and not uninteresting facts and speculations, touching the influence of the moon, not only in hæmorrhagies, but on various other diseases, will be gratified by looking into the writings of Moseley, Mead, Ramazzini, Diemerbroeck, Ballonius, Van Helmont, Sennertus, Lord Bacon, Ambrose Paré, and many other authors of prior date.

* This inequality is oftentimes produced, by that irregularity in the distribution of the blood, which is requisite for the promotion of the growth of the parts. When the bones of the face, for example, are acquiring their ultimate expansion, they receive, for

474. This reasoning will, in some measure, explain the production of hæmorrhagy. But it appears to me, that, in most cases, there are some other circumstances that concur to produce it; for it is probable, that, in consequence of congestion, a sense of resistance arises, and excites the action of the vis medicatrix naturæ, the exertions of which are usually made by the formations of a cold stage of pyrexia, inducing a more vigorous action of the vessels; and the concurrence of this exertion more effectually opens the extremities, and occasions the flowing out of the blood.

745. What has been delivered in the two preceding paragraphs, seems to explain the whole phenomena of hæmorrhagy, except the circumstance of its frequent recurrence, which I apprehend may be explained in the following manner. The congestion and consequent irritation being taken off by the flowing of the blood; this therefore, soon after, spontaneously ceases; but, at the same time, the internal causes which had before produced the unequal distribution of the blood, commonly remain, and must now operate the more readily, as the over-stretched and relaxed vessels of the part will more easily admit of a congestion of blood in them, and,

their nourishment, a larger portion of blood, than they did at any former period, or than they do for their mere subsistence, after they have attained to their full size. The same thing is true in relation to the lungs. Nor is it probable that the vessels of a part attain their entire strength as soon as their growth is completed. The younger they are, the more easily may they be lacerated. They acquire their size first, and their strength and power of resistance, afterwards. These facts may account, perhaps, in part, for the frequency of epistaxis and hæmoptysis, about the age of puberty, when the bones of the face and the thorax, with its contents, are acquiring their full size, with a progress more than usually rapid.

consequently, produce the same series of phenomena as before.

746. This may sufficiently explain the ordinary return of hæmorrhagy; but there is still another circumstance, which, as commonly concurring, is to be taken notice of; and that is, the general plethoric state of the system, which renders every cause of unequal distribution of more considerable effect. Though hæmorrhagy may often depend upon the state of the vessels of a particular part being favourable to a congestion's being formed in them; yet, in order to that state's producing its effect, it is necessary that the whole system should be at least in its natural plethoric condition; and, if this should be in any degree increased beyond what is natural, it will still more certainly determine the effects of topical conformation to take place. The return of hæmorrhagy, therefore, will be more certainly occasioned, if the system becomes preternaturally plethoric; but hæmorrhagy has always a tendency to increase the plethoric state of the system, and, consequently, to occasion its own return.

747. To show that hæmorrhagy does contribute to produce or increase the plethoric state of the system, it is only necessary to observe, that the quantity of serous fluids being given, the state of the excretions depends upon a certain balance between the force of the larger arteries propelling the blood, and the resistance of the excretories: but the force of the arteries depends upon their fulness and distention, chiefly given to them by the quantity of red globules and gluten, which are for the greatest part confined to the red arteries; and therefore, the *spoliation* made by an hæmorrhagy, being chiefly of red globules and gluten, the effusion of blood must leave the red arteries more empty and weak. In consequence of the weaker action of the red arteries, the excretions

are in proportion diminished; and, therefore, the ingesta continuing the same, more fluids will be accumulated in the larger vessels. It is by this means that the loss of blood by hæmorrhagies, whether artificial or spontaneous, if within certain bounds, is commonly so soon recovered: but as the diminution of the excretions, from a less quantity of fluid being impelled into the excretories, gives occasion to these vessels to fall into a contracted state; so, if this shall continue long, these vessels will become more rigid, and will not yield to the same impelling force as before. Although the arteries, therefore, by new blood collected in them, shall have recovered their former fulness, tension, and force; yet this force will not be in balance with the resistance of the more rigid excretories, so as to restore the former state of excretion; and, consequently, a further accumulation will take place in the arteries, and an increase of their plethoric state be thereby induced. In this manner, we perceive more clearly, that hæmorrhagy, as producing a more plethoric state of the system, has a tendency to occasion its own recurrence with greater violence; and, as the renewal and further accumulation of blood require a determinate time, so, in the several repetitions of hæmorrhagy, that time will be nearly the same; and therefore the returns of hæmorrhagy will be commonly at stated periods, as has been observed frequently to happen.

748. I have thus explained the nature of hæmorrhagy in general, as depending upon some inequality in the distribution of the blood, occasioning a congestion of it in particular parts of the sanguiferous system. It is indeed probable, that, in most persons, the several parts of the sanguiferous system, are in balance with one another; and that the density, and consequently the resistance, in the several vessels, is in proportion to the quantity of blood which each should receive; from whence it fre-

quently happens, that no inequality in the distribution of the blood takes place in the course of a long life. If, however, we consider that the sanguiferous system is constantly in a plethoric state, that is, that the vessels are constantly distended beyond that size which they would be of, if free from any distending force, we shall be satisfied that this state may be readily changed. For as, on the one hand, the vessels are elastic, so as to be under a constant tendency to contract upon the withdrawing of any part of the distending force; and, on the other hand, are not so rigid, but that, by an increase of the impetus of the blood in them, they may be more than ordinarily distended; so we can easily understand how, in most persons, causes of an increased contraction or distention may arise in one part or other of the system, or that an unequal distribution may take place; and how, in an exquisitely distended or plethoric system, a small inequality in the distribution of the blood may form those congestions which give occasion to hæmorrhagy.

749. In this manner I endeavour to explain how hæmorrhagy may be occasioned at any period of life, or in any part of the body: but hæmorrhagies happen in certain parts more frequently than in others, and at certain periods of life more readily than at others; and therefore in delivering the general doctrine of hæmorrhagy, it may be required that I should explain those circumstances which produce the specialities mentioned; and I shall now attempt it.

750. The human body, from being of a small bulk at its first formation, grows afterwards to a considerable size. This increase of bulk consists, in a great measure, in the increase of the quantity of fluids, and a proportional enlargement of the containing vessels. But at the same time, the quantity of solid matter is also gradually

increased; and, in whatever manner we may suppose this to be done, it is probable that the progress, in the whole growth of animal bodies, depends upon the extension of the arterial system; and such is the constitution of the sanguiferous system, that the motion of the blood in the arteries has a constant tendency to extend them in every dimension.*

751. As the state of the animal solid is, at the first formation of the body, very lax and yielding; so the extension of the system proceeds, at first, very fast: but, as the extension gives occasion to the apposition of more matter to the solid parts, these are, in proportion to their extension, constantly acquiring a greater density, and therefore giving more resistance to their further extension and growth. Accordingly, we observe, that as the growth of the body advances, its increase, in any given time, becomes proportionally less and less, till at length it ceases altogether.

752. This is the general idea of the growth of the human body, till it attain the utmost bulk which it is capable of acquiring: but it is to be remarked, that this growth does not proceed equally in every part of the body, it being requisite for the economy of the system, that certain parts should be first evolved, and should also acquire their full bulk sooner than others. This ap-

* Animal growth does not consist in mere *extension*. It is impossible, by that process, ever to form large arteries out of small ones. It consists in *absorption* and *apposition*. The absorbents remove entirely the smaller arteries, while the vessels destined for the promotion of growth, lay down larger and stronger ones in their places. On no other principles can the growth of animal parts be explained. Nor is it true, that the growth of the body is always rapid, in proportion as the vessels are lax and tender. We sometimes observe youth to grow more rapidly from sixteen to nineteen, or even from seventeen to twenty-one, than at any former period. Our author's doctrine is too coarse and mechanical to be true.

pears particularly with respect to the head, the parts of which appear to be first evolved, and soonest to acquire their full size.

753. To favour this unequal growth, it is presumed, that the dimensions or the laxity of the vessels of the head, or that the direction of the force of the blood, are adapted to the purpose; and from what has been said in 751, it will also certainly follow, that as the vessels of the head grow fastest, and soonest acquire their full size, so they will soonest also acquire that density which will prevent their further extension. While, however, the force of the heart, and the quantity of the fluids, with respect to the whole system, remain the same, the distending and extending powers will be directed to such parts as have not yet acquired the same density and dimensions as those first evolved; and thus the distending and extending powers will proceed to operate till every part of the system, in respect of density and resistance, shall have been brought to be in balance with every other, and till the whole be in balance with the force of the heart, so that there can be no further growth in any particular part, unless some preternatural circumstance shall happen to arise.

754. In this process of the growth of the body, as it seems in general to depend upon a certain balance between the force of the heart or distending power, and the resistance of the solids; so it will appear, that, while the solids remain very lax and yielding, some occasional increase of the distending power may arise without producing any very perceptible disorder in the system. But, it will also appear, that, in proportion as the distending power and resistance of the solids come to be more nearly in exact balance with one another, so any increase of the distending power will more readily pro-

duce a rupture of vessels, which do not easily yield to extension.

755. From all this, it must follow, that the effects of an unusually plethoric state of the system, will be different according as this shall occur at different periods of the growth of the body. Accordingly, it is evident, that if the plethoric state arises while the head is yet growing, and while the determination of the blood is still more to the head than to the other parts, the increased quantity of the blood will be especially determined to the head; and as there also, at the same time, the balance between the distending and extending powers is most nearly adjusted, so the determination of the blood will most readily produce in that part a rupture of the vessels, or an hæmorrhagy. Hence it is, that hæmorrhagies of the nose so frequently happen to young persons; and in these more readily, as they approach nearer to their acmé, or full growth; or, it may be said, perhaps more properly, as they approach nearer to the age of puberty, when, perhaps, in both sexes, but especially in the female, a new determination arises in the system.

756. The determination of a greater quantity of blood to the vessels of the head, might be supposed to occasion a rupture of vessels in other parts of the head, as well as in the nose: but such a rupture does not commonly happen; because in the nose there is, for the purpose of sense, a considerable net-work of blood-vessels expanded on the internal surface of the nostrils, and covered only with thin and weak teguments. From this circumstance it is, that upon any increased impetus of the blood in the vessels of the head, those of the nose are most easily broken; and the effusion from the nose taking place, it not only relieves the other extremities of the external carotid, to which the arteries of the nose chiefly belong, but relieves also, in a great measure, the

system of the internal carotid. For, from the internal carotid, certain branches are sent to the nose, are spread out in its internal surface, and probably inosculated with the extremities of the external carotid: so that, whichsoever of the extremities are broken, the *vis derivationis* of Haller will take place; the effusion will relieve the whole sanguiferous system of the head, and the same effusion will also commonly prevent an hæmorrhagy happening at the same time in any other part of the body.

757. From these principles, it will appear why hæmorrhagies of the nose, so frequent before the period of puberty, or of the acmé, seldom happen after these periods: and I must observe further, that although they should occur, they would not afford any objection to my doctrine, as such hæmorrhagies might be imputed to a peculiar laxity of the vessels of the nose, and perhaps to a habit acquired with respect to these vessels, while the balance of the system might be otherwise duly adjusted.

758. When the process of the growth of the body goes on regularly, and the balance of the system is properly adjusted to the gradual growth of the whole, as well as to the successive growth of the several parts, even a plethoric state does not produce any hæmorrhagy, or at least any after that of the nose: but if, while the plethoric state continues, any inequality shall also subsist in any of the parts of the system, congestions, hæmorrhagic or inflammatory, may be still readily formed.

759. In general, it may be observed, that, when the several parts of the system of the aorta have attained their full growth, and are duly balanced with one another, if then any considerable degree of plethora remain or arise, the nicety of the balance will be between the systems of the aorta and pulmonary artery, or between the

vessels of the lungs and those of all the rest of he body. And although the lesser capacity of the vessels of the lungs is commonly compensated by the greater velocity of the blood in them; yet, if this velocity be not always adjusted to the necessary compensation, it is probable that a plethoric state of the whole body will always be especially felt in the lungs; and therefore, that an hæmorrhagy, as the effect of a general plethora, may be frequently occasioned in the lungs, even though there be no fault in their conformation.*

760. In some cases, perhaps, an hæmorrhagy from the lungs, or an hæmoptysis, does arise from the general plethoric state of the body; but an hæmoptysis more frequently does, and may be expected to happen, from a faulty proportion between the capacity of the lungs and that of the rest of the body.

761. When such a disproportion takes place, it will be evident, that an hæmoptysis will especially happen about the time that the body is approaching to its acmé; that is, when the system of the aorta has arrived at its utmost extension and resistance, and when, therefore, the plethoric state of the whole must especially affect the lungs.

762. Accordingly, it has been constantly observed, that the hæmoptysis especially occurs about the time of the body's arriving at its acmé; but I must remark also, that the hæmorrhagy may occur sooner or later, according as the balance between the vessels of the lungs and those of the system of the aorta, happens to be more or less exactly adjusted to one another; and it may therefore often occur much later than the period mentioned,

* We recollect, at present, no facts or experiments, tending to show, that the blood moves through the pulmonary system with greater velocity, than in the other parts of the body.

when that balance, though not quite even, is however not so ill adjusted, but that some other concurring causes are necessary to give it effect.

763. It was anciently remarked by Hippocrates, and has been confirmed by modern observation, that the hæmoptysis generally occurs in persons between the age of fifteen and that of five-and-thirty; that it may happen at any time between these two periods; but that it seldom happens before the former, or after the latter; and it may be proper here to inquire into the reason of these two limitations.

764. With respect to the first, the reason of it has been already explained in 761. and 762.

With respect to the second limitation, I expect that the reason of it will be understood from the following considerations.

It has been already observed, that the extension and growth of the body require the plethoric state of the arterial system; and nature has provided for this, partly by the constitution of the blood being such that a great proportion of it is unfit to pass into the exhalants and excretories; partly by giving a certain density and resistance to the several exhalants and excretories through which the fluids might pass out of the red arteries; and partly, but especially, by a resistance in the veins to the free passage of the blood into them from the arteries.

765. With respect to this last and chief circumstance, it appears from the experiments of Sir Clifton Wintringham, in his *Experimental Inquiry*, that the proportional density of the coats of the veins to that of the coats of the arteries, is greater in young than in old animals: from which it may be presumed, that the resistance to the passage of the blood from the arteries into the veins, is greater in young animals than in old; and, while this resistance continues, the plethoric state of the arteries

must be constantly continued and supported. As however the density of the coats of the vessels, consisting chiefly of a cellular texture, is increased by pressure; so, in proportion as the coats of the arteries are more exposed to pressure by distension than those of the veins, the former, in the progress of the growth of the body, must increase much more in density than the latter; and, therefore, the coats of the arteries, in respect of density, and resistance, must come, in time, not only to be in balance with those of the veins, but to prevail over them: a fact which is sufficiently proved by the experiments of the above-mentioned ingenious author.

By these means, the proportional quantities of blood in the arteries and veins must change in the course of life. In younger animals the quantity of blood in the arteries must be proportionally greater than in old ones; but by the increasing density of the arteries, the quantity of blood in them must be continually diminishing, and that in the veins be proportionally increasing, so as at length to be in a proportionally greater quantity than that in the arteries. When this change happens in the proportional quantities of the blood in the arteries and veins, it must be evident, that the plethoric state of the arteries will be in a great measure taken off; and therefore that the arterial hæmorrhagy is no longer likely to happen; but that if a general plethoric state afterwards take place in the system it must especially appear in the veins.

766. The change I have mentioned to happen in the state of the arterial and venous systems, is properly supposed to take place in the human body about the age of thirty-five, when it is manifest that the vigour of the body, which depends so much upon the fulness and tension of the arterial system, no longer increases; and therefore it is that the same age is the period, after which the ar-

terial hæmorrhagy, hæmoptysis, hardly ever appears. It is true, there are instances of the hæmoptysis happening at a later period; but it is for the reasons given (757.) which show that an hæmorrhagy may happen at any period of life, from accidental causes forming congestions, independent of the state of the balance of the system at that particular period.

767. I have said (765.) that if after the age of thirty-five, a general and preternatural plethoric state occur, it must especially appear in the venous system; and I must now observe, that this venous plethora may also give occasion to hæmorrhagy.

768. If a plethoric state of the venous system take place, it is to be presumed, that it will especially and in the first place affect the system of the vena portarum, in which the motion of the venous blood is more slow than elsewhere; in which the motion of the blood is little assisted by external compression; and in which, from the want of valves in the veins that form the vena portarum, the motion of the blood is little assisted by the compression that is applied; while, from the same want of valves in those veins, the blood is more ready to regurgitate in them. Whether any regurgitation of the blood can produce an action in the veins, and which inverted, or directed towards their extremities, can force these, and occasion hæmorrhagy, may perhaps be disputed: but it appears to me that an hæmorrhagy, produced by a plethoric state of the veins, may be explained in another and more probable manner. If the blood be accumulated in the veins, from an interruption of its proper course, that accumulation must resist the free passage of the blood from the arteries into the veins. This again must produce some congestion in the extremities of the red arteries, and therefore some increased action in them, which must be determined with more than usual force,

both upon the extremities of the arteries, and upon the exhalants proceeding from them; and this force may occasion an effusion of blood, either by anastomosis or rupture.

769. In this manner I apprehend the hæmorrhoidal flux is to be explained, so far as it depends upon the state of the whole system. It appears most commonly to proceed from the extremities of hæmorrhoidal vessels, which, being the most dependent and distant branches of those veins that form the vena portarum, are therefore the most readily affected by every accumulation of blood in that system of veins, and consequently by any general plethora in the venous system.

770. It is here to be observed, that I have spoken of this hæmorrhagy as proceeding from the hæmorrhoidal vessels only, as indeed it most commonly does; but it will be readily understood, that the same accumulation and resistance to the venous blood may, from various causes, affect many of the extremities of the vena portarum, which lie very superficially upon the internal surface of the alimentary canal, and give occasion to what has been called the *Morbus Niger* or *Melæna.*

771. Another part in which an unusually plethoric state of the veins may have particular effects, and occasion hæmorrhagy, is the head. In this, the venous system is of a peculiar conformation, and such as seems intended by nature to give there a slower motion to the venous blood. If, therefore, the plethoric state of the venous system in general, which seems to increase as life advances, should at length increase to a great degree, it may very readily affect the venous vessels of the head, and produce there such a resistance to the arterial blood, as to determine this to be poured out from the nose, or into the cavity of the cranium. The special effect of the latter effusion will be, to produce the disease termed

Apoplexy; and which, therefore, is properly named by Doctor HOFFMAN, *Hæmorrhagia Cerebri:* and the explanation of its cause, which I have now given, explains well why it happens especially to men of large heads and short necks, and to men in the decline of life, when the powers promoting the motion of the blood are much weakened.*

772. I have thus attempted to give the history of the plethoric and hæmorrhagic states of the human body, as they occur at the different periods of life; and hope I have thereby explained, not only the nature of hæmorrhagy in general, but also of the particular hæmorrhagies

* We do not believe that apoplexy is ever produced, in the manner stated in this article. It is certainly, in most cases, if not always, a *gastric disease*, the brain being only secondarily effected. Hence it is, that, in those predisposed to it, it is so often excited by a meal inordinately full, or consisting of materials crude and indigestible, a debauch in drinking, or any other cause that produces a morbid and strong impression on the stomach. Those cases of apoplexy which arise from the passions of the mind, are the only ones, perhaps, that have not a gastric origin.

Notwithstanding the acuteness of perception, and ingenuity of reasoning, which our author has displayed, in his inquiry respecting the proximate cause of hæmorrhagy, the entire section wherein it is contained, is little else but an elaborate and intricate tissue of error. In all the essential qualities of inconclusiveness, it is on a level with his theories of inflammation and fever.

We regret our inability to offer any thing new or satisfactory on this subject. A correct theory of hæmorrhagy constitutes a desideratum in the science of pathology. That desideratum, however, we shall not, at present, attempt to supply.

Nor will our practical consideration of the disease, be found to suffer materially from the want of it. For, here, as in other instances, correct practice is not the result of theory, but experience. However satisfactory, therefore, a rational theory might be, to the philosopher, it is not, in the strict interpretation of the term, essential to the practitioner.

which commonly appear, and as they occur successively at the different periods of life.

Sect. III.—*Of the Remote Causes of Hæmorrhagy.*

773. In the explanation hitherto given, I have especially considered the predisposition to hæmorrhagy; but it is proper also, and even necessary, to take notice of the occasional causes, which not only concur with the predisponent, in exciting hæmorrhagy, but may also sometimes be the sole cause of it.

774. These occasional causes are,

1. External heat, which, by rarefying the blood, produces or increases the plethoric state of the body; and the same heat, as giving a stimulus to the whole system, must urge any particular determinations before established, still further, or may urge to excess any inequality, otherwise innocent; so that, in either way, external heat may immediately excite hæmorrhagies, to which there was a predisposition; or may form congestions where there were none before, and thereby occasion hæmorrhagy.*

* External heat does not *rarefy* the blood. It only *appears* to rarefy it, in consequence of eliciting it towards the surface of the body, and the extremities, by means of its stimulant impression; thus giving, to these parts, a visible turgescence which they did not before possess.

In the production of hemorrhagy, therefore, external heat operates in a two-fold way. It increases the force and rapidity of the general circulation, and produces a local congestion, in superficial vessels, where it did not previously exist. From the former effect, may arise hæmorrhagies, either external or internal; from the latter, external hæmorrhagies only.

We, not long since, saw a female discharge, from her mouth, we believe it came from the fauces, a considerable portion of blood, in consequence of a violent paroxysm of anger.

Parts of the body, whence blood is like to flow, or is actually

2. A considerable and sudden diminution of the weight of the atmosphere, which seems to occasion the same effects as heat, by producing also an expansion of the blood.

3. Whatever increases the force of the circulation, and thereby the velocity of the blood, may operate in the same manner as heat, in urging not only previous determinations with violence, but also in urging to excess inequalities, otherwise innocent. All violent exercise, therefore, and especially all violent efforts, which, not only by a larger and longer inspiration, but also by the simultaneous action of many muscles interrupting the free motion of the blood, impel it with unusual force into the extreme vessels more generally, and, according to the different postures of the body, and mode of the effort, into certain vessels more particularly.

Among the causes increasing the force of the circulation, anger and other violent active passions are to be reckoned.

4. The violent exercise of particular parts of the body. If these are already affected with congestions, or liable to them, such exercise may be considered as a stimulus applied to the vessels of that particular part. Thus, any violent exercise of respiration may excite hæmoptysis, or occasion its return.

5. The postures of the body increasing determinations, or ligatures occasioning accumulations of the blood in particular parts of the body.

6. A determination into certain vessels rendered habitual by the frequent repetition of hæmorrhagy from them.

flowing, should be kept, as far as possible, from a depending position. Hence, in epistaxis, the body should be erect; and, in cases of uterine hæmorrhagy, females should not only lie in bed, but have their hips somewhat elevated. This latter position is also useful in the treatment of profuse hæmorrhoidal discharges.

7. Cold, externally applied, as changing the distribution of the blood, and determining it in greater quantity into the internal parts.

Sect. IV.—*Of the cure of Hæmorrhagy.*

775. Having thus considered the proximate and remote causes of hæmorrhagy in general, our next business is, to treat of the cure of the disease in the same manner.

In entering upon this subject, the first question which presents itself, is, Whether the cure of hæmorrhagies ought to be attempted by art, or if they should be left to the conduct of nature?

776. The latter opinion was the favourite doctrine of the celebrated Dr. Stahl, and his followers. They maintained that the human body is much disposed to a plethoric state; and, consequently, to many disorders which nature endeavours to obviate and relieve by exciting hæmorrhagy: that this, therefore, is often necessary to the balance and health of the system: that it is accordingly to be generally encouraged, sometimes solicited, and is not to be suppressed, unless when it goes to great excess, or happens in parts in which it may be dangerous.

777. Much of this doctrine may be admitted. The human body, upon many occasions, becomes preternaturally plethoric; and the dangerous consequences which might from thence to be apprehended, seem to be obviated by an hæmorrhagy taking place: and, further, the necessity of hæmorrhagy often appears from hence, that the suppression of it seems to occasion many disorders.

All this seems to be just; but, in the conclusion drawn from it, there is a fallacy.

778. It appears to me certain, that hæmorrhagy, either

upon its first attack, or upon its first recurrence, is never necessary to the health of the body, excepting upon the supposition, that the plethoric state which seems to require the evacuation, cannot be otherwise prevented or removed; and as I imagine it possible by other means to prevent or remove a plethoric state, so I do not think that hæmorrhagy is, in all cases, necessary. In general, I am of opinion, that hæmorrhagy is to be avoided.

1. Because it does not always happen in parts where it is safe.

2. Because often, while it does relieve a plethoric state, it may, at the same time, induce a very dangerous disease.

3. Because it may often go to excess, and either endanger life, or induce a dangerous infirmity.

And, lastly, Because it has a tendency to increase the plethoric state it was meant to relieve; to occasion its own recurrence, (720.) and thereby to induce a habit, which, if left to the precarious and unequal operation of nature, may, from the frequent errors of this, be attended with much danger.

779. It is further to be considered, that hæmorrhagies do not always arise from the necessities of the system, but often proceed from incidental causes. It appears to me that all hæmorrhagies of the latter kind may be immediately suppressed, and the repetition of them, as it induces a plethora, and a habit not otherwise necessary, may be prevented with great advantage.

780. Upon the whole of this subject, I conclude, that every preternatural hæmorrhagy, or, in other words, every one except that of the menses in females, is to be avoided, and especially the returns of it prevented; and I therefore now proceed to mention, how hæmorrhagy, and its recurrences, may, and should be prevented.

781. From the principles delivered above, it will im-

mediately appear, that the prevention, either of the first attacks, or of the returns of hæmorrhagy, will chiefly, and in the first place, depend upon the preventing or removing any considerable degree of a plethoric state which may happen to prevail in the body. It is true, that, where the hæmorrhagy depends upon the particular conformation of certain parts, rather than upon the general plethoric state of the whole, the measures for removing or preventing the latter may not always be sufficient for preventing hæmorrhagy; but at the same time it must be evident, that determinations, in consequence of the conformation of particular parts, will always be urged more or less, in proportion to the greater or lesser degree of the plethoric state of the whole system; and therefore, that even in the cases depending upon particular conformation, the preventing or removing an unusual plethoric state will always be a chief means of preventing hæmorrhagy. It is further to be attended to, that there may be several inequalities in the balance of the system, which may have little or no effect unless when the system becomes preternaturally plethoric; and, therefore, that in all cases the preventing or removing of the plethoric state of the system will be a chief means of preventing the first attacks, or the returns of hæmorrhagy. It now therefore remains to explain, how the plethoric state of the system is to be prevented or removed.

782. The fluids of the human body are in continual waste by the excretions, but are commonly replaced by the aliments taken in; and if the quantity of aliments in any measure exceed that of the excretions, an increase of the quantity of the fluids of the body, or, in other words, a plethoric state, must necessarily arise. This, to a certain degree, is requisite for the growth of the body, but, even then, if the proportion of the ali-

ments to the excretions, be greater than is suited to the growth of the body, and more certainly still, if, after the growth is completed, when an equality between the *ingesta* and the *excreta* should be established, the disproportion still continue, a preternaturally plethoric state must arise. In both cases, it is evident, that the plethora must be prevented or corrected by adjusting the ingesta and excreta to each other; which generally may be done, either by diminishing the ingesta, or by increasing the excreta. The former may be effected by the management of diet, the latter by the management of exercise.

783. The ingesta may be diminished, either by giving aliment in less quantity than usual, or by giving aliments of a less nutritious quality; that is, aliments of a substance which under the same bulk and weight, contain less of a matter capable of being converted into animal fluids, and more of a matter ready to pass off by the excretions, and consequently less of a matter to be retained and accumulated in the vessels.

The choice of aliments suited to these purposes must be left to be directed by the doctrines of the Materia Medica.

784. The increasing of the excreta, and thereby diminishing the plethoric state of the system, is to be obtained by increasing the exercise of the body; and generally for adjusting the balance between the ingesta and excreta, and thereby obviating the plethoric state, it is necessary that exercise, in a due measure, be very constantly employed.*

* Few things contribute more to increase the plethoric state of the system, than too much sleep. Let those, therefore, who wish to prevent such plethora, beware of immoderate indulgence in that enjoyment. More than six hours, out of twenty-four, no one should ever consume on his pillow. A longer period relaxes and

785. The observing abstinence, and the employment of exercise, for obviating or removing the plethoric state of the body, were formerly considered pretty fully, when treating of the gout, (547. to 551.) so that the less is necessary to be said here: and it is now only requisite to observe, that the same doubts, as in cases of the gout, do not occur here with regard to the safety of those measures, which, in a plethoric state of the body disposing to hæmorrhagy, are always admissible and proper. Here, however, it is to be observed, that some choice in the mode of exercise is necessary, and that it should be different according to the particular determinations which may happen to prevail in the system. In general, in the case of plethora disposing to hæmorrhagy, bodily exercise will always be hazardous, and gestation more commonly safe.

786. Artificial evacuations may be employed to diminish the plethoric state of the body: and when, at any time, it has become considerable, and immediately threatens a disease, these evacuations should be made to the quantity that the symptoms seem to require. But

debilitates the animal powers, and thereby lays a foundation for plethora.

That kind and degree of exercise, which, without straining or fatiguing, produce perspiration, are best calculated for the end to be here attained. Moderate walking, gentle labour, riding on horseback, and sailing, skilfully regulated and combined, may be made to answer every useful purpose that can be derived, or expected, from this source. Besides aiding in the prevention of plethora, they contribute much to the healthful tone of the system; and, in that way, give it an additional security against the occurrence of hæmorrhagy.

We cannot concur with our author, in the belief, that "bodily exercise," properly regulated, is at all "hazardous" to those who have strength sufficient for its performance. On the other hand, we know it to be equally efficacious and safe.

it is constantly to be attended to, that blood-lettings are improperly employed to prevent a plethora, as they have a tendency to increase it (720.) and as they require to be often repeated, and are thereby apt to induce a habit which may be attended with much danger.*

787. While a plethora, and thereby the predisposition to hæmorrhagy, is avoided, or removed, the other measures necessary for preventing the occurrence of this, are those for avoiding the remote causes. These have been enumerated in 774, and the means of avoiding them, so far as within our power, are sufficiently obvious.

788. Having thus mentioned the means of preventing either the first attacks, or the recurrence of hæmorrhagy; I must next say how it is to be managed when it has actually come on.

789. When an hæmorrhagy has come on which appears to have arisen from a preternaturally plethoric state, or from some change in the balance of the sanguiferous system, no measures are to be immediately taken for suppressing it; as we may expect, that, when the quantity of blood necessary for the relief of the system is poured out, the effusion will spontaneously cease.†

* In such a case, active purging, constitutes, perhaps, the best artificial evacuation: and the saline purgatives are the most suitable remedies. They carry off a larger proportion of the fluids of the body, than even the drastic cathartics. Hence their denomination of watery purgatives, or hydragogues. Besides, as their frequent administration may be necessary, they are more safe, in their operation, than drastic articles; which, if often repeated, injure the tone and healthy action of the stomach and bowels.

† We cannot agree with our author, in the sentiment here expressed. A hæmorrhagy is a disease; and, as such, ought, if at all violent, to be checked and cured, like other diseases. A slight epistaxis may, indeed, be left to itself; and no injury, we think, is likely to result from such a practice. But if the hæmorrhagy be from the

790. In many cases, however, it may be suspected, that the quantity of blood poured out, is not exactly in proportion to the necessities of the system, either for relieving a general plethora or a particular congestion, but that it is often to a greater quantity than these require. This we suppose to happen in consequence of an inflammatory diathesis prevailing, and of a febrile spasm being formed; and therefore it is in many cases proper, as well as for the most part safe, to moderate the evacuation, and, when it threatens to go to excess, to suppress it altogether.

791. An hæmorrhagy may be moderated by avoiding any irritation that might concur to increase it; so that every part of the antiphlogistic regimen is to be observed; in particular, external heat, both as it rarefies the fluids, and stimulates the solids, is to be carefully avoided: and, it is probable, that in all cases an hæmorrhagy may be safely moderated by cool air applied, and cold drink exhibited.

792. A second means for the same purpose, is, the use of refrigerant medicines, and particularly of acids and nitre.*

793. A third means which has been frequently employed, is that of blood-letting. The propriety of this practice may be doubtful, as the quantity of blood poured out by the hæmorrhagy, may be supposed to answer the purpose of an evacuation in any other way;

lungs, the stomach, the kidneys, or the hæmorrhoidal vessels, no attention bestowed on it can be too prompt; no remedies too active. To permit the formation of diseased habits, in any part of the system, is hazardous and wrong.

* So far as relates to the diminution of arterial action, digitalis, saccharum saturni, and most of the neutral salts, are refrigerants. Skilfully administered, too, they may be rendered useful in checking hæmorrhagy.

and I am ready to allow, that the practice has been often superfluous, and sometimes hurtful, by making a greater evacuation than was necessary or safe. At the same time, I apprehend it is not for the mere purpose of evacuating, that blood-letting is to be practised in the cure of hæmorrhagy; but that it is further necessary for taking off the inflammatory diathesis which prevails, and the febrile spasm that has been formed. Accordingly, in the case of hæmorrhagy, when the pulse is not only frequent, but quick and full, and does not become softer or slower upon the flowing of the blood, and that the effusion is profuse, and threatens to continue so, it appears to me, that blood-letting may be necessary, and I have often found it useful. It seems probable also, that the particular circumstances of venesection may render it more powerful for taking off the tension and inflammatory irritation of the system, than any gradual flow from an artery.*

794. That a spasm of the extreme vessels has a share in supporting hæmorrhagy, appears to me probable from hence, that blistering has been often found useful in moderating and suppressing the disease.†

795. Do emetics and vomiting contribute to the cure of hæmorrhagy? see Dr. Bryan Robinson on the virtues and power of medicines.‡

* So essential a remedy is blood-letting, in many cases of hæmorrhagy, that it would be criminal in the practitioner not to employ it.

† In pulmonary and uterine hæmorrhagy, we have known much good done by blistering. We can, therefore, with confidence recommend the practice. In uterine hæmorrhagy, the blisters may be applied on the os sacrum, or on the upper and inner part of the thighs; in pulmonary, on the thorax; more especially *along the spine*.

‡ We think they sometimes do. Great caution and skill, however, are necessary in the use of them.

796. When an hæmorrhagy is very profuse, and seems to endanger life, or even threatens to induce a dangerous infirmity, it is agreed on all hands, that it is to be immediately suppressed by every means in our power, and particularly that, besides the means above mentioned for moderating the disease, astringents, internal or external, where the latter can be applied, are to be employed for suppressing it.

797. The internal astringents are either vegetable or fossil.

The vegetable astringents, are seldom very powerful in the cure of any hæmorrhagies, except those of the alimentary canal.

The fossil astringents are more powerful; but some choice amongst the different kinds may be proper.

The chalybeates, so frequently employed, do not appear to me to be very powerful.

The preparations of lead are certainly more so, but are otherwise of so pernicious a quality, that they should not be employed except in cases of the utmost danger. The Tinctura Saturnina, or Antiphthisica, as it has been called, appears to be of little efficacy; but whether from the small portion of lead which it contains, or from the state in which the lead is in it, I am uncertain.

The fossil astringent that appears to me the most powerful, and at the same time the most safe, is alum.*

798. External astringents, when they can be applied,

* In *tonic* hæmorrhagy, chalybeates are inadmissible. By giving impetus to the circulation, they increase the disease.

When combined with a small quantity of opium, saccharum saturni is an innocent remedy. In the treatment of hæmorrhagy, it is highly useful. It may be given in, from two to five grains, every two hours; and has even been administered in larger doses.

Alum is also a valuable remedy. Its dose, to an adult, is from five to ten grains. Even a *scruple* has been given; but we think the dose immoderate.

are more effectual than the internal. The choice of these is left to the surgeons.

799. The most powerful of all astringents appears to me to be cold, which may be employed, either by applying cold water to the surface of the body, or by throwing it into the internal parts.*

800. For suppressing hæmorrhagies, many superstitious remedies and charms have been recommended, and pretended to have been employed with success. The seeming success of these, however, has been generally owing to the by-standers' mistaking a spontaneous ceasing of the hæmorrhagy for the effect of the remedy. At the same time, I believe, that those remedies may have been sometimes useful, by impressing the mind with horror, awe, or dread.†

801. Upon occasion of the profuse hæmorrhagies, opiates have been employed with advantage; and, when the fulness and inflammatory diathesis of the system have been previously taken off by the hæmorrhagy itself, or by blood-letting, I think opiates may be employed with safety.‡

* We presume that almost every school-boy knows the efficacy of cold water, applied to the scrotum, in checking epistaxis. We have witnessed its good effects, on numerous occasions. A continued immersion of the feet and hands in cold water, is also exceedingly useful, in the same disease. In immersing the hands, matters must be so arranged, as to preserve the body and head in an erect posture.

The drinking of cold water, as an antihæmorrhagic remedy, is also important—at least, no warm liquid ought to be swallowed.

† It is not a little singular, that our author should give countenance to the use of "superstitious remedies and charms," by admitting the possibility of their ever proving useful. In medicine, as in ethics, we should never practise falsehood—especially, when we have the command of much more powerful remedies, that are founded in truth.

‡ In hæmoptysis, when the hæmorrhagy is evidently much

802. For restraining hæmorrhagy, ligatures have been applied upon the limbs, in the view of retarding the return of the venous blood from the extremities; but they appear to me to be of uncertain and ambiguous use.

803. In the case of profuse hæmorrhagies, no pains are to be taken to prevent a Deliquium Animi, or fainting, as the happening of this is often the most certain means of stopping the hæmorrhagy.*

804. Having thus delivered the general doctrine of hæmorrhagy, I proceed to consider the particular cases of it. It may perhaps be remarked, that I have marked fewer of these than are commonly enumerated by the nosologists; but my reasons for differing from these authors must be left to a nosological discussion, to be entered into more properly than here.

CHAPTER II.

OF THE EPISTAXIS, OR HÆMORRHAGY OF THE NOSE.

805. THE state of the vessels upon the internal surface of the nose being such as already mentioned (757.)

aggravated by coughing, the use of opiates becomes, oftentimes, indispensable. Their employment must be regulated by the judgment of the practitioner. It should never be forgotten, that opium does not, as the Brunonians assert, stimulate like wine or ardent spirits.

* Care must be taken, not to push this doctrine too far. Fainting is sometimes the prelude to death. A tendency, however, to delequium animi, is oftentimes efficacious in the suppression of hæmorrhagy.

renders an hæmorrhagy from that more frequent than from any other part of the body.

806. The blood commonly flows from one nostril only; and probably, because an hæmorrhagy from one vessel relieves the congestion in all the neighbouring vessels.

The blood flowing from both nostrils at the same time, shows commonly a more considerable disease.

807. This hæmorrhagy happens to persons of every constitution and temperament, but most frequently to those of a plethoric habit and sanguine temperament. It happens to both sexes, but most frequently to the male.

808. This hæmorrhagy may occur at any time of life; but most commonly happens to young persons, owing to the state of the balance of the system peculiar to that age, as mentioned in 755.

809. Although generally it happens to persons before they have arrived at their full growth, and more rarely afterwards; yet sometimes it happens to persons after their acmé, and during the state of manhood: And it must then be imputed to an unusually plethoric state of the system; to an habitual determination of the blood to the vessels of the nose; or to the particular weakness of these.

810. In all these cases the disease may be considered as an hæmorrhagy purely arterial, and depending upon an arterial plethora; but it sometimes occurs in the decline of life, when probably it depends upon, and may be considered as a mark of a venous plethora of the vessels of the head. See 771.

811. This hæmorrhagy happens also at any period of life, in certain febrile diseases, which are altogether or partly of an inflammatory nature, and which show a particular determination of the blood to the vessels of the

head. These diseases often admit of a solution by this hæmorrhagy, when it may be properly termed *critical.*

812. The disease sometimes comes on without any previous symptoms; particularly, when some external violence has a share in producing it. But, when it proceeds entirely from an internal cause, it is commonly preceded by headachs, redness of the eyes, a florid colour of the face, an unusual pulsation in the temples, a sense of fulness about the nose, and an itching of the nostrils. A bound belly, pale urine, coldness of the feet, and cold shivering over the whole body, are also sometimes among the symptoms that precede the disease.

813. From the weakness of the vessels of the nose, the blood often flows from them without any considerable effort of the whole system, and therefore without any observable febrile disorder; which, however, in many cases, is, in all its circumstances, very discernible.

814. An hæmorrhagy of the nose happening to young persons, is, and may generally be considered, as a slight disease of little consequence, and hardly requiring any remedy. But, even in young persons, when it recurs very frequently, and is very copious, it will require particular attention, as it is to be considered as a mark of arterial plethora; and, as frequently returning, it may increase the plethoric state; which, in a more advanced stage of life, may give the blood a determination to parts from which the hæmorrhagy would be more dangerous. All this will more particularly require attention, according as the marks of plethora, and of particular congestion, preceding the hæmorrhagy, are more considerable; and as the flowing of the blood is attended with a more considerable degree of febrile disorder.

815. When the epistaxis happens to persons after their acmé, returning frequently, and flowing copiously, it is always to be considered as a dangerous disease, and

as more certainly threatening the consequences mentioned in the last paragraph.

816. When this hæmorrhagy happens in the decline of life, it may be considered as in itself very salutary: but at the same time, it is to be considered as a mark of a very dangerous state of the system; that is, as a mark of a very strong tendency to a venous plethora in the vessels of the head: and I have accordingly observed it often followed by apoplexy, palsy, or such like diseases.

817. When an hæmorrhagy from the nose happens in febrile diseases, as mentioned in 811, and is in pretty large quantity, it may be considered as critical and salutary; but it is very apt to be profuse, and even in this way dangerous.

It upon some occasions occurs during the eruptive fever of some exanthemata, and is in such cases sometimes salutary; but, if these exanthemata be accompanied with any putrid tendency, this hæmorrhagy, like artificial blood-lettings, may have very bad effects.

818. Having thus explained the several circumstances of epistaxis, I proceed to consider the management and cure of it. I use the expression of *management*, because it has been usually thought to require no cure, but that nature should be allowed to throw out blood in this way very frequently, and as often as it appears to arise from internal causes, that is, from a state of the system supposed to require such evacuation.

819. I am, however, of opinion, for the reasons given in 778. that this disease is very seldom to be left to the conduct of nature; and that in all cases it should be moderated by keeping the patient in cool air; by giving cold drink; by keeping the body and head erect; by avoiding any blowing of the nose, speaking, or other irritation: And, when the blood has flowed for some time, without showing any tendency to cease, a profuse

bleeding is to be prevented by measures employed to stop it, such as pressing the nostril from which the blood flows, washing the face with cold water, or applying this to other parts of the body.

820. Even in the case of young persons, where the disease is least hazardous, and even in the first attacks, I judge such measures to be proper; but they will be still more proper if the disease frequently recurs without any external violence; if the returns shall happen to persons of a habit disposed to be plethoric; and more particularly, if the marks of a plethoric state appear in the precedent symptoms (812.)

821. Even in young persons, if the bleeding be very profuse and long continued, and more especially if the pulse become weak and the face pale, I apprehend it will be proper to suppress the hæmorrhagy by every means in our power. See 796, and following paragraphs.*

822. Further, in the same case of young persons, when the returns of this hæmorrhagy become frequent, and especially with the marks of a plethoric habit, I think it necessary to employ such a regimen as may

* In addition to the directions, referred to in this article, digitalis may be given, in doses of one or two grains; and repeated every hour or oftener, until a nausea be produced, and the action of the pulse diminished; or, from two to five grains of saccharum saturni, combined with half a grain of opium, may be administered every hour, or every two hours, until some effect be produced.

If these remedies fail, let the bleeding nostril be plugged with cotton or lint, wet with vinegar, or impregnated with a strong solution of alum; or, which is better still, let it be carefully stopt, at each end, with sponge, or some other soft compressible article, in order that the blood, being retained, until it shall have completely filled it, and, coagulating along the whole canal, may press on the mouth of the bleeding vessel, and stop the hæmorrhagy.

prevent a plethoric state, (782. 786.) At the same time, care should be taken to avoid all circumstances which may determine the blood more fully to the vessels of the head, or prevent its free return from them; and, by keeping an open belly, to make some derivation from them.*

823. In adult persons liable to frequent returns of the epistaxis, the whole of the measures proposed (822.) are more certainly and freely to be employed. When, with the circumstances mentioned in 812, the tendency to a profuse hæmorrhagy appears, a bleeding at the arm may be proper, even in young persons; but in the case of adults, it will be still more allowable, and even necessary.†

824. In persons of any age liable to frequent returns of this hæmorrhagy, when the measures proposed in 816. *et seq.* shall have been neglected, or from peculiar circumstances in the balance of the system, shall have proved ineffectual, and the symptoms threatening hæmorrhagy (817.) shall appear, it will then be proper, by

* In purging, in epistaxis, the saline cathartics are found to be best. Besides giving aid in removing fever, they carry off a larger portion of fluids, and thus tend more to empty the arteries, than other purgatives, whether drastic or mild.

† There can be no reason assigned, why we should not bleed as freely, and repeat the operation as frequently, in epistaxis, as in any other form of hæmorrhagy; provided the disease prove obstinate, and the state of the system demand it.

It will be perceived, from the contents of this chapter, that the only remedies *peculiarly appropriated to itself*, which epistaxis requires, are those calculated to make compression on the ruptured blood-vessel. In other respects, it must be treated on the principles that apply, in common, to every other description of febrile hæmorrhagy.

We have only to add, that, as it proves, at times, a very obstinate and threatening disease, it calls for a most steady and patient perseverance, in the administration of the remedies prescribed.

blood-letting, cooling purgatives, and every part of the antiphlogistic regimen, to prevent the hæmorrhagy, or at least to prevent its being profuse when it does happen.

825. In the circumstances just now mentioned (824.) the measures proposed are proper, and even necessary; but it should at the same time be observed, that these are practised with much less advantage than those pointed out in 823.; because, though those suggested here may prevent the coming on of the hæmorrhagy for the present, they certainly however dispose to the return of that plethoric state which required their being used; and there can be no proper security against returns of the disease, but by pursuing the means proposed in 822.

826. When the hæmorrhagy of the nose happens to persons approaching their full growth, and when its returns have been preceded by the symptoms (812.) it may be supposed, that, if the returns can be prevented by the measures proposed in 824, these may be safely employed; as the plethoric state induced will be rendered safe, by the change which is soon to take place in the balance of the system. This, however, cannot be admitted; as the evacuations practised upon this plan will have all the consequences which, I have already observed, may follow the recurrence of the hæmorrhagy itself.

827. When the hæmorrhagy of the nose shall be found to make its returns at nearly stated periods, the measures for preventing it (824.) may be practised with great certainty; and, upon every repetition of blood-letting, by diminishing the quantity taken away, its tendency to induce a plethora may be in some measure avoided. When indeed, the repetition of evacuations is truly unavoidable, the diminishing them upon every repetition is properly practised; but it is a practice of nice

and precarious management, and should by no means be trusted to, so far as to supersede the measures proposed in 824, wherever these can be admitted.

828. When the hæmorrhagy of the nose happens in consequence of a venous plethora in the vessels of the head, as in 771. the flowing of the blood pretty largely may be allowed, especially when it happens after the suppression or ceasing of the menstrual or hæmorrhoidal flux. But though the flowing of the blood is, on its first occurring, to be allowed, there is nothing more proper than guarding against its returns. This is to be done not only by the measures proposed in 782. *et seq.* but, as the effects of a plethoric state of the vessels of the head are very uncertain; so, upon any appearance of it, and especially upon any threatening of hæmorrhagy, the plethora is to be removed, and the hæmorrhagy to be obviated immediately by proper evacuations, as bloodletting, purging, and issues; or by restoring suppressed evacuations, where this can be done.

CHAPTER III.

OF THE HÆMOPTYSIS, OR HÆMORRHAGY FROM THE LUNGS.

SECT. I.—*Of the Phenomena and Causes of Hæmoptysis.*

829. WHEN, after some affection of the breast, blood is thrown out from the mouth, and is brought out with more or less of coughing, there can be no doubt that it comes from the lungs; and this generally ascertains the disease of which I am now to treat. But there are cases in which the source of the blood spit out is uncertain; and,

therefore, some other considerations to be mentioned hereafter, are often necessary to ascertain the existence of an hæmoptysis.

830. The blood-vessels of the lungs are more numerous than those of any other part of the body of the same bulk. These vessels, of the largest size, as they arise from the heart, are more immediately than in any other part subdivided into vessels of the smallest size; and these small vessels spread out near to the internal surfaces of the bronchial cavities, are situated in a loose cellular texture, and covered by a tender membrane only: so that, considering how readily and frequently these vessels are gorged with blood, we may understand why an hæmorrhagy from them is, next to that of the nose, the most frequent of any; and particularly, why any violent shock given to the whole body so readily occasions an hæmoptysis.

831. An hæmoptysis may be occasioned by external violence, at any period of life; and I have explained above (759.) why, in adult persons, while the arterial plethora still prevails in the system, that is, from the age of sixteen to that of five-and-thirty, an hæmoptysis may at any time be produced, merely by a plethoric state of the lungs.

832. But it has been also observed above, (760.) that an hæmoptysis more frequently arises from a faulty proportion between the capacity of the vessels of the lungs and that of the rest of the body. Accordingly it is often a hereditary disease, which implies a peculiar and faulty conformation. And the disease also happens especially to persons who discover the smaller capacity of their lungs, by the narrowness of their chest, and by the prominency of their shoulders; which last is a mark of their having been long liable to a difficult respiration.

833. With these circumstances also the disease hap-

pens especially to persons of a sanguine temperament; in whom particularly the arterial plethora prevails. It happens likewise to persons of a slender delicate make, of which a long neck is a mark; to persons of much sensibility and irritability, and therefore of quick parts, whose bodies are generally of a delicate structure; to persons who have been formerly liable to frequent hæmorrhagies of the nose; to persons who have suffered a suppression of any hæmorrhagy they had formerly been liable to, the most frequent instance of which is in females who have suffered a suppression of their menstrual flux; and lastly, to persons who have suffered the amputation of any considerable limb.

834. In most of these cases (833.), the disease happens especially to persons about the time of their coming to their full growth, or soon after it, and this for the reasons fully set forth above.

835. From all that has been said from 830 to 834. the predisponent cause of hæmoptysis will be sufficiently understood, and the disease may happen from the mere circumstance of the predisponent cause arising to a considerable degree. In the predisposed, however, it is often brought on by the concurrence of various occasional and exciting causes. One of these, and perhaps a frequent one, is external heat; which even when in no great degree, will bring on the disease in spring, and the beginning of summer, while the heat rarefies the blood more than it relaxes the solids, which had been before contracted by the cold of winter. Another exciting cause is a sudden diminution of the weight of the atmosphere, especially when concurring with any effort in bodily exercise. This effort too, alone, may often, in the predisposed, be the exciting cause; and more particularly, any violent exercise of respiration. In short, in the

predisposed, any degree of external violence also may bring on the disease.*

836. Occasioned by one or other of these causes, (835.) the disease comes on with a sense of weight and anxiety in the chest, some uneasiness in breathing, some pain of the breast, or other parts of the thorax, and some sense of heat under the sternum; and very often, before the disease appears, a saltish taste is perceived in the mouth.

837. Immediately before the appearance of blood, a degree of irritation is felt at the top of the larynx. To relieve this, a hawking is made, which brings up a little blood, of a florid colour, and somewhat frothy. The irritation returns; and, in the same manner, more blood of a like kind is brought up, with some noise in the windpipe, as of air passing through a fluid.

838. This is commonly the manner in which the hæmoptysis begins; but sometimes at the very first the

* It is not true, we think, that hæmoptysis can ever arise, without an exciting or an occasional cause. To produce the disease, such a cause must always exist; although it may be so slight, at times, as not to be perceived.

It is making mere inanimate machines of us, to allege, that the lungs are either *relaxed*, by the *heats of summer*, or contracted, by the colds of winter.

It is known, that the rarefied state of the atmosphere, on the tops of very lofty mountains, combined, perhaps, with the labour which travellers undergo in ascending them, is, not unfrequently, the cause of hæmoptysis.

Dr. Mead mentions an instance of the occurrence, in Edinburgh, of several cases of hæmoptysis, on an occasion of an eclipse of the sun. From the barometer, it was found, that the atmosphere was lighter at the time, than it had ever before been known to be, in that place.

From various observations, it would appear, that the comparative levity of the atmosphere, at the times of the full and change of the moon, must be considered as the cause why more cases of hæmoptysis occur at those, than at any other periods.

blood comes up by coughing, or at least somewhat of coughing accompanies the hawking just now mentioned.

839. The blood issuing is sometimes at first in very small quantity, and soon disappears altogether: but, in other cases, especially when it repeatedly occurs, it is in greater quantity, and frequently continues to appear at times for several days together. It is sometimes profuse; but rarely in such quantity as either by its excess, or by its sudden suffocation, to prove immediately mortal. It commonly either ceases spontaneously, or is stopped by the remedies employed.

840. When blood is thrown out from the mouth, it is not always easy to determine from what internal part it proceeds; whether from the internal surface of the mouth itself, from the fauces, or adjoining cavities of the nose, from the stomach, or from the lungs. It is, however, very necessary to distinguish the different cases; and, in most instances, it may be done by attending to the following considerations.

841. When the blood spit out, proceeds from some part of the internal surface of the mouth itself, it comes out without any hawking or coughing; and generally, upon inspection, the particular source of it becomes evident.

842. When blood proceeds from the fauces, or adjoining cavities of the nose, it may be brought out by hawking, and sometimes by coughing, in the manner we have described in 836, and 838; so that, in this way, a doubt may arise concerning its real source. A patient often lays hold of these circumstances to please himself with the opinion of its coming from the fauces, and he may be allowed to do so: but a physician cannot readily be deceived, if he consider, that a bleeding from the fauces is more rare than one from the lungs; that the former seldom happens but to persons who have been

before liable either to an hæmorrhagy of the nose, or to some evident cause of erosion; and, in most cases, by looking into the fauces, the distillation of the blood, if it comes from thence, will be perceived.*

843. When blood proceeds from the lungs, the manner in which it is brought up will commonly show from whence it comes: but, independent of that, there are many circumstances which may occur to point it out, such as the period of life, the habit of body, and other marks of a predisposition (832. 834.); and, together with these, the occasional causes (835.) having been immediately before applied.

844. When vomiting accompanies the throwing out of blood from the mouth, as vomiting and coughing often mutually excite each other; so they may be frequently joined, and render it doubtful whether the blood thrown out proceeds from the lungs or from the stomach. We may however generally decide, by considering, that blood does not so frequently proceed from the stomach as from the lungs: that blood proceeding from the stomach commonly appears in greater quantity, than when it proceeds from the lungs: that the blood proceeding from the lungs is usually of a florid colour, and mixed with a little frothy mucus only; whereas the blood from the stomach is commonly of a darker colour, more grumous, and mixed with the other contents of the stomach: that the coughing or vomiting, according as the one or the other first arises in the cases in which they are afterwards joined, may sometimes point out the source of the blood; and lastly, that much may be learned from the circumstances and symptoms which have preceded the hæmorrhagy.

* Blood discharged by the fauces, is rarely, we believe, never, of so florid a colour, as that proceeding immediately from the lungs. This circumstance, therefore, may serve as an additional mark of discrimination.

Those which precede the hæmoptysis, enumerated in 836, are most of them evident marks of an affection of the lungs. And, on the other hand, the hæmatemesis, or issuing of blood from the stomach, has also its peculiar symptoms and circumstances preceding it; as, for instance, some morbid affection of this organ, or at least some pain, anxiety, and sense of weight, referred distinctly to the region of the stomach. To all this may be added, that the vomiting of blood happens more frequently to females than to males; and to the former, in consequence of a suppression of their menstrual flux: and, by attending to all these considerations, (841.—844.) the presence of the hæmoptysis may commonly be sufficiently ascertained.*

Sect. II.—*Of the cure of Hæmoptysis.*

845. This disease is sometimes attended with little danger; as when it happens to females in consequence of a suppression of the menses; when, without any marks of a predisposition, it arises from external violence; or when, from whatever cause arising, it leaves behind it no cough, dyspnœa, or other affection of the

* Owing to the stomach sympathizing with the arteries, more powerfully than the lungs, the pulse is, for the most part, we believe, always, much more reduced, by a hæmorrhagy from the former, than from the latter organ. We have known the pulse rendered almost imperceptible, by a moderate hæmatemesis; whereas we have very rarely found it so seriously affected, by means of hæmoptysis—never we think, unless where the loss of blood has been very profuse, or the terror produced by it inordinately great.

We shall only subjoin, under this head, that most of the serious cases of hæmoptysis, that we have witnessed for several years past —within which period we have been particularly observant of the fact—have occurred about the full or change of the moon. At these times we have seen a few that proved suddenly fatal.

lungs. Even in such cases, however, a danger may arise from too large a wound being made in the vessels of the lungs; from a quantity of red blood being left to stagnate in the cavity of the bronchiæ; and particularly, from any determination of the blood being made into the vessels of the lungs, which, by renewing the hæmorrhagy, may have dangerous consequences. In every instance therefore of hæmoptysis, the effusion is to be moderated by the several means mentioned (791, to 794.)*

846. These measures are especially necessary when the hæmoptysis arises in consequence of predisposition; and in all cases where there is the appearance of a large effusion, or where the hæmorrhagy frequently returns, the effusion is not only to be moderated, but to be entirely stopped, and the returns of it prevented by every means in our power. See 796, and following.

847. To stop an hæmoptysis, or prevent the returns of it, two medicines have been frequently employed; neither of which I can approve of. These are, chalybeates, and the Peruvian bark. As both of them contribute to

* The professor here expresses himself in terms by far too general. Hæmoptysis, in females, induced by a suppression of the catamenial discharge, is often the precursor of pulmonary consumption. In subjects predisposed to consumption, hæmoptysis, under the circumstances herein stated, is to be regarded as an affection of the most alarming import.

In the treatment of hæmoptysis, all the antihæmorrhagic remedies heretofore mentioned, should, if necessary, be employed; particularly cold water, internally, and externally if requisite, digitalis and saccharum saturni; cold water applied to the scrotum in this complaint, is highly recommended. We have never seen it tried.

As a remedy, peculiar to this form of hæmorrhagy, a tea or even a table spoonful of finely powdered culinary salt, taken occasionally into the mouth, and swallowed by degrees, is recommended as useful. In slight cases of the disease, we have known it to give relief; in serious ones, it is too feeble to be a source of much reliance.

increase the phlogistic diathesis of the system, they can hardly be safe in any case of active hæmorrhagy, and I have frequently found them hurtful.*

848. As the hæmoptysis which happens in consequence of predisposition, is always attended with a phlogistic diathesis: and, as the bad consequences of the disease are especially to be apprehended from the continuance of that diathesis; so this is to be industriously taken off by blood-letting, in greater or smaller quantity, and more or less frequently repeated, according as the symptoms shall direct. At the same time, cooling purgatives are to be employed, and every part of the antiphlogistic regimen is to be strictly enjoined. The refrigerants may also be administered; taking care, however, that the acids, and more especially the nitre, do not excite coughing.†

849. From what was observed in 794, it will appear that blistering upon the breast or back may be a remedy

* In hæmoptysis, bark and chalybeates are always injurious. We, at least, have never seen a case in which they were admissible: nor can they be, in tonic hæmorrhagy.

† We do not believe, that nitre, taken internally, ever excites coughing. Administered in large doses, each dose combined with the sixth or eighth of a grain of tartarized antimony, we have found it, in hæmoptysis, a very useful remedy.

So are cupping or leeching, and blistering on the breast, or on the back of the thorax, along the course of the spine.

In the treatment of hæmoptysis, we are of opinion, that the efficacy of alum, zinc, gum kino, and several other astringent remedies, has been overated. We have never known any advantage to be derived from these articles, unless when administered in such quantities as to produce nausea; and that is a practice which we would not recommend as either useful or safe.

If the hæmorrhagy be aggravated by coughing, and the fever not very high, give opiates.

Preparations of roses, and other very mild astringents are entirely useless.

of hæmoptysis, when it is present; and that issues in the same places may be useful in preventing the recurrence of it when it has ceased.

850. The avoiding of motion is generally a proper part of the antiphlogistic regimen; and, in the hæmoptysis, nothing is more necessary than avoiding bodily exercise; but some kinds of gestation, as sailing, and travelling in an easy carriage on smooth roads, have often proved a remedy.

851. Such is the treatment I can propose for the hæmoptysis, considered merely as an hæmorrhagy: But when, in spite of all our precautions, it continues to recur, it is often followed by an ulceration of the lungs, and a phthisis pulmonalis. This, therefore, I must now proceed to consider; but, as it arises also from other causes besides the hæmoptysis, it must be treated of with a more general view.

CHAPTER IV.

OF THE PHTHISIS PULMONALIS, OR CONSUMPTION OF THE LUNGS.*

SECT. I.—*Of the Phenomena and Causes of the Phthisis Pulmonalis.*

852. THE Phthisis Pulmonalis I would define to be, an expectoration of pus, or purulent matter from the lungs, attended with a hectic fever.

* Pulmonary consumption, as already stated, ought to have been placed under the order Phlegmasiæ.

As this is the principal species of phthisis, I shall frequently in this chapter employ the general term of phthisis, though strictly meaning the phthisis pulmonalis.

853. I have met with some instances of an expectoration of purulent matter, continuing for many years, accompanied with very few symptoms of hectic, and at least without any hectic exquisitely formed: But, in none of these instances, were the persons so entirely free from symptoms of hectic, as to form any exception to the general definition.

854. In every instance of an expectoration of pus, I presume there is an ulceration of the lungs. The late Mr. De Haen is the only author that I know of, who has advanced another opinion, and has supposed, that pus may be formed in the blood-vessels, and be from thence poured into the bronchiæ. Admitting this fact, I have attempted an explanation of the appearance of pus without ulceration in 349.; but, after all, I cannot help suspecting the accuracy of his observations; must entirely reject his explanation of them; must however allow, that we still want facts to support the explanation I have offered; and doubt much if it will apply to any case of phthisis. For these reasons I still conclude, agreeably to the faith of all other dissections, and the opinions of all physicians, that the symptoms mentioned in our definition depend always upon an ulceration formed in the lungs.*

* On mucous membranes, ulceration does not seem necessary to the formation of pus. The two processes are entirely different from each other; one being performed by the absorbents, the other by the capillary arteries, or secretory vessels of the part.

In gonorrhœa, purulent matter is formed by the membrane lining the urethra; in catarrh, by that lining the nares, without ulceration.

Such also may be the case with regard to the lungs. Purulent matter *may* be formed in them, without an ulcer. We think we have

855. It has sometimes happened, that a catarrh was attended with an expectoration of a matter so much resembling pus, that physicians have been often uncertain whether it was mucus or pus, and therefore whether the disease was a catarrh or a phthisis. It is often of consequence to determine these questions; and it appears to me that it may be generally done, with sufficient certainty, from the following considerations, of which each particular is not always singly decisive, but when they are taken together, can hardly deceive us.

1. From the colour of the matter; as mucus is naturally transparent, and pus always opaque. When mucus becomes opaque, as it sometimes does, it becomes white, yellow, or greenish; but the last mentioned colour is hardly ever so remarkable in mucus as in pus.

2. From the consistence; as mucus is more viscid and coherent, and puss less so, and may be said to be more friable. When mucus is thrown into water, it is not readily diffused, but remains united in uniform and circular masses: but pus, in the same circumstances, though not readily diffused, does not remain so uniformly united, and by a little agitation is broken into ragged fragments.

3. From the odour; which is seldom perceived in mucus, but frequently in pus. It has been proposed to try the odour of the matter expectorated, by throwing it upon live coals; but in such a trial both mucus and pus

repeatedly witnessed the fact. The reverse, however, is most frequently true.

There is no foundation for the opinion "that pus may be formed in the blood-vessels, and thence poured into the bronchiæ." As formerly observed, pus is the result of a secretory process, and must, therefore, be formed, by what is tantamount to morbid glandular action. But, it will be acknowledged, we think, that no such action can go on *within* the blood-vessels.

give out a disagreeable smell, and it is not easy to distinguish between them.

4. From the specific gravity compared with water; and indeed, it is usual for the mucus of the lungs to swim on the surface of water, and for pus to sink in it. But in this we may sometimes be deceived; as pus which has entangled a great deal of air may swim, and mucus that is free from air may sink.

5. From the mixture which is discernible in the matter brought up: for if a yellow or greenish matter appears surrounded with a quantity of transparent or less opaque and less coloured matter, the more strongly coloured matter may be generally considered as pus; as it is not easy to understand how one portion of the mucus of the lungs can be very considerably changed, while the rest of it is very little so, or remains in its ordinary state.

6. From the admixture of certain substances with the matter thrown out from the lungs. To this purpose we are informed by the experiments of the late Mr. Charles Darwin: a. That the vitriolic acid dissolves both mucus and pus, but most readily the former: That, if water be added to such a solution of mucus, this is separated, and either swims on the surface, or, divided into flocculi, is suspended in the liquor; whereas, when water is added to a like solution of pus, this falls to the bottom, or by agitation is diffused so as to exhibit an uniformly turbid liquor. b. That a solution of the caustic fixed alkali, after some time, dissolves mucus, and generally pus; and, if water be added to such solutions, the pus is precipitated, but the mucus is not. From such experiments it is supposed, that pus and mucus may be certainly distinguished from each other.

7. From the expectoration's being attended with a hectic fever. A catarrh, or expectoration of mucus, is

often attended with fever; but never, so far as I have observed, with such a fever as I am presently to describe as a hectic. This, in my opinion, is the most certain mark of the purulent state in some part of the body; and if others have thought differently, I am persuaded that it has been owing to this, that, presuming upon the mortal nature of a confirmed or purulent phthisis, they have considered every case in which a recovery happened, as a catarrh only: but, that they may have been mistaken in this, shall be shown hereafter.*

856. Having thus considered the first part of the character of the phthisis pulmonalis as a mark of an ulceration of the lungs; and having just now said, that the other part of the character, that is, the hectic fever, is a mark or indication of the same thing; it is proper now to consider this here, as I had with that view omitted it before (74.)

857. A hectic fever has the form of a remittent, which has exacerbations twice every day. The first of these occurs about noon, sometimes a little sooner or later; and a slight remission of it happens about five, afternoon. This last is soon succeeded by another exacerbation, gradually increasing till after midnight: But after two o'clock of the morning, a remission takes place, which becomes more and more considerable as the morning advances. The exacerbations are frequently attended with some degree of cold shivering; or at least the patient is exceedingly sensible to any coolness of the air, seeks external heat, and often complains of a sense of cold, when, to the thermometer, his skin is preterna-

* Whether the discriminating marks, between pus and mucus, be laid down decisively, in this article, or not, nothing that is contained in it, militates against the belief, that pus may be formed without ulceration.

turally warm. Of these exacerbations, that of the evening is always the most considerable.

858. It has commonly been given as a part of the character of a hectic fever, that an exacerbation of it commonly appears after taking food; and it is true that dinner, which is taken at noon, or after it, does seem to occasion some exacerbation. But this must not make us judge the mid-day exacerbation to be the effect of eating only; for I have often observed it to come on an hour before noon, and often some hours before dinner; which, in this country at present, is not taken till some time after noon. It is indeed to be observed, that in almost every person, the taking food occasions some degree of fever: but I am persuaded this would not appear so considerable in a hectic, were it not that an exacerbation of fever is present from another cause; and accordingly, the taking food in the morning has hardly any sensible effect.

859. I have thus described the general form of hectic fever; but many circumstances attending it, are further to be taken notice of.

The fever I have described does not commonly subsist long, till the evening exacerbations become attended with sweatings; which continue to recur, and to prove more and more profuse, through the whole course of the disease.

Almost from the first appearance of the hectic, the urine is high-coloured, and deposits a copious branny red sediment, which hardly ever falls close to the bottom of the vessel.

In the hectic, the appetite for food is generally less impaired than in any other kind of fever.

The thirst is seldom considerable; the mouth is commonly moist; and as the disease advances, the tongue becomes free from all fur, appears very clean; and in the

advanced stages of the disease, the tongue and fauces appear to be somewhat inflamed, and become more or less covered with aphthæ.

As the disease advances, the red vessels of the adnata of the eye disappear, and the whole of the adnata becomes of a pearly white.

The face is commonly pale; but, during the exacerbations, a florid red, and an almost circumscribed spot, appear on each cheek.

For some time, in the course of a hectic, the belly is bound; but, in the advanced stages of it, a diarrhœa almost always comes on, and continues to recur frequently during the rest of the disease, alternating in some measure with the sweatings mentioned above.

The disease is always attended with a debility, which gradually increases during the course of it.

During the same course an emaciation takes place, and goes to a greater degree than in almost any other case.

The falling off of the hairs, and the adunque form of the nails, are also symptoms of the want of nourishment.

Towards the end of the disease, the feet are often affected with œdematous swellings.

The exacerbations of the fever are seldom attended with any headach, and scarcely ever with delirium.

The senses and judgment commonly remain entire to the very end of the disease; and the mind, for the most part, is confident and full of hope.

Some days before death, a delirium comes on, and commonly continues to the end.*

* Till it has arrived at an advanced stage, the hectic appears to have less of a gastric character, than almost any other form of fever. Hence, the appetite remains good, the tongue clean, the brain undisturbed, and the mind serene and vigorous, active and cheer-

860. The hectic fever now described (857. 858.) as accompanying a purulent state of the lungs, is perhaps the case in which it most frequently appears: but I have never seen it in any case, when there was not evidently, or when I had not ground to suppose, there was a permanent purulency or ulceration in some external or internal part. It was for this reason that in 74. I concluded it to be a symptomatic fever only. Indeed, it appears to me to be always the effect of an acrimony absorbed from abscesses or ulcers, although it is not equally the effect of every sort of acrimony; for the scorbutic and cancerous kinds often subsist long in the body without producing a hectic. What is the precise state of the acrimony producing this, I cannot determine, but it seems to be chiefly that of a vitiated purulency.

861. However this may be, it appears, that the hectic's depending in general upon an acrimony, explains its peculiar circumstances. The febrile state seems to be chiefly an exacerbation of that frequency of the pulse, which occurs twice every day to persons in health, and may be produced by acrimony alone. These exacerbations, indeed, do not happen without the proper circumstances of pyrexia; but the spasm of the extreme vessels in a hectic does not seem to be so considerable as in other fevers; and hence the state of sweat and urine which appears so early and so constantly in hectics. Upon the same supposition of an acrimony corrupting the fluids, and debilitating the moving powers, I think that most of the other symptoms may also be explained.*

862. Having thus considered the characteristical symptoms and chief part of the proximate cause of the

ful. It ought not to be forgotten, that most affections of the brain, and the intellect, have their origin in the stomach.

* The hypothesis, that fever depends on acrimony, is equally untenable with that of its arising from a lentor in the blood.

phthisis pulmonalis, I proceed to observe, than an ulcer of the lungs, and its concomitant circumstances of hectic fever, may arise from different previous affections of the lungs; all of which however may, in my opinion, be referred to five heads; that is, 1. To an hæmoptysis; 2. To a suppuration of the lungs in consequence of pneumonia; 3. To catarrh; 4. To asthma; or, 5. To a tubercle. These several affections, as causes of ulcers, shall now be considered in the order mentioned.

863. It has been commonly supposed, that an hæmoptysis was naturally, and almost necessarily, followed by an ulcer of the lungs: but I will presume to say, that, in general, this is a mistake; for there have been many instances of hæmoptysis occasioned by external violence, without being followed by any ulcer of the lungs: and there have also been many instances of hæmoptysis from an internal cause, without any consequent ulceration. And this too has been the case, not only when the hæmoptysis happened to young persons, and recurred for several times, but when it has often recurred during the course of a long life. It is indeed easy to conceive, that a rupture of the vessels of the lungs like that of the vessels of the nose, may be often healed, as the surgeons speak, by the first intention. It is probable, therefore, that it is an hæmoptysis in particular circumstances only, which is necessarily followed by an ulcer; but what these circumstances are, it is difficult to determine. It is possible, that merely the degree of rupture, or frequently repeated rupture preventing the wound from healing by the first intention, may occasion an ulcer; or it is possible that red blood effused, and not brought up entirely by coughing, may, by stagnating in the bronchiæ, become acrid, and erode the parts. These, however, are but suppositions, not supported by any clear evidence. And, if we consider that those cases of hæmoptysis which follow the

predisposition (831.—834.) are those especially which end in phthisis, we shall be led to suspect that there are some other circumstances which concur here to determine the consequence of hæmoptysis, as I shall hereafter endeavour to show.

864. Any supposition, however, which we can make with respect to the innocence of an hæmoptysis, must not supersede the measures proposed above for its cure; both because we cannot certainly foresee what may be the consequence of such an accident, and because the measures above suggested are safe; for, upon every supposition, it is a diathesis phlogistica that may urge on every bad consequence to be apprehended.

865. The second cause of an ulceration of the lungs, to be considered, is a suppuration formed in consequence of pneumonia.

866. From the symptoms mentioned in 857, 858, it may with reason be concluded, that an abscess, or, as it is called, a *vomica*, is formed in some part of the pleura, and most frequently in that portion of it investing the lungs. Here purulent matter frequently remains for some time, as if enclosed in a cyst: but commonly it is not long before it comes to be either absorbed, and transferred to some other part of the body; or that it breaks through into the cavity of the lungs, or into that of the thorax. In the latter case, it produces the disease called *empyema;* but it is only when the matter is poured into the cavity of the bronchiæ, that it properly constitutes the phthisis pulmonalis. In the case of empyema, the chief circumstances of a phthisis are indeed also present; but I shall here consider that case only in which the abscess of the lungs gives occasion to a purulent expectoration.*

* That pus, in its formal state, can be removed, by means of the absorbents, from one part of the body to another, is an hypothesis

867. An abscess of the lungs, in consequence of pneumonia, is not always followed by a phthisis: for sometimes a hectic fever is not formed; the matter poured into the bronchiæ is a proper and benign pus, which is frequently coughed up very readily, and spit out; and, though this purulent expectoration should continue for some time, yet if a hectic does not come on, the ulcer soon heals, and every morbid symptom disappears. This has happened so frequently, that we may conclude, that neither the access of the air, nor the constant motion of the lungs, will prevent an ulcer of these parts from healing, if the matter of it be well-conditioned. An abscess of the lungs, therefore, does not necessarily produce the phthisis pulmonalis; and if it be followed by such a disease, it must be in consequence of particular circumstances which corrupt the purulent matter produced, render it unsuitable to the healing of the ulcer, and at the same time make it afford an acrimony, which, being absorbed, produce a hectic and its consequences.

868. The corruption of the matter of such abscesses may be owing to several causes, as, 1. That the matter effused during the inflammation, had not been a pure serum fit to be converted into a laudable pus, but had been united with other matters which prevented that, and gave a considerable acrimony to the whole: Or, 2. That the matter effused, and converted into pus, either merely by a long stagnation in a vomica, or by its connection with an empyema, had been so corrupted, as to become unfit for the purpose of pus in the healing of the ulcer. These seem to be possible causes of the corruption of matter in abscesses, so as to make it the occa-

contrary, we think, to the best established principles in physiology. Yet we are not ignorant, that the evidence in favour of it, is strongly stated.

sion of phthisis in persons otherwise sound; but it is probable, that a pneumonic abscess does especially produce phthisis when it happens to persons previously disposed to that disease, and therefore only as it concurs with some other causes of it.

869. The third cause supposed to produce phthisis, is a catarrh; which in many cases seems, in length of time, to have the expectoration of mucus proper to it, gradually changed into an expectoration of pus; and at the same time, by the addition of a hectic fever, the disease, which was at first a pure catarrh, is converted into a phthisis. This supposition, however, is not easily to be admitted. The catarrh is properly an affection of the mucous glands of the trachea and bronchiæ, analogous to the coryza, and less violent kinds of cynanche tonsillaris, which very seldom terminate in suppuration. And although a catarrh should be disposed to such termination, yet the ulcer produced might readily heal up, as it does in the case of a cynanche tonsillaris; and therefore should not produce a phthisis.

870. Further, the catarrh, as purely the effect of cold, is generally a mild disease, as well as of short duration; and of the numerous instances of it, there are at most but very few cases which can be said to have ended in phthisis. In all those cases in which this seems to have happened, it is to me probable, that the persons affected were peculiarly predisposed to phthisis. And the beginning of phthisis so often resembles a catarrh, that the former may have been mistaken for the latter. Besides, to increase the fallacy, it often happens that the application of cold, which is the most frequent cause of catarrh, is also frequently the exciting cause of the cough which proves the beginning of phthisis.

871. It is to me, therefore, probable, that a catarrh is very seldom the foundation of phthisis; but I would not

positively assert that it never is so; for it is possible that the cases of a more violent catarrh may have joined with them a pneumonic affection, which may end in suppuration; or it may happen that a long continued catarrh, by the violent agitation of the lungs in coughing, will produce some of those tubercles which are presently to be mentioned as the most frequent cause of phthisis.*

872. It must be particularly observed here, that nothing said in 871. should allow us to neglect any appearance of catarrh, as is too frequently done; for it may be either the beginning of a phthisis, which is mistaken for a genuine catarrh, or that even as a catarrh continuing long, it may produce a phthisis, as in 871.

873. Many physicians have supposed an acrimony of the fluids eroding some of the vessels of the lungs, to be a frequent cause of ulceration and phthisis. But this appears to me to be a mere supposition; for in any of the instances of the production of phthisis which I have seen, there was no evidence of any acrimony of the blood capable of eroding the vessels. It is true, indeed, that in many cases an acrimony subsisting in some part of the fluids, is the cause of the disease; but it is at the same time probable, that this acrimony operates by producing tubercles, rather than by any direct erosion.

874. It has been mentioned in 862, that an asthma may be considered as one of the causes of phthisis; and by asthma I mean, that species of it which has been commonly named the Spasmodic. This disease frequently subsists very long without producing any other, and may have its own peculiar fatal termination, as shall

* There can be no doubt, that a neglected catarrh may, and oftentimes does, degenerate into phthisis pulmonalis. This event, however, as our author alleges, usually occurs in subjects predisposed to that disease.

be explained hereafter. But I have seen it frequently in phthisis; and in such cases I suppose it to operate in the manner above alleged of catarrh, that is, by producing tubercles, and their consequences, which shall be presently mentioned.

875. I come now to consider the fifth head of the cause of phthisis, and which I apprehend to be the most frequent of any. This I have said, in general, to be tubercles; by which terms are meant, certain small tumours, which have the appearance of indurated glands. Dissections have frequently shown such tubercles formed in the lungs; and although at first indolent, yet at length they become inflamed, and are thereby changed into little abscesses, or vomicæ, which breaking, and pouring their matter into the bronchiæ, give a purulent expectoration, and thus lay the foundation of phthisis.

876. Though the matter expectorated upon these occasions has the appearance of pus, it is seldom that of a laudable kind; and, as the ulcers do not readily heal, but are attended with a hectic fever, for the most part ending fatally, I presume that the matter of the ulcers is imbued with a peculiarly noxious acrimony, which prevents their healing, and produces a phthisis in all its circumstances, as mentioned above.

877. It is very probable that the acrimony which thus discovers itself in the ulcers, existed before, and produced the tubercles themselves: and it is to this acrimony that we must trace up the cause of the phthisis following these tubercles. This acrimony is probably, in different cases, of different kinds; and it will not be easy to determine its varieties: but to a certain length I shall attempt it.*

* It is not a little singular, that Dr. Cullen, who affected to be the great reformer of the humoral pathology, should, notwithstand-

878. In one case, and that, too, a very frequent one, of phthisis, it appears, that the noxious acrimony is of the same kind with that which prevails in the scrophula. This may be concluded from observing, that a phthisis at its usual periods, frequently attacks persons born of scrophulous parents; that is, of parents who had been affected with scrophula in their younger years: that very often, when the phthisis appears, there occurs at the same time some lymphatic tumours in the internal parts; and very often I have found the tabes mesenterica, which is a scrophulous affection, joined with the phthisis pulmonalis. To all this I would add, that, even when no scrophulous affection has either manifestly preceded or accompanied a phthisis, this last however most commonly affects persons of a habit resembling the scrophulous; that is, persons of a sanguine, or of a sanguineo-melancholic temperament, who have very fine skins, rosy complexions, large veins, soft flesh, and thick upper lip: and further, that in such persons the phthisis comes on in the same manner that it does in persons having tubercles, as shall be immediately explained.

879. Another species of acrimony producing tubercles of the lungs, and thereby phthisis, may be said to be the exanthematic. It is well known, that the small-pox sometimes, and more frequently the measles, lay the foundation of phthisis. It is probable also, that other exanthemata have the same effect; and from the phenomena of the disease, and the dissections of persons who

ing, admit so much of that pathology into his exposition of phthisis pulmonalis. On this point, Boerhaave himself would scarcely have surpassed him. The doctrine of acrimony, maintained by the former, constitutes as wide a departure from truth, as that of lentor, which was the favourite of the latter. It is strictly true, however, as stated by our author, that phthisis is oftentimes a scrophulous affection.

have died of it, it is probable, that all the exanthemata may occasion a phthisis, by affording a matter which in the first place produces tubercles.

880. Another acrimony, which seems sometimes to produce phthisis, is the syphylitic; but whether such an acrimony produces phthisis in any other persons than the previously disposed, does not appear to me certain.

881. What other species of acrimony, such as from scurvy, from pus absorbed from other parts of the body, from suppressed eruptions, or from other sources, may also produce tubercles and phthisis, I cannot now decide, but must leave to be determined by those who have had experience in such cases.

882. There is one peculiar case of phthisis, which from my own experience I can take notice of. This is the case of phthisis from a calcareous matter formed in the lungs, and coughed up, frequently with a little blood, sometimes with mucus only, and sometimes with pus. How this matter is generated, or in what precise part of the lungs it is seated, I acknowledge myself ignorant. In three cases of this kind which have occurred to me, there was at the same time no appearance of stony or earthy concretions in any other part of the body. In one of these cases, an exquisitely formed phthisis came on, and proved mortal: while in the other two, the symptoms of phthisis were never fully formed; and after some time, merely by a milk diet and avoiding irritation, the patients entirely recovered.*

883. Another foundation for phthisis, analogous, as I judge, to that of tubercles, is that which occurs to certain artificers, whose employments keep them almost

* The variety of phthisis, mentioned in this article—that in which calcareous depositions are found in the lungs—is probably of an arthritic character. Yet gout terminates, much more frequently, in hydrothorax, than in pulmonary consumption.

constantly exposed to dust; such as stone-cutters, millers, flax-dressers, and some others. I have not observed in this country many instances of phthisis which could be referred to this cause, but from RAMAZZINI, MORGAGNI, and some other writers, we must conclude such cases to be more frequent in the southern parts of Europe.*

884. Besides those now mentioned, there are probably some other causes producing tubercles, which have not yet been ascertained by observation; and it is likely, that in the state of tubercles there is a variety not yet accounted for: but all this must be left to future observation and inquiry.

885. It has been frequently supposed by physicians, that the phthisis is a contagious disease; and I dare not assert that it never is such: but in many hundred instances of the disease which I have seen, there has been hardly one which to me could appear to have arisen from contagion. It is possible, that in warmer climates the effects of contagion may be more discernible.†

After having said that a phthisis arises from tubercles more frequently than from any other cause, and after having attempted to assign the variety of these, I now proceed to mention the peculiar circumstances and symptoms which usually accompany the coming on of the disease from tubercles.

886. A tuberculous and purulent state of the lungs has been observed in very young children, and in some others at several different periods before the age of puberty and full growth; but instances of this kind are

* We doubt much, whether, in persons of a sound constitution, phthisis pulmonalis has ever arisen, from the modes of employment mentioned in this article.

† Consumption of the lungs, is as free from contagion, as gout or peripneumony, rheumatism or hepatitis.

rare: and the attack of phthisis, which we have reason to impute to tubercles, usually happens at the same period which I have assigned for the coming on of the hæmoptysis.

887. The phthisis from tubercles does also generally affect the same habits as the hæmoptysis, that is, persons of a slender make, long necks, narrow chests, and prominent shoulders; but very frequently the persons liable to tubercles have less of a florid countenance, and of the other marks of an exquisitely sanguine temperament, than the persons liable to hæmoptysis.

888. This disease, arising from tubercles, usually commences with a slight and short cough, which becomes habitual, is often little remarked by those affected, and sometimes so little as to be absolutely denied by them. At the same time their breathing becomes easily hurried by any bodily motion, their body grows leaner, and they become languid and indolent. This state sometimes continues for a year, or even for two years, without the persons making any complaint of it, excepting only that they are affected by cold more readily than usual, which frequently increases their cough, and produces some catarrh. This, again, however, is sometimes relieved; is supposed to have arisen from cold alone: and therefore gives no alarm either to the patient or to his friends, nor leads them to take any precautions.

889. Upon one or other of these occasions of catching cold, as we commonly speak, the cough becomes more considerable; is particularly troublesome upon the patient's lying down at night; and in this state continues longer than is usual in the case of a simple catarrh. This is more especially to call for attention, if the increase and continuance of cough come on during the summer season.

890. The cough which comes on as in 888, is very

often for a long time without any expectoration; but when, from repeated catching cold, it becomes more constant, it is then at the same time attended with some expectoration, which is most considerable in the mornings. The matter of this expectoration becomes by degrees more copious, more viscid, and more opaque; at length of a yellow or greenish colour, and of a purulent appearance. The whole of the matter, however, is not always at once entirely changed in this manner; but, while one part of it retains the usual form of mucus, another suffers the changes now described.

891. When the cough increases, and continues very frequent through the night, and when the matter expectorated undergoes the changes I have mentioned, the breathing at the same time becomes more difficult, and the emaciation and weakness go on also increasing. In the female sex, as the disease advances, and sometimes early in its progress, the menses ceases to flow; and this circumstance is to be considered as commonly the effect, although the sex themselves are ready to believe it the sole cause of the disease.

892. When the cough comes on as in 888., the pulse is often natural, and for some time after continues to be so; but the symptoms have seldom subsisted long before the pulse becomes frequent, and sometimes to a considerable degree, without much of the other symptoms of fever. At length, however, evening exacerbations become remarkable; and by degrees the fever assumes the exquisite form of hectic, as described in 857. 859.

893. It is seldom that the cough, expectoration, and fever, go on increasing, in the manner now described, without some pain being felt in some part of the thorax. It is usually and most frequently felt at first under the sternum, and that especially, or almost only, upon occa-

sion of coughing; but very often, and that too, early in the course of the disease, a pain is felt on one side, sometimes very constantly, and so as to prevent the person from lying easily upon that side; but at other times the pain is felt only upon a full inspiration, or upon coughing. Even when no pain is felt, it generally happens that phthisical persons cannot lie easily on some one of their sides, without having their difficulty of breathing increased, and their cough excited.

894. The phthisis begins, and sometimes proceeds to its fatal issue, in the manner described from 888 to 894, without any appearance of hæmoptysis. Such cases are, indeed, rare; but it is very common for the disease to advance far, and even to an evident purulency and hectic state, without any appearance of blood in the spitting, so that it may be affirmed the disease is frequently not founded in hæmoptysis. At the same time, we must allow, not only that it sometimes begins with an hæmoptysis, as is said in 863.; but further, that it seldom happens, that, in the progress of the disease, more or less of an hæmoptysis does not appear. Some degree of blood spitting does indeed appear sometimes in the state mentioned (888. 892.) but more commonly in the more advanced stages of the disease only, and particularly upon the first appearance of purulency. However this may be, it is seldom, in the phthisis from tubercles, that the hæmoptysis is considerable, or requires any remedies different from those which are otherwise necessary for the state of the tubercles.

895. I have now described a succession of symptoms which, in different cases, occupy more or less time. In this climate they very often take up some years, the symptoms appearing especially in the winter and spring, commonly becoming easier, and sometimes almost disappearing, during the summer: but returning again in

winter, they at length, after two or three years, prove fatal, towards the end of spring or the beginning of summer.

896. In this disease, the prognosis is for the most part unfavourable. Of those affected with it, the greater number die; but there are also many of them who recover entirely, after having been in very unpromising circumstances. What are, however, the circumstances more certainly determining to a happy or a fatal event, I have not yet been able to ascertain.*

897. The following aphorisms are the result of my observations.

A phthisis pulmonalis from hæmoptysis, is more frequently recovered than one from tubercles.

An hæmoptysis not only is not always followed by a phthisis, as we have said above, (863.) but even when followed by an ulceration, the ulceration is sometimes attended with little of hectic, and frequently admits of being soon healed. Even when hæmoptysis and ulceration have happened to be repeated, there are instances of persons recovering entirely after several such repetitions.

A phthisis from a suppuration in consequence of pneumonic inflammation, is that which most rarely occurs in this climate; and a phthisis does not always follow such suppuration, when the abscess formed soon breaks, and discharges a laudable pus; but, if the abscess continue long shut up, and till after a considerable degree of hectic has been formed, a phthisis is then produced, equally dangerous as that from other causes.

* In the United States, recoveries from tuberculous consumptions, where the lungs have been ulcerated, are exceedingly rare. It is even believed, and asserted, by many, that such recoveries never occur.

The alternation of consumption with mania, is a phenomenon, in disease, which is often witnessed.

A phthisis from tubercles has, I think, been recovered, but it is, of all others, the most dangerous; and, when arising from a hereditary taint, is almost certainly fatal.

The danger of a phthisis, from whatever cause it may have arisen, is most certainly to be judged of by the degree to which the hectic and its consequences have arrived. From a certain degree of emaciation, debility, profuse sweating, and diarrhœa, no person recovers.

A mania coming on, has been found to remove all the symptoms, and sometimes has entirely cured the disease; but, in other cases, upon the going off of the mania, the phthisis has recurred, and proved fatal.

The pregnancy of women has often retarded the progress of a phthisis; but commonly it is only till after delivery, when the symptoms of phthisis return with violence, and soon prove fatal.

Sect. II.—*Of the cure of Phthisis.*

898. From what has been just now said, it will readily appear, that the cure of the phthisis pulmonalis must be exceedingly difficult; and that even the utmost care and attention in the employment of remedies, have seldom succeeded. It may be doubtful whether this failure is to be imputed to the imperfection of our art, or to the absolutely incurable nature of the disease. I am extremely averse in any case to admit of the latter supposition, and can always readily allow of the former; but, in the mean time, must mention here, what has been attempted towards either curing or moderating the violence of this disease.

899. It must be obvious that according to the different circumstances of this disease, the method of cure must be different. Our first attention should be employ-

ed in watching the approach of the disease, and preventing its proceeding to an incurable state.

In all persons of phthisical habit, and especially in those born of phthisical parents, the slightest symptoms of the approach of phthisis, at the phthisical period of life, ought to be attended to.

900. When an hæmoptysis occurs, though it be not always followed with ulceration and phthisis, these however are always to be apprehended; and every precaution is to be taken against them. This is especially to be done by employing every means of moderating the hæmorrhagy, and of preventing its return, directed in 891, *et seq.;* and these precautions ought to be continued for several years after the occurrence of the hæmoptysis.

901. The phthisis which follows a suppuration from pneumonic inflammation, can only be prevented with certainty, by obtaining a resolution of such inflammation. What may be attempted towards the cure of an abscess and ulcer which have taken place, I shall speak of hereafter.

902. I have said, it is doubtful if a genuine catarrh ever produces a phthisis; but have allowed that it possibly may: and both upon this account, and upon account of the ambiguity which may arise, whether the appearing catarrh be a primary disease, or the effect of a tubercle, I consider it as of consequence to cure a catarrh as soon as possible after its first appearance. More especially when it shall linger, and continue for some time, or shall, after some intermission, frequently return, the cure of it should be diligently attempted. The measures requisite for this purpose shall be mentioned afterwards, when we come to treat of catarrh as a primary disease; but, in the mean time, the means necessary for preventing its producing a phthisis shall be mentioned imme-

diately, as they are the same with those I shall point out as necessary for preventing a phthisis from tubercles.

903. The preventing of a phthisis from asthma must be by curing, if possible, the asthma, or at least by moderating it as much as may be done: and as it is probable that asthma occasions phthisis, by producing tubercles, the measures necessary for preventing phthisis from asthma, will be the same with those necessary in the case of tubercles, which I am now about to mention.

904. I consider tubercles as by much the most frequent cause of phthisis; and even in many cases where this seems to depend upon hæmoptysis, catarrh, or asthma, it does however truly arise from tubercles. It is upon this subject, therefore, that I shall have occasion to treat of the measures most commonly requisite for curing phthisis.

905. When, in a person born of phthisical parents, of a phthisical habit, at the phthisical period of life, the symptoms (888.) in the spring, or the beginning of summer, shall appear in the slightest degree, we may presume that a tubercle, or tubercles, either have been formed, or are forming in the lungs; and, therefore, that every means we can devise for preventing their formation, or for procuring their resolution, should be employed immediately, even although the patient himself should overlook or neglect the symptoms, as imputing them to accidental cold.

906. This is certainly the general indication; but how it may be executed, I cannot readily say. I do not know that, at any time, physicians have proposed any remedy capable of preventing the formation of tubercles, or of resolving them when formed. The analogy of scrophula, gives no assistance in this matter. In scrophula the remedies that are seemingly of most power, are,

sea-water, or certain mineral waters; but these have generally proved hurtful in the case of tubercles of the lungs. I have known several instances of mercury very fully employed for certain diseases, in persons who were supposed at the time to have tubercles formed, or forming, in their lungs; but though the mercury proved a cure for those other diseases, it was of no service in preventing phthisis, and in some cases seemed to hurry it on.

907. Such appears to me to be the present state of our art, with respect to the cure of tubercles; but I do not despair of a remedy for the purpose being found hereafter. In the mean time, all that at present seems to be within the reach of our art, is to take the measures proper for avoiding the inflammation of tubercles. It is probable that tubercles may subsist long without producing any disorder; and I am disposed to think, that nature sometimes resolves and discusses tubercles which have been formed; but that nature does this only when the tubercles remain in an uninflamed state; and therefore, that the measures necessary to be taken, are chiefly those for avoiding the inflammation of the tubercles.

908. The inflammation of a tubercle of the lungs is to be avoided upon the general plan of avoiding inflammation, by blood-letting, and by an antiphlogistic regimen; the chief part of which, in this case, is the use of a low diet. This supposes a total abstinence from animal food, and the using of vegetable food almost alone: but it has been found, that it is not necessary for the patient to be confined to vegetables of the weakest nourishment, it being sufficient that the farinacea be employed, and together with these, milk.

909. Milk has been generally considered as the chief remedy in phthisis, and in the case of every tendency to it; but whether from its peculiar qualities, or from its being of a lower quality, with respect to nourishment, than any food entirely animal, is not certainly de-

termined. The choice and administration of milk will be properly directed, by considering the nature of the milk of the several animals from which it may be taken, and the particular state of the patient with respect to the period and circumstances of the disease, and to the habits of his stomach with respect to milk.

910. A second means of preventing the inflammation of the tubercles of the lungs, is, by avoiding any particular irritation of the affected part, which may arise from any violent exercise of respiration; from any considerable degree of bodily exercise; from any position of the body which straitens the capacity of the thorax; and, lastly, from cold applied to the surface of the body, which determines the blood in greater quantity to the internal parts, and particularly to the lungs.

911. From the last-mentioned consideration, the application of cold in general, and, therefore, the winter season, in cold climates, as diminishing the cutaneous perspiration, is to be avoided; but more particularly, that application of cold is to be shunned that may suppress perspiration, to the degree of occasioning a catarrh, which consists in an inflammatory determination to the lungs, and may therefore most certainly produce an inflammation of the tubercles there.

By considering, that the avoiding heat is a part of the antiphlogistic regimen above recommended, and by comparing this with what has been just now said respecting the avoiding cold, the proper choice of climates and seasons for phthisical patients will be readily understood.

912. A third means of avoiding the inflammation of the tubercles of the lungs, consists in diminishing the determination of the blood to the lungs, by supporting and increasing the determination to the surface of the body, which is to be chiefly and most safely done by

warm clothing, and the frequent use of the exercises of gestation.

913. Every mode of gestation has been found of use in phthisical cases; but riding on horseback, as being accompanied with a great deal of bodily exercise, is less safe in persons liable to an hæmoptysis. Travelling in a carriage, unless upon very smooth roads, may also be of doubtful effect; and all the modes of gestation that are employed on land, may fall short of the effects expected from them, because they cannot be rendered sufficiently constant; and therefore it is, that sailing, of all other modes of gestation, is the most effectual in pneumonic cases, as being both the smoothest and most constant.

It has been imagined, that some benefit is derived from the state of the atmosphere upon the sea; but I cannot find that any impregnation of this which can be supposed to take place, can be of service to phthisical persons. It is, however, probable, that frequently some benefit may be derived from the more moderate temperature and greater purity of the air upon the sea.*

914. In order to take off any inflammatory determination of the blood into the vessels of the lungs, blisters applied to some part of the thorax may often be of ser-

* We cannot concur in opinion with our author, respecting the effects of riding on horseback, on patients subject to hæmoptysis. We believe it to be, in general, more useful to such persons, than either riding in a carriage, or sailing; because it is accompanied with a higher degree of bodily exercise—such exercise, as determines to the surface, and gives tone to the system, without producing fatigue.

Travelling by land, whether in a carriage, or on horseback, has oftentimes proved useful in the treatment of consumption; but, after innumerable trials, the efficacy of sea-voyages is not, we think, established by actual experience. Wherever we have known them tried, they have uniformly failed to effect a cure.

vice; and for the same purpose, as well as for moderating the general inflammatory state of the body, issues of various kinds may be employed with advantage.*

* Issues and blisters, skilfully managed, are important remedies in the treatment of consumption, whether the object be prevention or cure. To be really useful, their action should be *long continued*, for a *chronic remedy* is always necessary in a chronic disease.

On the treatment of pulmonary consumption generally, we have but little to say—at furthest, very little that is worthy of attention. Like that of other physicians, our practice, in the complaint, has been exceedingly discouraging. We hold it useless, therefore, to trouble our readers with a tedious account of what has been attempted, on the subject, to so little purpose. Although we would not hastily fall into the ranks of those who pronounce the disease definitively *incurable;* we must, notwithstanding, acknowledge it to be true, that physicians, are, *at present*, unable to cure it. We flatter ourselves, however, that this is to be attributed, not to the *necessary fatality* of the complaint, but to the defective state of the healing art; and that some powerful panacea, or efficacious mode of treatment, is yet in reserve, for the many interesting subjects that fall by this disease.

In Great Britain and the United States, where pulmonary consumption has been more thoroughly studied, and is better understood, than in any other country, the remedies and expedients, by which its cure has been attempted, are numerous and powerful. Notwithstanding this, the disease, when completely formed, has almost uniformly proceeded, with more or less rapidity, in different cases, to a fatal termination. *Radical cures* have, indeed, oftentimes appeared, in *medical reports;* but we doubt their appearance in *medical practice.*

In the treatment of this disease, our only rational hope is placed in preventive measures. If we fail in these, we may be literally said to have failed in every thing. But of the scheme of prevention, our author, himself, in addition to a clear description and able history of the complaint, has given us a brief but comprehensive exposition—one embracing almost every thing that the case can require.

To sum up the whole, in a few words; this scheme consists in a strict and continued avoidance of the exciting causes, and a steady

915. The several measures to be pursued in the case of what is properly called an Incipient Phthisis, have now been mentioned; but they have seldom been employed in such cases in due time, and have, therefore,

perseverance in such measures, as are calculated to give strength and tone to the system.

The exciting causes of pulmonary consumption are, strictly speaking, *external*, *internal*, and *mixed*.

The external consist in corporeal injuries, and unfavourable states of the weather, especially its vicissitudes from heat to cold, and from dryness to humidity. The opposite changes do but little mischief.

The internal are, all such kinds of diet and drink, as, being strongly stimulating, contribute to the production of an inflammatory diathesis.

The mixed are, improper and violent bodily exercise, and the inordinate play of the passions of the mind.

The mode of guarding against the internal and mixed exciting causes, must be obvious to every one. It is, to avoid immoderate exercise, to cultivate equanimity, and mildness of temper, to preserve a regular habit of body, to drink water, and to live on a milk and vegetable diet—to avoid, in fact, every thing, of whatever description, that might induce fatigue, excite heat or actual inflammation, or rupture a blood-vessel.

To guard effectually against the external causes, is a matter of more combination and management.

To escape blows, and other injuries, accidental or intentional, that might excite the disease, it is presumed that the common precautions, dictated by judgment, and founded in prudence, will prove sufficient.

For those, whose circumstances and situation in life will admit of it, the most effectual mode to escape the influence of a bad climate, is permanently to exchange it for a better one. To remove from the humid, bleak, and changeable atmosphere of northern and middle latitudes, to the more temperate, dry, and steady climates of the south.

For those, again, who cannot effect an entire change of residence, the next best step is, to fly from the north, on the approach of cold weather, and pass their winters in healthy situations, nearer to the sun.

But,

perhaps, seldom proved effectual. It has more commonly happened, that after some time, an inflammation has come upon the tubercles, and an abscess has been form-

But, if they cannot remove at all, they must, then, endeavour, by means of fires, properly regulated, to make, artificially, a suitable climate in *their own dwellings*. By thus regulating the temperature of their chambers, by means of stoves, we have known several persons, predisposed to consumption, pass their winters in tolerable comfort and freedom from disease. It must, indeed, be acknowledged, that a confinement, of such duration, amounts to an irksome and forbidding remedy: but, where health can be enjoyed, and even life maintained, on no other condition, there are those who will submit to it without a murmur.

But there are, on the contrary, many individuals inclined to consumption, who, from necessity, cannot, or, from choice, will not, submit to a winter confinement. At every hazard, they must, or will, pursue their pleasures, or follow their business.

For such subjects, a proper kind of clothing constitutes the only probable safeguard from disease. This clothing should consist of an entire covering of soft cotton, flannel, or fleecy hosiery, worn constantly next to the skin.—By means of the warmest kind of woollen stockings, the feet, in particular, should be faithfully guarded from cold and moisture. The hands, also, ought to be well protected, by gloves lined with fur or flannel.

Even when thus equipped, the patients, in question, should never venture out, if they can possibly avoid it, in cold, wet, or stormy weather. If they do expose themselves, when the ground is humid, they should secure their feet against the moisture by double shoes.

When the atmosphere is temperate and serene, and the earth dry, then is their time for exercise and enjoyment. Added to a suitable regimen, as to diet and drink, it is exercise alone, that can ever effectually fortify their systems against the disease. We have already observed, that we are much inclined to doubt the great importance which many attach to voyages by sea.

To those who can afford it, the best exercise consists in a journey; on horseback, if their strength be sufficient for that mode of travelling; if not, in an open carriage, so constructed as to be rendered close and secure, in case of bad weather. The journey should be continued, with a cheerful companion, through dry and healthy tracts of country, and in the midst of pleasant and diversified scenery, during the summer months. For

ed, which opening into the cavity of the bronchiæ, has produced an ulcer, and a confirmed phthisis.

916. In this state of matters, some new indications, different from the former, may be supposed to arise;

For those who cannot travel, the exercise of walking, swinging, working in a garden, or the lighter employments of husbandry, with occasional excursions, on horseback, or in a carriage, appear to offer the best substitute.

In some instances, hard labour, imposed by necessity, has removed a predisposition to pulmonary consumption. A station behind the mast, and even the fatigues of active military service, are said to have been occasionally productive of the same effect.

From the exercise of the sword, of dumb bells, and of the art of boxing, *when resorted to as an exercise*, giving expansion to the chest, and free play to the lungs, much benefit may be derived by persons predisposed to pulmonary consumption. These manly and laborious exercises, give tone and hardihood to the system, and completely revolutionize it from its original tendencies.

An opinion appears to be gaining ground, both in Great Britain and the United States, that subjects inclined to pulmonary consumption, are materially benefitted by residing in tracts of country wherein intermitting fever prevails. It is said to be a fact, ascertained by observation, that, among the inhabitants of such places, this complaint rarely occurs.

If this be true—a point on which we are not prepared to offer an opinion—it will prove a discovery of great importance.

As the system cannot possess two constitutional predispositions at once; and as the atmosphere of flat and marshy countries creates, in those who are subject to it, a constitutional tendency to intermitting fever, it may, at the same time, obliterate that to pulmonary consumption. This doctrine strictly comports with sound pathology.

In phthisis pulmonalis, when actually formed, the following remedies are recommended as useful.

Blood-letting, carried to such extent, and repeated as often as circumstances may require. This, although not itself a curative remedy, is, notwithstanding, essential for the moderation of symptoms, and to facilitate the operation of other remedies.

Setons, issues, or perpetual blisters, on some part of the thorax.

and indications for preventing absorption, for preventing the effects of the absorbed matter upon the blood, and for healing the ulcer, have been actually proposed. I cannot find, however, that any of the means proposed

These amount to a useful remedy, if not in curing the disease, certainly in relieving symptoms.

A mercurial ptyalism. If we ever saw an instance, wherein real consumption was cured, it was by this remedy. Five years ago, we employed it successfully, in the case of a gentleman, who had almost every threatening symptom of the complaint—pain in the breast, troublesome cough, purulent expectoration, often streaked with blood, hectic fever, and night sweats, with considerable emaciation and loss of strength. He recovered at the time, and has ever since enjoyed uninterrupted health. When employed at an early period of the disease, a ptyalism, if it does not actually cure consumption, has certainly manifested, *at times*, a power of somewhat retarding its progress. *In most cases*, however, it is productive of no good; and, *in some*, does mischief, by evidently impairing the strength of the patient, without, in any measure, diminishing that of the disease. There is no ground, therefore, for regarding it as a very promising remedy.

Digitalis purpurea, or Foxglove. Notwithstanding the praises bestowed on this, as a remedy for the cure of pulmonary consumption, in Great Britain, it possesses, at present, but very little reputation, in the United States. For our own part, we have never witnessed its good effects in that disease; but have known it, on several occasions, to do much mischief. Without at all relieving the lungs, it produces great disorder in the stomach, and, in that way, accelerates the death of the patient.

As a remedy in phthisis pulmonalis, *emetics* have been several times in and out of vogue, within the last fifty years. The articles usually employed have been, tartarized antimony, ipecacuanha, and sulphat of copper. Of these, the latter has been, we believe, of late, the most fashionable medicine.

Emetics, when judiciously administered, have certainly given relief in phthisis pulmonalis. But, we doubt much if they have ever cured it. Were they even calculated for this, so often must they be repeated, so constantly must they be employed, that we are strongly apprehensive they would seriously, perhaps irremediably, injure the stomach, before they could heal the affection of the

for executing these indications, are either probable, or have proved effectual. If, upon some occasions, they have appeared to be useful, it has been probably by answering some other intention.

While no antidote against the poison which especially operates here, seems to have been as yet found out, it appears to me that too great a degree of inflammation has a great share in preventing the healing of the ulcer which occurs; and such inflammation is certainly what has a great share in urging on its fatal consequences. The only practice, therefore, which I can venture to propose, is the same in the ulcerated as in the crude state of a tubercle; that is, the employment of means for moderating inflammation, which have been already mentioned (908. *et seq.*)

917. The balsamics, whether natural or artificial, which have been so commonly advised in cases of phthisis, appear to me to have been proposed upon no sufficient grounds, and to have proved commonly hurtful. The resinous and acrid substance of myrrh, lately re-

lungs: for it is well known, that a chronic complaint can never be removed but by a chronic remedy.

Hemlock, muriate of barytes, nitric acid, uva ursi, lichen islandicus, and several other articles, have been proposed as remedies in pulmonary consumption. But having failed to prove efficacious, they have never acquired any solid reputation.

Of all remedies, opium, although it never cures, affords, in consumption, by far the greatest amount of benefit. It alleviates pain, relieves the cough, moderates diarrhœa, and, for a time, sustains the sinking strength; and, when all other means have been ultimately abandoned, and hope itself, which lingers, in this disease, with wonderful endurance, is ready to expire, disarms even death of the poignancy of its sting. It is to those, therefore, whose melancholy lot obliges them to suffer under the ravages of consumption, that it proves most emphatically, and in the true sense of the word, the "*magnum Dei donum*,"—the great and bounteous gift of heaven.

commended, has not appeared to me to be of any service, and in some cases to have proved hurtful.

918. Mercury, so often useful in healing ulcers, has been speciously enough proposed in this disease; but whether that it be not adapted to the particular nature of the ulcers of the lungs occurring in phthisis, or that it proved hurtful because it cannot have effect without exciting such an inflammatory state of the whole system, as, in a hectic state, must prove very hurtful, I cannot determine. Upon many trials which I have seen made, it has proved of no service, and commonly has appeared to be manifestly pernicious.

919. The Peruvian bark has been recommended for several purposes in phthisical cases; and it is said, upon some occasions to have been useful; but I have seldom found it to be so; and as by its tonic power it increases the phlogistic diathesis of the system, I have frequently found it hurtful. In some cases, where the morning remissions of the fever were considerable, and the noon exacerbations well marked, I have observed the Peruvian bark given in large quantities, have the effect of stopping these exacerbations, and at the same time of relieving the whole of the phthisical symptoms: but in the cases in which I observed this, the fever showed a constant tendency to recur; and at length the phthisical symptoms also returned, and proved quickly fatal.

920. Acids of all kinds, as antiseptic and refrigerant, are useful in cases of phthisis; but the native acid of vegetables is more useful than the fossil acids, as it can be given in much larger quantities, and may also be given more safely than vinegar, being less liable to excite coughing.

921. Though our art can do so little towards the cure of this disease, we must, however, palliate the uneasy symptoms of it as well as we can. The symptoms espe-

cially urgent, are the cough and diarrhœa. The cough may be in some measure relieved by demulcents (872.) but the relief obtained by these is imperfect and transitory, and very often the stomach is disturbed by the quantity of oily, mucilaginous, and sweet substances, which are on these occasions taken into it.

922. The only certain means of relieving the cough, is by employing opiates. These indeed certainly increase the phlogistic diathesis of the system; but commonly they do not so much harm in this way, as they do service by quieting the cough, and giving sleep. They are supposed to be hurtful by checking expectoration: but they do it for a short time only; and after a sound sleep, the expectoration in the morning is more easy than usual. In the advanced state of the disease, opiates seem to increase the sweatings that occur; but they compensate this by the ease they afford in a disease which cannot be cured.

923. The diarrhœa which happens in the advanced state of this disease, is to be palliated by moderate astringents, mucilages, and opiates.

Rhubarb, so commonly prescribed in every diarrhœa, and all other purgatives, are extremely dangerous in the colliquative diarrhœa of hectics.

Fresh subacid fruits, supposed to be always laxative, are often in the diarrhœa of hectics, by their antiseptic quality, very useful.

CHAPTER V.

OF THE HÆMORRHOIS; OR OF THE HÆMORRHOIDAL SWELLING AND FLUX.

SECT. I.—*Of the Phenomena and Causes of the Hæmorrhois.*

924. A DISCHARGE of blood from small tumours on the verge of the anus, is the symptom which generally constitutes the Hæmorrhois; or, as it is vulgarly called, the Hæmorrhoidal Flux. But a discharge of blood from within the anus, when the blood is of a florid colour, showing it to have come from no great distance, is also considered as the same disease; and physicians have agreed in making two cases or varieties of it, under the names of External and Internal Hæmorrhois.

925. In both cases it is supposed, that the flow of blood is from tumours previously formed, which are named Hæmorrhoids, or Piles; and it frequently happens, that the tumours exist without any discharge of blood; in which case, however, they are supposed to be a part of the same disease, and are named Hæmorrhoides Cæcæ, or Blind Piles.

926. These tumours, as they appear without the anus, are sometimes separate, round, and prominent, on the verge of the anus; but frequently the tumour is only one tumid ring, forming, as it were, the anus pushed without the body.

927. These tumours, and the discharge of blood from them, sometimes come on as an affection purely topical, and without any previous disorder in other parts of the body: but it frequently happens, even before the tumours are formed, and more especially before the blood flows,

that various disorders are felt in different parts of the body, as headach, vertigo, stupor, difficulty of breathing, sickness, colic pains, pain of the back and loins; and often, together with more or fewer of these symptoms, there occurs a considerable degree of pyrexia.

The coming on of the disease with these symptoms, is usually attended with a sense of fulness, heat, itching, and pain in and about the anus.

Sometimes the disease is preceded by a discharge of serous matter from the anus: and sometimes this serous discharge, accompanied with some swelling, seems to be in place of the discharge of blood, and to relieve those disorders of the system which we have mentioned. This serous discharge, therefore, has been named the Hæmorrhois Alba.

928. In the hæmorrhois, the quantity of blood discharged is different upon different occasions. Sometimes the blood flows only upon the persons going to stool; and commonly, in larger or lesser quantity, follows the discharge of the fæces. In other cases, the blood flows without any discharge of fæces; and then, generally, it is after having been preceded by the disorders abovementioned, when it is also commonly in larger quantity. This discharge of blood is often very considerable; and, by the repetition, it is often so great, as we could hardly suppose the body to bear but with the hazard of life. Indeed, though rarely, it has been so great as to prove suddenly fatal. These considerable discharges occur especially to persons who have been frequently liable to the disease. They often induce great debility; and frequently a leucophlegmatia, or dropsy, which proves fatal.

The tumours and discharges of blood in this disease, often recur at exactly stated periods.*

* We do not believe that the hæmorrhoidal flux is ever the

929. It often happens, in the decline of life, that the hæmorrhoidal flux, formerly frequent, ceases to flow; and, upon that event, it generally happens that the persons are affected with apoplexy or palsy.*

930. Sometimes hæmorrhoidal tumours are affected with considerable inflammation; which, ending in suppuration, gives occasion to the formation of fistulous ulcers in those parts.

931. The hæmorrhoidal tumours have been often considered as varicous tumours, or dilatations of veins; and it is true, that in some cases varicous dilatations have appeared upon dissection. These, however, do not always appear; and I presume it is not the ordinary case, but that the tumours are formed by an effusion of blood into the cellular texture of the intestine near to its extremity. These tumours, especially when recently formed, frequently contain fluid blood; but, after they have remained for some time, they are commonly of a firmer substance.

932. From a consideration of their causes, to be hereafter mentioned, it is sufficiently probable, that hæmor-

cause of dropsy: it is the *concomitant* of that disease; a scirrhus, or chronic inflammation of the liver, being the *cause of both*. The affection of the liver, denies to the blood, from the lower intestines, a free passage through that viscus: whence the veins, from the rectum, becoming distended and enlarged, burst and discharge their contents. The same obstruction to the passage of the blood through the liver, giving rise to a preternatural distension of the blood-vessels of the abdomen in general, produces an increased secretion of serum into that cavity. Hence the formation of ascites.

We do not contend, nor do we believe, that the hæmorrhoidal flux never exists *alone*, without a concomitant affection of the liver, as its cause: but, without such concomitancy, we doubt if it be ever accompanied or succeeded by dropsy.

* As often as the hæmorrhoidal flux terminates in the manner mentioned in this article, we believe it may be regarded as of an arthritic character.

hoidal tumours are produced by some interruption of the free return of blood from the veins of the lower extremity of the rectum; and it is possible, that a considerable accumulation of blood in these veins, may occasion a rupture of their extremities, and thus produce the hæmorrhagy or tumours I have mentioned. But, considering that the hæmorrhagy occurring here is often preceded by pain, inflammation, and a febrile state, as well as by many other symptoms which show a connection between the topical affection and the state of the whole system, it seems probable that the interruption of the venous blood, which we have supposed to take place, operates in the manner explained in 768., and therefore, that the discharge of blood here is commonly from arteries.

933. Some physicians have been of opinion, that a difference in the nature of the hæmorrhois, and of its effects upon the system, might arise from the difference of the hæmorrhoidal vessels from which the blood issued. But it appears to me, that hardly in any case we can distinguish the vessels from which the blood flows; and that the frequent inosculations, of both the arteries and veins which belong to the lower extremity of the rectum, will render the effects of the hæmorrhagy nearly the same, from whichsoever of these vessels the blood proceed.

934. In 768. I have endeavoured to explain the manner in which a certain state of the sanguiferous system might give occasion to an hæmorrhoidal flux; and I have no doubt, that this flux may be produced in that manner. I cannot, however, by any means admit that the disease is so often produced in that manner, or that, on its first appearance, it is so frequently a systematic affection, as the Stahlians have imagined, and would have us to believe. It occurs in many persons before the period of

life at which the venous plethora takes place; it happens to females, in whom a venous plethora, determined to the hæmorrhoidal vessels, cannot be supposed; and it happens to both sexes, and to persons of all ages, from causes which do not affect the system, and are manifestly suited to produce a topical affection only.

935. These causes of a topical affection are, in the first place, the frequent voiding of hard and bulky fæces, which, not only by their long stagnation in the rectum, but especially when voided, must press upon the veins of the anus, and interrupt the course of the blood in them. It is for this reason that the disease happens so often to persons of a slow and bound belly.

936. From the causes just now mentioned, the disease happens especially to persons liable to some degree of a prolapsus ani. Almost every person in voiding fæces has the internal coat of the rectum more or less protruded without the body; and this will be to a greater or lesser degree, according as the hardness and bulk of the fæces occasion a greater or lesser effort or pressure upon the anus. While the gut is thus pushed out, it often happens that the sphincter ani is contracted before the gut is replaced; and, in consequence thereof, a strong constriction is made, which preventing the fallen-out gut from being replaced, and at the same time preventing the return of blood from it, occasions its being considerably swelled, and its forming a tumid ring round the anus.

937. Upon the sphincter's being a little relaxed, as it is immediately after its strong contraction, the fallen-out portion of the gut is commonly again taken within the body; but by the frequent repetition of such an accident, the size and fullness of the ring formed by the fallen-out gut, is much increased. It is therefore more

slowly and difficultly replaced; and in this consists the chief uneasiness of hæmorrhoidal persons.

938. As the internal edge of the ring mentioned, is necessarily divided by clefts, the whole often assumes the appearance of a number of distinct swellings; and it also frequently happens, that some portions of it, more considerably swelled than others, become more protuberant, and form those small tumours more strictly called Hæmorrhoids, or Piles.

939. From considering that the pressure of fæces, and other causes interrupting the return of venous blood from the lower extremity of the rectum, may operate a good deal higher up in the gut than that extremity, it may be easily understood that tumours may be formed within the anus; and probably it also happens, that some of the tumours formed without the anus, as in 938, may continue when taken within the body, and even be increased by the causes just now mentioned. It is thus that I would explain the production of internal piles, which, on account of their situation and bulk, are not protruded on the person's going to stool, and are often, therefore, more painful. The same internal piles are more especially painful, when affected by the hæmorrhagic effort described in 744. and 768.

940. The production of piles is particularly illustrated by this, that pregnant women are frequently affected with them. This is to be accounted for, partly from the pressure of the uterus upon the rectum, and partly from the costive habit to which pregnant women are usually liable. I have known many instances of piles occurring for the first time during the state of pregnancy; and there are few women that have borne children who are afterwards entirely free from piles. The Stahlians have commonly asserted, that the male sex is more frequently

affected with this disease than the female; but in this country I have constantly found it otherwise.*

941. It is commonly supposed, that the frequent use of purgatives, especially of those of the more acrid kind, and more particularly of aloetics, is apt to produce the hemorrhoidal affection; and as these purgatives stimulate chiefly the great guts, it seems sufficiently probable that they may excite this disease.

942. I have now mentioned several causes which may produce the hæmorrhoidal tumours and flux as a topical affection only; but must observe farther, that although the disease appears first as a purely topical affection, it may, by frequent repetition, become habitual, and therefore may become connected with the whole system, in the manner already explained, with respect to hæmorrhagy, in general, in 747.

943. The doctrine now referred to, will, it is apprehended, apply very fully to the case of the hæmorrhoidal flux; and will the more readily apply, from the person who has been once affected being much exposed to a renewal of the causes which first occasioned the disease; and from many persons being much exposed to a congestion in the hæmorrhoidal vessels, in consequence of their being often in an erect position of the body, and in an exercise which pushes the blood into the depending vessels, while at the same time the effects of these circumstances are much favoured by the abundance and laxity of the cellular texture about the rectum.

944. It is thus that the hæmorrhoidal flux is so often

* In the *United States also*, females, especially those who have borne children, are much more frequently subject to the piles than males. About the period of the cessation of the catamenia, women oftentimes experience extreme suffering from hæmorrhoidal affections.

artificially rendered an habitual and systematic affection; and I am persuaded that it is this which has given occasion to the Stahlians to consider the disease as almost universally such.

945. It is to be particularly observed here, that when the hæmorrhoidal disease has either been originally, or has become, in the manner just now explained, a systematic affection, it then acquires a particular connection with the stomach, so that certain affections there excite the hæmorrhoidal disease, and certain states of the hæmorrhoidal affection excite disorders of the stomach.

It is perhaps owing to this connection, that the gout sometimes affects the rectum. See 524.*

Sect. II.—*Of the cure of Hæmorrhoidal Affections.*

946. Almost at all times it has been an opinion amongst physicians, and from them spread amongst the people, that the hæmorrhoidal flux is a salutary evacuation, which prevents many diseases that would otherwise have happened; and that it even contributes to give long life. This opinion, in later times, has been especially maintained by Dr. Stahl, and his followers; and has had a great deal of influence upon the practice of physic in Germany.

947. The question arises with respect to hæmorrhagy in general, and indeed it has been extended so far by the Stahlians. I have accordingly considered it as a general question (766.—779.), but it has been more especially agitated with regard to the disease now under our consideration: And as to this, although I am clearly of opinion that the hæmorrhois may take place in consequence

* We have never seen a severe case of hæmorrhoidal flux, that was not very obviously connected with the stomach. When of a gouty character, it is necessarily so connected.

of the general state of the system (768.) or, what is still more frequent, that by repetition it may become connected with that general state (942.) and in either case cannot be suppressed without great caution; I must beg leave, notwithstanding this, to maintain, that the first is a rare case; that generally the disease first appears as an affection purely topical, (934—941.) and that the allowing it to become habitual is never proper. It is a nasty disagreeable disease, ready to go to excess, and to be thereby very hurtful, as well as sometimes fatal. At best it is liable to accidents, and thereby to unhappy consequences. I am therefore of opinion, that not only the first approaches of the disease are to be guarded against, but even that, when it has taken place for some time, from whatever cause it may have proceeded, the flux is always to be moderated, and the necessity of it, if possible, superseded.*

948. Having delivered these general rules, I proceed to mention more particularly, how the disease is to be treated, according to the different circumstances under which it may appear.

When we can manifestly discern the first appearance of the disease to arise from causes acting upon the part only, the strictest attention should be employed in guarding against the renewal of these causes.

949. One of the most frequent of the remote causes of the hæmorrhoidal affection, is a slow and bound belly (935.) and this is to be constantly obviated by a proper diet, which each individual's own experience must direct; or, if the management of diet be not effectual, the belly must be kept regular by such medicines as may

* There exists, we believe, no doubt, that the hæmorrhoidal flux is always, at first, a local affection; and becomes a general one only by sympathy.

prove gently laxative, without irritating the rectum. In most cases it will be of advantage to acquire a habit with respect to time, and to observe it exactly.*

950. Another cause of hæmorrhois to be especially attended to, is the prolapsus or protrusion of the anus, which is apt to happen on a person's having a stool (936.) If it shall occur to any considerable degree, and at the same time be not easily and immediately replaced, it most certainly produces piles, or increases them when otherwise produced. Persons therefore liable to this prolapsus, should, upon their having been at stool, take great pains to have the gut immediately replaced, by lying down in a horizontal posture, and pressing gently upon the anus, till the reduction shall be completely obtained.†

* In the treatment of hæmorrhois, the patient should be confined to a horizontal posture, and a vegetable diet should be strictly enjoined. Baked apples or pears, and ripe, subacid fruit, generally, are pleasant and useful. As an agreeable and proper laxative, stewed or boiled prunes may be administered. The use of manna is recommended for the same purpose. If a purgative of higher power be requisite, flowers of sulphur, or balsam copaiva, may be given with advantage. The latter medicine, exhibited in doses of, from half a drachm to a drachm, two or three times a-day, has been found an excellent remedy, in the internal or bleeding piles.

† The perfect and immediate replacement of the rectum, from its prolapsed state, is a precaution of great importance, and should never be neglected. A strict attention to this, will do much towards the prevention of hæmorrhois.

To prevent a prolapsus ani, from a weakened and relaxed state of the rectum, astringents are used, both externally and internally. The internal ones, most common in this country, are, alum, and gum kino, to which should be added, the extract of the persimmon. In Great Britain, terra Japonica is also much in use. These, however, produce, we think, but little effect. The external are more efficacious, as coming into immediate contact with the part. They may consist of cold water, or pledgets of lint, wet with a strong in-

951. When the prolapsus of which I speak is occasioned only by voiding hard and bulky fæces, it should be obviated by the means mentioned in 949. and may be thereby avoided. But in some persons it is owing to a laxity of the rectum; in which case it is often most considerable upon occasion of a loose stool; and then the disease is to be treated by astringents, as well as by proper artifices for preventing the falling down of the gut.

952. These are the means to be employed upon the first approaches of the hæmorrhoidal affection; and when from neglect it shall have frequently occurred, and has become in some measure established, they are no less proper. In the latter case, however, some other means are also necessary. It is particularly proper to guard against a plethoric state of the body; consequently to avoid a sedentary life, a full diet, and particularly intemperance in the use of strong liquor; which, as I should have observed before, is, in all cases of hæmorrhagy, of the greatest influence in increasing the disposition of the disease.

953. I need hardly repeat here, that exercise of all kinds must be a chief means of obviating and removing a plethoric state of the body; but upon occasion of the hæmorrhoidal flux immediately approaching, both walking and riding, as increasing the determination of the blood into the hæmorrhoidal vessels, are to be avoided. At other times, when no such determination has been already formed, those modes of exercise may be very properly employed.*

fusion of oak bark, or galls, or a solution of saccharum saturni, or vitriolated zinc. To produce their full effect, these pledgets should be long and frequently applied, being retained on the part by a suitable bandage.

* We are doubtful, whether, under any circumstances, riding on

954. Cold bathing is another remedy that may be employed to obviate plethora, and prevent hæmorrhagy; but is to be used with caution. When the hæmorrhoidal flux is approaching, it may be dangerous to turn it suddenly aside by cold bathing: but during the intervals of the disease, this remedy may be employed with advantage; and in persons liable to a prolapsus ani, the frequent washing of the anus with cold water may be very useful.

955. These are the means for preventing the recurrence of the hæmorrhoidal flux; and in all cases, when it is not immediately approaching, they are to be employed. When it has actually come on, means are to be employed for moderating it as much as possible, by the person's lying in a horizontal position upon a hard bed; by avoiding exercise in an erect posture; by using a cool diet; by external heat; and by avoiding the irritation of hardened fæces by the use of proper laxatives, (949.) From what has been said above, as to the being careful not to increase the determination of the blood into the hæmorrhoidal vessels, the propriety of these measures must sufficiently appear; and if they were not so generally neglected, many persons would escape the great trouble, and the various bad consequences, which so frequently result from this disease.

956. With respect to the further cure of this disease, it is almost in two cases only that hæmorrhoidal persons call for the assistance of the physician. The one is when the affection is accompanied with much pain; and of this

horseback be an admissible exercise, for persons subject to the hæmorrhoidal flux. The weight of evidence is against the practice, in as much as the disease has been oftentimes produced by such exercise, in subjects where it did not before exist; and greatly aggravated, in those where it did: whereas we know of no instance in which it has been cured by it.

there are two cases, according as the pain happens to attend the external or internal piles.

957. The pain of the external piles arises especially when a considerable protrusion of the rectum has happened; and when, continuing unreduced, it is strangled by the constriction of the sphincter; while at the same time no bleeding happens, to take off the swelling of the protruded portion of the intestine. Sometimes an inflammation supervenes, and greatly aggravates the pain. To relieve the pain in this case, emollient fomentations and poultices are sometimes of service; but a more effectual relief is to be obtained by applying leeches to the tumid parts.*

958. The other case in which hæmorrhoidal persons seek assistance, is that of excessive bleeding. Upon the opinion so generally received of this discharge being salutary, and from the observation, that upon the discharge occurring, persons have sometimes found relief from various disorders, the most part of persons liable to it are ready to let it go too far; and indeed the Stahlians will not allow it to be a disease, unless when it has actually gone to excess. I am, however, well persuaded, that this flux ought always to be cured as soon as possible.

959. When the disease occurs as a purely topical affection, there can be no doubt of the propriety of this

* A pleasant and useful remedy, for the external piles, *when they are much inflamed*, is the frequent application of fresh lard. This is greatly preferable, we think, to the use of warm fomentations, or poultices. But, under such circumstances, nothing is equal to the application of leeches; which, to be effectual, however, must be repeated as often as circumstances may require. The inflammation and tenderness being somewhat diminished, *but not before*, the unguentum saturninum, the unguentum è gallis, or the unguentum è pice, may be applied, as useful remedies. To the gall and lead ointments, a little laudanum, or finely powdered opium and camphor, may be added.

rule; and even when it has occurred as a critical discharge in the case of a particular disease, yet when this disease shall have been entirely cured and removed, the preventing any return of the hæmorrhois seems to be both safe and proper.

960. It is only when the disease arises from a plethoric state of the body, and from a stagnation of blood in the hypochondriac region, or when, though originally topical, the disease, by frequent repetition, has become habitual, and has thereby acquired a connection with the whole system, that any doubt can arise as to the safety of curing it entirely. Even in these cases, however, I apprehend it will be always proper to moderate the bleeding; lest by its continuance or repetition, the plethoric state of the body, and the particular determination of the blood into the hæmorrhoidal vessels be increased, and the recurrence of the disease, with all its inconveniencies and danger, be too much favoured.*

* It is not a little singular, that our author should take so much trouble to prove, what no one, we think, can for a moment doubt; that the hæmorrhoidal affection is a disease which ought to be cured. It is, in this respect, on a footing with epistaxis, hæmoptysis, and every other preternatural hæmorrhagy. It ought, as speedily as possible, to be removed; under such precautions, however, as may best secure the system from damage, in consequence of a long established habit. These precautions consist, in a low diet, moderate exercise, the use of purgatives, and an occasional diminution of the volume of blood, by means of venesection. They may further consist, in some powerful revolutionizing measure, such as, an entire change of life, a change of climate and country, or the use of mercury, pushed to the extent of a moderate but protracted ptyalism. These measures are not necessary, in recent cases of the hæmorrhoidal flux; but, only in such, as, from long continuance, have become habitual.

In the internal piles, when the discharge is excessive, an attempt should be made to check it by pressure. For this purpose, a very large bougie, has, with good effect, been introduced into the rec-

961. Further, even in the cases stated (960.) in so far as the plethoric state of the body, and the tendency to that state can be obviated and removed, this is always to be diligently attempted; and if it can be executed with success, the flux may be entirely suppressed.

962. The Stahlian opinion, that the hæmorrhoidal flux is only in excess when it occasions great debility, or a leucophlegmatia, is by no means just; and it appears to me, that the smallest approach towards *producing* either of these, should be considered as an excess, which ought to be prevented from going farther.

963. In all cases therefore of excess, or of any approach towards it, and particularly when the disease depends upon a prolapsus ani (950.), I am of opinion, that astringents, both internal and external, may be safely and properly employed; not indeed to induce an immediate and total suppression, but to moderate the hæmorrhagy, and by degrees to suppress it altogether, while at the

tum. Should this remedy fail, let a piece of sheep's or pig's gut, tied at the end, be introduced; into the other end, inject vinegar and water, or any other cold liquid, and, forcing it up, so as to make a strong and equable pressure, secure it in the part by a suitable bandage.

In the treatment of piles, whether external or internal, the drinks should be of a cooling and diluting nature; such as, simple water, lemonade, toast water, or molasses and water. Distilled and fermented liquors, are altogether inadmissible.

The diet ought to be such, as is calculated to produce but a small quantity of excrements, and those of a thin consistence. Ripe fruit, as already mentioned, and rye mush and molasses, answer this purpose exceedingly well. As a tonic and an astringent, in the bleeding piles, when such remedies are indicated, bark and alum are among the most useful.

When the hæmorrhoidal tumours become large and indurated, they must be removed by ligature or excision. When thus characterized, however, the disease passes more particularly into the province of surgery.

same time measures are taken for removing the necessity of its recurrence.

964. When the circumstances (945.) marking a connection between the hæmorrhoidal affection, and the state of the stomach, occur, the measures necessary are the same as in the case of atonic gout.

END OF THE FIRST VOLUME.

When the blood after cooling & concretings, shows a portion of glutine separated from the rest of the mass & lying on surface of the crassamentum, we infer that inflammatory exist &c. See 237.

Fomites, are substances imbued with an active and infectious matter, absorbed from the human body

See 82

Every motion of the body is more dissimilant in proportion as the body is weaker

See 130

WZ270 C967f 1816 v.1 c.1